在使用缝纫机之前请阅读本使用说明书。
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ZOJE
中捷缝纫机
SEWING MACHINE

高速电子套结一体机 ZJ1900D/1903D-3-04-V4
Computer-controlled high speed lockstitch bar tacking machine series

使用说明书
OPERATION MANUAL
零件手册
PARTS BOOK

浙江中捷缝纫科技有限公司
ZOJE SEWING MACHINE CO., LTD.

CONTENTS

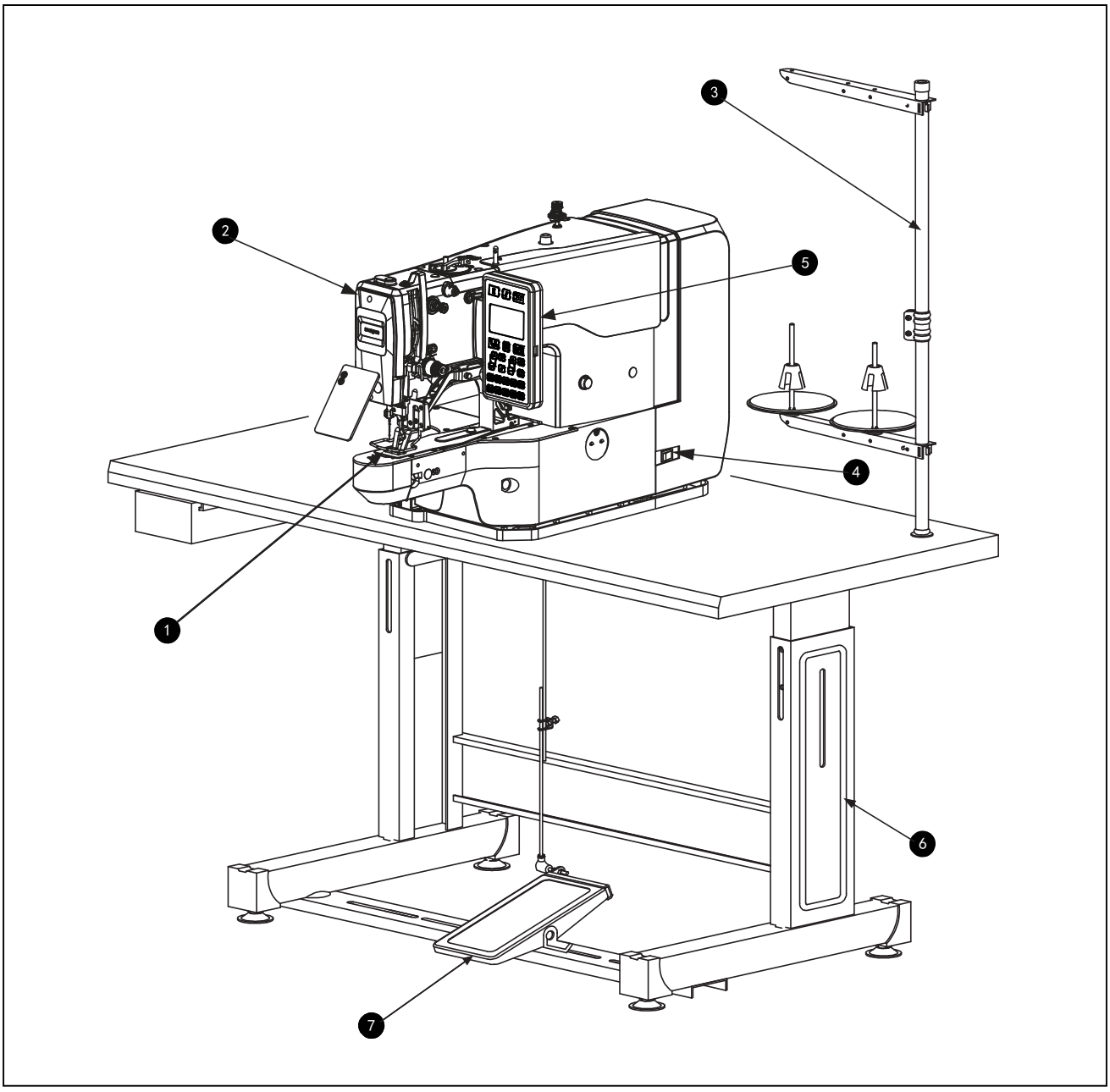
Ⅰ. EXPLANATION OF COMPUTER-CONTROLLED HIGH-SPEED LOCKSTITCH BAR TACKING MACHINE

[1] SPECIFICATIONS

1.	Sewing area：	X（lateral）direction 40mm， Y（longitudinal）direction30mm
2.	Max. Sewing speed：	3200rpm (when sewing pitches are less than 5mm in X-direction and 3.5mm in Y-direction)
3.	Stitch length：	0.1-10mm (adjustable in 0.1mm step)
4.	Feed motion of work clamp foot：	Intermittent feed (2-shaft drive by stepping motor)
5.	Needle bar stroke：	41.2mm
6.	Needle：	DP×5、DP×17
7.	Lift of work clamp foot：	13mm (standard)　Max.17mm
8.	Shuttle：	standard semi-rotary hook （oil wick lubrication）
9.	lubricating：	oil 10# (supplied by oiler)
10.	Date recording：	EPROM
11.	Enlarging/Reducing facility：	20% to 200% (1% step) in X-direction and Y-direction　respectively
12.	Enlarging/Reducing：	Patten enlargement/reduction can be done by increasing/decreasing the stitch length
13.	Max. Sewing speed limitation：	400 to 3500rpm（100rpm）
14.	Pattern selection：	Specifying pattern No. type（1 to 200）
15.	Bobbin thread counter：	UP/DOWN type（1-999999）
16.	Sewing machine motor：	550W Servo motor
17.	Dimensions：	W：1200mm　L：540mm　H：1100mm
18.	Weight：	Machine 57.4Kg
19.	Power consumption：	0.125KW
20.	Operating temperature range：	5℃ to 35℃
21.	Operating humidity range：	35% to 85%（No dew condensation）
22.	Line voltage：	Rated voltage ±10%　50-60Hz

[2] CONFIGURATION

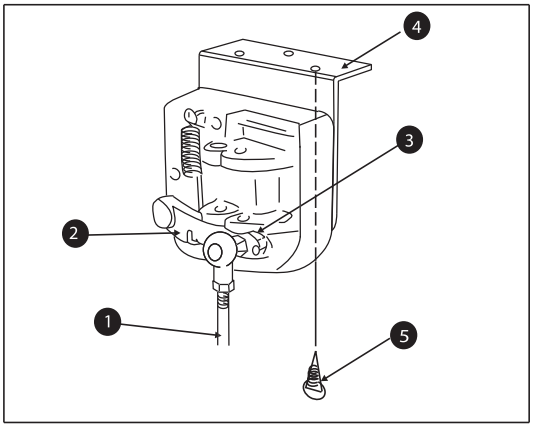
1. Names of main unit



(1). Work clamp feet
(2). Machine head
(3). Thread stand
(4). Power switch
(5). Operation panel
(6). Frame
(7). Pedal switch

[3] INSTALLATION

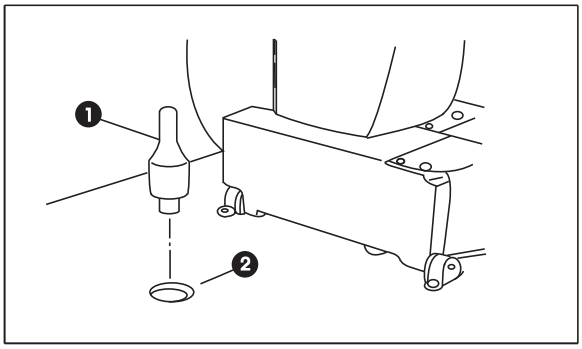
1. Attaching the connecting rod



(1) FIX connecting rod① to installing hole B of pedal lever ② with nut③. When connecting rod ①is installed in installing hole A, the depressing stroke go the pedal is increased.

(2) Secure the pedal④ with a wooden screw⑤ in place.

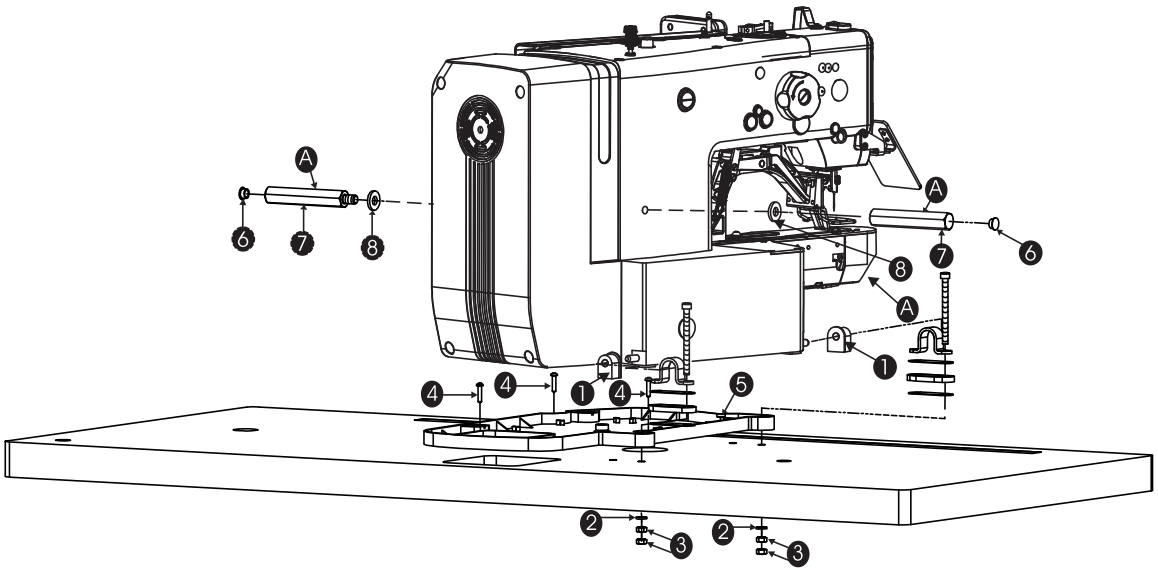
2. Installing the head support rod



Drive head support rod① in hole② in the machine table.

3. Installation of the swing machine head

WARNING : To prevent possible accidents caused by the full of the sewing machine, perform the work by two persons or more when the machine is



Caution

1、When handling sewing machine, please hold A Department

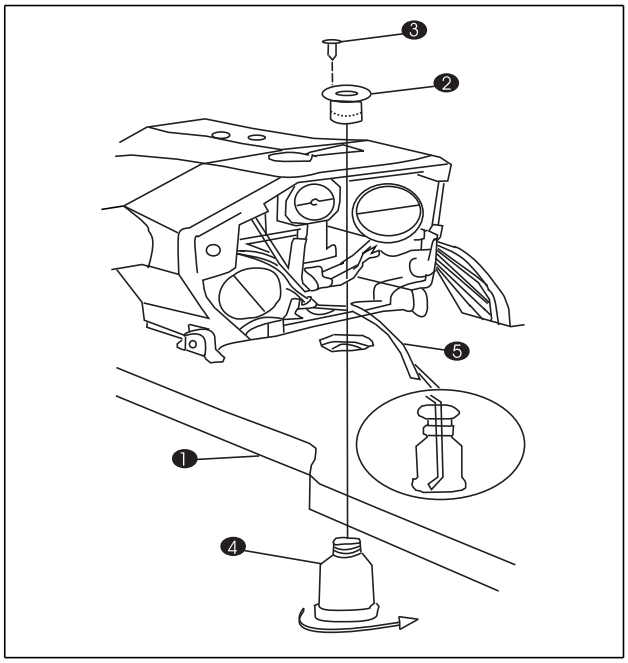
2、After handling, please remove the handle⑦ and rubber pad⑧, fitted with rubber plug⑥

(1). The oil plate⑤ with wood screws④ fixed in the corresponding position of the platen.

(2). Fit hinge rubber ① to the hinge shaft, and fix the swing machine.

(3). The flat pad②, nut③, followed by a fixed, pay attention to the locking nut③ force, if twisted too tightly, then the shock result is not satisfactory.

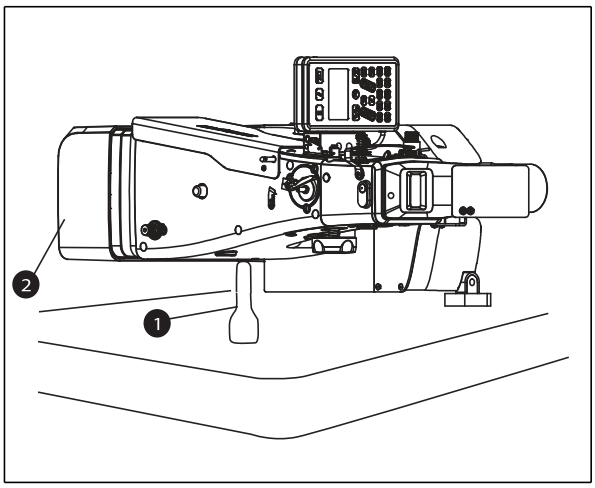
4. Installing the drain receiver



Fix drain receiver ② in the installing hole of table ① with four setscrews③. Screw in drain bin ④ to drain receiver②. Insert sewing machine drain pipe⑤ into drain bin ④ .

Insert drain pipe⑤ until it will go on further so that it does not come off drain bin ④ when tilting the machine head

5. Tilting the sewing machine head



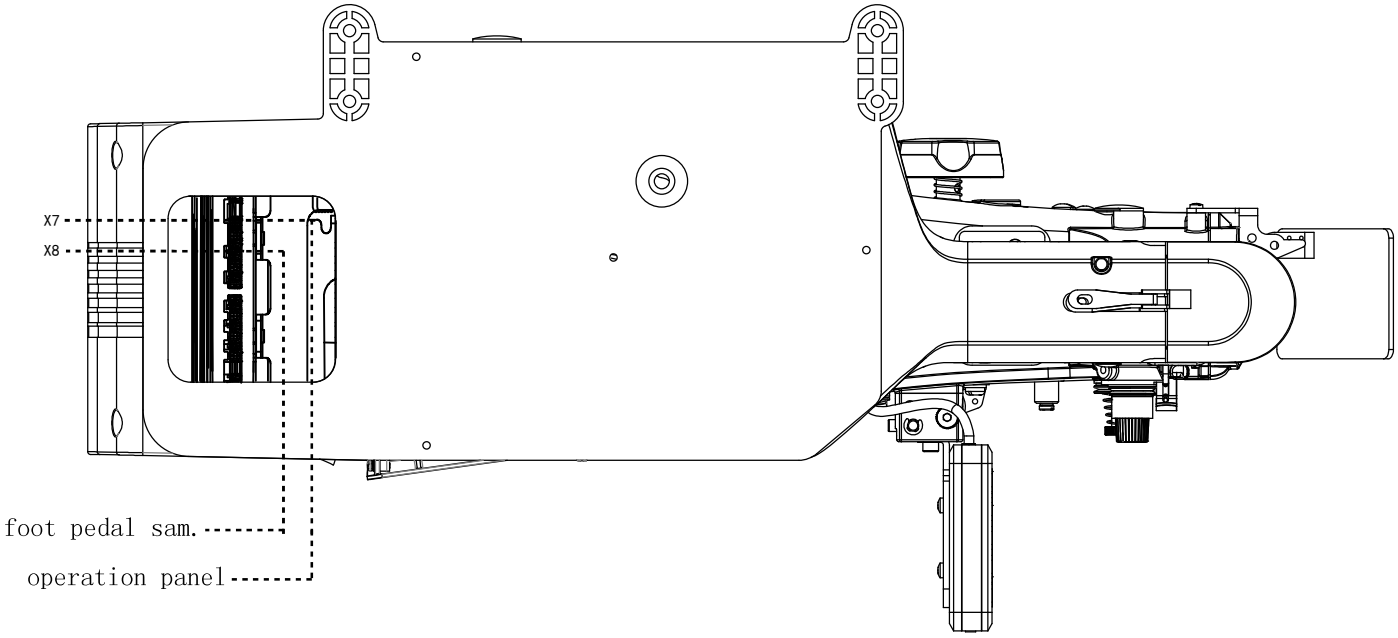
turn head ② gently down , and leaning the head on the head supporting bar at ①.

1. Before tilting the sewing machine head, make sure that head support rod ① is attached to the machine table;

2. When raising the sewing machine head, do not raise it while holding motor cover ②.It will be the cause of breakage of motor cover②.

3. Be sure to tilt the sewing machine head on a flat place to prevent it from falling.

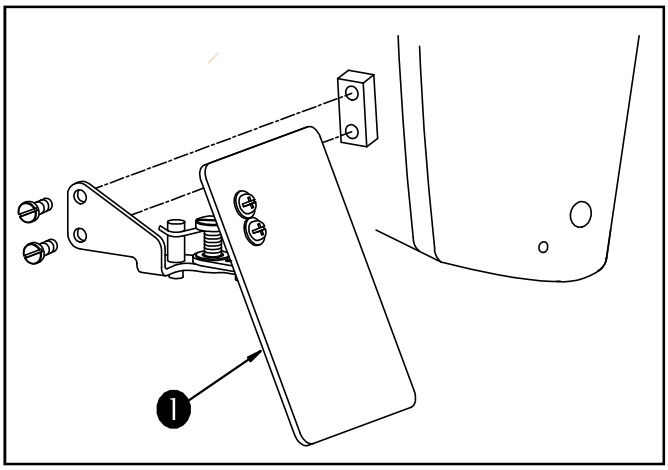
6 Connecting the operation panel



Please let the operation panel line connect with the electronic control box according to online identity, make sure the connection is correct.

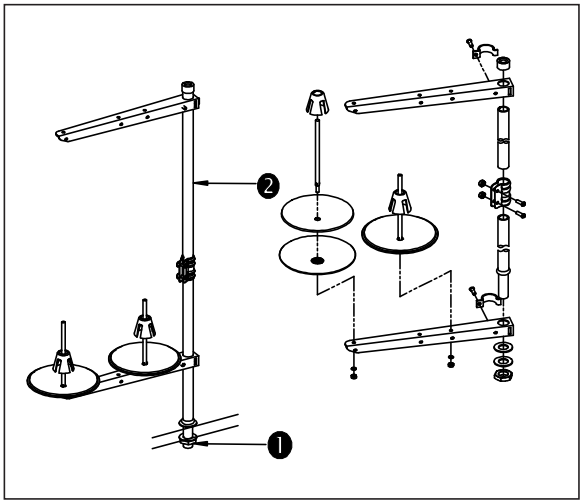
7. Installing the eye protection cover

WARNING : **Be sure to attach this cover to protect the eyes from the disperse of needle breakage.**



The eye shield in the accessories box should been installed in the head on the left.

8. Installing the thread stand

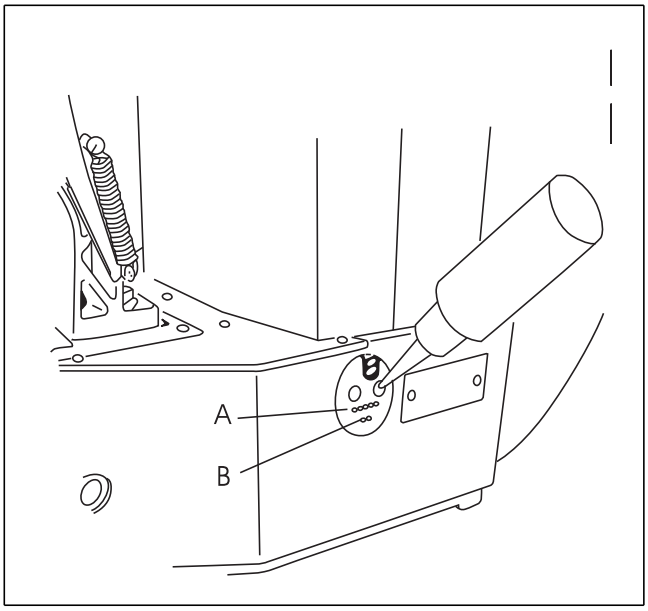


The line frame in the accessory box should be installed in Table.

[4] OPERATION OF THE SEWING MACHINE

1. Lubrication

WARNING : Turn of the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine



Check that the place between lower line Band upper line A is filled with oil . Fill there with oil using the oiler supplied with the machine as accessories when oil is short.

*The oil tank which is filled with oil is only for lubricating to the hook portion. It is possible to reduce the oil amount when the number of rotation used is low and the oil amount in the hook portion is excessive.

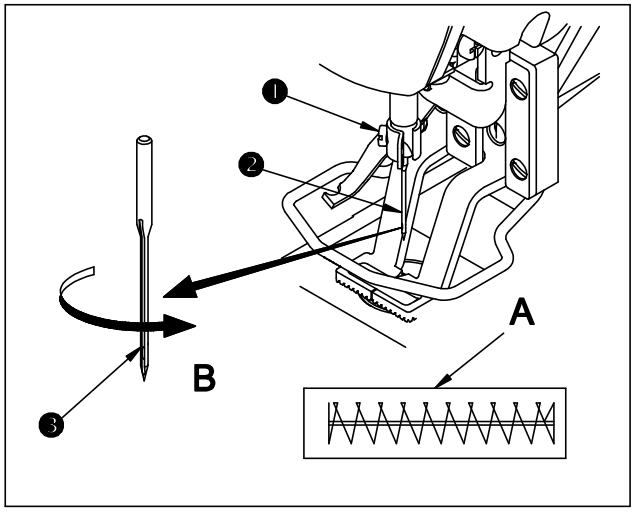
(Refer to 7.Adjusting the amount of oil suppled to the hook of[5] MAINTENANCE)

1. DO not lubricate to the places other than the oil tank and the hook of Caution 2 below. Trouble of components will be caused.

2. When using the sewing machine for the first time or after an extended period of disuse use the machine after lubricating a small amount of oil to the hook portion.(Refer to2.Adjusting the needle-to-shuttle relation of [7]MAINTENANCE

2. Attaching the needle

WARNING : Turn of the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine

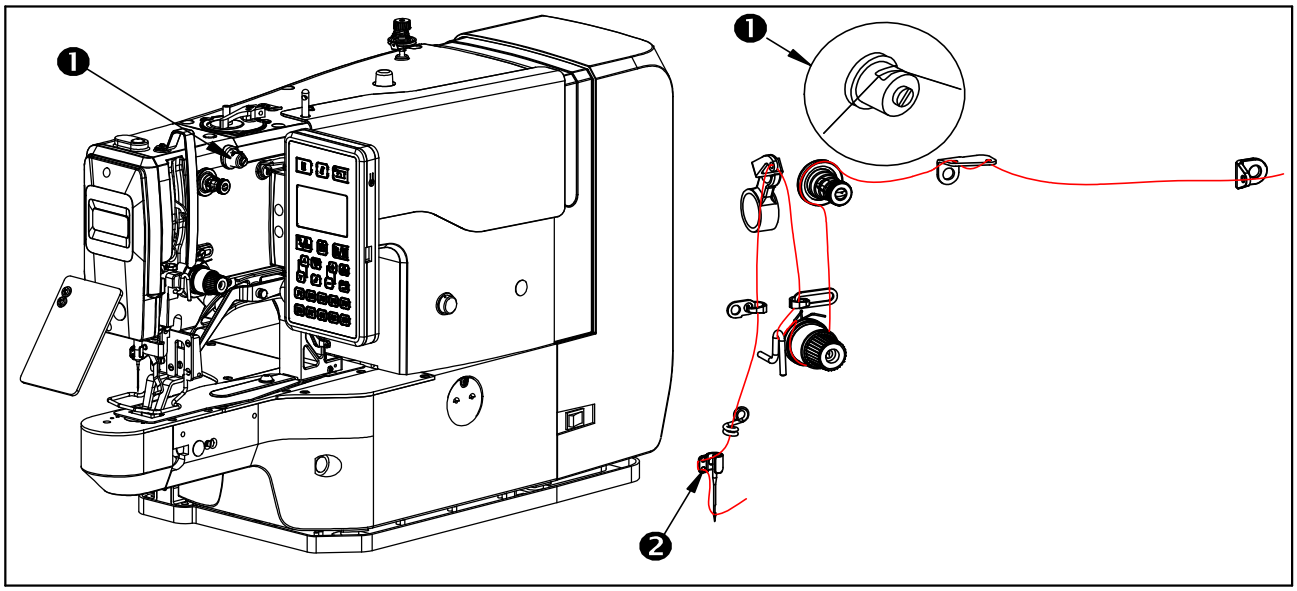


Loosen setscrew① and hold needle② with the long groove facing toward you. Then fully insert it into the hole in the needle bar, and tighten setscrew①.

If the stitches are made as shown in "A", attach the needle facing to the direction B" to a small extent.

3. Threading the machine head

WARNING : Turn of the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine



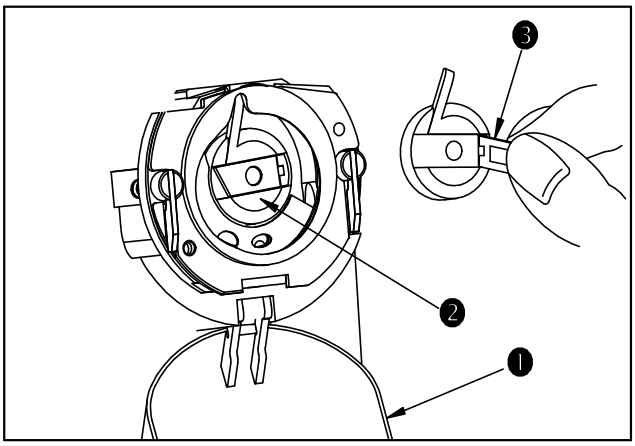
Pull out the thread by approximately 4cm from the needle after threading through the needle.

1.When the silicon oil is used, thread through thread guide for silicon①。

2.For thick thread, pass the thread through one hole only of needle bar thread guide②

4. Installing and removing the bobbin case

WARNING : **Turn of the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.**



⑴.Open hook cover①。

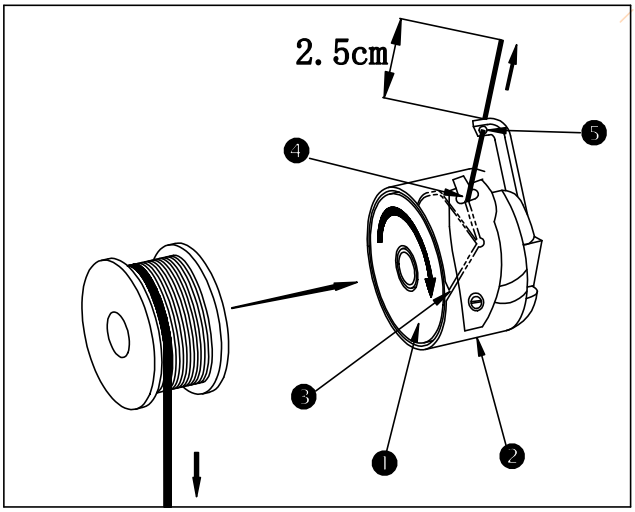
⑵.Raise latch③ of bobbin case②， and remove the bobbin case.。

⑶.When installing the bobbin case, fully insert it into the shuttle shaft, and close the latch.

If it is not fully inserted, bobbin case ② may slip off during sewing.

5. Installing the bobbin

WARNING : **Turn of the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine**



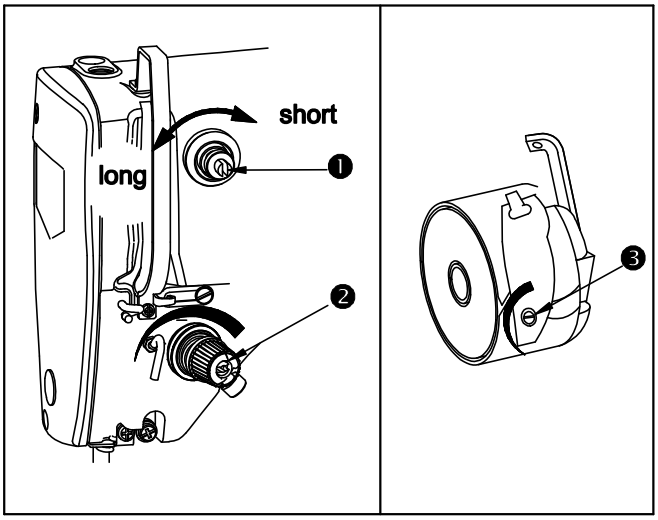
⑴. Set the bobbin ① into bobbin case ②in the direction shown in the figure.

⑵. Pass the thread through thread slit ③of bobbin case②， and pull the thread as it is. By so doing, the thread will pass under the tension spring and be pulled out from thread hole④.

⑶. Pass the thread through thread hole ⑤of the horn section, and pull out the thread by 2.5cm from the thread hole.

If the bobbin is installed in the bobbin case orienting the reverse direction, the bobbin thread pulling out will result in an inconsistent state.

6. Adjusting the thread tension



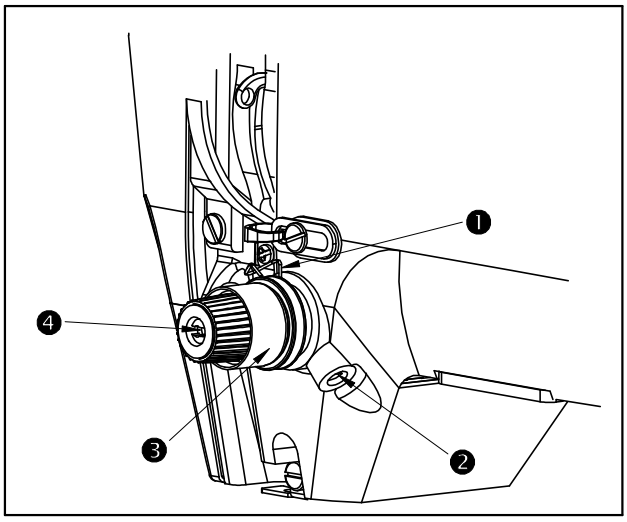
If thread tension controller No.1①is turn clockwise, the length of remaining thread on the needle after thread trimming will be shorter. If it turned counterclockwise, the length will be longer.

Shorten the length to an extent that the thread is not slipped off.

with ② to adjust the upper thread tension,

with ③ to adjust the bottom line tension.

7. Adjusting the thread take-up spring



The standard stroke of thread take-up spring ①is 8 to 10 mm, and the pressure at the start is 0.1 to 0.3N.

⑴.Adjusting the stroke

Loosen setscrew②，and turn thread tension asm. ③.Turning it clockwise will increase the moving amount and the thread drawing amount will increase.

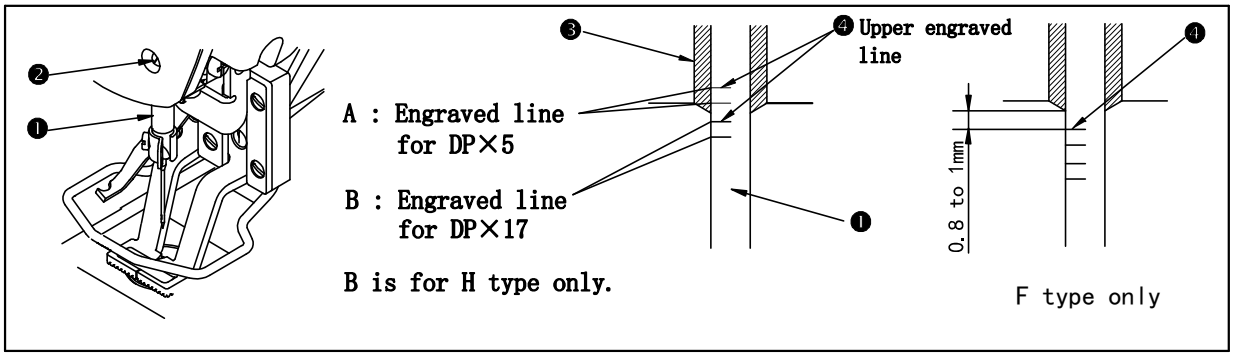
⑵.Adjusting the pressure

To change the pressure of the thread take-up spring, insert a thin screwdriver into the slot of thread tension post ② while screw ④ is tightened, and turn it. Turning it clockwise will increase the pressure of the thread take-up spring. Turning it counterclockwise will decrease the pressure.

[5] MAINTENANCE

1. Adjusting the height of the needle bar

WARNING : Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.

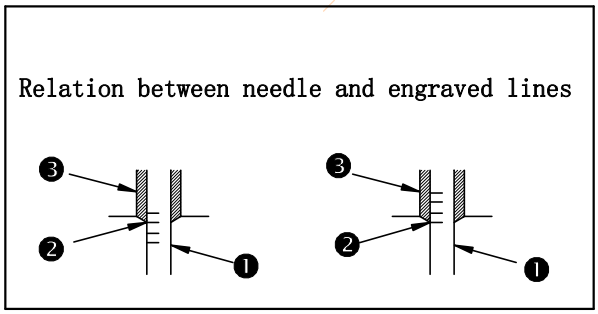


Bring needle bar ① to the lowest position of its stroke. Loosen needle bar connection screw ② and adjust so that upper marker line④ engraved on the needle bar aligns with the bottom end of needle bar bushing, lower ③. For F type only, adjust the needle bar to the position where it is lowered by 0.8 mm to 1 mm from the center of upper marker line ④ engraved on the needle bar.

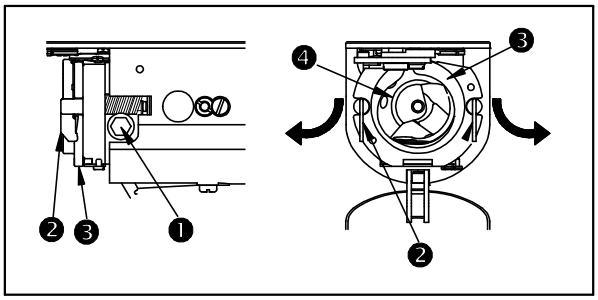
Caution: After the adjustment, make sure that there is no uneven torque. When stitch skipping occurs in accordance with the sewing conditions, adjust the height of the needle bar so as to lower it by 0.5 to 1 mm from the needle bar engraved line ④ .

2. Adjusting the needle-to-shuttle relation

WARNING : Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.

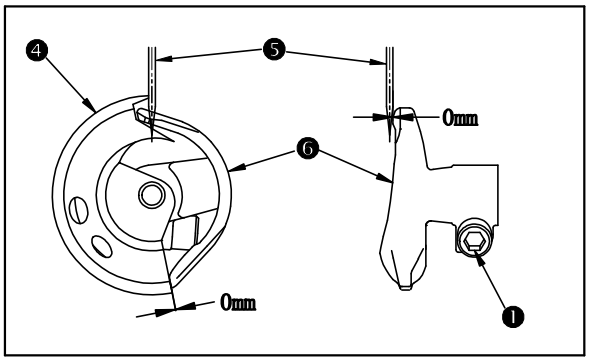


(1). Turn the hand wheel by hand. When needle bar① has gone up, adjust so that lower marker line② engraved on the needle bar aligns with the bottom end of the needle bar bushing ③ , lower.

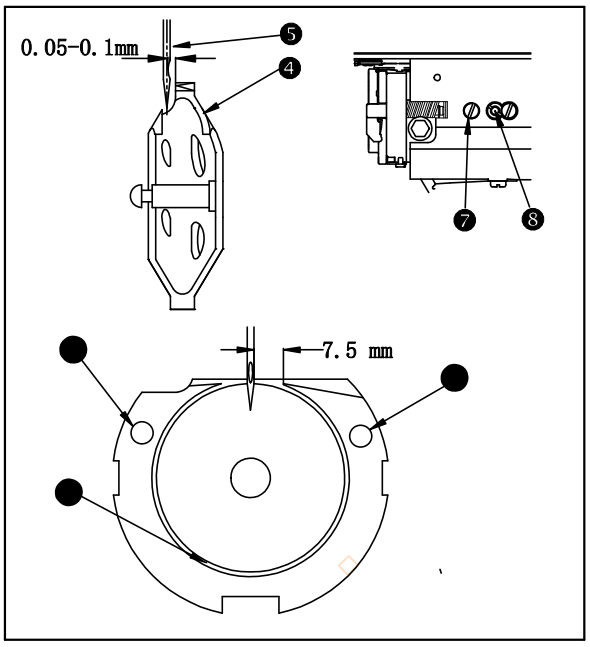


(2). Loosen setscrew ①in the driver. Open inner hook pressers ② to the right and left, and remove inner hook presser ③ .

At this time, be careful not to let inner hook ④come off and fall.



(3). Adjust so that the blade point of inner hook ④ aligns with the center of needle ⑤, and that a clearance of 0 mm is provided between the front end of the driver and the needle as the front end face of driver ⑥receives the needle to prevent the needle from being bent. Then tighten setscrew ①of



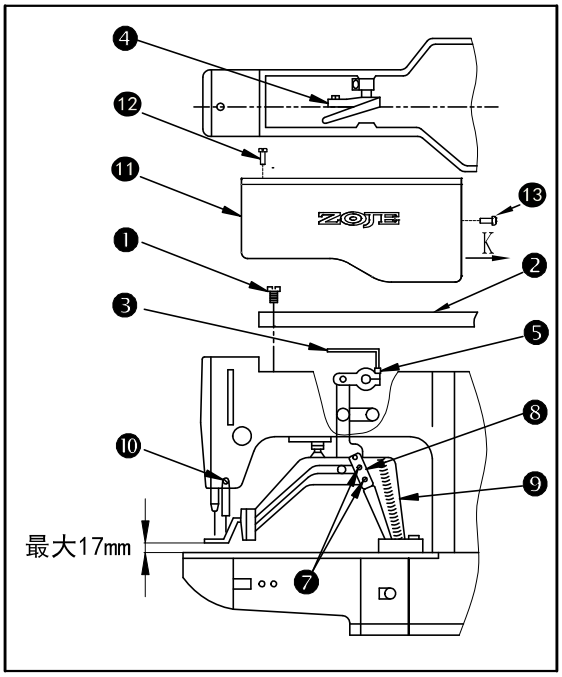
(4). Loosen setscrew ⑦of the shuttle, and adjust the longitudinal position of the shuttle. To do this adjustment, turn shuttle race adjusting shaft ⑧clockwise or counterclockwise to provide a 0.05 to 0.1 mm clearance between needle ⑤ and the blade point of inner hook ④ .

(5). After adjusting the longitudinal position of the shuttle, further adjust to provide a 7.5 mm clearance between the needle and the shuttle by adjusting the rotating direction. Then tighten setscrew ⑦ of the shuttle.

Apply a small amount of oil to race section⑨and oil wick⑩ , and use the sewing machine after an extended period of disuse or cleaning the periphery of hook portion.

3. Adjusting the lift of the work clamp foot

WARNING : **Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.**

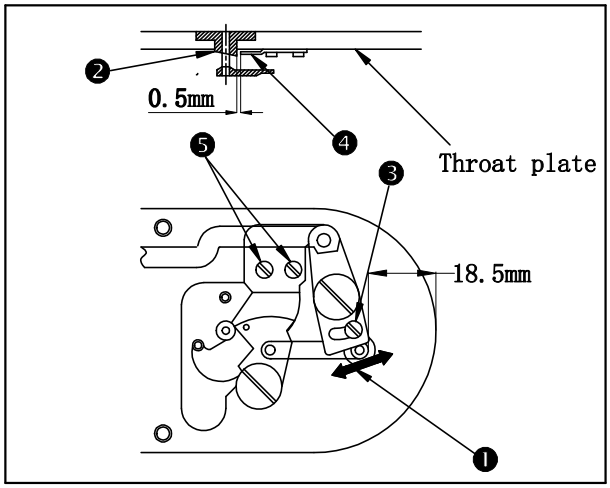


(1).With the machine in stop mode, remove two set screws ⑫、⑬ of the right decorative panel⑪,then remove the decorative panel⑪ along the K direction.
(2). Remove six set screws ① of the top cover, and take off top cover.
(3). Apply L-shaped wrench ③to socket bolt ⑤of clamp ④ , and loosen the socket bolt.
(4). Push down L-shaped wrench ③ to increase the lift of the work clamp foot, or pull it up to decrease the lift.
(5). After the adjustment, securely tighten socket bolt⑤ .
(6). If the right and left work clamp feet are not leveled, loosen fixing screw ⑦ and adjust the position of the work clamp foot lever support plate ⑧to level them.

At this time, be careful not to cause work clamp foot lever support plate ⑧to interfere with feed bracket⑨ .
If the work clamp foot lever support plate interferes with the wiper, readjust the height of the wiper using setscrew ⑩ in the wiper installing base.

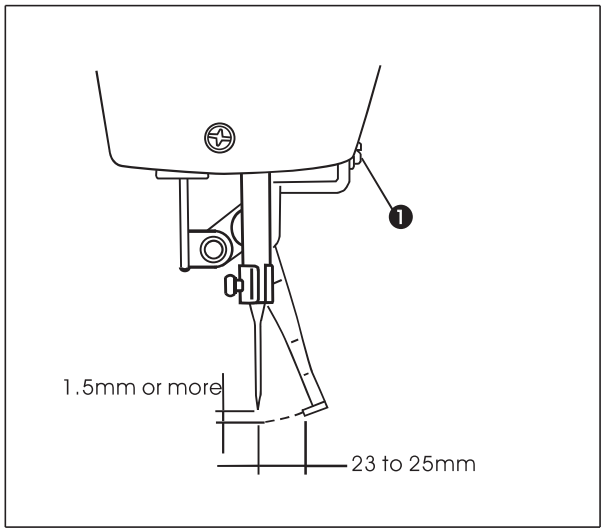
4. The moving knife and counter knife

WARNING : **Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.**



(1). Loosen adjusting screw ③so that a clearance of 18.5 mm is provided between the front end of the throat plate and the top end of thread trimmer lever, small ① . To adjust, move the moving knife in the direction of arrow.
(2).Loosen setscrew⑤ so that a clearance of 0.5 mm is provided between needle hole guide ② and counter knife ④. To adjust, move the counter knife.

5. Adjusting the wipper



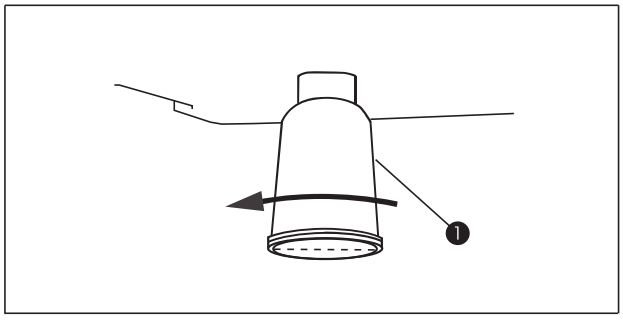
Loosen screw ①to adjust so that a clearance of1.5 mm or more is provided between the wiper and the needle.

At this time, the standard of the distance between the wiper and the needle is 23 to 25 mm. By adjusting the distance wide, the work clamp foot can prevent stepping on needle thread when it comes down.

Especially when the thin needle is used, adjust the distance wide to such an extent of 23 mm.

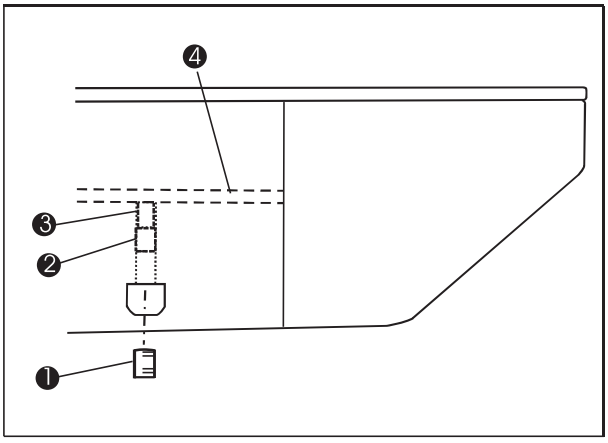
※The position of the needle is when the sewing machine has stopped after the sewing finished.

6. Draining waste oil



When polyethylene oiler ① becomes filled with oil, remove polyethylene oiler ① and drain the oil.

7. Adjusting the mount of oil supplied to the hook



1) Loosen setscrew ① and remove setscrew ①.
2) When screwing in adjustment screw② , the amount of oil of oil pipe, left ④can be reduced.
3) After the adjustment, screw in setscrew ① and fix it.

1. The state of standard delivery is the position where②is lightly screwed in and returned by 4 turns.

2. When reducing the amount of oil, do not screw in the screw at once. Observe the state for approximately half a day at the position where②is screwed in and returned by2turns. If reducing is excessive, worn-out of the hook will result.

8. Replenishing the designated places with grease

When the sewing machine has been used for a certain number of times of sewing, error code No. E221 is displayed on the operation panel at the time of turning ON the power. This display informs the operator of the time of replenishing the designated places with oil. Be sure to replenish the places with the oil below. Then call the memory switch No. 245 and set it to "0" with the RESET key. Even after the display of the error No. E221, when the RESET key is pressed, the error is released, and the sewing machine can be continuously used. Afterwards, however, the error No. E221 is displayed every time the power is turned ON.

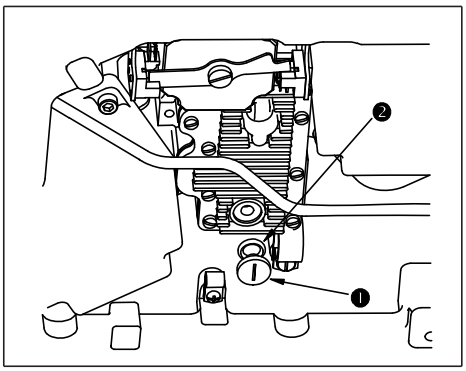
In addition, when the sewing machine is used further for a certain period of time after the display of error No. E220, the error No. E221 is displayed and the sewing machine fails to operate since the error cannot be released even when the RESET key is pressed.

When the error No. E221 is displayed, be sure to replenish the designated places below with oil. Then start up the memory switch and set No. 245 to "0" with the RESET key.

After replenishing the places with oil, the error No. E220 or No. E221 is displayed again unless the memory switch No. 245 is changed to "0".

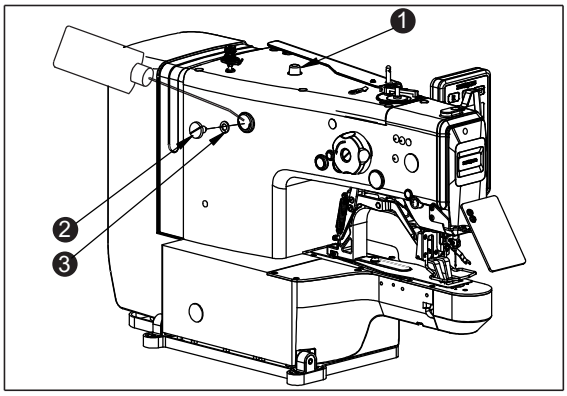
WARNING : Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.

(1) . Outflow the residual oil in gearbox



1) Tilt the machine, remove the screws ① and seal②.
2) put back sewing machine, outflow the residual oil in the gearbox.
3) tilt the machine again, put back the seals ②and screws ①, then put sewing machine back to the position.

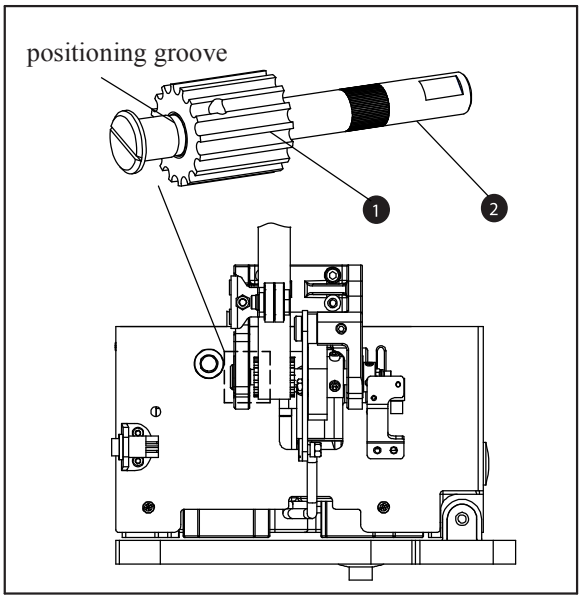
(2) . Lubricate the upper gearbox



1) When through the oil window ①, you can not find oil outlet obviously, or it is without oil outlet, you should add the oil into the wheel gear box.

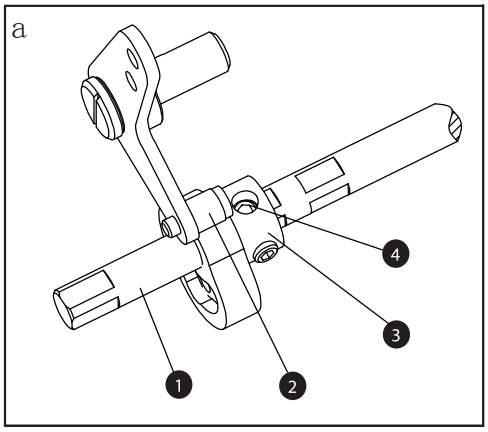
2) Turn off the machine, you can take down the screw ② and the rubber washer ③ ,when it is without oil outlet, please add 100ml 10# white oil; when it is not oil outlet obviously, please add 50-70ml.Please install back ② and ③ parts, turn on the machine and check whether it is happened to oil outlet or not.

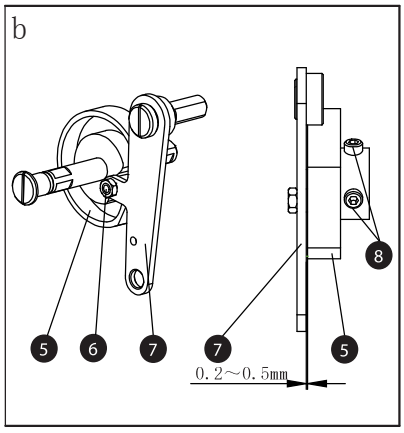
9. Adjusting the position of the shear- driving pulley

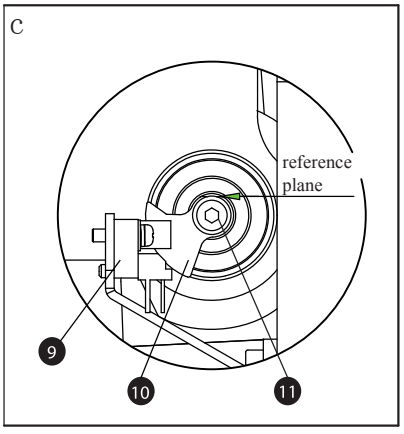


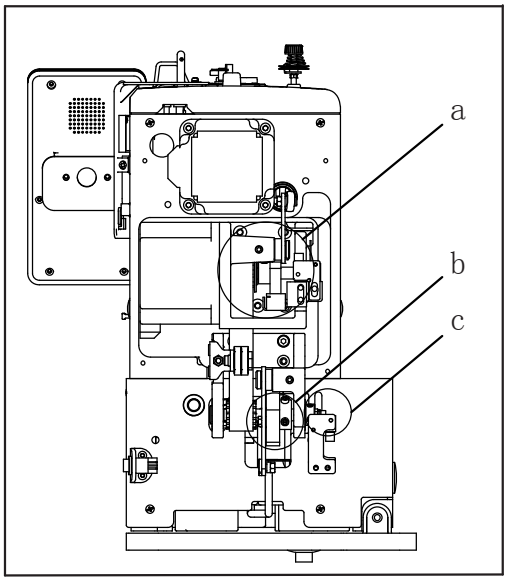
Keep the left end of the shear-driving pulley ① aligned with the right end of the positioning groove that in the shear-driving shaft ②, Then tighten the screw on the shear-driving pulley.

10. Position the wire-triming safty sensor and the wire-trimming cam









(1) Adjusting the wire-trimmin cam

1) Rotate the shaft of lifting motor ① to turn the lifting cam ③ to the lowest point of contact with the lift roller ② .The screw ④ is facing vertically upward ,as shown in the figure a.

2) Adjusting the roller ⑥ to the bottom of the the groove of the trimming cam ⑤ .

3) Tighten two screws ⑧ of the trimming cam after adjusting the distance between the trimming crank ⑦ and the end of trimmin -g cam ⑤ to be about 0.2-0.5mm,as shown in the figure b.

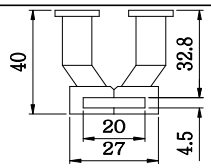
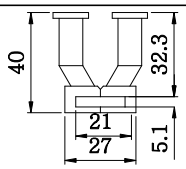
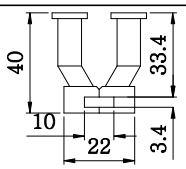
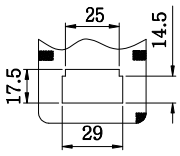
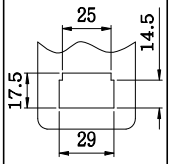
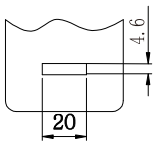
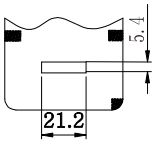
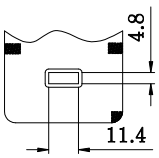
(2)**Adjusting the wire-trimming safty sensor**

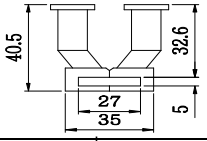
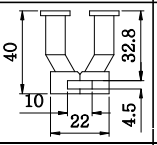
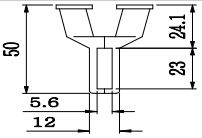
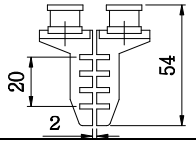
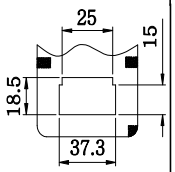
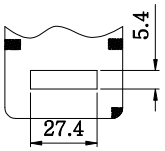
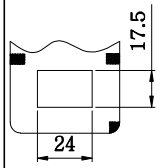
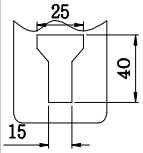
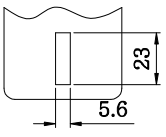
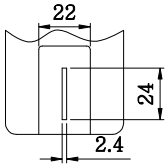
(1)Rotate the lift motor shaft to turn the lift cam to the lowest point of contact with the lift roller,this moment the screw is facing directly above,as shown in the figure a.

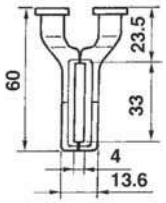
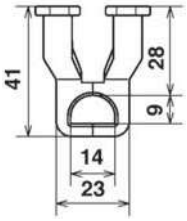
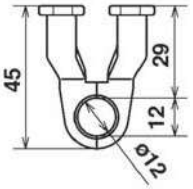
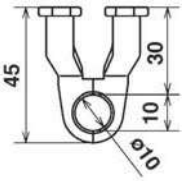
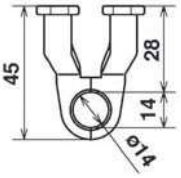
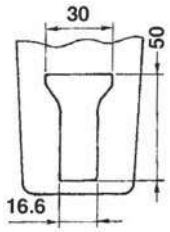
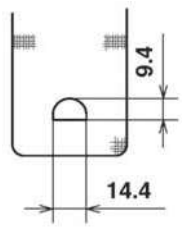
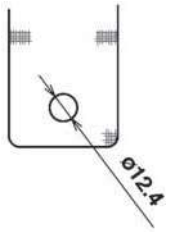
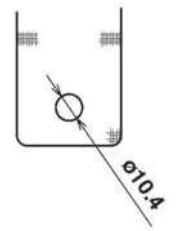
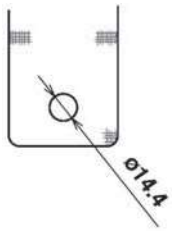
(2)Positioning reference plane of the trimming safety sensor chip horizontally upwards,and placing the trimming safety sensor chip in the trimming safety sensor,as shown in the figure c,then locking the screw to fix the trimming safety sensor.

(3)When the foot pedal is pressed for the first time,presser foot is pressed down, and the trimming safety sensor chip does not enter the trimming safety sensor. When the foot pedal is pressed for the second time, the machine starts to sew ,and if there is an alarm that the machine is trimming abnormality"E-018",Please loosen the screw and adjust the position of the trimming sensor chip in the clockwise direction.

[6]. Table of the standard clamp foot

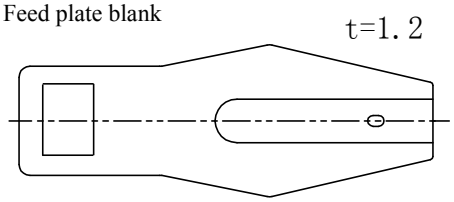
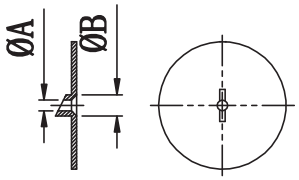
	1	2	3	4	5
Work clamp foot	Left：10011508 Right：10011505			10011687、10011691	10011758、10011759
					
Feed plate	10011565	10012300	10012279	10011751	10011755
	With knurl	Without knurl	Without knurl	With knurl	With knurl
					
Sewing specification	S	F	F	H	M
Finer guard	10011556(S、M、F)、10011695（H）				
Remarks	Standard accessory for S type machine head.	Supplied with F type machine head. (Depends on the destination)		Optional	Standard accessory for M (knit goods) type machine head.

	6	7	8	9	10	11
Work clamp foot	10012349(L) 10012342(R)		10012339(L) 10012346(R)	10012341(L) 10012348(R)		10026244(L) 10026245(R)
						
Feed plate	10012277	10012302	10012286	10012296	10012301	10026246
	With knurl	With knurl	With knurl	Without knurl	Without knurl	Without knurl
						
Sewing specification	S	H/W	S	F	F	F
Finer guard	10011556(S、M、F)、10011695（H、W）					
Remarks	Optional	Standard accessory for H type(heavy-weight material) machine head.	Optional	Accessory part for F(foundation)type.(Depends on the destination)		Optional

	12	13	14	15	16
Work clamp foot	10026247(L) 10026248(R)	10026250(L) 10026251(R)	10012344(L) 10012345(R)	10026253(L) 10026254(R)	10026256(L) 10026257(R)
					
Feed plate	10026249	10026252	10012338	10026255	10026258
	Without knurl	Without knurl	Without knurl	Without knurl	Without knurl
					
Sewing specification	F	S	S	S	S
Finger guard	10011556				
Remarks	Optional	Optional	Optional	Optional	Optional

※Install a finger suitable for each work clamp foot when replacing the work clamp foot.

[7] Table of the optional parts

Name of Parts	Type	Part No.	Remarks
Feed plate blank 	With knurl / processed Sewing area lengthwise 20 X crosswise 40	10012303	
	With knurl / processed Sewing area lengthwise 30 X crosswise 40	10014401	
Needle hole guide 	A=1.9 B=2.8 Without relief slit	10047532	Standard type
	A=1.6 B=2.0 Without relief slit	10011757	F and M types
	A=2.3 B=4.0 Without relief slit	10004727	H and W types
	A=3 B=7 Without relief slit	10007281	For net machine
	A=1.6 B=2.6 With relief slit	10004646	Selective spare part

Ⅱ.EXPLANATION OF THE COMPUTER-CONTROLLED HIGH SPEED LOCKSTITCH BUTTON SEWING MACHINE

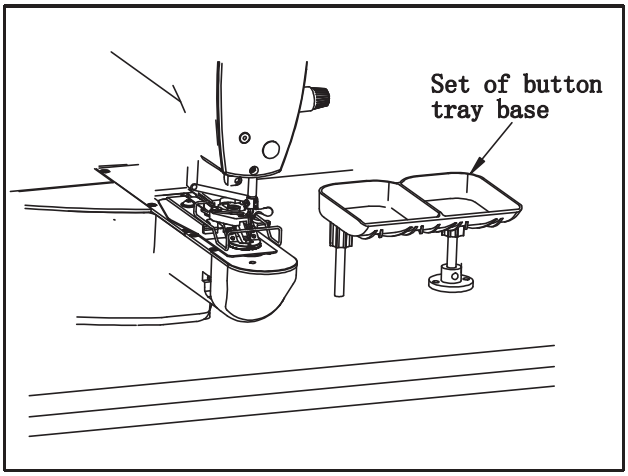
[1] Specifications

Different specifications from those of the bartacking machine only are described.

1) Sewing speed ..... Max. 2700rpm
2) Needle ..... DPx17 #14
3) Lifting method of the work clamp foot..... Stepping motor
4) Lift of the work clamp foot ..... Max. 13mm
5) Number of standard patterns .....50 patterns
6) Wiper method ..... Interlocked with work clamp foot lifter driven by stepping motor

[2] Installation of the sewing machine and preparation of the operation

WARNING : Be sure to perform the work with two persons or more when moving the sewing machine



(1). Installation of the sewing machine head is same as that of the bartacking machine.
Refer to the instruction manual for the bartacking machine.

(2). Install a set of the button tray base to a convenient place for the work as the set is included in the accessories

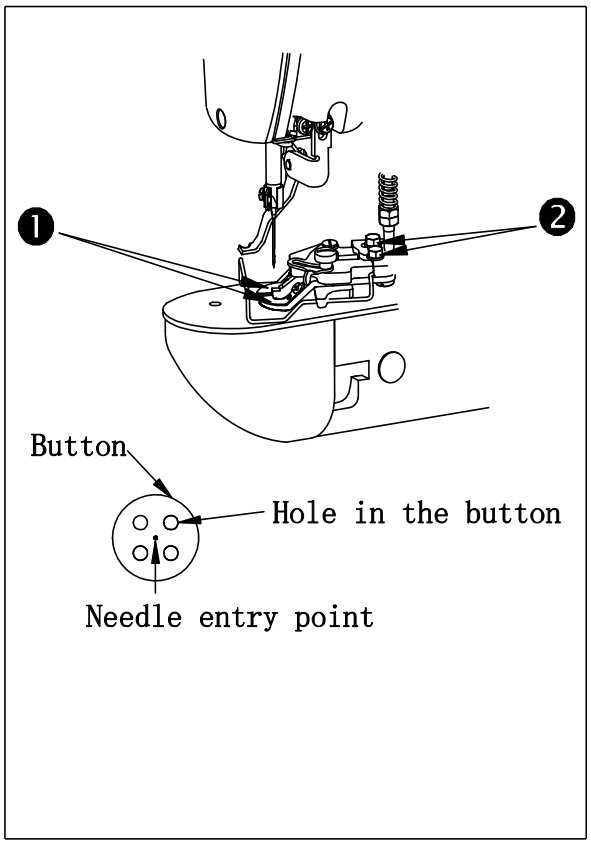
Caution: Make sure before operation that the needle does not strike against the button hole .

[3] Needle and thread

Needle	Needle thread	Bobbin thread
DPx17 #14	#60	#80
	#60	#60
	#50	#60
	#40	#60

Needle and thread will vary in accordance with the sewing conditions. when using the needle and the thread, select them referring to the left table. Cotton thread and polyester spun thread are recommended.

[4] Position of the button clamp jaw lever



1).Place a button in button clamp jaw levers ①.

2). With sewing LED goes off ,press key in the operation panel,then press key to make machine find the zero position.

3). Turn the hand pulley and check that the center of the needle enters the center of the button.

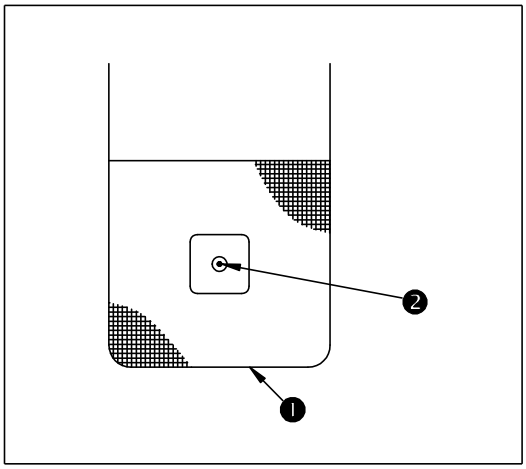
4). If the center of the needle is not located in the center of the button, loosen screws ② in the button clamp jaw lever base to adjust so that the center of the needle enters the center of the button.

5). After the adjustment, perform the confirmation of the pattern shape and make sure that the needle surely has entered the button hole.

WARNING: When change of the shape of button , change of the sewing pattern or enlargement/reduction of the sewing width is performed, make sure the needle entry point. If the needle extends outside the button hole or the sewing pattern extends outside the button clamp unit, the needle interferes with the button hole or the button clamp unit, resulting in the danger of the needle breakage or the like.

〔5〕Adjusting the feed plate

WARNING: When change of the shape of the button, change of the sewing pattern or enlargement/reduction of the sewing width is performed, make sure of the shape of the sewing pattern. If the feed plate interferes with the needle hole guide, it will result in the danger of the needle breakage or the like. Also, if the pedal is depressed during the adjustment, the button clamp unit will go up or come down. So, be careful.

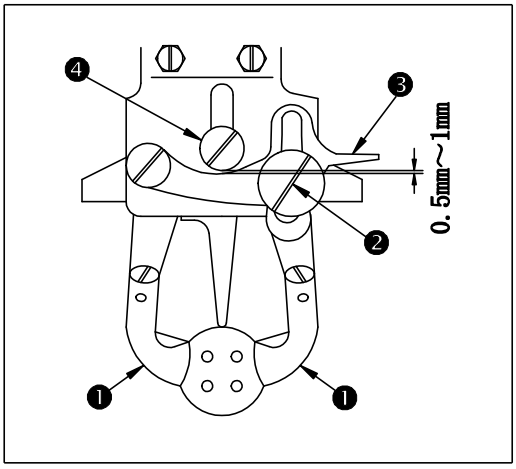


1) .With sewing LED goes off ,press key in the operation panel,then press key to make machine find the zero position.

2). adjust the feed plate ①, so the needle hole guide ②comes to the center of the recessed part of feed plate①H.

〔6〕Adjusting the open angle of the button clamp jaw lever

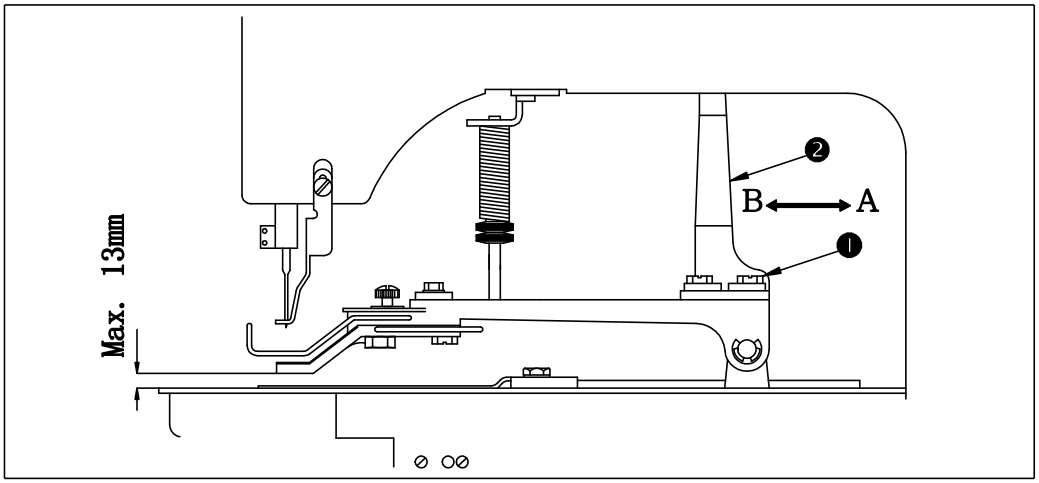
WARNING : Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.



Bring the machine to its stop-motion state. Then lift button clamp ①. Loosen screw ② in the button clamp jaw lever and adjust so that a clearance of 0.5 to 1mm is provided between button clamp jaw lever ③and hinge screw ④when placing a button in between button clamps ①. Then tighten screw ②in the button clamp jaw lever.

[7]Adjusting the lifting amount of the button clamp

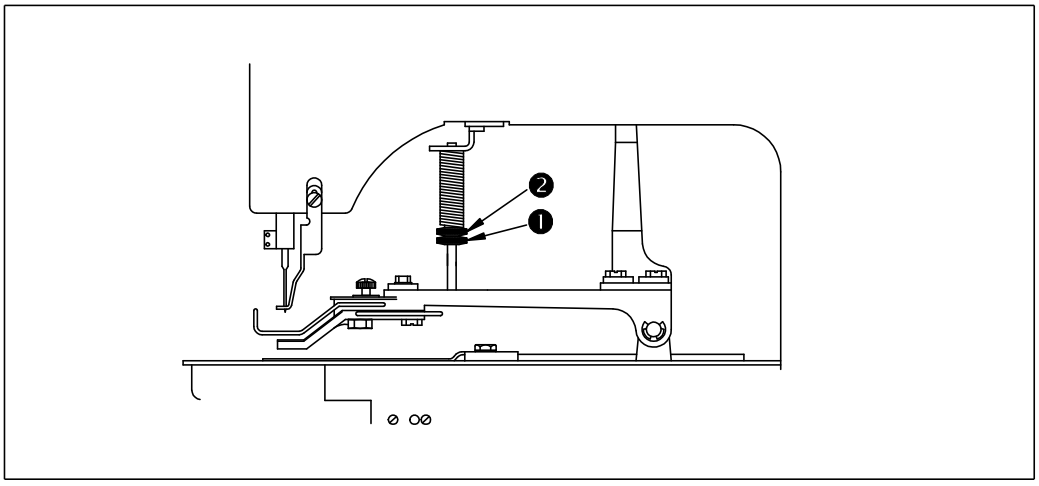
WARNING : **Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.**



Loosen two setscrews ①,and move moving plate ②back and forth in the direction of arrow to adjust. The lifting amount of the button clamp will be decreased when moving plate ②is moved in the direction "A", and be increased when it is moved in the direction of "B". After the adjustment, securely tighten setscrews①.

[8] Adjustment of the pressure of the work clamp unit

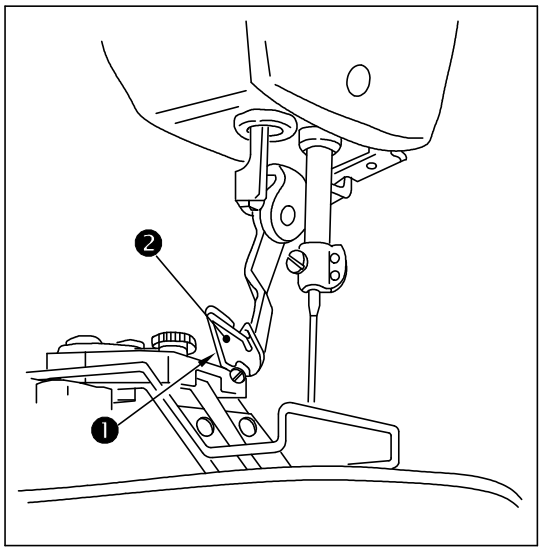
WARNING : **Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.**



The pressure of the work clamp unit should be minimized as long as the material does not warp during sewing. Loosen adjusting screw ①and turn adjusting screw ②to obtain the aforementioned pressure.

［9］Adjusting the wiper spring

WARNING : Turn OFF the power before starting the work so as to prevent accidents cause by abrupt start of the sewing machine.



Wiper spring① retains the needle thread after thread trimming in between wiper② and the wiper spring. Correct properly the tension after wiper spring ① so that the tension at that time becomes 20 to 30 g(a little higher tension than that of the bobbin thread coming out of the bobbin case.

If the retaining of the needle thread is excessive, the thread may protrude from the upper side of the button.

［10］Button sewing scope

Model		Button sewing Machine	
Button size classification		For medium-sized buttons	
Outside diameter of applicable buttons（mm）		Ø8~Ø22	
Sewing size (mm)	0~3.5	0 to 3.5	
	0~3.5	0 to 3.5	

III.TROUBLES AND CORRECTIVE MEASURES(SEWING CONDITIONS)

Trouble	Cause	Corrective measures
1.The needle thread slips off at the start of bar-tackin g	① Stitches are slipped at the start ② The needle thread remaining on the needle after thread trimming is too short. ③ The bobbin thread is too short. ④ Needle thread tension at 1st stitch is too high. ⑤ Pitch at 1st stitch is too small.	○ Adjust the clearance between the needle and the shuttle to 0.05 to 0.1mm. ○ Set soft-start sewing at the start of bar tacking. ○ Correct the thread tension release timing of the thread tension controller No.2. ○ Increase the tension of the thread take-up spring, or decrease the tension of the thread tension controller No.1. ○ Decrease the tension of the bobbin thread. ○ Increase the clearance between the needle hole guide and the counter knife. ○ Decrease the tension at 1st stitch. ○ Decrease the number of rotation at 1st stitch at the sewing start. ○ Make the pitch at 1st stitch longer. ○ Decrease the needle thread tension at 1st stitch.
2.Thread often breaks or synthetic fiber thread splits finely.	①The shuttle or the driver has scratches. ②The needle hole guide has scratches. ③The needle strikes the work clamp foot. ④Fibrous dust is in the groove of the shuttle race. ⑤The needle thread tension is too high. ⑥The synthetic fiber thread take-up spring is too high. ⑦The synthetic fiber thread melts due to heat generated on the needle.	○Take it out and remove the scratches using a fine whetstone or buff. ○Buff or replace it. ○Correct the position of the work clamp foot. ○Take out the shuttle and remove the fibrous dust from the shuttle race. ○Reduce the needle thread tension. ○Reduce the tension. ○Use silicone oil .
3.The needle often breaks.	①The needle is bent. ②The needle hits the work clamp foot. ③The needle is too thin for the material. ④the driver excessively bends the needle.	○Replace the bent needle. ○Correct the position of the work clamp foot. ○Replace it with a thicker needle according to the material. ○Correctly position the needle according to the material. ○Widen the distance between the needle and the

	⑤Needle thread is stepped on by the work clamp foot at the start of sewing (Needle bend)	wiper.(23 to 25mm)
4. Threads are not trimmed.	①The counter knife is dull. ②The difference in level between the needle hole guide and the counter knife is not enough. ③The moving knife has been improperly positioned. ④The last stitch is skipped. ⑤Bobbin thread tension is too low.	○Replace the counter knife. ○Increase the bend of the counter knife. ○Correct the position of the moving knife. ○Correct the timing between the needle and the shuttle. ○In crease the bobbin thread tension.
5.Stitch skipping often occurs.	①The motions of the needle and shuttle are not properly synchronized. ②The clearance between the needle and shuttle is too large. ③The needle is bent. ④The driver excessively bends the needle.	○Correct the positions of the needle and shuttle. ○Correct the positions of the needle and shuttle. ○Replace the bent needle. ○Correctly position the driver.
6.The needle thread comes out on the wrong side of the material	①the needle thread tension is not high enough. ②The tension release mechanism fails to work properly. ③The needle thread after thread trimming is too long. ④Number of stitches is too few. ⑤When sewing length is short(End of needle thread protrudes on the wrong side of sewing product.) ⑥Number of stitches is too few.	○Increase the needle thread tension. ○Check whether or not the tension disc No.2 is released during bar-tracking. ○Increase the tension of the thread tension controller No.1. ○Correct the position of the moving knife. ○Use the lower plate, the hole of which is larger than the presser.

Trouble	Cause	Corrective measures
7.Threads break at time of thread trimming	①The moving knife has been improperly position。	○Correct the position of the moving knife.
8.Uneven length of the needle thread	①The tension of thread take-up spring is too low.	○Increase the tension of the thread take-up spring.
9. The length of needle thread does not become short	①The tension of thread tension controller No.1 is too low.。 ②The tension of thread take-up spring is too high。 ③The tension of thread take –up spring is too low and motion is unstable.	○Increase the tension of thread tension controller No.1. ○Decrease the tension of thread take-up spring. ○Increase the tension of thread take-up spring and lengthen the stroke as well.

Ⅳ.DRAWING OF THE TABLE