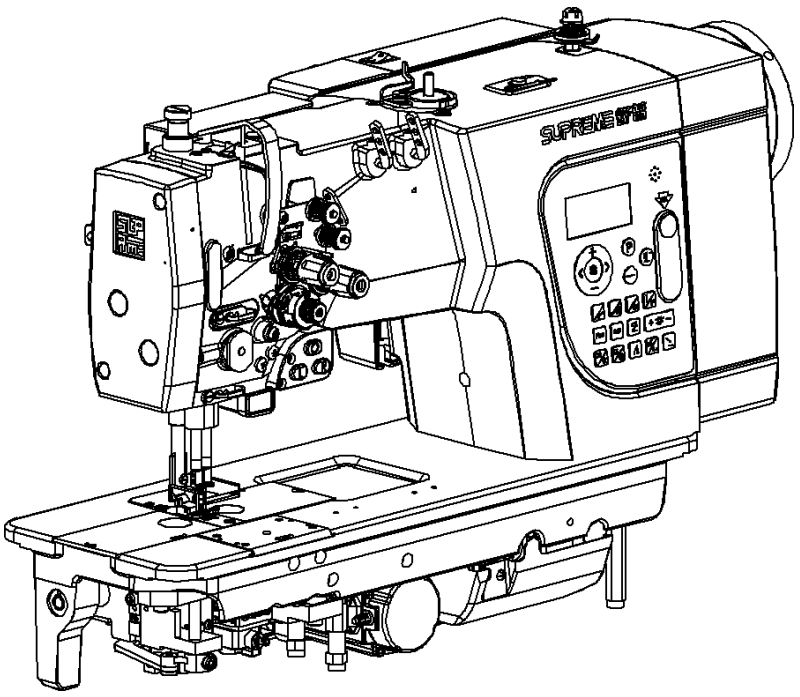
SP-842S/845S
SP-872S/875S Series

INSTRUCTION MANUAL

Please read this manual before using the machine.
Please keep this manual within easy reach for quick reference.

Twin Needle Stitcher



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Mechanical manual

Precautions for safe use of industrial sewing machines

1. Precautions before startup

1） To prevent rusting of the machine parts, a thick layer of rust resistant grease shall be applied to the exposed parts of the machine head before packaging. After the machine head is packaged, it may also cause grease hardening and dust accumulation on the surface of the machine during long storage and long-distance transportation. Therefore, the surface grease and dust must be wiped clean with gasoline and a clean soft cloth.

2) When the machine leaves the factory, it shall undergo thorough inspection and testing. However, during long-distance transportation, the machine may experience strong vibrations that can cause the parts to loosen or distort. Therefore, a thorough inspection should be conducted and the upper wheel should be rotated by hand to check if there are any difficulties in rotation, collisions or other uneven resistance, as well as abnormal noises between the parts, if yes, appropriate adjustments should be made. Only after the machine is in normal condition can it be officially tested.

3) If the oil level in the oil pan is not within the normal range, it must not start up.

4) When the machine is running, the upper wheel should turn counterclockwise (when viewed from the outer side of the upper wheel).

5) It shall confirm that the voltage and phase marked on the electronic control nameplate are correct.

6) The production date is shown in the certificate of conformity.

7) Precautions for use

1） Relevant personnel must comply with basic measures.

2） Relevant personnel must undergo professional training and be familiar with the performance of the sewing machine.

3） Relevant personnel should check all safety devices before use.

4） When installing needles, replacing needles, presser foot, needle plates, feed dog, rotary shuttles or repairing, the power supply should be turned off immediately;

5） The operator should turn off the power when leaving the sewing machine or workplace.

6） The oil, lubricating oil, and other liquids used in the sewing machine and accessories should be immediately cleaned if they enter eyes or come into contact with the skin.

7） It is prohibited to touch the parts or devices of the sewing machine when powered on by hand.

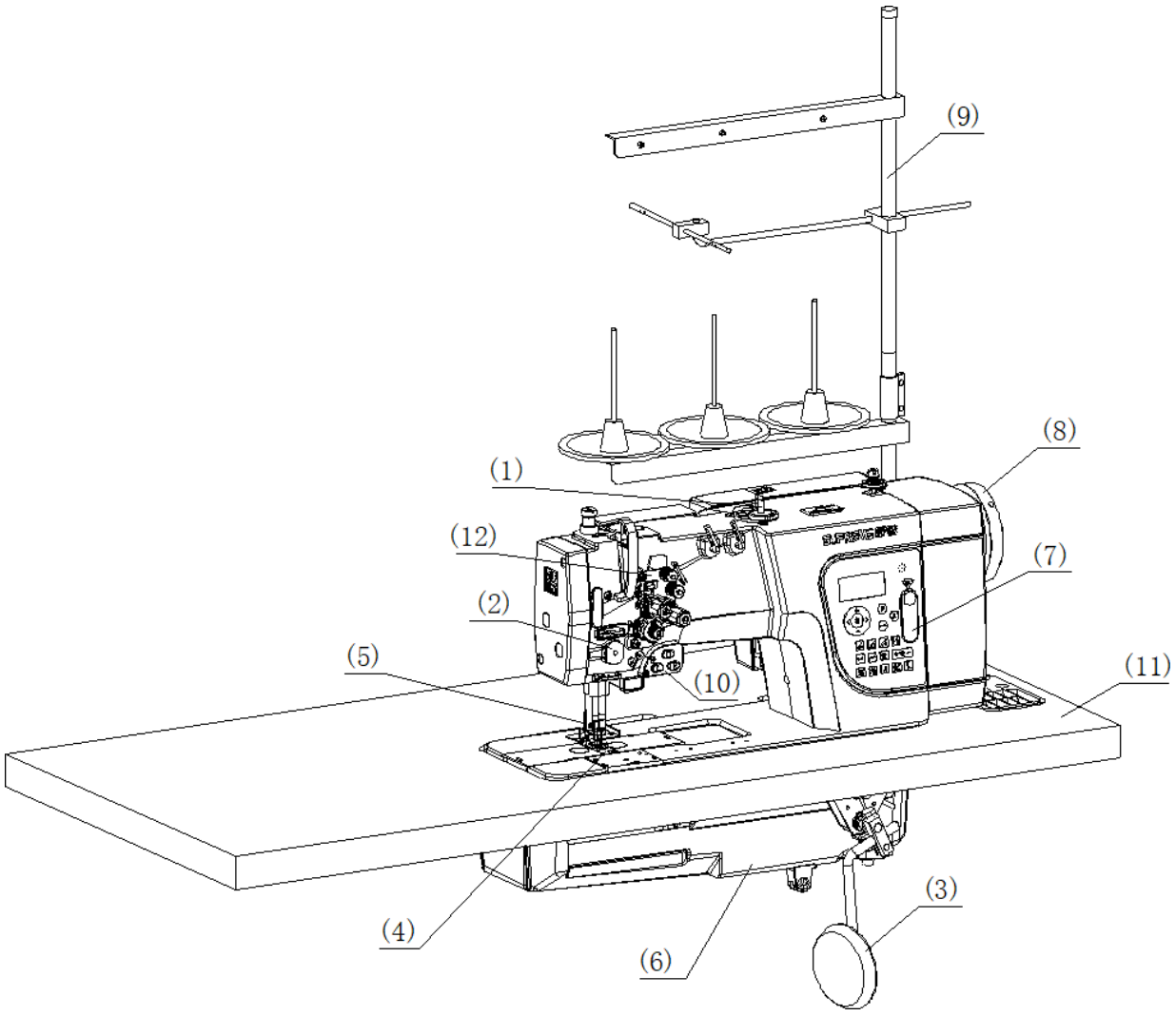
8） The repair, transformation and adjustment of the main mechanism of the industrial lockstitch sewing machine should be carried out by specialized technical personnel.

9） The sewing machine should be regularly cleaned during use.

10） For normal and safe operation, a ground wire should be installed, and the machine should be used in an environment that is not affected by any strong noise source, such as high-frequency welding machines.

11) The industrial lockstitch sewing machine can only be used in the designated purposes.

1、 Name of components



（1）Shuttle core winding device

（2）Electronic cable clamping device

（3） Knee lifter plate

（4）Needle board

（5）Presser foot

（6）Oil pan

（7）Oil gauge window

（8）Handwheel

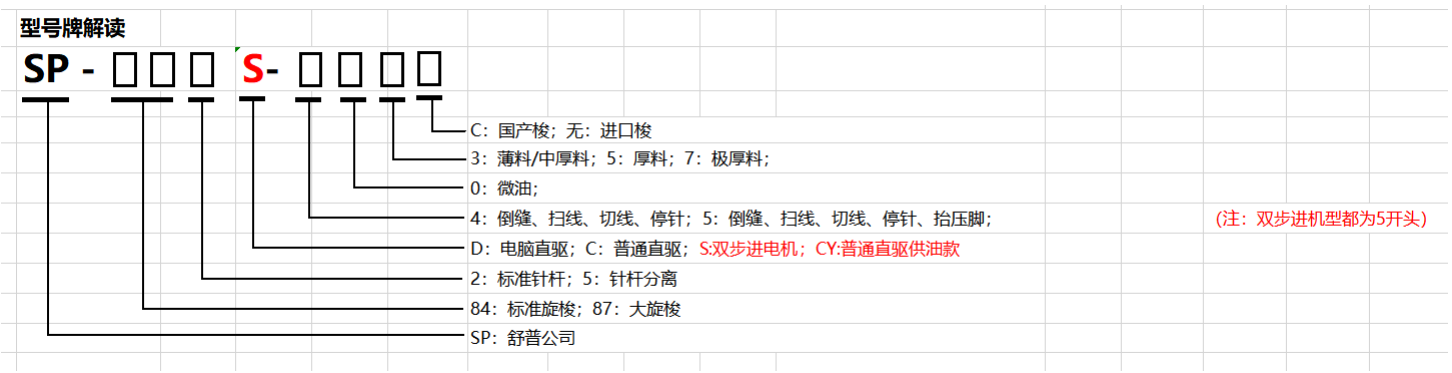
（9）Thread rack

（11）Separate button

（12）Stage floorboard

（12） Wire loosening device

1. Specification



Specification and model

Model	(rpm) Maximum rotational speed (rpm)	Maximum stitch pitch	Presser foot height		Feed dog height	Machine needle
			Wrench	Knee lifter		（DPX5）
842S-503	3000	4	7	13	1	#11-#16
842S-505	3000	5	7	13	1	#14-#22
845S-503	3000	5	7	13	1	#11-#16
845S-505	3000	5	7	13	1	#14-#22
872S-503	3000	7	7	13	1	#14-#22
872S-505	3000	7	7	13	1	#14-#22
875S-503	3000	7	7	13	1	#11-#16
875S-505	3000	7	7	13	1	#14-#22

2. Installation methods

Notes

.
The sewing machine should be installed by trained technical personnel.
.
Please entrust the store where the product is bought or electrical professional to carry out electrical wiring.
.
The sewing machine weighs about 50kg, and it must be installed by more than two people.
.
致受伤。
Do not connect the power supply before the installation is completed. If you press the start switch by mistake, the action of the sewing machine will cause injury.

·缝纫机头倒下时，请一定要固定工作台，不可使其随意移动。工作台移动易发生脚等被夹住之事故，是导致人身事故的原因。
When the sewing machine head falls down, please be sure to fix the table and not make it move at will.
The movement of the table is prone to accidents such as feet being caught, which is the cause of personal accidents.
.
量万一滑落易导致受伤。
When the sewing machine head falls down or stands up, use both hands to operate. When operating with one hand, it can easily lead to injury due to weight of sewing machine if it slips.

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Handling sewing machine

It should be carried by two people holding the casing body by hand according to the diagram.

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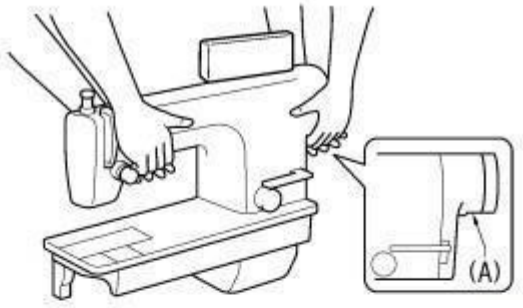
* Or, hold the motor cover (A) with your hand so that the upper wheel cannot turn.



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Tilting the sewing machine head backward

Hold part (B) with your foot to keep the table plate from moving, and then push the casing body with both hands to tilt the sewing machine head backward.

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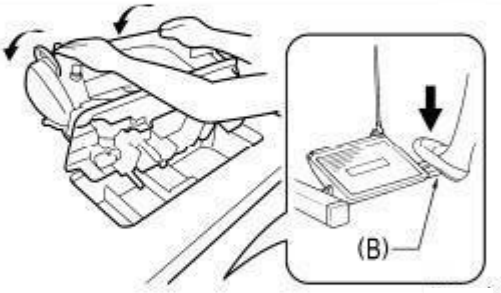
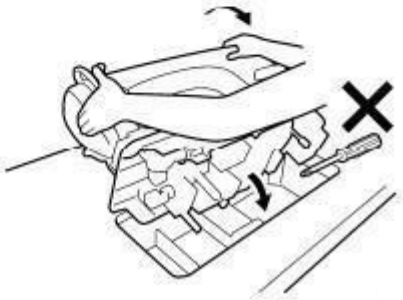


1.

2.

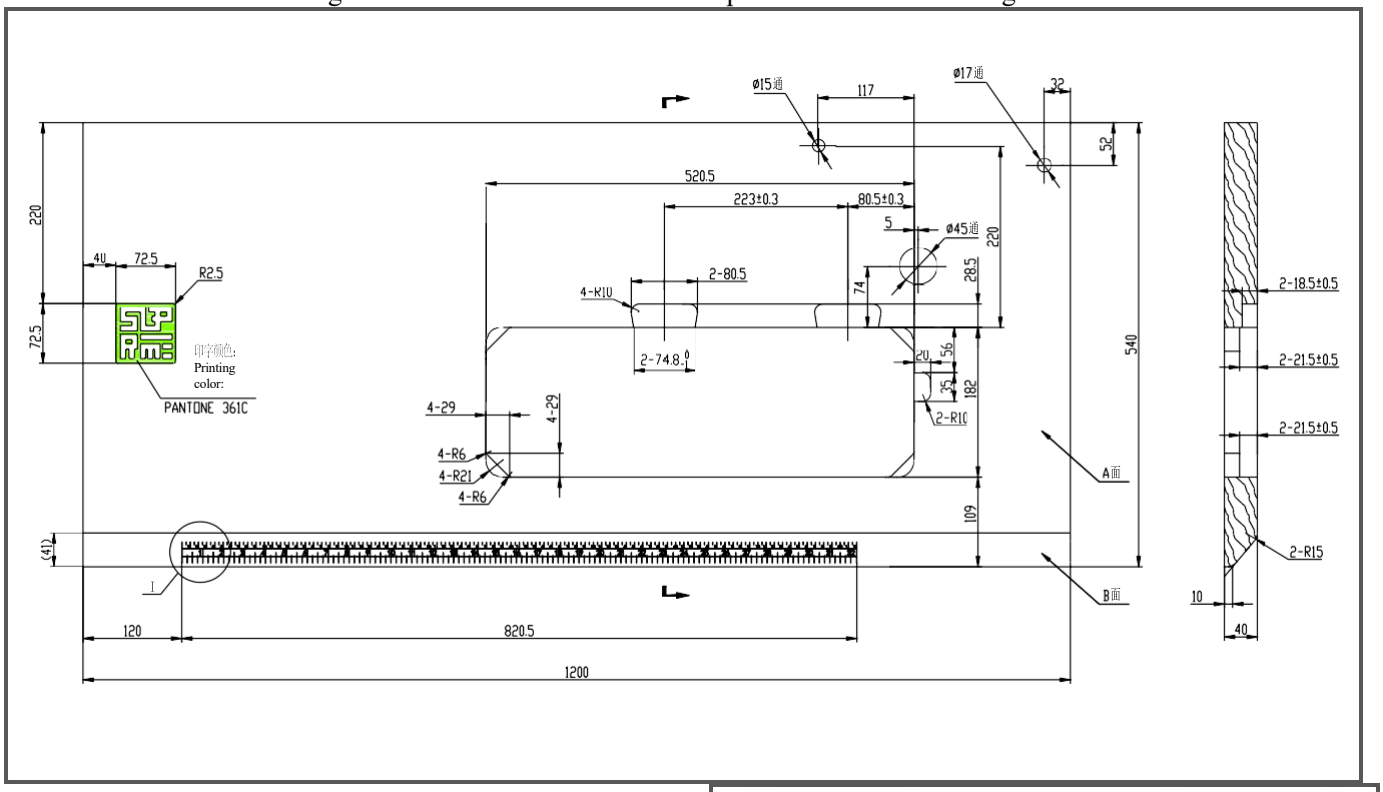
Return sewing machine head to upright position

1. Clear all tools and other objects near the table plate holes.
2. Hold the panel with your left hand and gently return the head of the sewing machine to an upright position with your right hand.



3-1 . Table plate processing figure

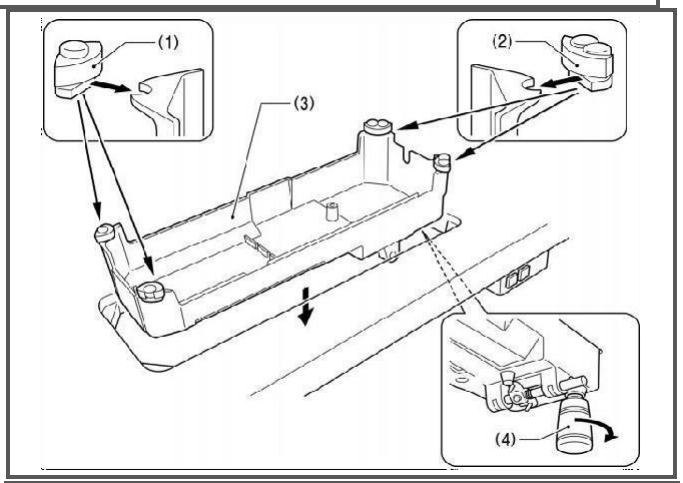
The thickness of the table plate should reach 40mm, be able to withstand the weight of the sewing machine, and withstand the vibration of the sewing machine. Please drill holes in the positions shown in the figure.



3-2 . Installation methods

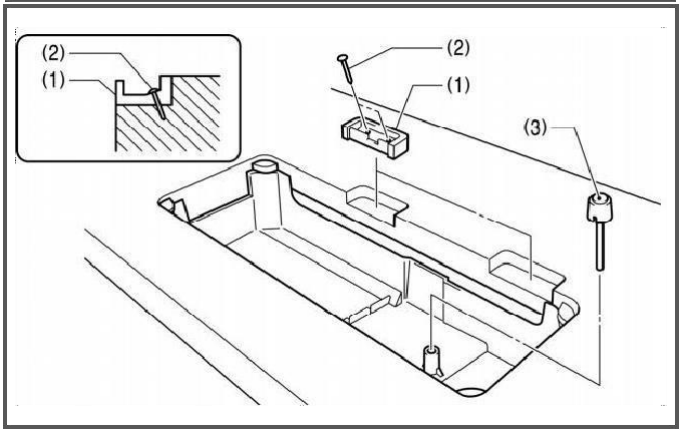
1. Oil pan

1. Head shock pad (Left) [2 pieces]
2. Head shock pad (Right) [2 pieces]
3. Oil pan
4. Oil injector



2. Casing hinge

1. Casing hinge sleeve (2 pieces)
2. Nail (4 pieces)
3. Knee lifter complying bar
4. Knee lifter complying bar

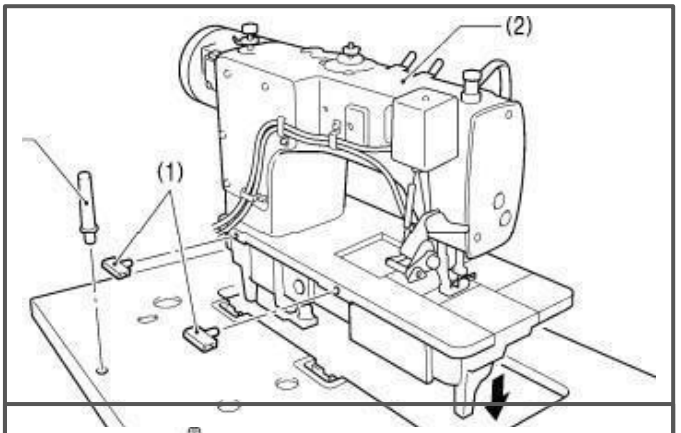


3. Sewing machine head

1. Casing hinge (2 pieces)
1. Sewing machine head
2. Head rest

Notes:

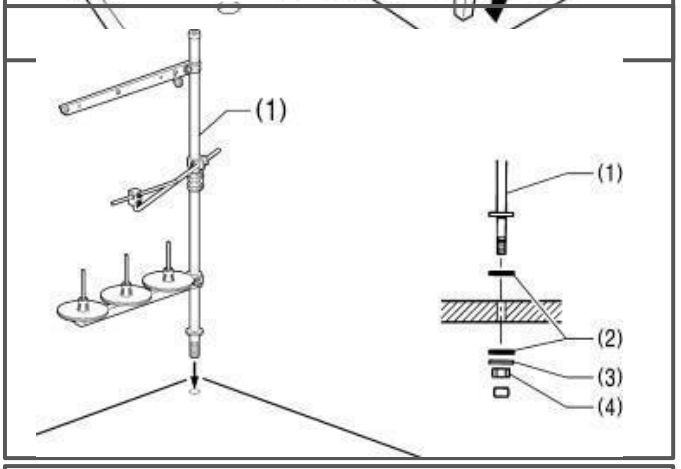
* Insert the head rest (3) safely and stably into the opening of table plate.
* If the head rest (3) is not inserted in place, the head of the sewing machine will be in danger of being unstable when tilting backwards.



4. Thread rack

1. Thread rack

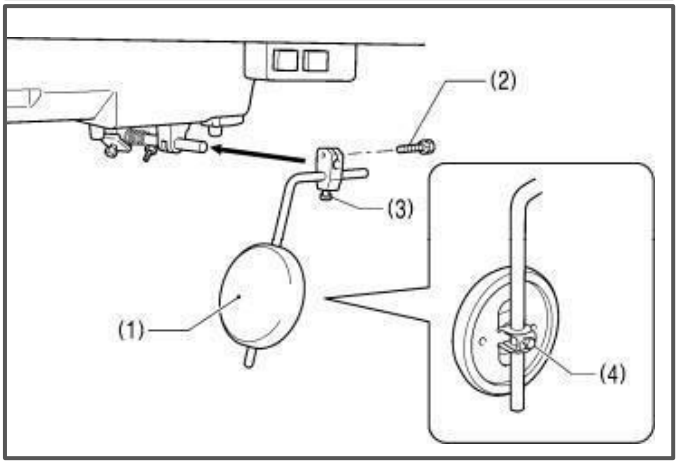
Notes:
Tighten the nut (4) to clamp the two casing hinge sleeves (2) and washers (3) so that the thread rack (1) does not move.



5. Knee lifter plate

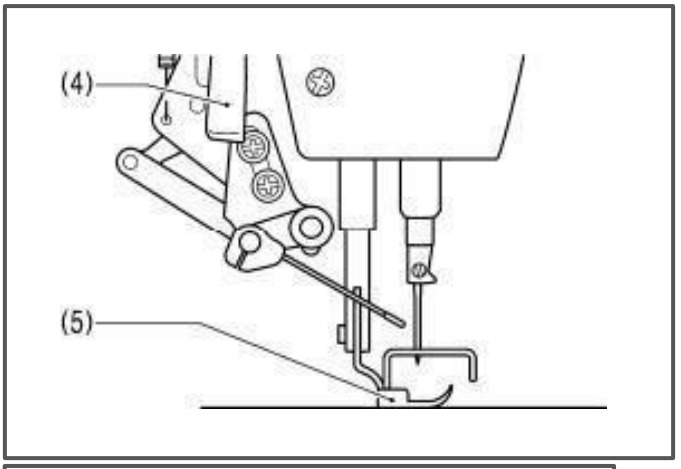
1. Knee lifter plate
1. Bolt

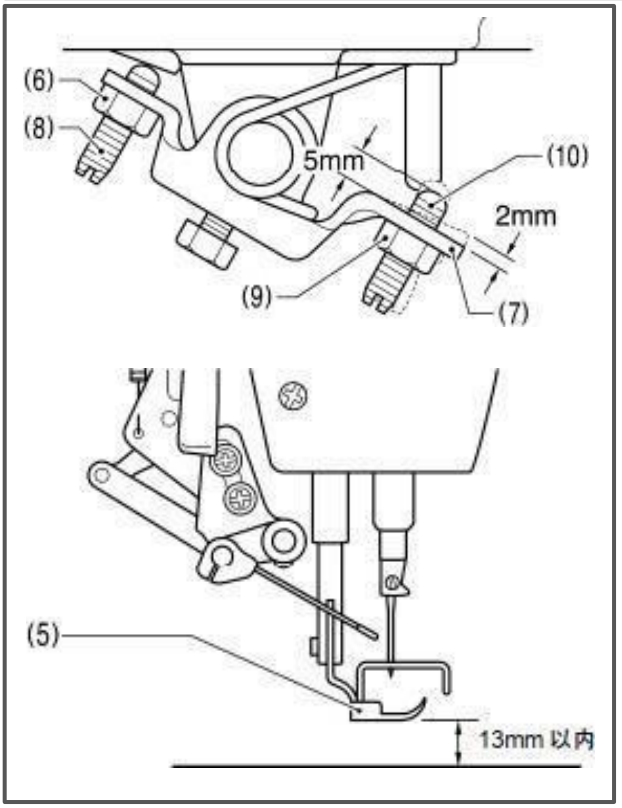
* Loosen the bolt (3) and bolt (4) and move the knee lifter plate (1) to an easy-to-use position.



<**Adjust the lifting lever**>

1. Turn the upper wheel so that the feed dog are under the needle plate.
2. Lower the presser foot (5) with the presser foot wrench (4).
3. Loosen the nut (6).
4. Turn the screw (8) to adjust so that the lifting lever (7) has a clearance of about 2mm when gently pressing the knee lifter plate (1) by hand.
5. Tighten the nut (6).
6. Loosen the nut (9).
7. Turn the screw (10) until the distance between the screw head and the lifting lever (7) is about 5mm.
8. Adjust by turning the adjusting screw (10) so that the presser foot (5) is within 13mm above the needle plate when the knee lifter plate (1) is fully depressed.
9. After adjustment, tighten the nut (9).





3-3. Refueling method

Notes

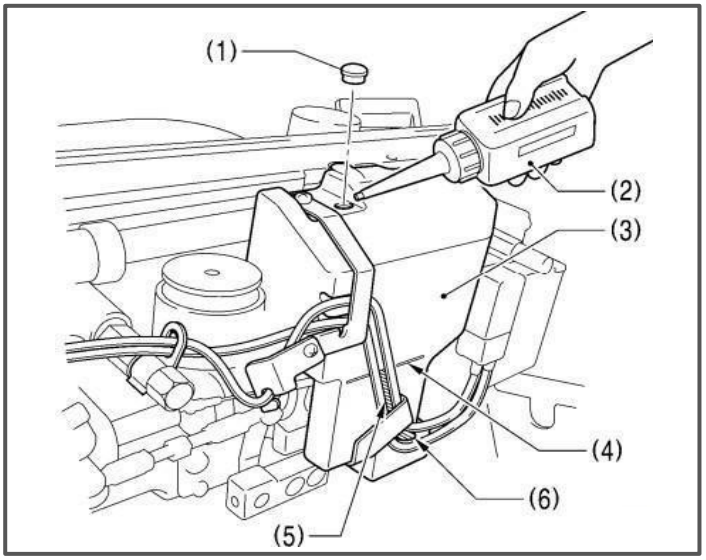
Do not connect power before refueling is not completed.

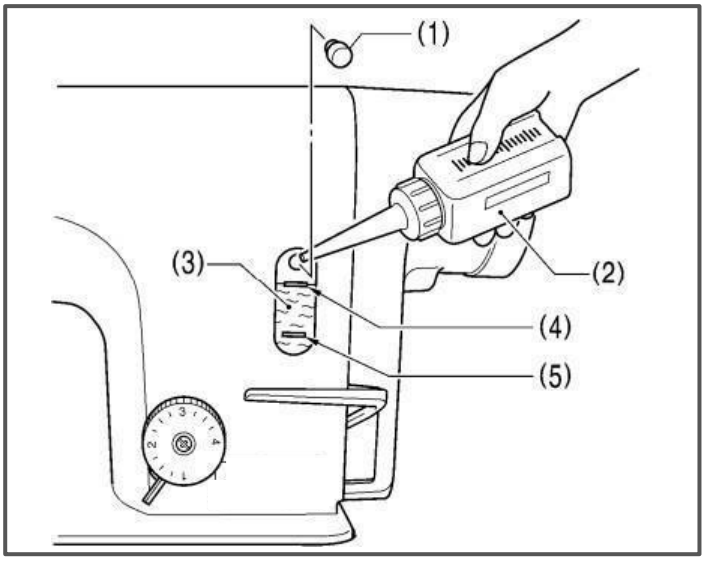
When the starting switch is mistakenly pressed, the action of the sewing machine may result in injury.

When using lubricating oil and butter, be sure to wear protective glasses and gloves to prevent lubricating oil from falling into the eyes or sticking on the skin, which is the cause of inflammation.

In addition, lubricating oil or butter should not be drunk, otherwise it will cause vomiting and diarrhea.

Keep oil out of reach of children.





<**Add machine oil to the oil cap**>

1. Tilt the sewing machine head back.
2. Remove the rubber plug (1).
3. Use the auxiliary oil can (2) to fill the oil cap (3) with lubricating oil, until the oil level reaches the baseline (4).

Notes:

Do not exceed the baseline (4) when adding lubricating oil; Otherwise, when the head of the sewing machine falls, the lubricating oil may spill.

4. Put the rubber plug (1) back in place.
5. Return sewing machine head to original position.

* When the oil level of the lubricating oil drops below the lower part (6) of the oil gauge window (5), please be sure to refill the lubricating oil.

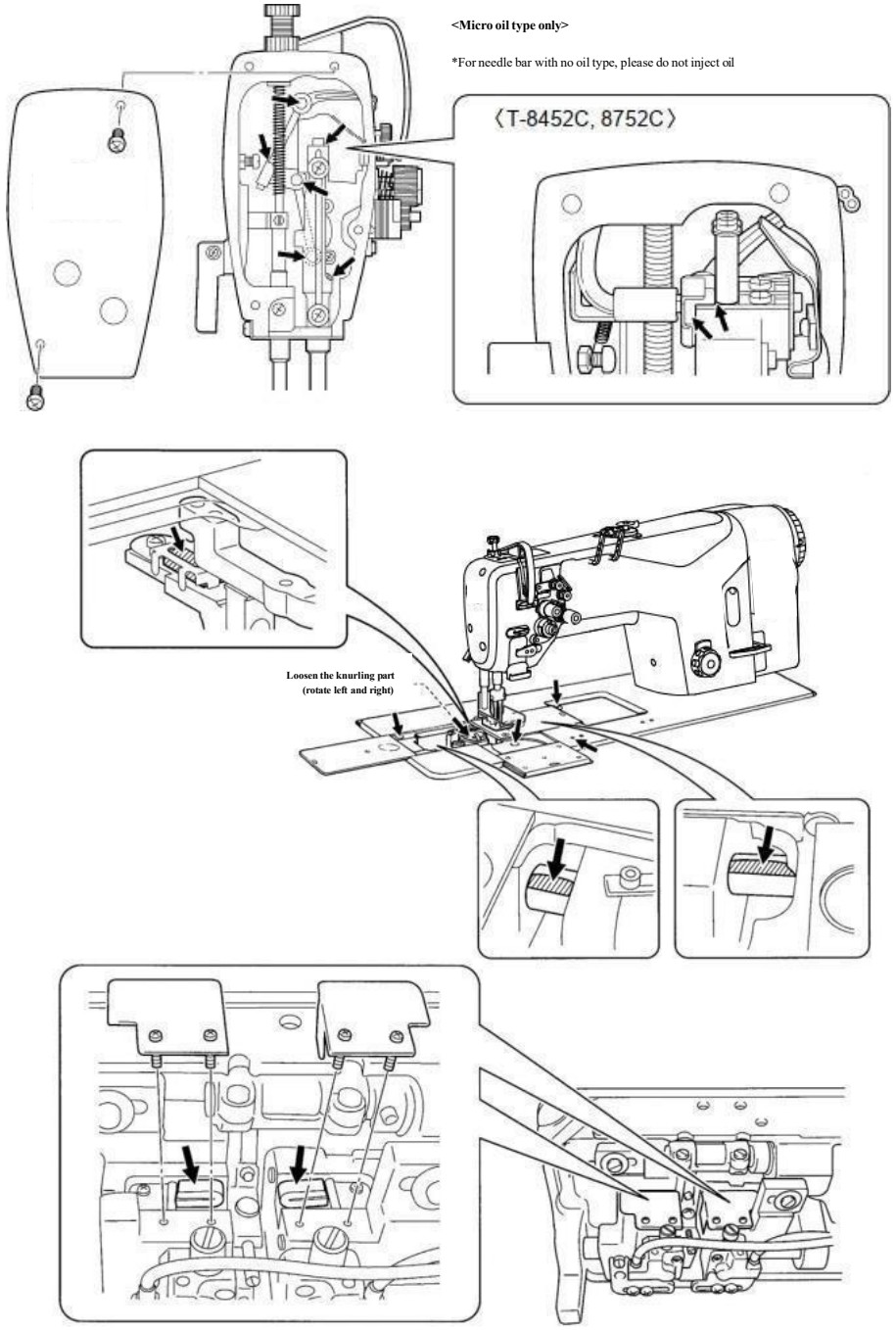
<**Add machine oil to the oil tank**>

1. Remove the rubber plug (1).
2. Use the auxiliary oil can (2) to fill the lubricating oil until the top baseline (4) of the oil gauge view window (3).
3. Put the rubber plug (1) back in place.

*When the oil level of the lubricating oil drops below the lower baseline (5), please be sure to refill the lubricating oil.

■ Oil filling

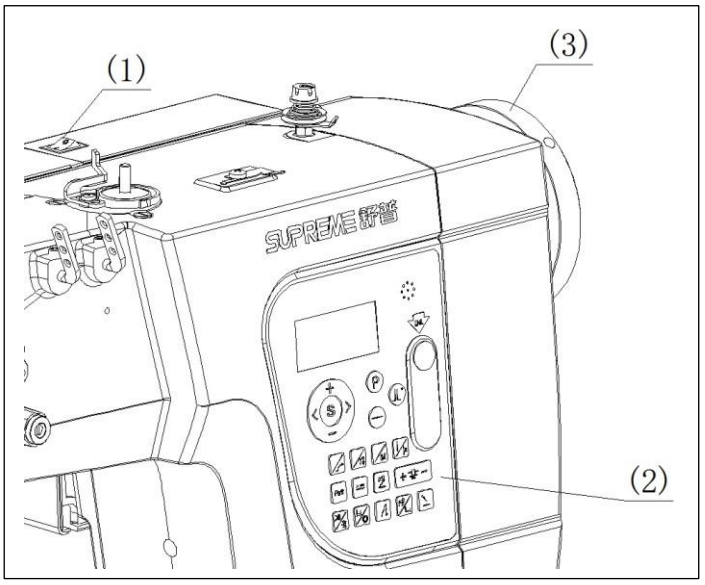
Fill 1 to 2 drops of lubricating oil at each arrow mark.



3-4. Operation test

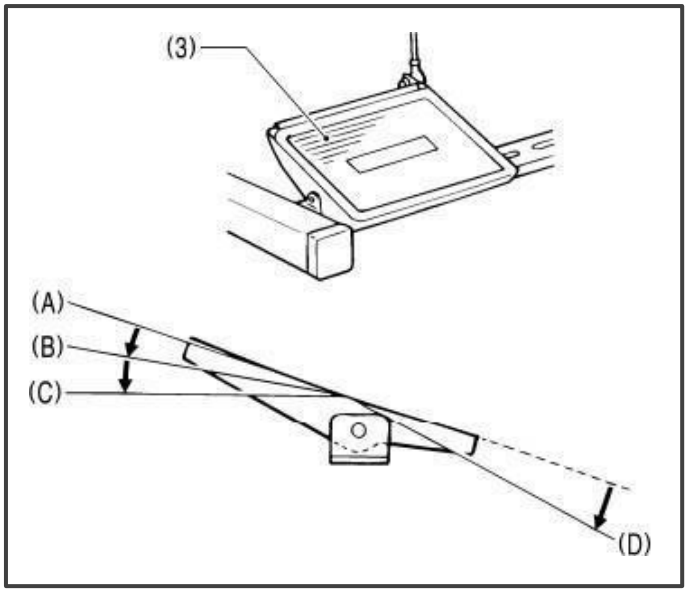
Notes

Do not touch any moving parts or lean objects against moving parts during sewing, as this could result in injury or damage to the sewing machine.



<**Turn on the power supply**>

1. Press power switch (1).
2. Operation panel (2) Screen lights up.
3. Rotate handwheel (3) without obvious stuck point.



<**Operation test**>

1. Check the sewing state when the foot pedal (3) is lightly pressed to position (B).
2. Further press the foot pedal (3) lightly to position (C) for the high speed sewing state of the sewing machine.
3. After pressing the foot pedal (3) forward, check whether the needle drops under the needle plate when the foot pedal (3) returns to neutral position (A). (When the needle downward position is set)
4. If the foot pedal (3) is pressed to position (D) (After cutting if there is a thread cutting function), then the needle rises above the needle plate and stops.

4. Preparation before sewing

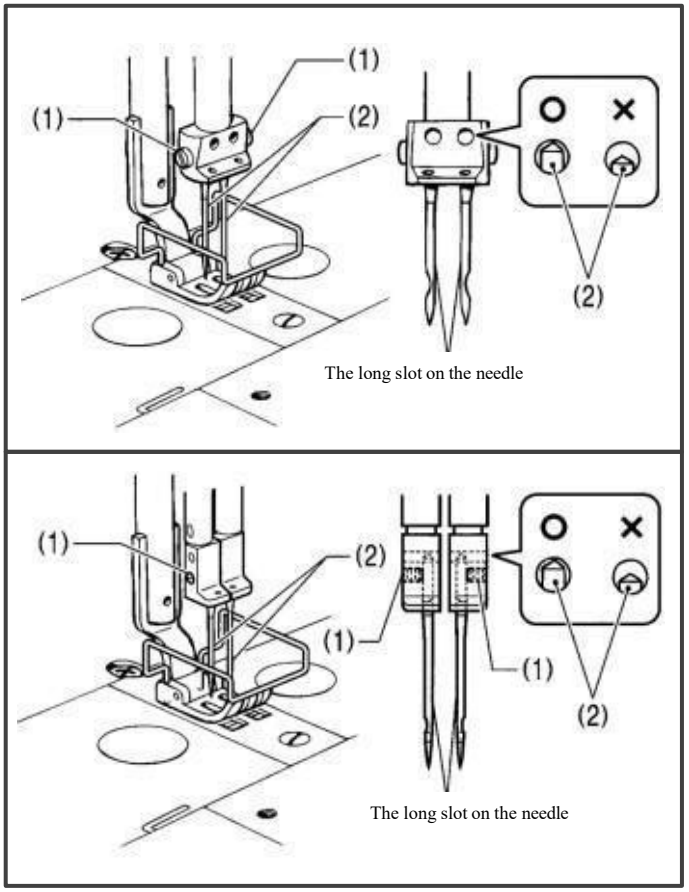
4-1 Installation method of needle

⚠ 注意 Notes

。
Please cut off the power supply when removing the shuttle core. However, after the power is cut off, the motor will continue to rotate for a period of time due to inertia. Please start the operation after the motor is completely stopped.

When the starting switch is mistakenly pressed, the action of the sewing machine may result in injury.

1. Turn the sewing machine handwheel to move the needle bar to the highest position.
2. Loosen the screw (1).
3. Insert the long slot on the needle (2) towards the inside, straight to the end and tighten the stop screw (1).



4-2. Method for assembling and disassembling the shuttle core

Notes

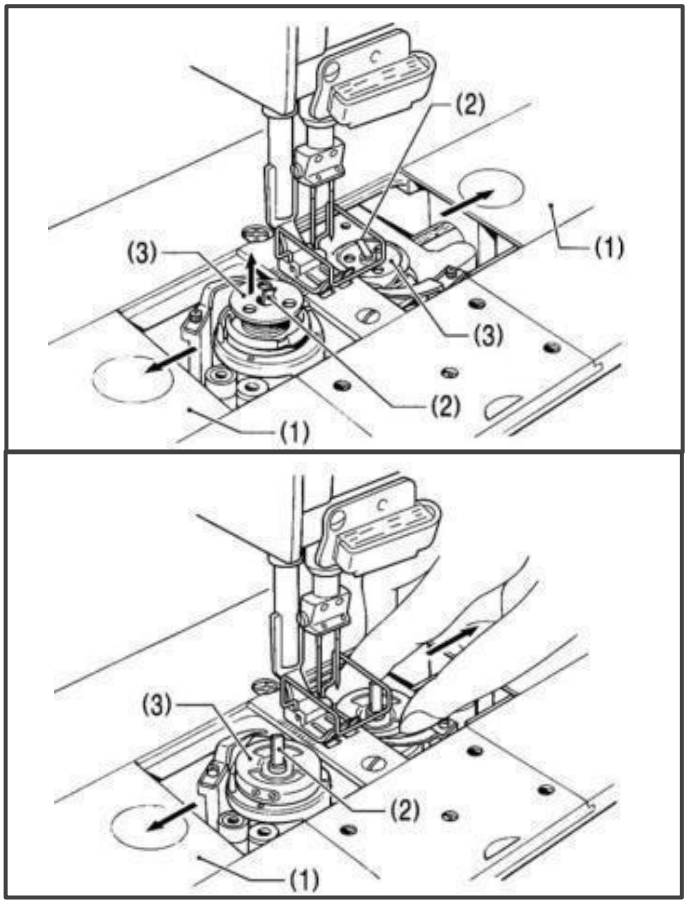
Do not touch any moving parts or lean objects against moving parts during the winding process, as this can lead to injury or damage to the sewing machine.

<Hook-type>

1. Separate the push plate (1) on the left and right.
2. Remove the shuttle core after lifting the knob (2) of the rotary shuttle (3).

<Shuttle core sleeve type>

1. Separate the push plate (1) on the left and right.
2. Remove the shuttle core after lifting the knob (2) of the rotary shuttle (3).
3. Remove the shuttle core.



4-3. The winding method of the bottom thread

⚠ 注意 Notes

Do not touch any moving parts or lean objects against moving parts during the winding process, as this can lead to injury or damage to the sewing machine.

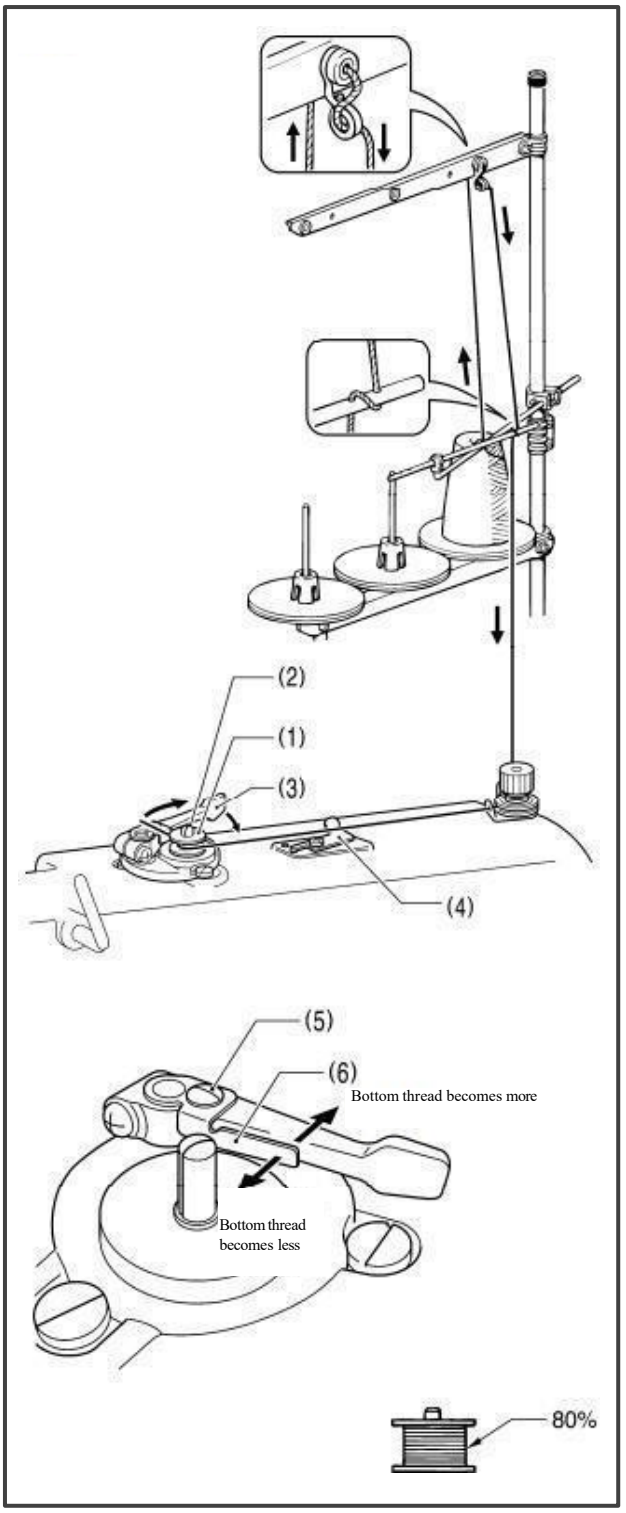
1. Turn on the power switch.

core (1) on the shuttle core reel (2).

3. Wind the thread on the shuttle core (1) several times in the direction indicated by the arrow.
   * Please confirm that the machine thread of each part is not loose.
4. Push the shuttle core presser arm (3) towards the bobbin (1).
5. Lift the presser foot with the presser foot wrench.
5. Step on the foot pedal and start winding the bottom thread.
7. Once the bottom thread winding is complete, the shuttle core presser arm (3) will automatically return.
8. After the bottom thread is wound, remove the shuttle core and cut the thread with a knife (4).

* Loosen the screw (5), move the shuttle core presser bar (6) to adjust the amount of bottom thread wound on the shuttle core.

Notes:
The amount of bottom thread wound on the shuttle core should be at most 80% of the shuttle core's capacity.



4-4. Method of loading and taking of shuttle core

⚠ 注意 Notes

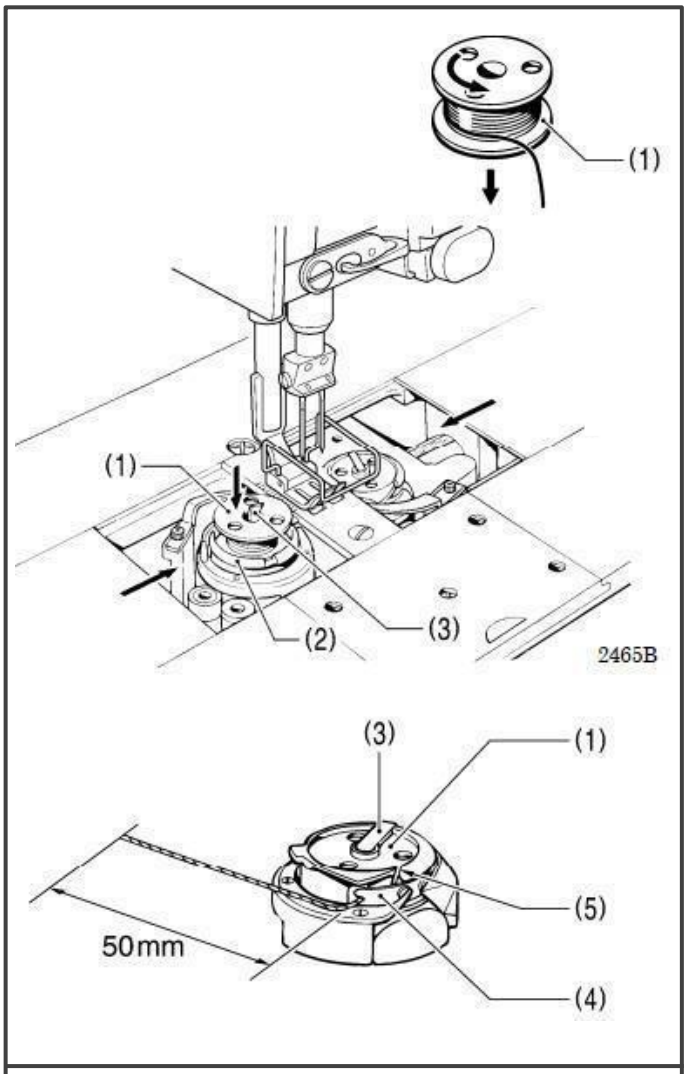
Turn off the power when removing the shuttle core.

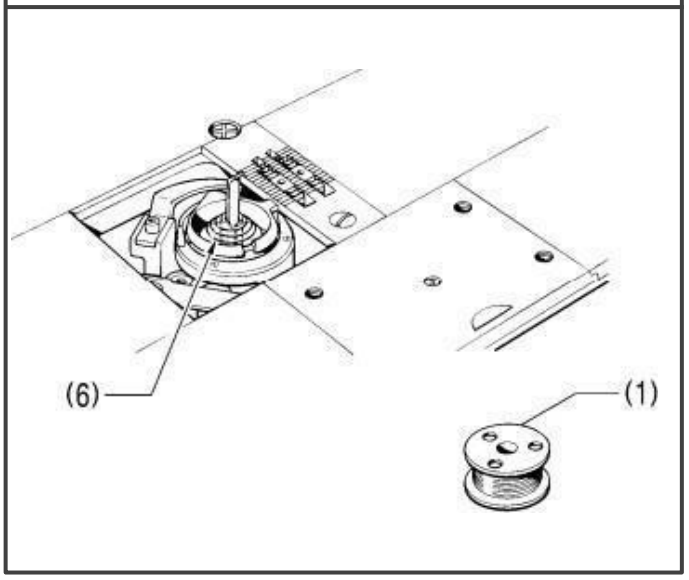
When the starting switch is mistakenly pressed, the action of the sewing machine may result in injury.

<Hook-type>

1. Put the winding of the thread in the direction shown in the figure, and then place the shuttle core (1) into the rotary shuttle (2).
2. Drop the knob (3) of the rotary shuttle.
3. Turn the belt pulley of the sewing machine so that the rotary shuttle (2) is in a position where the tension spring (4) can be seen.
4. Thread the thread through the slot (5) of the rotary shuttle so that it passes under the tension spring (4).
5. Pull the thread out about 50mm.
5. Close the push plate.

- The rotary shuttle has a rotary shuttle idling prevention spring (6); The rotary shuttle idling prevention spring (6) can prevent the shuttle core from idling under conditions such as thread cutting.
- Use the shuttle core (1) made of specified light alloys.





<Shuttle core sleeve type>

1. Put the winding of the thread in the direction shown in the figure, and then place the shuttle core (1) into the shuttle core sleeve (2).

2. Shuttle core sleeve (2) has <A>, <B>, <C> three kinds. Thread as follows according to the shape of the shuttle core sleeve (2) used.

1) Thread the thread through the slot (3) so that it passes (4) under the tension spring.

2) Thread the thread through the thread hole (8) and pull out about 50mm.

<B><C>

1） Thread the thread through the slot (3) so that it passes under the tension spring (4).

2） Thread the thread through the slot (5), (6) so that it hooks onto the bottom thread tension spring (7).

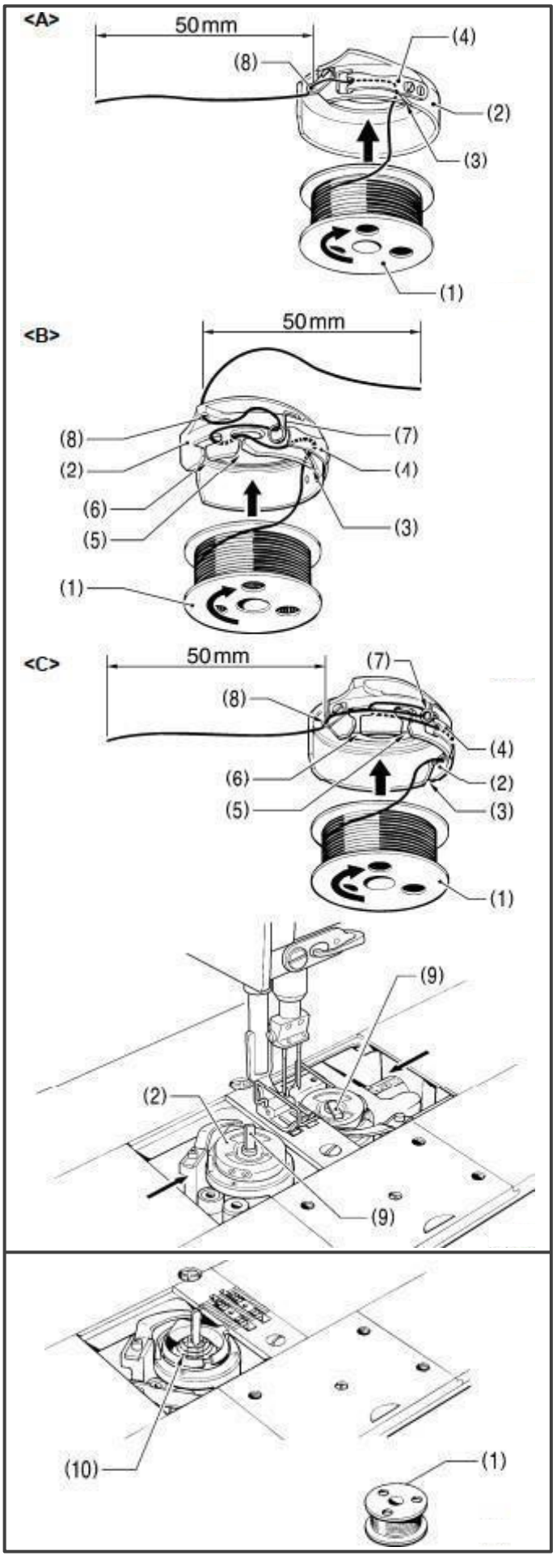
3） Thread the thread through the thread hole (8), and pull out about 50 mm

4） Put the shuttle core sleeve (2) into the rotary shuttle.

5） Drop the knob (9) of the rotary shuttle.

6) Close the push plate.

- The rotary shuttle has a rotary idling prevention spring (10), the rotary shuttle idling prevention spring (10) can prevent the shuttle core from idling under conditions such as thread cutting.
- Use the shuttle core (1) made of specified light alloys.



4-5. Threading method of surface thread

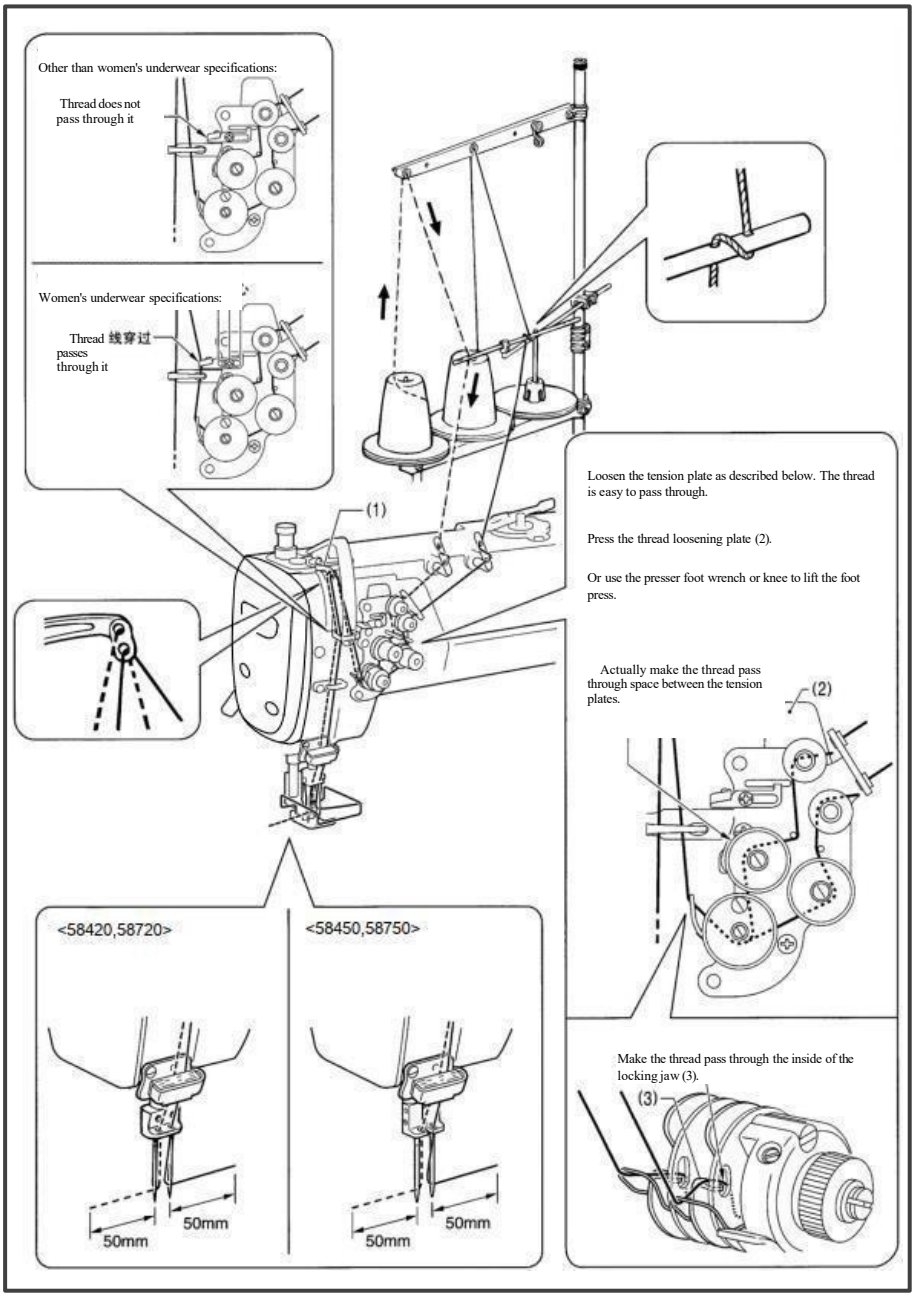
注意 Notes

Disconnect the power supply during threading.

When the starting switch is mistakenly pressed, the action of the sewing machine may result in injury.

● Turn the top wheel to raise the thread take-up lever (1) before threading the surface thread, this will make threading easier and prevent the surface thread from falling off at the beginning of sewing.

● Thread the left thread first.

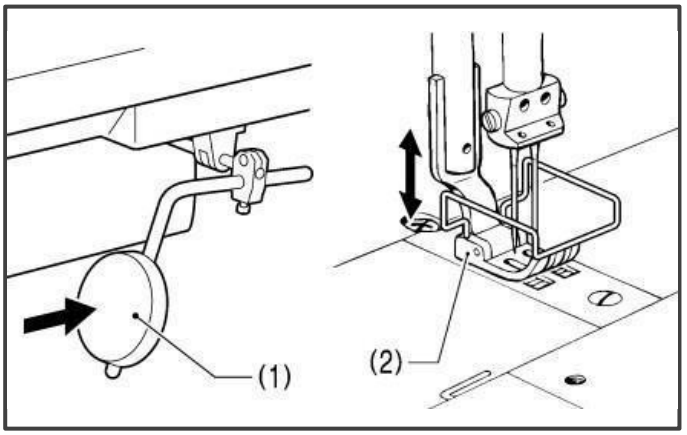


4-6. Adjustment method of needle pitch

Press the + key to increase the needle distance by 0.1mm
Press the - key to reduce the needle distance by 0.1mm

4-7 Using method of knee lifter plate

Press the knee lifter plate (1) to lift the presser foot (2).



4-8. Angular sewing method (845D, 875D)

Notes:

To use this sewing machine as a single needle machine, please remove the needle on the unused side before sewing, please do not use the following stop method of needle bar, otherwise it may cause sewing damage.

4-8-1. Needle bar (left, right) stop method

- Please stop at the position where the needle is stuck on the cloth before operating the button box .
- When the needle on one side has stopped, please control the sewing speed below 1,000sti/min.

<Stop operation of left-side needle bar>

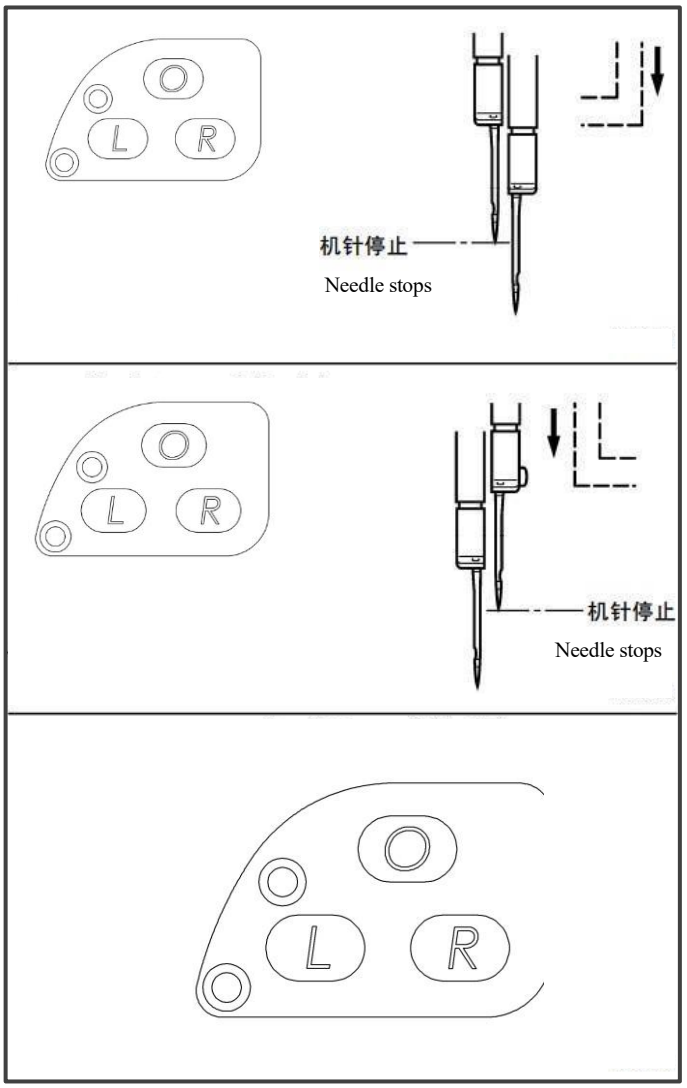
Press the L key

<Stop operation of right-side needle bar>

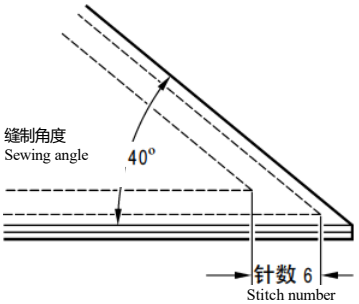
Press the R key

<When restoring double needle sewing>

Pressing the O key will automatically return to the original position



4-8-2. Needle count checklist



缝制角度 Sewing angle / 针数 Stitch number	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°
2					4.6	3.8	3.2	2.7	2.2	1.8	1.5	1.1
3			4.6	3.5	3.0	2.5	2.1	1.8	1.5	1.2		
4		4.4	3.4	2.8	2.3	1.9	1.6	1.3				
5	4.8	3.5	2.7	2.2	1.8	1.5	1.3					
6	4.0	2.9	2.3	1.9	1.5	1.3						
7	3.7	2.5	2.0	1.6								
8	3.0	2.2	1.7									

< Case of 1/4 needle width >

In order to create a beautiful angular shape, please determine the stitch length according to the table above.

In addition, by determining the sewing angle and stitch length, the count of sewing with one needle on the outer side can be known.

[Example] If the sewing angle is 40°and the stitch length is 2.9mm, then the number of stitches is 6.

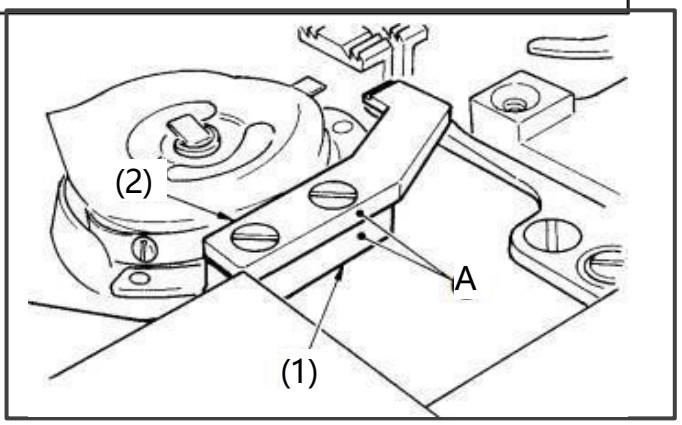
4-9. Adjusting method of movable knife position

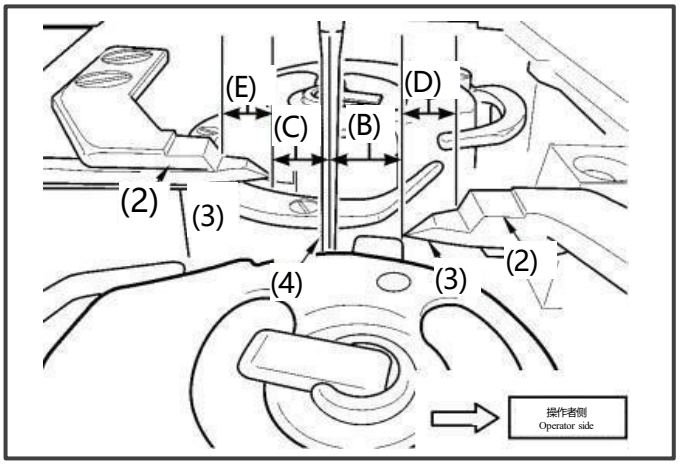
Notes	In order to prevent personal accidents caused by sudden start, please turn off the power supply and confirm that the motor does stop rotating before proceeding.

1. Align the fixed tool holder (1) with (A) of the fixed tool (2).

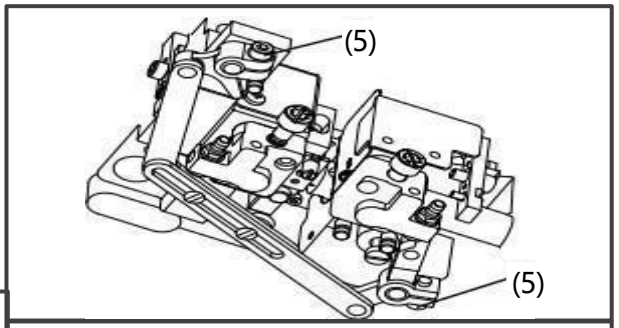
2. Loosen the sleeve screw (5) on the back of the machine, and adjust the front end of the movable knife (3), the distances (B) and (C) of the needle (4) to the size in the following table when the feeding distance is minimum, the needle (4) stays at the lower dead point and the machine is at stand by status.

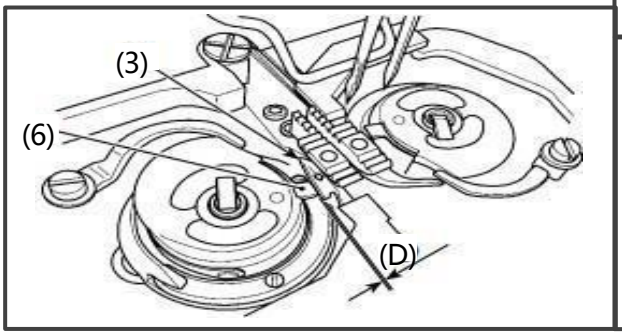
	Left cutter		Right cutter	
	(B)	(D)	(C)	(E)
842D 845D	6.2	3.5	7.5	2.7
872D 875D	7.3	4.1	8.9	3.1

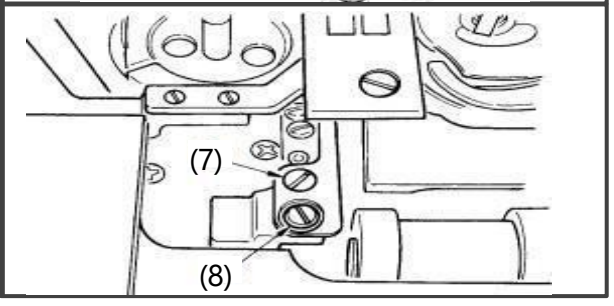




3. Adjust the gap (D) between the movable knife (3) and the convex part of the medium rotary shuttle (6) to 0.3±0.1mm; please loosen the movable knife fixing screws (7) (8) for adjustment.







5. Sewing

注意 Notes

For safety, please install protective devices before using this sewing machine.

If the sewing machine is used without these safety devices, it may cause personal injury and damage to the sewing machine

Please cut off the power supply when the following situations occur.

Otherwise, when you mistakenly step on the pedal, the sewing machine action will cause injury.

When the machine needle is threading,

When changing the needle or shuttle core,

The sewing machine is not in use, or the person leaves the sewing machine,

Do not touch any moving parts or lean against moving parts during sewing, as this may cause injury or damage to the sewing machine.

When the sewing machine head falls down, please be sure to fix the table and not make it move at will.

The movement of the table is prone to accidents such as feet being caught, which is the cause of personal accidents.

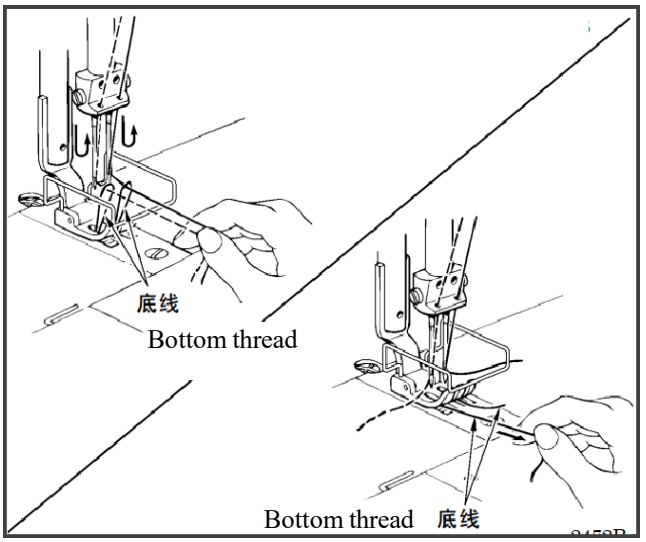
When the sewing machine head falls down or stands up, use both hands to operate.

When operating with one hand, it can easily lead to injury due to the weight of the sewing machine if it slips.

5-1. Sewing

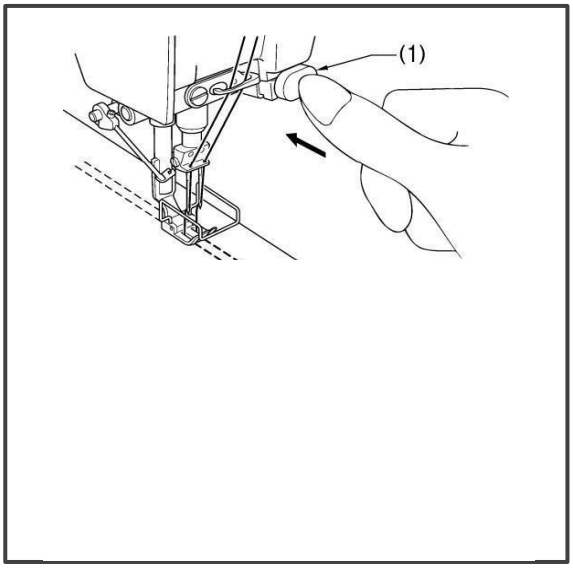
1. While holding the surface thread [2 pieces] with your fingers, turn the sewing upper wheel with your hands in the direction of your side to pull the bottom thread to the top of the feed tooth.
2. Pull the bottom line in the direction of your side, make sure that the bottom thread should be able to extend smoothly.

3. Turn on the power switch.
4. Step on the foot pedal to start sewing.



5-2 . The method of strengthening the reverse sewing

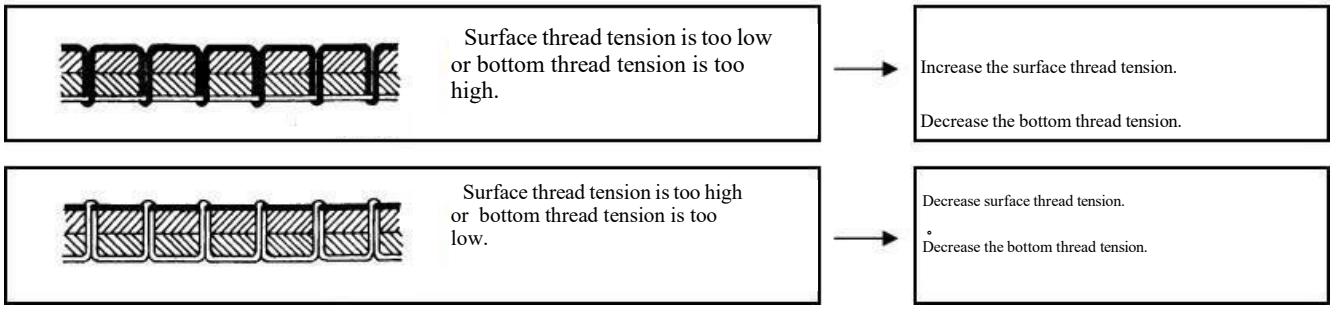
1. Press the button switch of reverse sewing device (1) the feeding direction will be reversed, and the feeding direction
will return to normal when released.



6. Sewing effect

6-1. Adjust thread tension

正确的针迹 Correct stitch

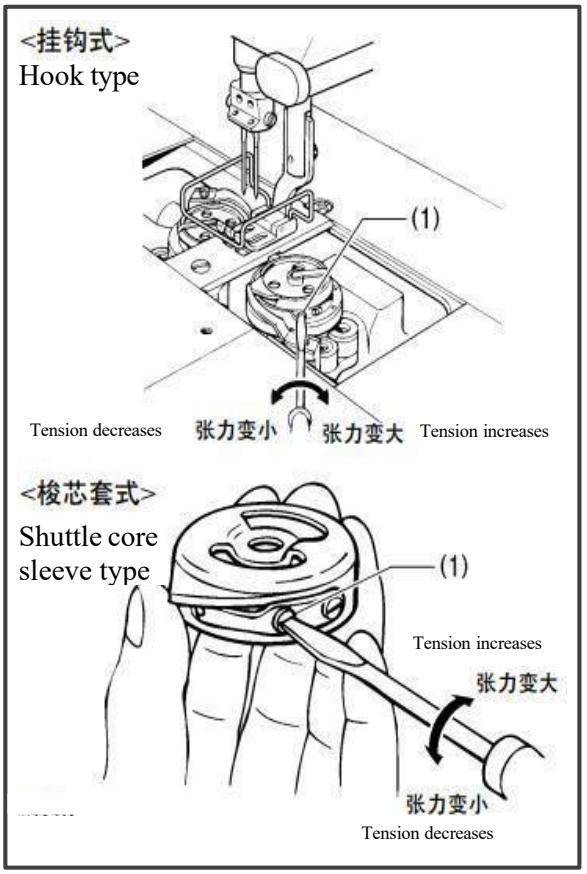


<Bottom thread tension>

注意 Notes

Turn off the power before the bottom thread tension adjustment, if the pedal is mistakenly pressed, the sewing machine action may lead to injury.

Adjust by turning the bottom thread tension screw (1).



<Surface thread tension>

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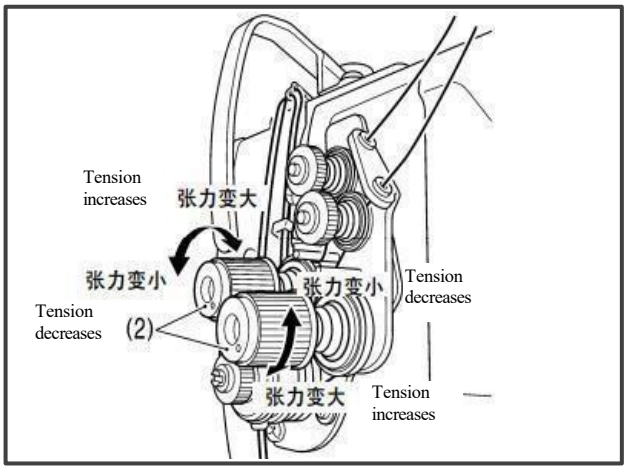
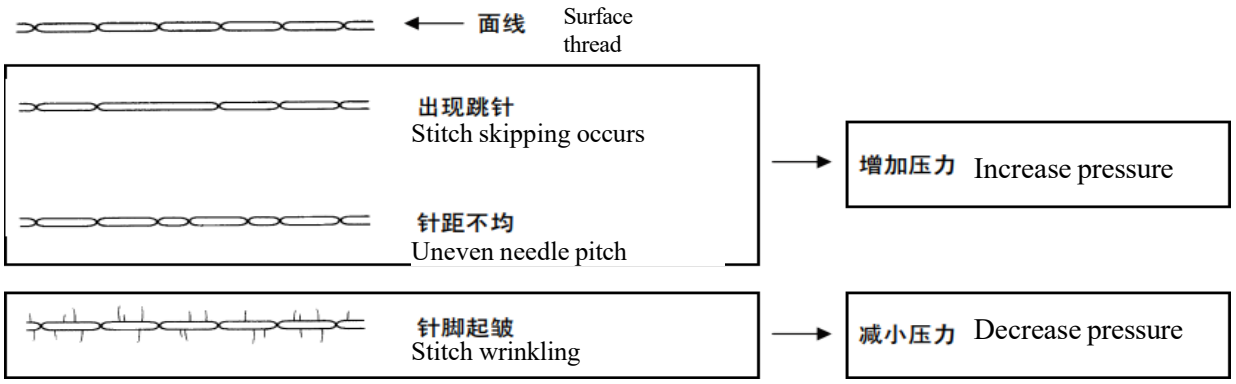
After adjusting the bottom thread tension, adjust the surface thread tension to make the stitches even and flat.

1. Lower the presser foot.
2. Rotate the thread clamping nut (2) for adjustment.



6-2. Adjust the presser foot's pressure

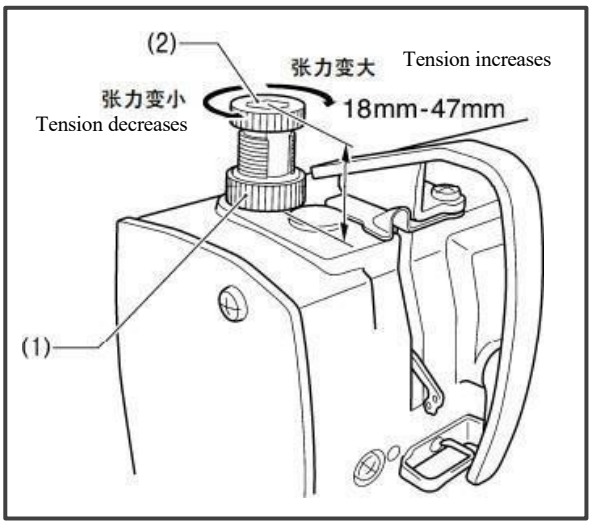
The right stitch



Presser foot's pressure should be reduced as much as possible, but there must be enough pressure so that the fabric does not slip.

(The following table "Presser foot adjusts bolt height" is the approximate standard for adjustment.)

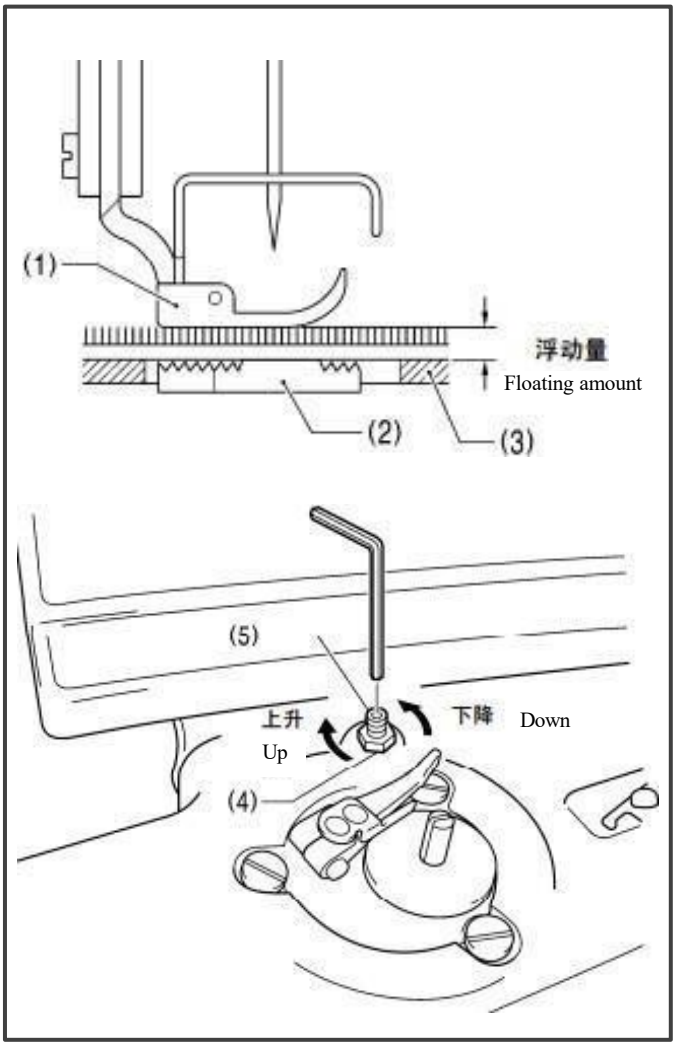
1. Loosen the adjusting nut (1).
2. Turn the pressure adjusting bolt (2) to adjust the presser foot's pressure.
3. Tighten the adjusting nut (1).



Reference range

Usage	Presser foot adjusts bolt height
For women's underwear	About 34 mm
Suitable for thinner and medium thick fabrics	About 34 mm
Suitable for thicker fabrics	About 29 mm

6-3. The floating adjustment of presser foot



- The floating amount of presser foot (1) can be adjusted slightly according to different fabrics such as stretchable and fuzzing materials.
- In addition, it also has an improved effect on the operability of curved sewing.

1. Turn the upper wheel of the sewing machine by hand to lower the feed (2) from the needle plate (3).
2. Lower the presser foot (1) by using the rod lifting presser foot.
3. Loosen the nut (4).
4. Adjust the floating amount by turning the adjusting screw (5) with a hex wrench.
   - When the presser foot (1) goes up... rotate the adjusting screw (5) to the right
   - When the presser foot (1) rises... rotate the adjusting screw (5) to the right
5. Tighten the nut (4) for fixing.

* After adjustment, please confirm the floating amount after actually sewing the fabric.

<Adjustment standards for curved sewing>

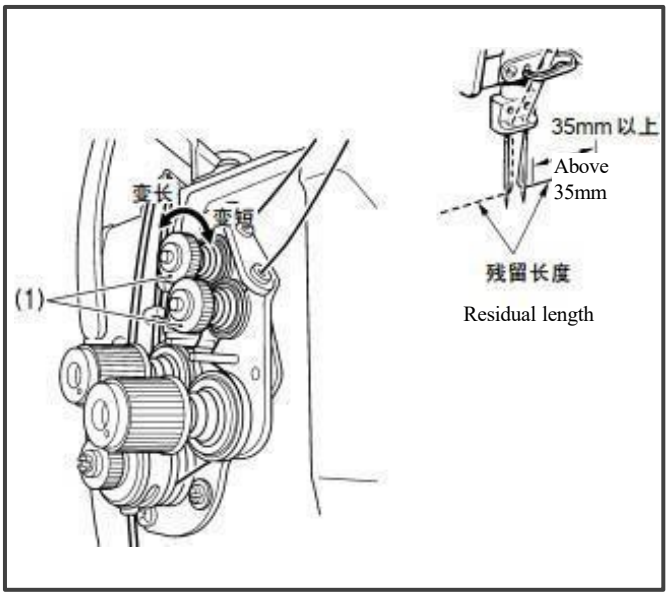
When the cloth is clamped under the press foot (1), the feed dog (2) is at the lowest position and the fabric is moved, the state in which the fabric exists some resistance is the most suitable.

When the floating amount is insufficient
The operability (handling) is not very good during curved sewing.

When there is too much floating amount
Stitch length and sewing thread are unstable.

6-4. Adjustment of the length of surface thread residue after cutting

- When cutting the thread, the tension of the thread is relaxed and the tension is applied only with the thread clamp (1).
- The normal residual amount of the surface thread is 35mm.
- If the tension of the thread clamp (1) is increased, the residual length of the surface thread will be reduced after cutting the thread, and the length will be increased by decreasing the tension. Turn the thread clamp (1) to adjust.



6-5. Adjustment of thread take-up amount

The thread take-up amount is adjusted by passing through the thread with the thread quantity regulator (1).

<Use of standard thread quantity regulator (1) >
Women's underwear specifications ● other than 845D-405
Make the thread not pass through the thread quantity regulator (1); loosen the fixing screw (2) and move the thread quantity regulator (1) to the right.

Women's underwear specifications ● 845D-405

Make the thread not pass through the thread quantity regulator (1); when the fixing screw (2) is placed in the intermediate state of the adjustment range, it is the standard position of the thread quantity regulator (1).

<Adjustment of thread take-up amount>

。
Make the thread pass through the thread quantity regulator (1) for adjustment. The more the thread quantity regulator (1) is moved to the right, the less the thread take-up amount will be.

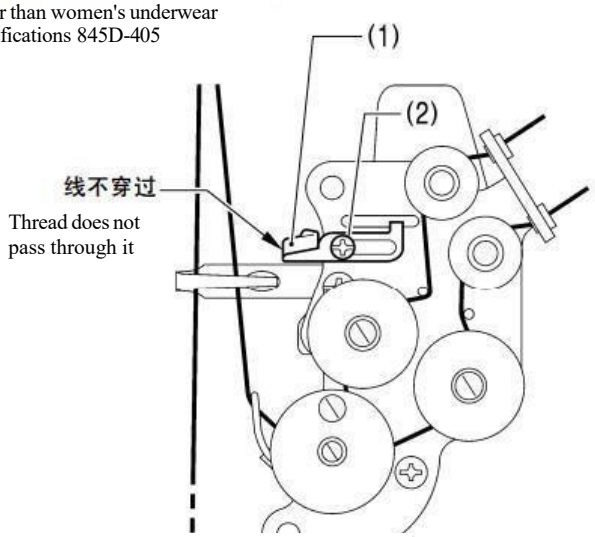
It is better that make the thread not pass through the thread quantity regulator (1)

- When sewing thick fabric with a sewing machine of women's underwear specifications
- When the stitch needs to be extended but the thread take-up amount is not enough

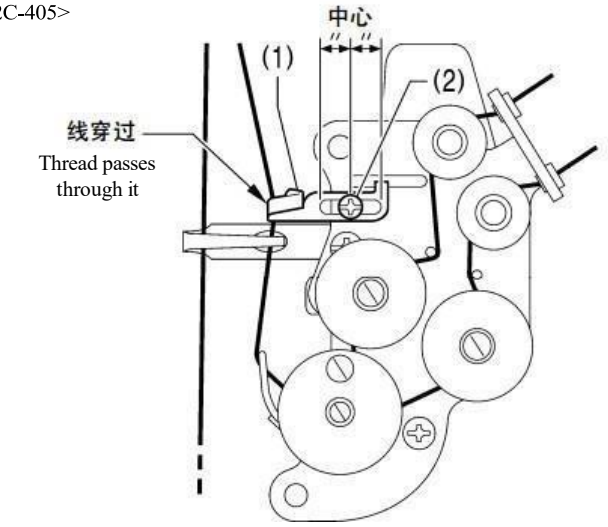
It is better that make the thread pass through the thread quantity regulator (1)

- When using slippery threads such as Tetoron
- When sewing the thin fabric
- When sewing with a stitch length of less than 2mm

<女式内衣规格 · 845S-505 以外>
Other than women's underwear specifications 845D-405



<女式内衣规格 · T-8452C-405>
<Women's underwear specification·T-842C-405>



● When sewing under the above three conditions, in order to prevent the occurrence of machine thread slack and broken thread such as jumper, towel stitch, etc.

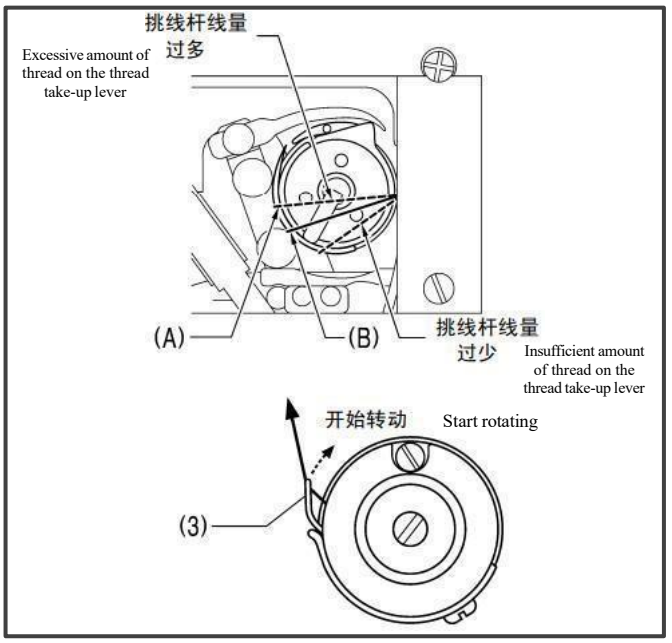
<Adjusted basis >

The tip of the rotary shuttle supplements the thread ring, make the ring move to the point (A) near the front (B) of the maximum amount of rotary shuttle, and the thread take-up spring (3) begins to turn, which is the standard thread take-up lever's thread amount.

● thread take- up lever, then the thread take-up spring (3) will not begin to move even after passing (A).

● If the amount of thread on the thread take-up lever is small, the thread take-up spring (3) starts moving in front of (B).

Due to the type of thread, the thickness of the fabric, the length of the stitch, the amount that thread take-up lever required can change, so please adjust according to the sewing conditions.



7. Maintenance

注意 Notes

Please cut off the power supply before starting the cleaning operation.

When the start switch is pressed by mistake, the sewing machine action may cause personal injury.

When using lubricants and grease, be sure to wear protective eyewear, protective gloves, etc. to prevent the lubricant from falling into your eyes or getting on your skin, which is a cause of inflammation.

In addition, lubricants and grease should not be drunk as it can cause vomiting and diarrhea.

Keep the oil out of the reach of children.

When the sewing machine head is down, be sure to secure the table so that it does not move freely.

The movement of the table can cause accidents such as feet being caught, which is the cause of personal accidents.

When the sewing machine head falls down or stands up, use both hands to operate.

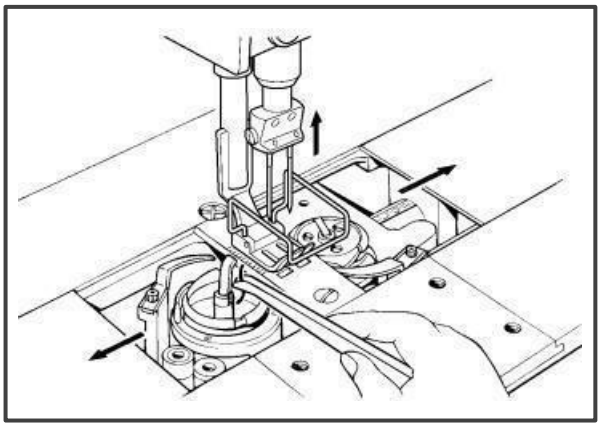
When operating with one hand, it can easily lead to injury due to weight of sewing machine if it slips.

7-1. Daily cleaning procedures

In order to maintain the function of the sewing machine and ensure its long-term use, please perform the maintenance every day. In addition, if the sewing machine has not been used for a long time, please use it after performing the following maintenance.

<Maintenance>

1. Turn the belt pulley of the sewing machine to place the needle in the highest position.
2. Split the sliding board left and right.
3. Remove the shuttle core.
4. Clear the threads in the rotary shuttle.
5. Install shuttle core and shuttle core sleeve.



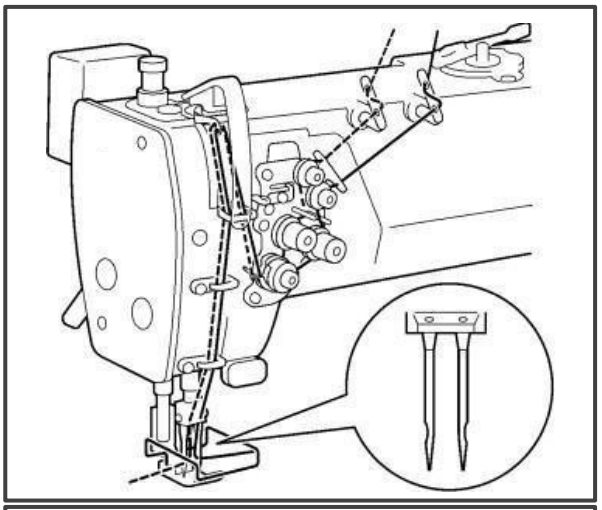
<Add machine oil to the oil tank>

Only use the lubricating oil specified by the company.

1. When the oil level of the lubricating oil drops below the lower base line (2) of the oil gauge window (1), the lubricating oil should be added.

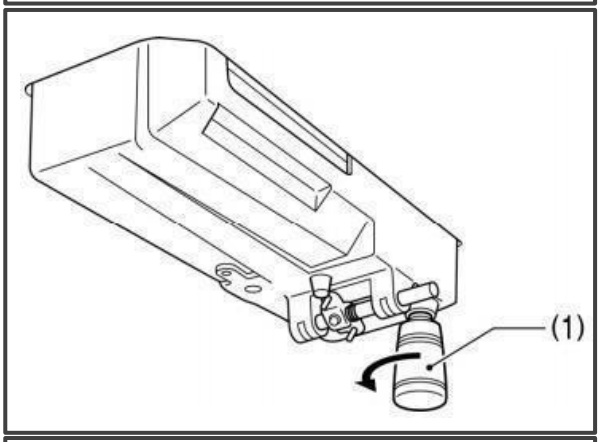
<Check>

1. If the needle bends or the tip breaks, it should be replaced.
2. Check whether the upper thread is correctly threaded.
3. Make a test sewing.



<Waste oil>

1. When the oil pot (1) is full of lubricating oil, please loosen the oil pot
   (1) to remove it and pour out the lubricating oil.
2. Screw the oil pot (1) into the oil pan.



7-2. Add oil to oil cap (every 6 months)
< Micro refueling type >

Fill oil cap (1) with lubricating oil roughly every 6 months.

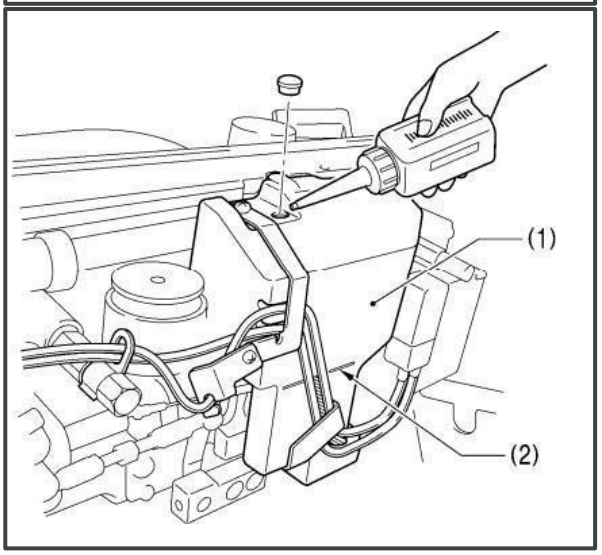
< Needle bar oil-free type >
Basically, while adding lubricating grease, the oil cap (1) should also be added with lubricating oil.

Only use the lubricating oil specified by the company.

1. Lay the head of the sewing machine down.

2. Add lubricating oil to oil cap (1) until the level reaches the baseline position.

3. Return sewing machine head to original position.



8. Adjustment of the oil supply of the rotary shuttle

注意 Notes

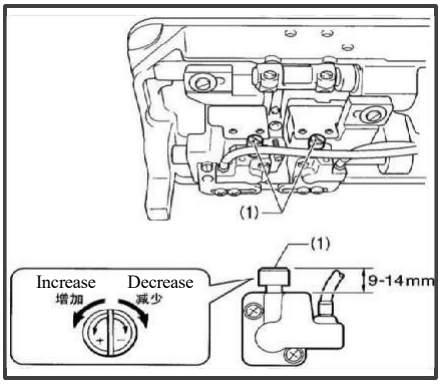
在检查旋梭供油量时,手指和油量测试纸不能碰到旋梭和送布机构等运动零部件。是导致人员受伤的原因。

When checking the amount of oil supplied to the rotary shuttle, do not touch the moving parts such as the rotary shuttle and the feeding mechanism with your fingers or the oil test paper. This is a cause of personal injury.

If you change the rotary shuttle or want to change the sewing speed, please follow the steps below to adjust the oil supply of the rotary shuttle.

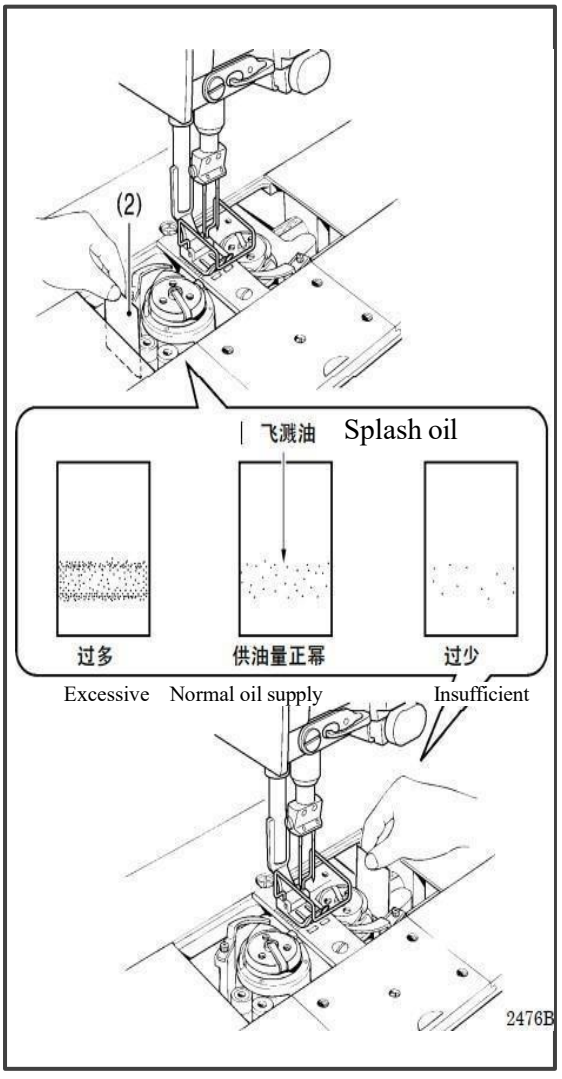
< Approximate standard for oil supply adjustment >

1. Lay the head of the sewing machine down.
2. Turn the oil adjusting screw (1) to adjust its height to 9 ~ 14 mm.



< Confirmation of oil supply>

1. Cut off the power switch.
2. Remove the thread from the thread take-up lever to the needle.
3. Remove the needle and the shuttle core.
4. Raise the presser foot by using the wrench lifting presser foot.
5. Switch on the power switch.
6. Run the sewing machine at its actual sewing speed for approximately 1 minute without load (with moderate intermittent operation)
7. Insert the oil test paper (2) into the left side of the rotary shuttle (right side refers to the right side of the rotary shuttle) and hold it, and run the sewing machine for 8 seconds at the actual sewing machine speed. (There is not any specific requirements for the paper of oil level test paper (2).)
8. Confirm the amount of oil splashed onto the test paper.



<Adjustment of the oil supply>

1. Lay the head of the sewing machine down.
2. Turn the oil adjusting screw (1) to adjust the oil supply. Turn the oil adjusting screw (1) to the left to increase the oil supply; turn the oil adjusting screw (1) to the right to reduce the oil supply;
3. Check the oil supply by referring to the above < Confirmation of oil supply >.
4. After sewing for about 2 hours, please check the oil supply again

9. Standard adjustment

注意 Notes

Only trained technical personnel should perform maintenance and inspection on the sewing machines.

Always hire a professional electrician to perform electrical distribution.

If any of the safety devices have been removed, be sure to reinstall them in their original positions and check for proper operation before use.

When the sewing machine head falls down or stands up, use both hands to operate.
When operating with one hand, it can easily lead to injury due to weight of sewing machine if it slips.

If any of the following occurs, turn off the power and unplug the machine from the mains. Otherwise, if the start switch is pressed by mistake, the action of sewing machine may cause injury.

When using a clutch motor, the motor will continue to rotate for a certain period of time due to inertia even after the power is turned off. Therefore, please wait until the motor completely stops before proceeding with the operation.

When conducting inspections, adjustments, and repairs

When replacing consumable parts such as rotary shuttle

- When the power switch must be connected for adjustment, be sure to observe all safety precautions with great care.

9-1 . The amount of thread take-up spring

The standard amount of the thread take-up spring R (1) and L (2) is 7mm. The adjustment of thread take-up amount is to change the height of the thread take-up amount limiter [Right] (3) and [Left] (4).

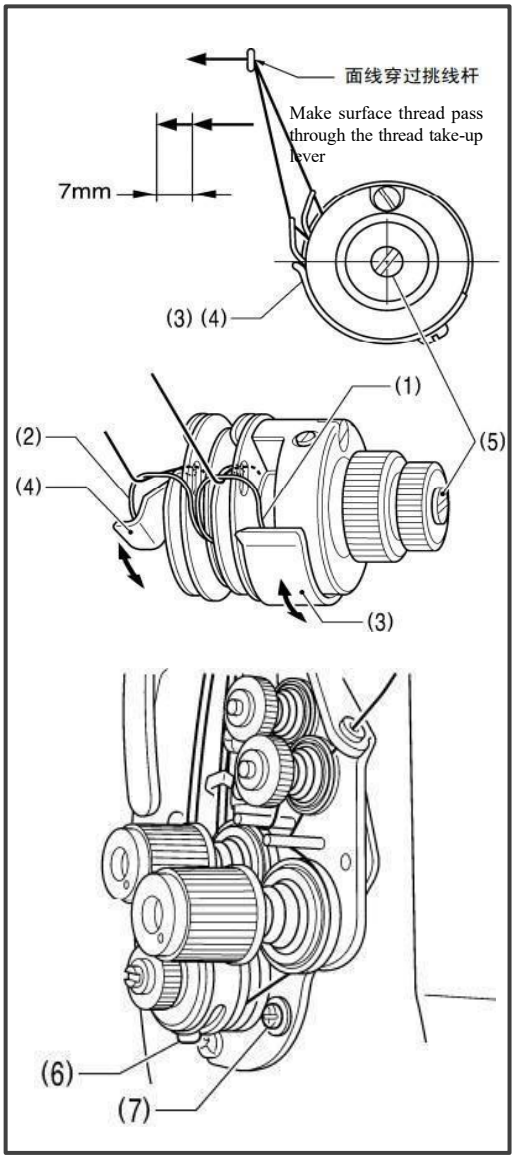
* The height of the take-up amount limiter [right] (3) and [left] (4) is the standard position when on the center state of the thread clamping shaft (5).

<Adjustment Method>

The higher the position of the take-up amount limiter is adjusted, the less the take-up amount of the thread take-up spring.

Height of thread take-up spring limiter [right] (3) [for right thread]

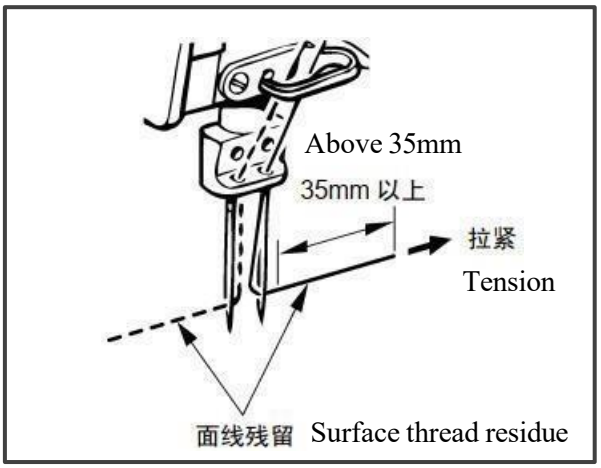
1. Loosen the screw (6), and slide the thread take-up spring limiter [right] (3), to raise the height.
2. Tighten the screw (6).



Height of thread take-up spring limiter [left] (4) [for left thread]

1. (7), and slide the thread take-up spring limiter [left] (4), to raise the height.

2. Tighten the screw (7).



[Note]

When using the thread-cutting sewing machine, the surface thread residue on the left side after thread cutting will be shortened due to the reset of the twisted thread.

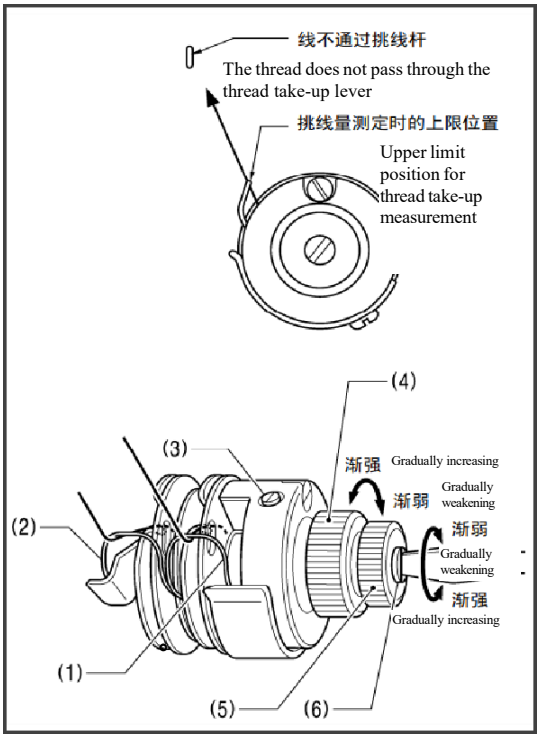
When the surface thread is pulled from the needle hole, it will be normal if the surface thread is more than 35mm; please reduce the thread take-up amount of the thread take-up spring if the surface thread is shorter than 35mm.

However, in the case of thin thread (polyester #50 or below, etc.), if the thread take-up amount is reduced too little, the right surface thread will be extremely short and easy to cut off or the left surface thread will be cut incorrectly.

9-1 . The strength of thread take-up spring

The standard strength of the thread take-up spring R (1) and L (2) is specified as follows:

For women's underwear	0.25N
Suitable for thinner and medium thick fabrics	0.34N
Suitable for thicker fabrics (405, 407)	0.70N



<Adjustment Method>

Thread take-up spring R (1) [for right thread]

1. Loosen the fixing screw (3) and rotate adjustment button (4) to adjust

2. Tighten the fixing screw (3).

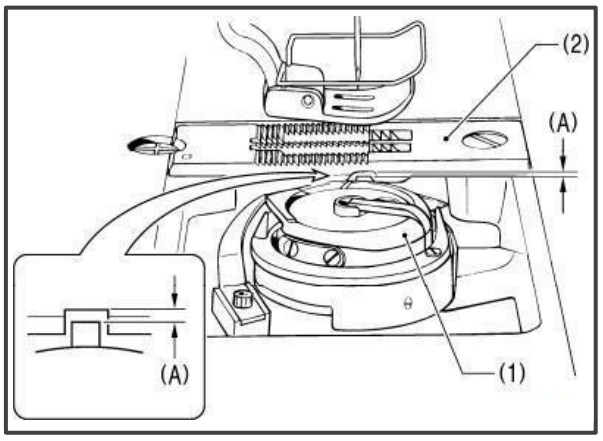
Thread take-up spring L (2) [for left thread]

1. Loosen the thread clamping nut (5).
2. Rotate the thread clamping shaft (6) with a screwdriver (small) for adjustment.
3. Tighten the thread clamping nut (5).

9-2 . Gap between rotary shuttle and needle plate

When leaving the factory, the gap (A) between the rotary shuttle (1) and the needle plate (2) is adjusted as shown in the following figure.

Machine type	(A) Size
Without cutting function SP-842C	0.9～1.2mm
With cutting function SP-842D SP-845D SP-872D SP-875D	1.4～1.7mm



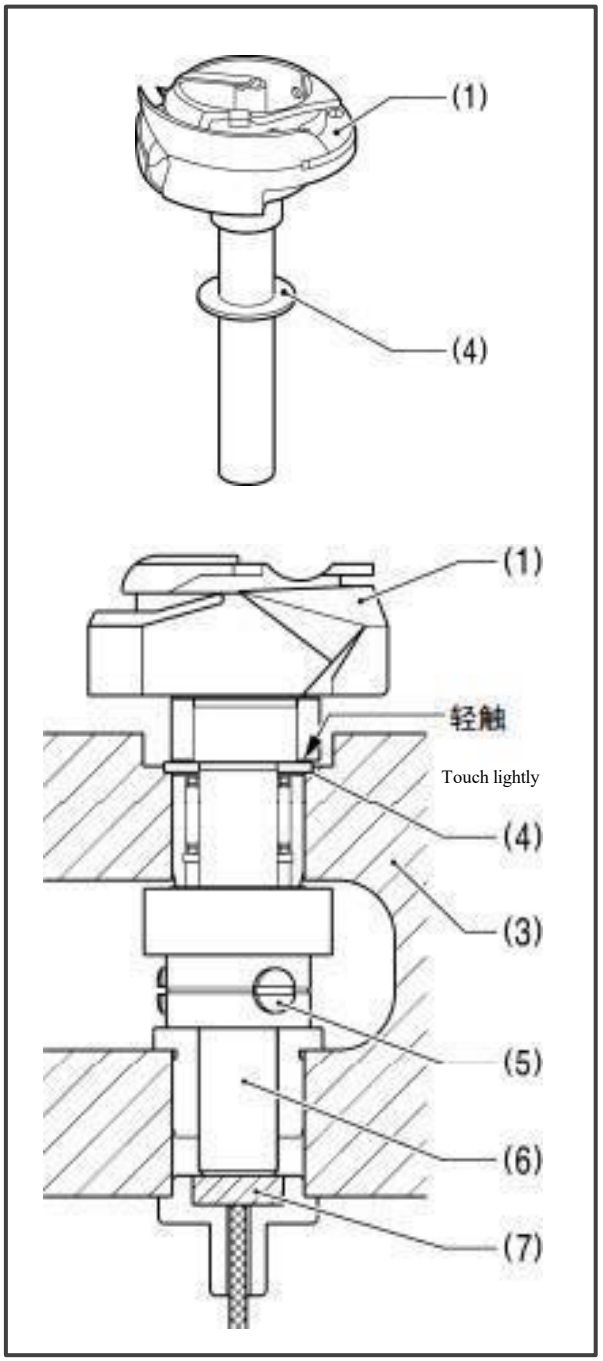
10

● Please confirm the gap (A) if the gap between the rotary shuttle (1) and the needle plate (2) affects some parts after replacing rotatory shuttle.

● To adjust the gap (A), it is necessary to replace the thrust ring (4) between the rotary shuttle (1) and the rotary shuttle base (3).

● There are three types of thrust ring (4) (0.8mm, 1.0mm and 1.2 mm). Please replace the thrust ring (4) with an appropriate thickness after measuring the thickness of the current thrust ring (4).

● When replacing the rotary shuttle (1), loosen the three fixing screws (5). Please do not remove the thrust ring (4) at this time



[Notes]

Put the oil felt (7) for oil supply on the bottom of the rotary shuttle shaft (6), lightly press the rotary shuttle (1) downward, and fix it with the fixing screw (5) so that the rotatory shuttle (1) does not float.

When the gap is too large

● The medium rotary shuttle may leave the needle plate (2).

When the gap is too small

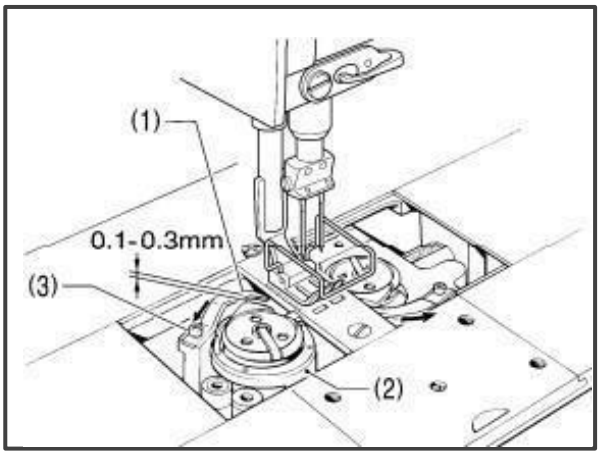
● Thread tightness may be bad;

● Cutting error may occur;

● The right surface thread may be cut short.

* Above conditions may occur especially when cutting is carried out in the case of long stitch and float stitching.

9-2 Gap between rotary shuttle and opener



1. When the opener (1) is fully pulled in the arrow direction, loosen the fixing screw (3) and adjust the opener (1) left and right, so that the gap between the rotary shuttle (2) and the opener (1) is 0.1-0.3mm.
2. Tighten the fixing screw (3).

[Notes]

When the gap is too large

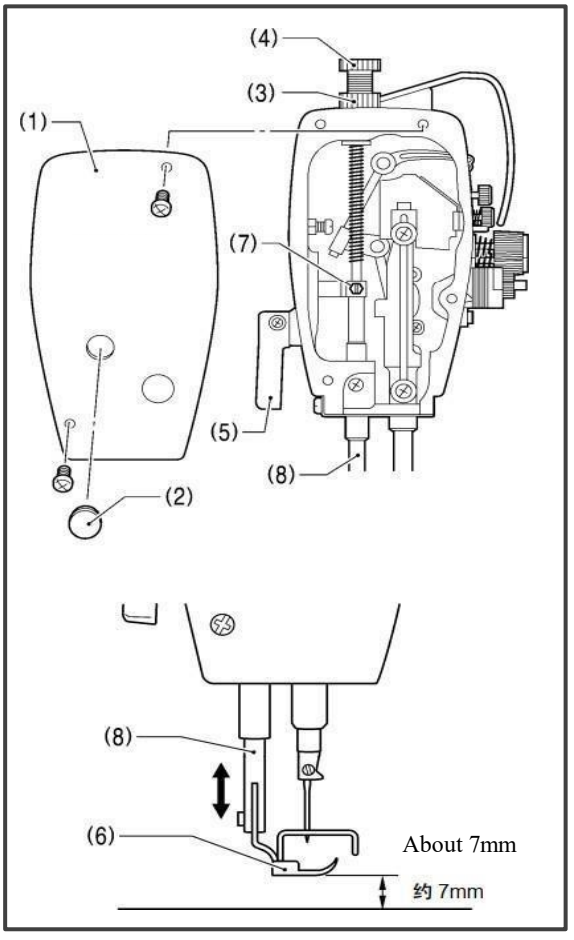
Cutting error of surface thread may occur;

The surface thread may be cut short. (with cutting function)

When the gap is too small

The rotary shuttle will be damaged; the opener (1) will be damaged.

9-3 . Height of presser foot



1. Remove the panel (1), and take out the rubber plug (2).
2. Loosen the nut (3) and the presser foot adjusting spring (4).
3. Raise the presser foot (6) by using the rod lifting presser foot (5).
4. Loosen the screw (7) and move the presser foot rod (8) up and down for adjustment, so that the presser foot (6) rises to about 7mm above the needle plate.

[Notes]

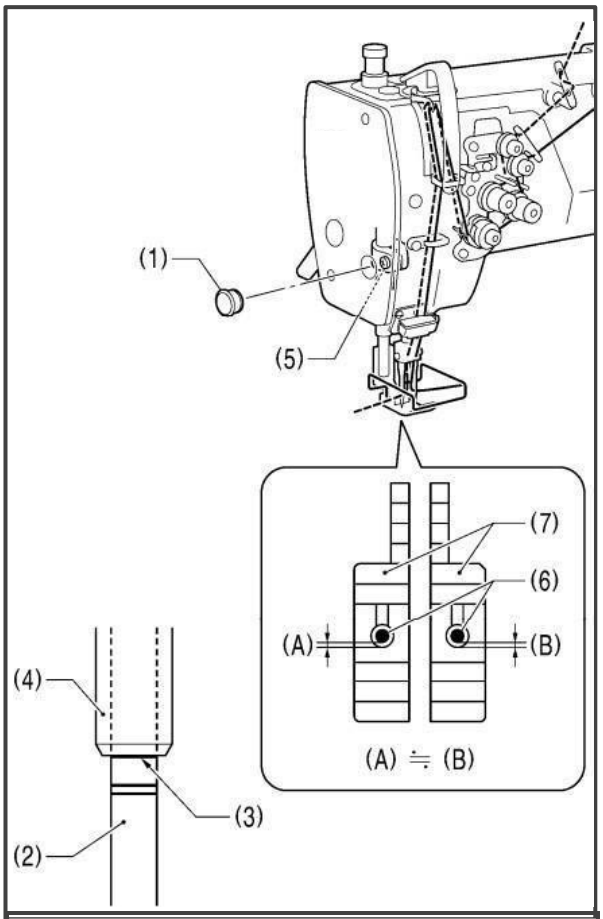
Please do not rotate the presser foot rod (8).

5. Tighten the screw (7).
6. Adjust the pressure of the presser foot by the presser foot adjusting spring (4) and tighten the nut (3).

9-3 . Synchronization of needle and rotary shuttle

1. Unify the feeding dial with the actual sewing needle pitch.
2. Remove the rubber plug (1).
3. When the needle bar (2) is in the lowest position, loosen the screw (5) and adjust the needle bar (2) up and down so that the uppermost baseline (3) of the needle bar (2) corresponds to the lower end of the needle bar seat (4).
4. Tighten the screw (5).
5. At this time, the spacing (A) and (B) in front of the needle (6) and the feed dog (7) should be roughly the same on the right.
6. Turn the upper wheel of the sewing machine in front of you so that the needle bar (2) rises until the baseline of the needle (2) (depending on the state of the feeding (8) or (9) corresponds to the lower end of the needle bar seat (4).
7. In such a state, use the sling to fix the upper wheel of the sewing machine, so that the needle bar (2) does not move.

At this point, the amount of needle bar rise is determined.



[Notes]
In case of excessive needle rise amount
It will cause the right side of the thread slack;
Both left and right will lead to uneven stitches, stitch skipping, broken thread; Sometimes it will cause the surface thread cutting error or the surface thread becomes short and easy to cut off;

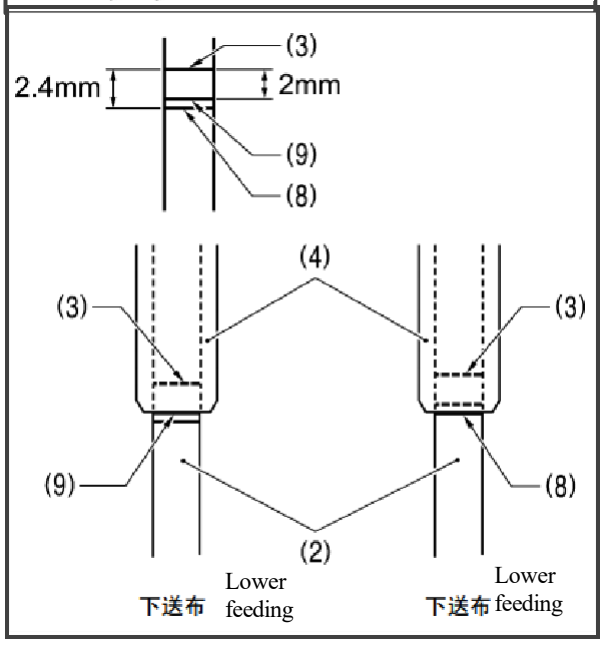
The residual of surface thread after cutting will become longer. (with cutting function)

In case of too little needle rise amount
It will cause stitch skipping, broken thread phenomenon;
The residual of surface thread after cutting will become shorter. (with cutting function)

8. Loosen the screw (10), remove the rotary shuttle base covers FL (11) and FR (12). (Do not remove screws (10) from the rotary shuttle base covers FL (11) and FR (12) to prevent falling.)
9. Loosen fixing screws (13) [3 pieces on each side]. (However, if it is too loose, the fixing screw (13) will touch the inner wall of the rotary shuttle base cover, and the auxiliary gear (14) will not rotate. Please loosen it enough to allow the rotary shuttle to rotate freely.)
10. Turn the rotary shuttle by hand so that the tip of the rotary shuttle (15) is aligned with the center of the needle. (At this time, please do not turn the upper wheel.)
11. Tighten the fixing screw (13).

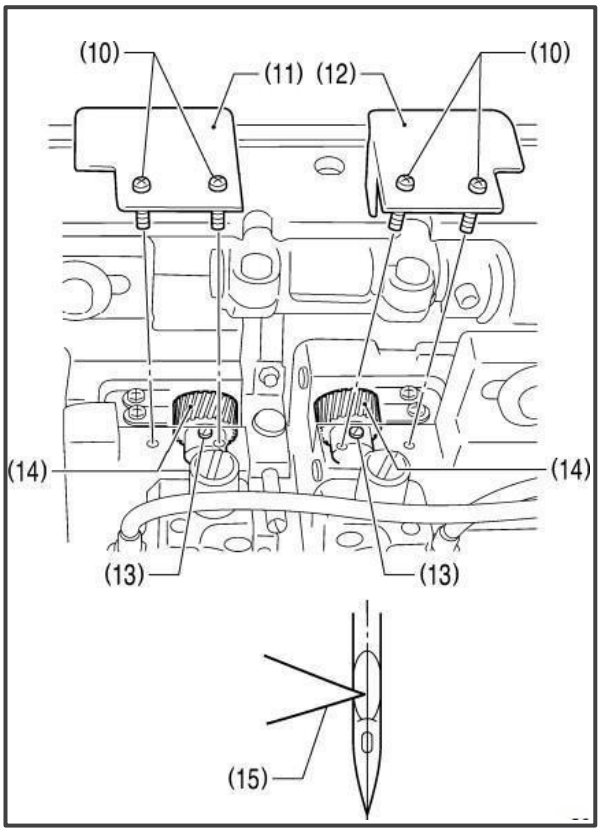
(Tighten the three fixing screws (13) in turn so that the auxiliary gear (14) is not deviated.)

12. Remove the sling that holds the upper wheel of the sewing machine, etc.



< Used for 842D, 872D>

13. Apply ink to the slot of the needle.
14. When the needle is raised, push the needle towards the rotary shuttle tip (15) with your finger and turn the upper wheel of the sewing machine in front of you. The trace of the rotary shuttle tip (15) will be left on the slot of the needle.
15. 。
15. Make sure that the size (C) from the intersection of trace of the rotary shuttle tip (15) and the center line of the needle to the upper end of the thread hole of the needle is 1 to 1.5mm.



* If it is not 1 ~ 1.5mm, please loosen the screw (5) and adjust the height of the needle bar.

* In the case of size (C) adjustment, the uppermost baseline (3) of the needle bar (2) is sometimes hidden higher than the lower end of the needle bar seat (4) when the needle bar is placed in the lowest position, but this is not a problem.

In the use of polyester thread, the thread ring is difficult to stabilize the thread

* In case of problems such as stitch skipping and surface thread breakage, please set the above mentioned size (C) at 0.7 ~ 1.2mm so that the rotary shuttle tip (15) can easily catch the thread ring.

[Notes]

* If the needle pitch is changed, the size (C) will change, so please confirm the size (C) again.

* The size of the left needle (C) will be reduced during reversal, so please do not set the size (C) below 0.7mm. The rotary shuttle tip (15) touchesconcave part (D) of the needle, which may damage the rotary shuttle tip (15).

<Used for 845D, 875D>

13. Use an oil-based marker to color in the groove of the needle.
14. As the needle rises, push the needle by hand towards the rotary shuttle tip (15), when marked with the rotary shuttle tip (15) in the groove of the needle, rotate the belt pulley of sewing machine forward.
15. Make sure that the distance (C) between the intersection between the mark of the rotary shuttle tip (15) and the center line of the needle and the upper edge of the needle hole is 1～1.5mm

In the use of polyester thread, the thread ring is difficult to stabilize the thread

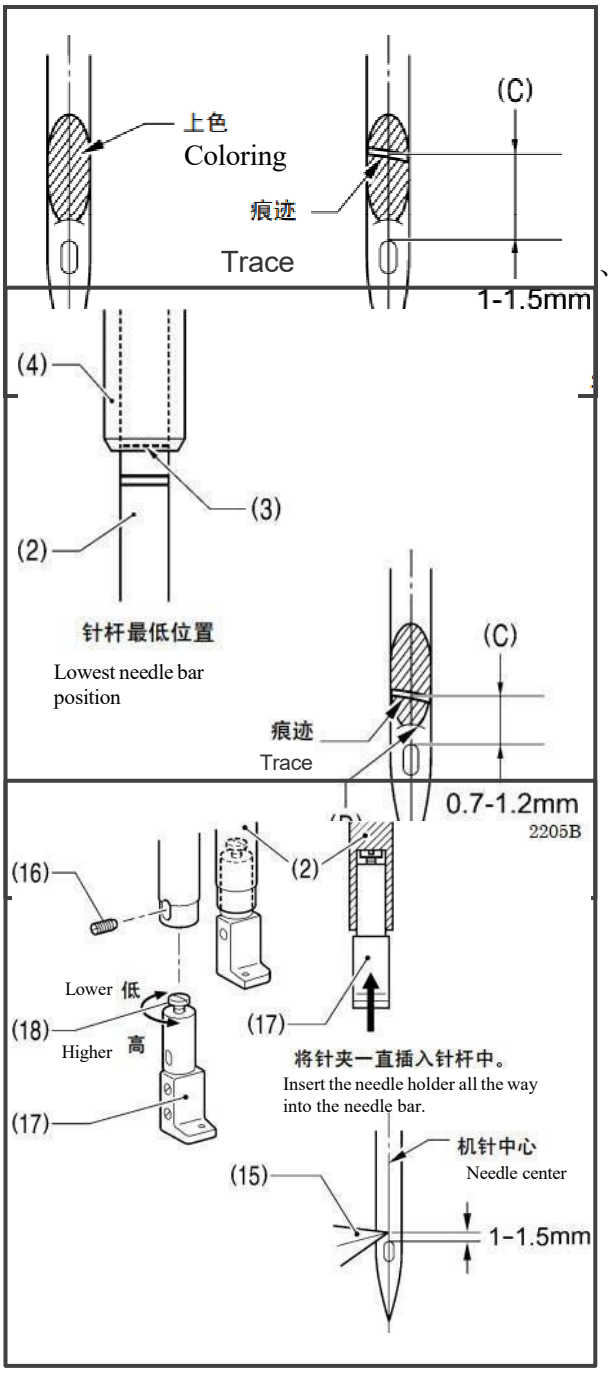
* In case of problems such as stitch skipping and surface thread breakage, please set the above mentioned size (C) at 0.7～0.8mm so that the rotary shuttle tip (15) can easily catch the thread ting.

[Notes]

* If the needle pitch is changed, the size (C) will change, so please confirm the size (C) again.

* The size of the left needle (C) will be reduced during reversal, so please do not set the size (C) below 0.7mm. The rotary shuttle tip (15) touches concave part (D) of the needle, which may damage the rotary shuttle tip (15).

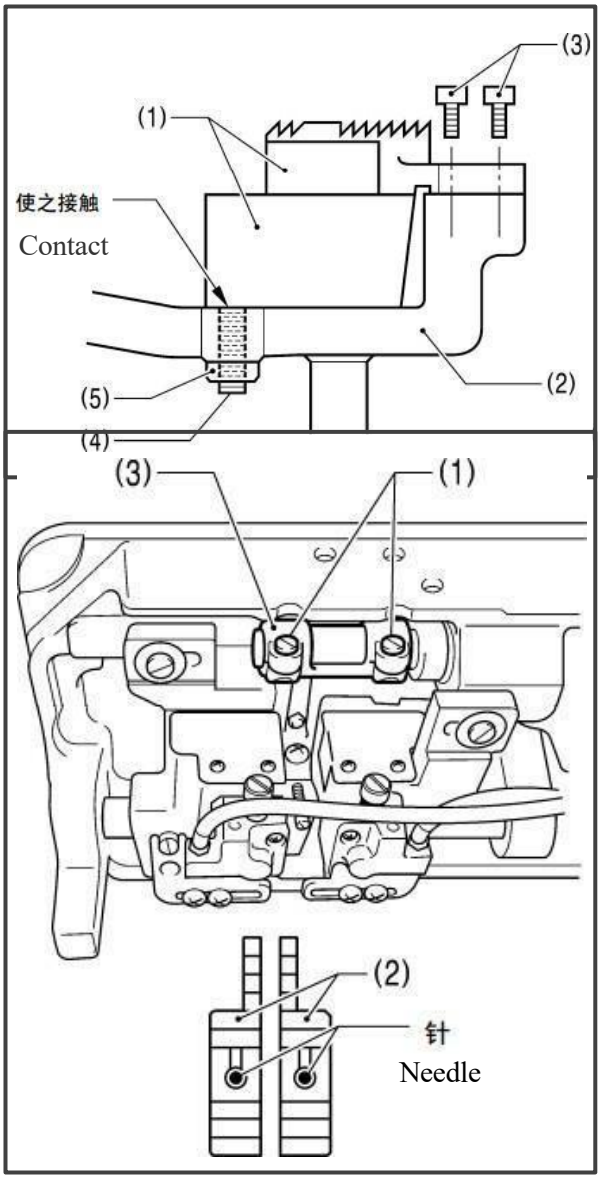
16. Loosen the fixing screw (16), then pull down the thread bar clamp (17) to remove it.
17. Rotate the screw (18) for adjustment so that the distance between the upper edge of the needle hole and the rotary shuttle (15) is 1～1.5mm.
18. After the adjustment is complete, insert the needle holder (17) into the needle bar hole (2) as deep as possible and ensure that the distance is 1～1.5mm. Tighten the fixing screw (16) for reinforcement.



9-4 . Installation method of feed dog

1. Install the feed dog (1) on the feeding table (2) with screws (3) [2 pieces].
2. Tighten the fixing screw (4) of the feed dog base so that its front end is in contact with the lower part of the feed dog (1).
3. Tighten the nut (5) and fasten the screw (4).

* The feed dog cannot be installed with a fixing screw (4) at an angle.



9-4 . The position of the feed dog

< Adjustment of front and rear position >

Even if the spacing (13.3 ~ 13.7mm) between the thread bar and the presser foot rod is correct, when the position relationship between the needle and the thread hole of feed dog is not good, it is also necessary to adjust.

1. Loosen the screws (1) [2 pieces].

2. Turn the feed rocker base arm (3) for adjustment, so that the needle hole center of the feed dog (2) makes the needle locate in the center of the needle hole. (In fact, when the needle enters the feed dog (2), it is closer to the front, and when it comes out, it is closer to the side.)

3. Tighten the screw (1).

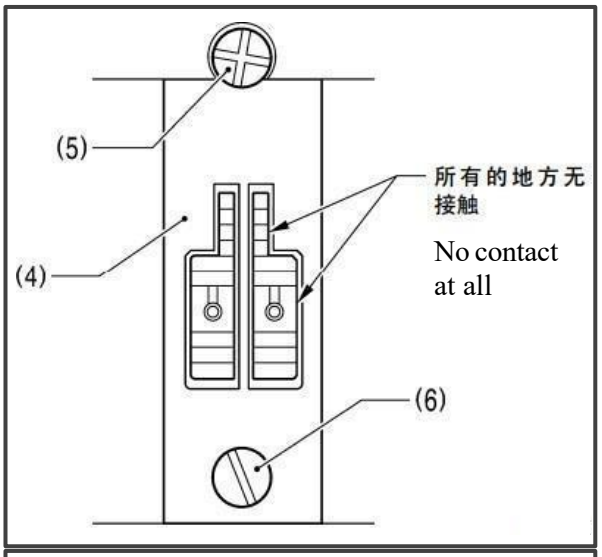
[Notes]

Do not over-tighten the screw (1), which will cause damage to the (3) feed rocker base arm.

< Adjustment of left and right position >

Adjust according to the position of the needle plate, when the needle plate (4) is fixed on the bottom plate with screws (5) and (6), so that the sides of the feed dog have no contact with the needle plate.

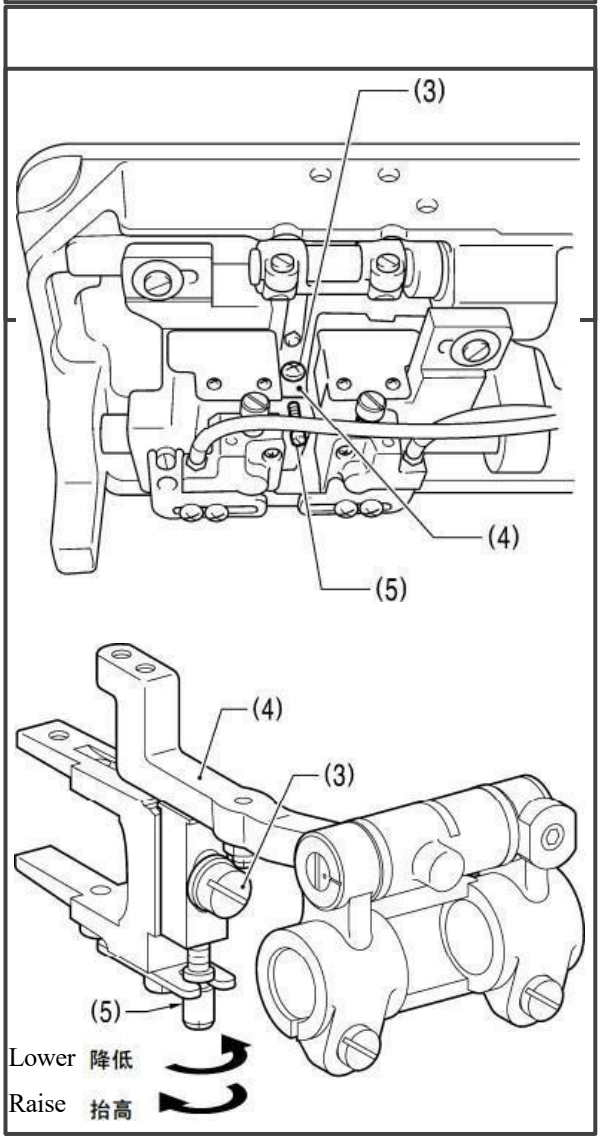
When the needle plate is in contact with the feed dog, loosen the screw (1) and move the feed rocker base arm (3) left and right to adjust.



9-5 . The height of the feed dog

Turn the belt pulley of the sewing machine forward and adjust when the feed dog (1) stays in the highest position, so that the feed dog (1) is 0.9 ~ 1.1mm away from the needle plate (2).

1. Put down the sewing machine head.
2. Loosen the screw (3) a little so that the feeding table (4) can slide.
3. Turn the height adjusting screw (5) as shown in the figure to adjust the height of the feed dog (1).
4. Tighten the screw (3).
5. Confirm the height of the feed dog (1) again.



[Notes]

When the feed dog is too high

The feed dog will touch the needle plate;

The stitch length is larger than the scale of the feeding dial; When using thick thread, the thread tightness is not good;

The stitch length of the forward feed and the reverse feed is difficult to be consistent;

A cutting error of bottom thread may occur. (with cutting function)

When the feed dog is too low

The stitch length is larger than the scale of the feeding dial;

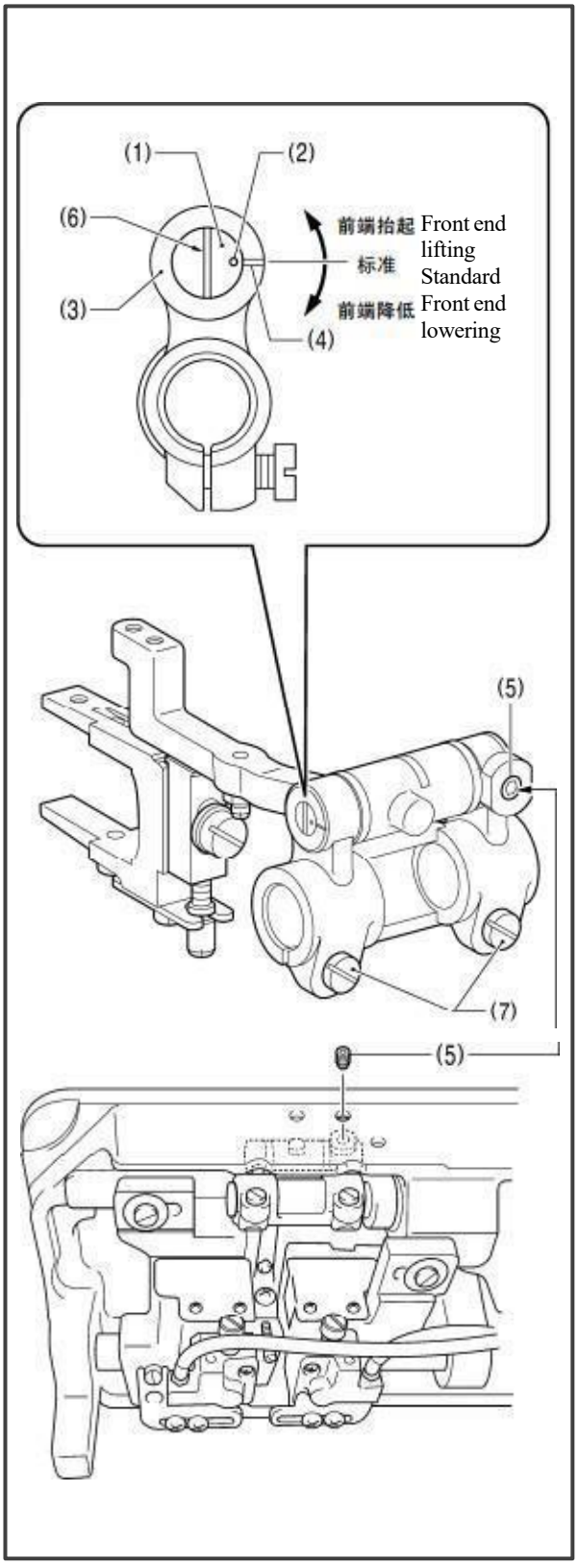
The stitch lengths for cloth feeding forward and cloth feeding backward are difficult to be consistent; The feed dog may touch the movable knife; The difference in stitch lengths between low-speed and high-speed sewing becomes larger.

9-5 Tilt of the feed dog

Turn the belt pulley of the sewing machine forward and adjust when the feed dog (1) stays in the highest position, so that the feed dog (1) is 0.9 ~ 1.1mm away from the needle plate (2).
Adjust to the position at which the matching mark (2) of the mounting shaft (1) of the feeding table is consistent with the baseline (4) of the feed rocker base arm (3).
1. Put down the sewing machine head.
2. Loosen the fixing screw (5).
3. Insert the screwdriver into the crack (6) of the mounting shaft (1) of the feed dog, rotating it for adjustment.
4. Tighten the fixing screw (5).

* Adjust the tilt of the feed dog, so the front and rear positions of the feed dog will change. Loosen the screws (7) [2 pieces] and adjust the front and rear positions of the feed dog with the needle as the reference (the needle plate as the reference when feeding cloth downward).

* In addition, if the tilt of the feed dog is adjusted, the height of the feed dog will also change, therefore, please readjust the height of the feed dog.



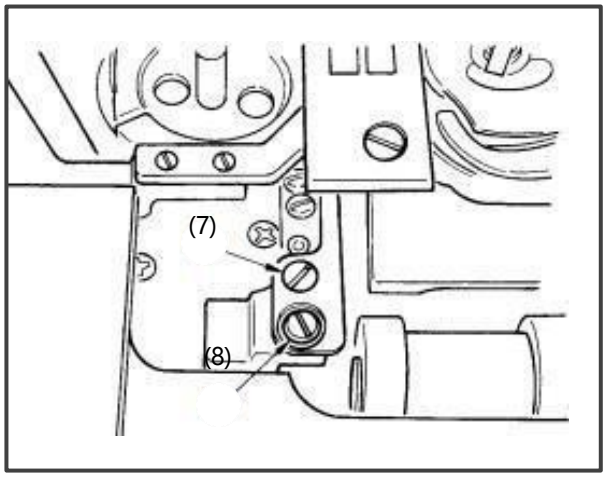
9-6 Adjusting method of movable knife position

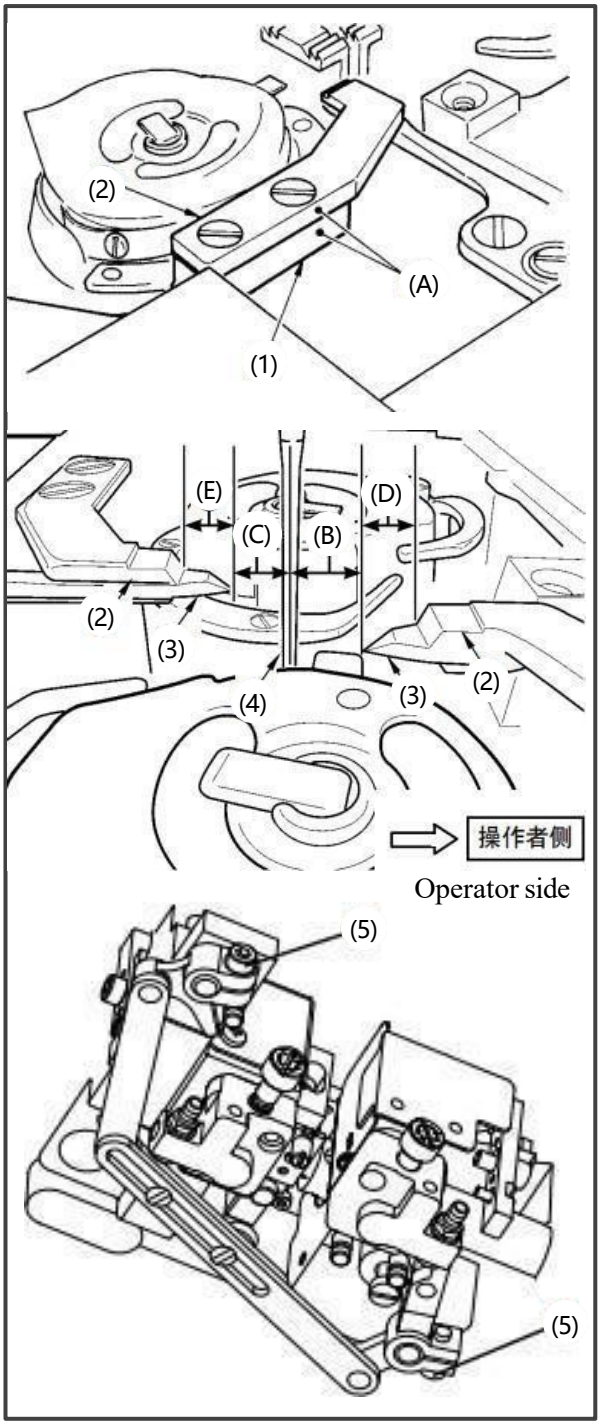
1. Align the fixed tool holder (1) with (A) side of the fixed tool (2).

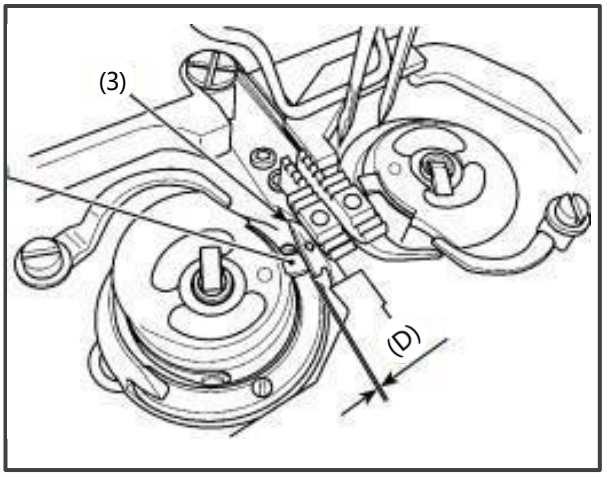
2. Loosen the sleeve screw (5) on the back of the machine, and adjust the front end of the movable knife, the distances (B) and (C) of the needle (4) to the size in the following table when the feeding distance is minimum, the needle (4) stays at the lower dead point and the machine is at stand by status.

	Left cutter		Right cutter	
	(B)	(D)	(C)	(E)
SP-842D	6.2	3.5	7.5	2.7
SP- 845D				
SP-872D	7.3	4.1	8.9	3.1
SP-875D				

3. Adjust the gap (D) between the movable knife (3) and the convex part of the medium rotary shuttle (6) to 0.3±0.1mm; please loosen the movable knife fixing screws (7) (8) for adjustment.







10. Troubleshooting

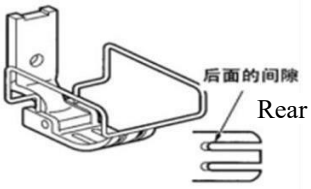
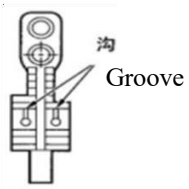
Check the following points before you request repair or service.

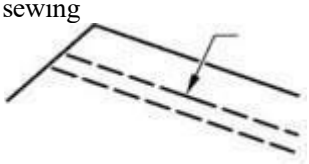
If the following methods still do not solve the problem, turn off the power switch or consult a trained technical personnel or dealer.

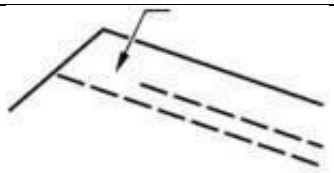
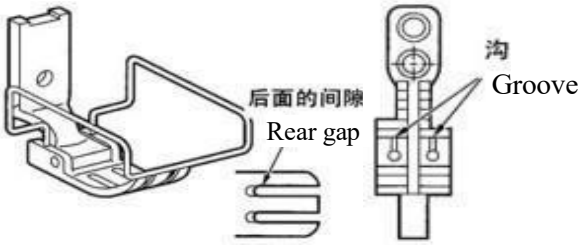
⚠ 注意 Note

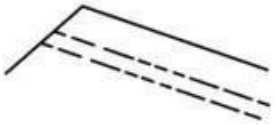
Turn off the power switch and disconnect the power cord before performing any troubleshooting. However, the motor will continue to rotate for a certain period of time due to inertia after the power is turned off, please wait until the motor has completely stopped before proceeding.

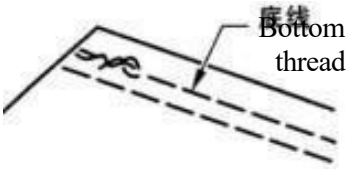
Otherwise, if the start switch is pressed by mistake, the sewing machine will move, resulting in personal injury.

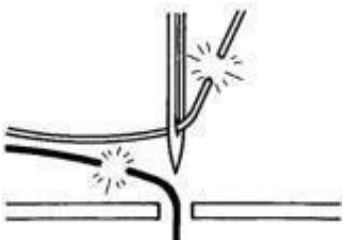
S.N.	Fault Description	Inspection and adjustment
1	The surface thread is not tight enough  The bottom thread is not tight enough 	● Is the sewing machine thread threaded correctly? If the threading is not correct, the machine thread should be correctly threaded. ● Is the surface thread tension or bottom thread tension too weak? Adjust the surface thread tension or bottom thread tension. ● Is the action range of the thread picking spring too small? Lower the position of the thread picking spring stopper. When using a sewing machine with medium and thick fabric specifications, the stitch may not be tight enough depending on the type of fabric. In this case, please replace the presser foot with a gap behind; or replace the feed tooth with groove.  
2	There are bad loops and knots under the fabric 	● Is the thread not smooth enough? Smooth the thread with a fine grit file or sandpaper. ● Does the shuttle core rotate smoothly? Pull out the bottom thread to check if the thread tension is relaxed, or replace the shuttle core or the shuttle core sleeve. ● Is there too much thread take-up amount? Adjust the thread take-up amount.

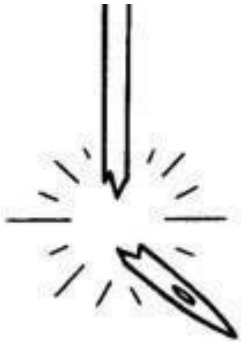
S.N.	Fault Description	Inspection and adjustment
3	Stitch skipping occurs during sewing 	● Is the needle bent? Is the needle tip blunted? If the needle tip is bent or broken, it should be replaced. ● Is the needle properly installed? If the needle is not installed correctly, please install it correctly. ● Is the sewing machine thread threaded incorrectly? If the threading is not correct, the machine thread should be correctly threaded. ● Is the presser foot's pressure too low? Adjust the presser foot's pressure. ● Is the needle too thin? Replace a larger needle. ● Is the presser foot too high? Adjust the height of the presser foot. ● Is the thread take-up spring too weak? Adjust the tension of the thread take-up spring. ● Is there too much thread take-up amount? Adjust the thread take-up amount.
	Stitch skipping appears at the beginning of sewing Thread detachment appears at the beginning of sewing	● Is the thread take-up spring tension too large? Reduce the thread take-up spring tension. ● Is the working range of the thread take-up spring too large?

4		Raise the position of thread picking spring stopper. ● Is the thread take-up lever at the highest position when sewing begins? Please place the take-up lever on the highest position when sewing begins. ● Is the thread protruding from the needle lead hole too short? Please pull the thread out about 50mm from the lead hole when sewing begins. ● Is the needle too thick? Use the needle one size smaller than the current needle. ● Is sewing speed too fast at the beginning of sewing? Use the slow start function. ● When sewing flat fabrics, medium and thick fabrics, are presser feet with gaps in the back or feed tooth with grooves used? Presser foot with no gap should be used. Feed tooth without grooves should be used 

S.N.	Fault Description	Inspection and adjustment
5	The thread seam is uneven 	● Is the presser foot's pressure too low? Adjust the presser foot's pressure. ● Is the height of the feed dog too low? Adjust the height of the feed dog. ● Is there a scratch on the shuttle core?] If the shuttle core is damaged, polish it smooth with an oil sharpening stone or replace it.
6	A lot of wrinkles (excessive tension) 	● Is the surface thread tension too large? Minimize the surface thread tension as much as possible. ● Is the bottom thread tension too large? Minimize the bottom thread tension as much as possible. ● Is the thread take-up spring tension too large? 。 Minimize the tension of the thread take-up spring as much as possible. ● Is the working range of the thread take-up spring too large? Raise the position of the thread picking spring stopper as high as possible. ● Is the presser foot's pressure too high? Adjust the presser foot's pressure. ● Is the thread take-up amount too little? Adjust the thread take-up amount.
7	Thread seam is not fit 	● Is the presser foot's pressure too high? Adjust the presser foot's pressure.

8	The bottom thread becomes tangled at the beginning of sewing 	● Is the shuttle core rotating in the correct direction when pulling out the bottom thread? Install the shuttle core to make it rotates in the opposite direction of the rotary shuttle. ● Is there too much thread winding in the shuttle core? The winding amount of the shuttle core should not exceed 80%. ● Does the shuttle core turn smoothly? If the shuttle core does not turn smoothly, the shuttle core should be replaced. 

S.N.	Fault Description	Inspection and adjustment
9	Surface thread and bottom thread are broken 	● Is the needle bent or needle tip broken? If the needle bends or breaks, it should be replaced. ● Is the needle properly installed? If the needle is not installed correctly, please install it correctly. ● Is the sewing machine thread threaded correctly? If the threading is not correct, the machine thread should be correctly threaded. ● Has the oil tank been filled with machine oil? If the oil level of the lubricating oil drops below the lower baseline of the oil gauge window, the machine oil should be added.

10	Broken needle 	● Do you apply excessive force when feeding or pulling out fabric during sewing? ● Is the needle bent? Is the needle tip broken or the needle hole blocked? Change the needle. ● Does the needle move up and down in the center of the needle hole of the feed tooth? Confirm the drop of the needle. If the needle does not move up and down in the center of the needle hole of the feed tooth, the feed tooth should be reinstalled. When the needle is rotating, turn the needle to adjust it to the correct position. **Notes:** * If the broken needle accidentally falls into the sewing clothing, there will be a great danger. * Please try to find the remains of the needle until the whole needle is finded. * In addition, please keep the needle's record, we recommend using manufacturer liability act for needle management.

11. Electric control operation instructions

11-1 Instructions for operating panel

1. Display instructions for the operation panel

According to the working status of the system, the LCD screen block on the operation panel displays the current sewing mode, various parameters, as well as LCD characters such as lifting presser foot, needle stop position, thread cutting, etc. The function icons on the operation panel are displayed as follows:

2. Function description of buttons on the operation panel

Function key	P	Click to enter or exit the user parameter setting interface.
OK key	S	View and save the selected parameter number: Press this key to view and modify the operation after selecting parameter number, press this key to exit and save the parameter after modifying the parameter value.
+ button	+	Click to increase the parameter value; Long press to continuously increase the parameter value;
- button	−	Click to decrease the parameter value; Long press to continuously decrease the parameter value;
Left selection key	<	In parameter setting, leftward select the parameter range;
Right selection key	>	In parameter setting, rightward select the parameter range;

Startup back sewing button/ slow start sewing button		Click to switch between AB reinforcement seam → ABAB reinforcement seam → no reinforcement seam → B reinforcement seam in sequence; Long press to set use or cancel the slow start sewing function;
End back sewing button/ needle stop position button		Click and switch to CD reinforcement seam → CDCD reinforcement seam → no reinforcement seam → C reinforcement seam in sequence; Long press to switch the stop position of the needle after sewing (upper needle stop position/lower needle stop position);
Free sewing button /one-segment fixed needle sewing button		Click to set to the free sewing mode; Long press to set to the one-segment fixed needle sewing mode;
Continuous back sewing button/ multi-segment fixed needle sewing button		Click to set to the continuous back sewing mode; Long press to set to the multi-segment fixed needle sewing mode (switch to four segment sewing, seven segment sewing, eight segment sewing and fifteen segment sewing modes in sequence);
Lifting presser foot button/ automatic trigger button		Click to switch off the automatic presser foot lifting in sequence → automatically lift the presser foot after cutting the thread → automatically lift the presser foot when the motor in the sewing machine stops → automatically lift the presser foot after cutting the thread and when the motor in the sewing machine stops; Long press to set or cancel the trigger automatic function;
Cut button/clamp button		Click to use or cancel the cut function; Long press to use or cancel the clamp function;

2. Auxiliary functions of operation panel

- **Restore factory settings**

  In the main interface, long press the automatic trigger key to restore the factory Settings.

- **Quick settings of needle stop position**

In the main interface, click P key to enter the parameter, adjust the parameter to P72, manually turn the handwheel to the desired upper needle stop position, the displayed value will change with the change of the handwheel position, press S key to save the current position (value) as the upper needle stop position, and at the same time automatically calculate the lower needle stop position.

- **Lock screen function**

In the main interface, when the no-operation time reaches the time (s) set in item P27-N01, the lock screen will be automatically locked, or long press the S key to manually lock the screen When the lock screen is "LOCK", press S key to unlock it.

11-1 Parameter table

Parameter item	Chinese descriptions	Scope	Initial value	Description and remarks of content value name
P01	Maximum speed (rpm)	100-3200	2500	Maximum speed setting during sewing
P02	Acceleration curve adjustment (%)	10-100	80	Climb slope setting of speed controller The larger the slope value, the steeper the speed, and the smaller the slope value, the slower the speed
P03	Selection of needle stop positioning	UP/DN	DN	UP: upper needle stop; DN: down needle stop
P04	Startup back sewing speed (rpm)	200-3200	1200	Speed setting for front-segment back sewing (startup back sewing)
P05	End back sewing speed (rpm)	200-3200	1200	Speed setting for rear-segment back sewing (startup back sewing)
P06	Continuous back sewing speed (rpm)	200-3200	1200	Speed setting for continuous back sewing
P07	Slow sewing startup speed (rpm)	200-1500	400	Speed setting for slow sewing startup
P08	Slow sewing startup stitches (stitch)	1-99	2	Number of stitches setting for slow sewing startup
P09	Automatic fixed needle sewing speed (rpm)	200-2200	2200	Trigger the speed setting when the automatic function button is pressed
P10	Automatically execute the end back sewing function after fixed needle sewing	ON/OFF	ON	ON: after the last fixed needle sewing is completed, the end back sewing action will be automatically executed. In any sewing mode, the stitch filling cannot be performed before end back sewing the back sewing.

Parameter item	Chinese descriptions	Scope	Initial value	Description and remarks of content value name
				OFF: After completing the final fixed needle sewing, the end back sewing function cannot be automatically executed, and the front or full back stepping action must be performed again.
P11	Selection of function mode when sewing backwards by hand pressing	J/B	J	J: JUKI mode (reverse sewing is performed during sewing and stopping halfway) B: BROTHER mode (that is, reverse sewing is performed during sewing, and stitches are filled when stopping).
P12	Selection of startup back sewing motion mode	0-1	1	0: controlled by the pedal, it can be stopped and started at will; 1: gently touch the pedal to automatically execute the back sewing action;
P13	Selection of startup back sewing end mode	CON/STP	CON	CON: function of automatic continuation of the next segment after the completion of the startup back sewing segment STP STP: automatic stop after the number of stitches in the startup back sewing segment is completed
P14	Setting of slow sewing startup function	ON/OFF	OFF	
P15	Method of filling stitches	0-6	5	0: function off 1: fill half stitch 2: fill one stitch 3: continuously fill half stitch 4: continuously fill one stitch

P16	Manual back sewing speed limit	0-3200	3000	The function is turned off when the value is less than 100
P17	Selection of automatic counting	0-50	1	0: P41 item counter counts automatically through increments 1: P41 item counter does not count automatically
P18	Startup back sewing compensation 1	0-200	148	For the compensation of Segment A stitch for startup back sewing, the action from 0 to 200 is gradually delayed; The larger the value, the longer the last stitch in Segment A and the shorter the first stitch in Segment B.
P19	Startup back sewing compensation 2	0-200	153	For the compensation of Segment B stitch for startup back sewing, the action from 0 to 200 is gradually delayed; The larger the value, the longer the last stitch in Segment B
P20	Selection of end back sewing motion mode	1-3	1	1: gently touch the pedal to automatically execute the back sewing action;
P21	Running position during stepping on pedal forward	30-1000	520	
P22	Position when pedal comes back the center	30-1000	418	
P23	Position when lifting presser foot for pedal	30-1000	248	
P24	Position when cutting thread for pedal	30-1000	130	
P25	End back sewing compensation 3	0-200	148	For the compensation of Segment C stitch for end back sewing, the action from 0 to 200 is gradually delayed; The larger the value, the shorter the first stitch in Segment C
P26	End back sewing compensation 4	0-200	153	For the compensation of Segment D stitch for end back sewing, the action from 0 to 200 is gradually delayed; The larger the value, the longer the last stitch in Segment C and the shorter the first stitch in Segment D.
P28	Selection of continuous back sewing motion mode	0-3	1	0: controlled by the pedal, it can be stopped and started at will; 1: gently touch the pedal to automatically execute the back sewing action;
P29	Cutting stopping force	1-45	203	
P30	Thick material handling force	0-100	10	The larger the value, the greater the force, and excessive adjustment may cause motor abnormality.
P31	Thread cutting force	0-100	60	The larger the value, the greater the force, and excessive adjustment may cause motor abnormality.
P32	Continuous back sewing compensation 5	0-200	148	For the compensation of Segment A (C) stitch for startup back sewing, the action from 0 to 200 is gradually delayed; The larger the value, the longer the last stitch in Segment A (C); The shorter the first stitch in Segment B (D)
P33	Continuous back sewing compensation 6	0-200	153	For the compensation of Segment B (D) stitch for startup back sewing, the action from 0 to 200 is gradually delayed; The larger the value, the longer the last stitch in Segment B (D); The shorter the first stitch in Segment C
P34	Selection of fixed needle sewing motion mode	A/M	A	A: gently touch the pedal to automatically execute the fixed needle sewing action; M: controlled by the pedal, it can stop and start at will;

Parameter item	Chinese descriptions	Scope	Initial value	Description and remarks of content value name
P36	Setting of thread loosening function	0-1	0	0: off; 1～11: loosening force is gradually increasing;
P37	Setting of automatic thread pulling/clamping	0-11	8	0: off; 1: thread pulling function; 2～11: clamping function, the larger the value, the greater the action force
P38	Setting of automatic cutting function	ON/OFF	ON	ON: turn on; OFF: turn off
P39	Automatic presser foot lifting setting when stop midway	UP/DN	DN	UP: turn on; DN: turn off
P40	Automatic presser foot lifting setting for cutting	UP/DN	DN	UP: turn on; DN: turn off
P41	Cutting counter display	0-9999	0	Display the number of completed sewing pieces; and long press the "-" button to reset the count to zero;
P42	Information display			N01: Electronic control version number; N02: Needle selection box version number; N03: Speed N04: Pedal AD value N05: Mechanical angle (upper positioning); N06: Mechanical angle (lower positioning) N07: Bus voltage AD value
P43	Setting of motor rotation direction	CCW/CW	CCW	CW: clockwise CCW: anti-clockwise
P44	Normal stopping force	1-45	20	
P45	Cycle signal of back sewing output （%）	1-50	30	When the back sewing action is performed, it periodically saves power output to prevent the electromagnet from getting hot
P46	Selection of reverse needle lifting function after cutting	ON/OFF	OFF	ON: turn on; OFF: turn off
P47	Adjustment (degree) of reverse needle lifting angle after cutting	50-200	160	After cutting, start from the upper needle position and adjust the needle lifting angle by running in reverse.
P48	Minimum speed (positioning speed) (rpm)	100-500	210	Minimum speed limit adjustment
P49	Cutting speed (rpm)	100-500	250	Motor speed when adjusting the cutting cycle
P50	Working time for full output of presser foot lifting (ms)	10-990	200	
P51	Cycle signal of pressure foot output (%)	1-50	25	When the presser foot acts, it periodically saves power output to prevent the electromagnet from getting hot
P52	It delays motor start to protect the presser foot lowering time (ms)	10-990	300	It delays the start time when stepping down to cooperate with the confirmation of the lowering of the automatic presser foot lifting
P53	Cancellation of the half rear stepping lift presser foot function	ON/OFF	1	ON: lift presser foot during half rear stepping OFF: do not lift presser foot during half rear stepping

P54	Cutting action time (ms)	10-990	200	Action time required by cutting time sequence
P55	Pulling action time	10-990	10	Action time of pulling / sweeping time sequence
P56	Automatically look for upper location after power on	0-2	1	0: never look for the upper location; 1: always look for the upper location; 2: If the motor is already in the upper positioning, it will not look for the upper positioning;
P57	Presser foot electromagnet protection time (s)	1-120	10	Compulsively turn off after keeping lifting the presser foot for a certain time
P58	Upper positioning adjustment	0-1439	40	For upper positioning adjustment, when the value decreases, the needle will stop early, and when the value increases, it will delay the needle stop
P59	Lower positioning adjustment	0-1439	650	For lower positioning adjustment, when the value decreases, the needle will stop early, and when the value increases, it will delay the needle stop

Parameter item	Chinese descriptions	Scope	Initial value	Description and remarks of content value name
P60	Test speed (rpm)	100-2200	2200	Set test speed
P61	A-test	ON/OFF	OFF	Continuous running test mode
P62	B-test	ON/OFF	OFF	Full function start and stop test mode
P63	C-test	ON/OFF	OFF	No positioning, and no function start and stop test mode
P64	Test run time during testing	1-250	20	
P65	Test stop time during testing	1-250	10	
P66	Head protection switch	0-2	1	0: no detection; 1: detect zero signal; 2: detect positive signal
P70	Selection of factory models			
P71	(%) Presser foot release buffer duty cycle (%)	0-50	0	Force adjustment when presser foot is lowered
P72	Quick adjustment of upper positioning	0-1439		Adjust the upper needle stop position, and the displayed value will change with the position of the handwheel. Press the "S" button to save the current position (value) as the upper needle stop position
P73	Quick adjustment for lower positioning	0-1439		Adjust the lower needle stop position, and the displayed value will change with the position of the handwheel. Press the "S" button to save the current position (value) as the down needle stop position
P76	Full output time of reverse sewing (ms)	10-990	200	Action time of full output when the reverse sewing acts
P78	Clamping angle of thread clamp	5-359	100	
P79	End angle of thread clamp	5-359	350	
P80	Cutting feed angle	5-359	18	Setting of cutting feed angle (calculated at 0 °for lower positioning)
P81	Angle of applying force to cutting	5-359	150	Setting of angle of applying force to cutting (calculated at 0 °for lower positioning, it must be greater than the parameter value of P80)
P82	Angle of cutting retract	5-359	185	Setting of angle of cutting retract (calculated at 0 °for lower positioning, it must be greater than the parameter value of P81)
P92	Motor electrical angle correction		160	See Section 1.5 of Manual The starting angle of the encoder has been set at the factory, please do not change it arbitrarily (parameter values cannot be manually changed, or else, it may cause abnormalities or damage to the control box and motor)
P93	Delay time of semi-reverse pedal function	10-900	200	
P101	Starting angle of thread loosening	1-359	30	Starting angle of thread loosening (calculated at 0 °for lower positioning)
P102	End angle of wire loosening	1-359	180	End angle of thread loosening (calculated at 0 °for lower positioning, it must be greater than the parameter value of P101)
P117	Delay time of presser foot release buffer (ms)	0-990	0	
P119	Selection of electromagnetic overcurrent protection	0-1	1	0: not to be detected 1: to be detected
P120	Detection of oil level alarm switch	0-1	0	0: not to be detected 1: to be detected

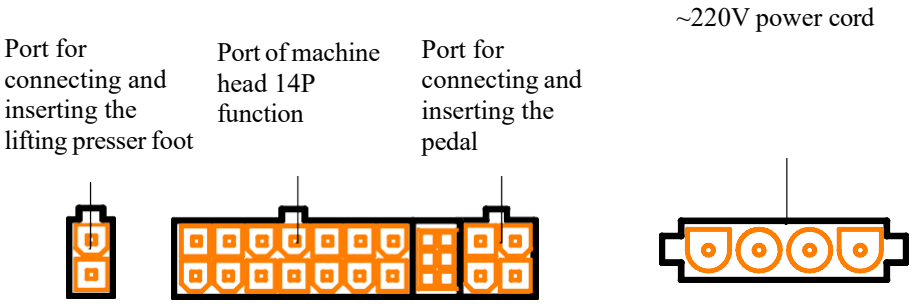
Note: The initial parameters are for reference only, and the actual parameter values are subject to the real object.

11-2 Error code list

Error Code	Content	Countermeasure
E01	High voltage error	Turn off the system power and check if the supply voltage is correct. (or whether it exceeds the rated voltage specified for use)
E02	Low voltage error	Turn off the system power and check if the supply voltage is correct. (or whether it is lower than the rated voltage specified for use)
E03	Abnormal communication between the main CPU and the panel CPU	Please cut off the power supply and confirm if the connector is connected to the operation panel, as well as check the cable condition.
E05	Poor connection of the speed controller	Please cut off the power supply and confirm if the connector is connected to the speed controller, as well as check the cable condition
E07	Abnormal rotation of spindle motor	Please rotate the pulley to confirm if the spindle motor is locked. Please confirm if the encoder cable of the motor and the power cable of the motor are connected to connectors. Please confirm if the power supply voltage is normal. Check whether the sewing speed is too high.
E10	Electromagnetic overcurrent protection	Turn off the system power and check if the electromagnet (solenoid valve) is damaged or short circuited.
E09/E11	Abnormal positioning signal	Turn off the system power, check if the motor encoder interface is loose or detached, restore it to normal, and then restart the system.
E14	Encoder signal is abnormal	Turn off the system power, check if the motor encoder interface is loose or detached, restore it to normal, and then restart the system
E15	Spindle motor overcurrent error	Please cut off the power supply and then turn it on again
E17	Head down error	Please stand the head up and turn on the power again. Please confirm if the head down switch is damaged.
E20	Abnormal rotation of spindle motor during startup	Please cut off the power supply and confirm if the encoder cable of the motor and the power cable of the motor are connected to connectors.
E80	Abnormal communication between the main CPU and the drive CPU	Please cut off the power supply and then turn it on again.
E82	Reverse sewing stepper motor is overcurrent	Please cut off the power supply and then turn it on again.
E84	The encoder Z signal of reverse sewing stepper motor is abnormal	Please cut off the power and confirm if the encoder cable of the stepper motor is connected to the connector.
E85	The encoder AB signal of reverse sewing stepper motor is abnormal	Please cut off the power and confirm if the encoder cable of the stepper motor is connected to the connector.
E86	Reverse sewing stepper motor fails to start up	Please cut off the power supply and confirm if the encoder cable and power cable of the stepper motor are connected to connectors.
E87	Reverse sewing stepper motor is blocked	Please confirm if the stepper motor is locked.

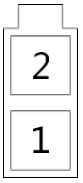
11-2 Port diagram

1) Port diagram



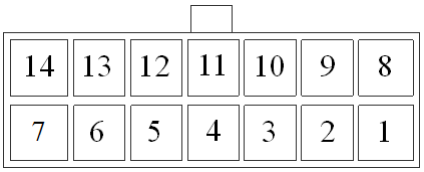
1. Cutting electromagnet: 1, 8 (+32V)
2. Thread clamping (thread sweeping) electromagnet: 2, 9 (+32V)
3. Loosening electromagnet: 3, 10 (+32V)
4. LED lights: 4 (DGND), 11 (+5V)
5. Reverse sewing button: 5 (signal)
6. Stitch filling button: 7 (signal)

2) 2P port diagram



1. Presser foot lifting electromagnet: 1, 2 (+32V)

3) 14P port diagram



1. Cutting electromagnet: 1, 8 (+32V)
2. Thread clamping (thread sweeping) electromagnet: 2, 9 (+32V)
3. Loosening electromagnet: 3, 10 (+32V)
4. LED lights: 4 (DGND), 11 (+5V)
5. Reverse sewing button: 5 (signal), 12 (DGND)
1. Reverse sewing electromagnet: 6, 13 (+32)
7. Stitch filling button: 7 (signal), 14 DGND)

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