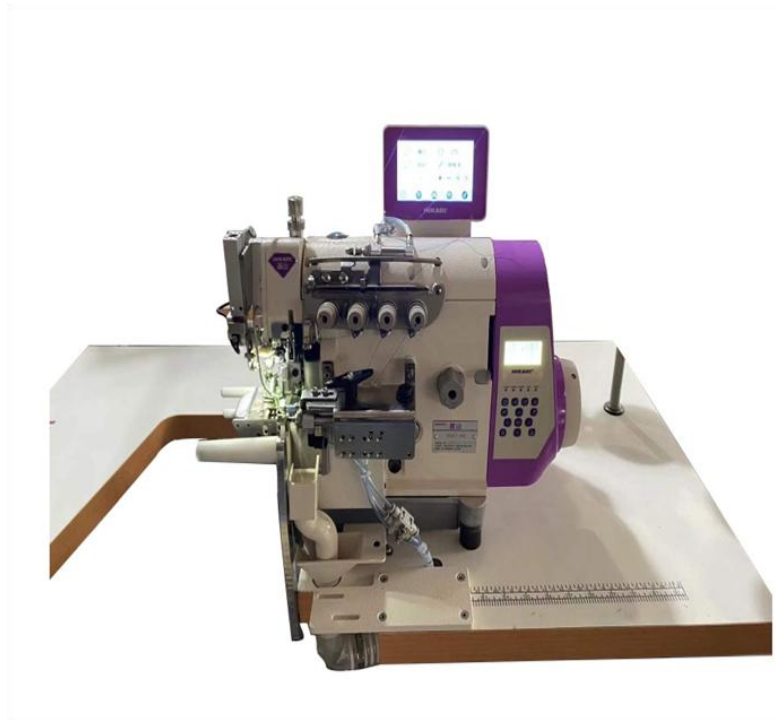


HSAT-K6

INSTRUCTION MANUAL BOOK



-----**Safety attention**-----

1. When using the machine, please strictly observe the safety measures as the following items
2. Please turn off the power or unplug the power plug when the following cases happen.
 - 2 - 1 When threading the stitch, double stitch, segregator and replacing bobbin.
 - 2 - 2 When changing replacing the stitch, the presser foot, the throat plate, bend stitch, the feed dog, the stitch guard, the folder and the cloth guider.
 - 2 - 3 Repairing work
 - 2 - 4 nobody in the working place or leaving the working place
3. Prohibit to touch the power on/off accessory and devices of the machine with oil hand .
4. The repair, alteration, adjustment about the machine should be carried out by professional staff.
5. General repair and maintenance of the machine should be carried out by trained staff.
6. The sewing machines should be regular cleaned while using.
7. The machine should be connected to ground wire for safe operation. It should be used against strong noise such an high-frequency welding machine.
8. Alteration and modification of the machine should be accorded to safety requirements and effective safety measures should be taken. In addition, we assume no responsibility for alteration and modification.

Please read the safety instructions carefully fist

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1. Introduction




- This instruction manual describes how to use our products safely.
- Read this instruction manual and learn very carefully how to operate, adjust and service this sewing machine before beginning any of the procedures.

2. Indications of dangers, warnings and cautions









To prevent accidents and ensure safety, warning indications which show the degree of danger are used on our products and in this manual.

Follow all warnings and instructions. Indication labels should be found easily. Attach new labels when they are stained or removed. Contact our sales department when new labels are needed.

Symbols, signs and/or signal words which attract users' attention

 DANGER	Indicates an immediate hazard to life or limb.
 WARNING	Indicates a potential hazard to life or limb.
 CAUTION	Indicates a possible mistake that could result in injury or damage.

Symbols and messages

	Be sure to follow the instructions when operate the machine.
	It's dangerous to get an electrical shock.
	It's dangerous to injure your hands or fingers.
	Indicates a danger of burn injury due to high temperature.
	Never do this.
	Shut off the power when checking, adjusting and repairing the machine or when lightning may strike.
	Be sure to ground the machine and labor saving device securely.
	Denotes the normal rotating direction of the machine pulley.

Please read the safety instructions carefully fist

3. Safety precautions

➤ Circumstances

The environment in which our industrial sewing machines are used may seriously affect their lives, functions, erformance and/or safety



For safety, do not use the machine under the circumstances below.

1. Do not use the machine near objects which make noise such as a high frequency welder, etc.
2. Do not use or store the machine in the air which has vapor from chemicals, or do not expose the device to chemicals.
3. Do not leave the machine outside, in high temperatures or the direct sun.
4. Do not use the machine in the places of high ambient temperature and humidity that seriously affects sewing machines.
5. Do not use the machine on the condition that the voltage fluctuation range is more than $\pm 10\%$ of the rated voltage.
6. Do not use the machine in the place where the supply voltage specified for the control motor cannot be properly obtained.

➤ Safety measures



(1) Safety precautions when you perform maintenance on the machine.

● Always turn off the power unplug the machine and then make sure that the machine does not run by pressing the treadle before performing any maintenance, such as checking, repairing, cleaning, etc. However, if you need to perform these procedures with the power on, to prevent accidents due to the unexpected start of the machine and users` misoperation, establish your own procedures for safely and follow them.

● Always turn off the power and unplug the machine before performing the procedures shown below.

- Lubrication
- Threading
- Cleaning
- Replacing the needle
- Checking/replacing the oil element
- Replacing the oil

● Always turn off the power and unplug the machine before performing the procedures shown below.

- Adjusting the stitch length
- Adjusting the differential feed ratio

● Only well-trained people should perform routine daily maintenance and/or repair the machine.



● Do not modify the machine yourself.

※ Consult your local Hikari sales office or representative for modification.

4. Location of warning labels and safety devices

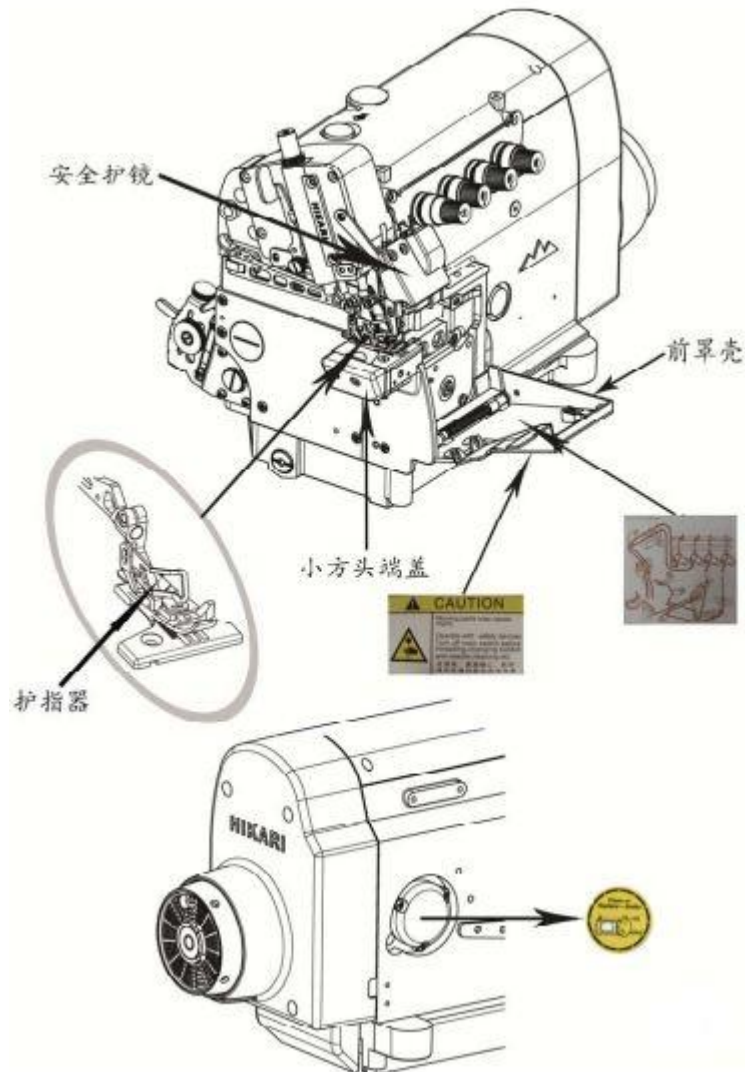



Fig.1

5. Protectors for safely


CAUTION

➤ Eye guard

 Never leave the eye guard open

For the safety of eyes, do not operate the machine with the eye guard open. The eye guard will prevent any pieces of the broken needle from getting into your eyes if the needle should break during sewing.


➤ Finger guard

 Never insert any of your fingers.

Please read the safety instructions carefully fist


To prevent the needle that moves up and down from contacting any of your body, the finger guard is installed close to the needle. However, there is clearance above the finger guard for easy threading. Be careful that the needle may penetrate any of your fingers if you insert it into this clearance.

➤ **Presser foot**

 Never insert any of your fingers.

There is a clearance of more than 5mm between the top surface of the needle plate and the presser foot. Be careful that none of your fingers are caught in this clearance. Never insert any of your fingers under the presser foot when raising the presser foot with the knee switch or automatically raising it with the treadle.

➤ **Front cover**

 Never insert any of your fingers.

The looper travels left to right while drawing an arc as seen from the front of the machine. To prevent the looper from contacting any part of your body, be sure to operate the machine with the front cover closed securely.

6. General issue of operation

➤ **Lubrication**



CAUTION

When lubrication the machine and/or replacing the oil, use our company recommended oil. Using other oils may damage machine.

1. Oil

Use the oil "HIGH SPEED SEWING MACHINE OIL" specified by our company (ISO Viscosity Grade 22).

2. To fill the machine with oil (Fig.2)

Remove cap 1, add the oil until the oil level (see oil gauge 2) reaches (H). After filling the tank with oil replace cap 1.

3. Required amount of oil (Fig.2)

(H) on oil gauge 2: Upper limit (L) on oil gauge 2: Lower limit The oil level should always lie between (H) and (L).

4. Manual lubrication (Fig.4)



CAUTION

Always turn off the power and unplug the machine when you apply oil by hand.

Apply 2 or 3 drops of oil to needle bar 3 and upper looper holder 4 by hand when the machine is used for the first time or has been left unused for some time.

5. Checking oil circulation (Fig.5)

Please read the safety instructions carefully first

Once the machine has been properly filled with oil, press the machine treadle to run the machine and check oil gauge window 5 to see if the oil is flowing.

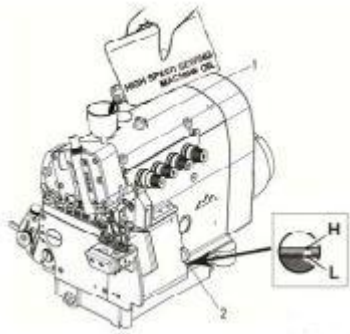


Fig.2

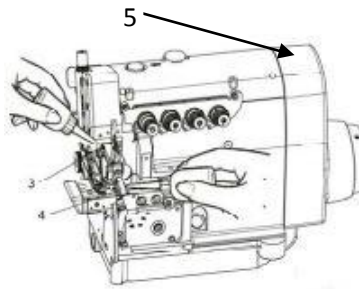


Fig.3

➤ Oil replacement



CAUTION

Well-qualified technicians should replace the oil. Replace the oil one month after the first use and thereafter every six months. If you keep using the old oil, it may cause the damage to the machine.

➤ To drain the oil

1. Drain the oil by removing screw 3 on the left side of the oil pan.
2. Tighten screw 3 after draining (Fig.6)

➤ Checking and replacing the filter

Always turn off the power, unplug the machine and then well-qualified technicians should check and replace the filter. If filter 7 is clogged up with dust and dirt, the machine will not be properly lubricated. Check filter 7 every six months, and clean or replace it if necessary.

To remove the filter (Fig.7)

Remove parts 4 to 7, and check the filter by referring to the illustration. If filter 7 is completely damaged, replace it with a new one.

➤ Cleaning the machine

Always turn off the power and unplug the machine when you clean the machine. Clean the grooves of the needle plate and the area around the feed dogs (Fig.8)

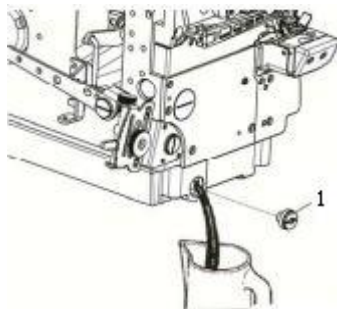


Fig.6



Fig.7

Please read the safety instructions carefully fist

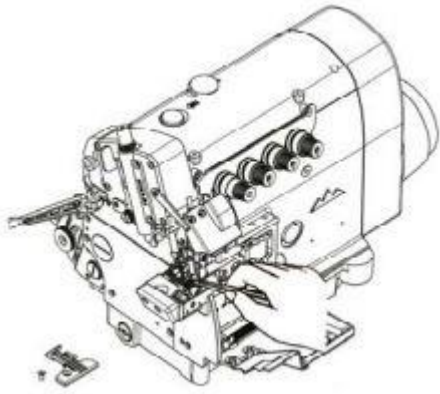


Fig.8

➤ Threading

Always turn off the power and unplug the machine when you thread the machine.

1. Open cloth plate 1, eye guard 2, front cover 3, and presser bar 4. Put each part back after threading the machine (Fig.9)

2. In case the machine is threaded previously (Fig.10)

A: Knot the preset thread and the thread being used together to thread the machine.

B: Needle thread Pull the knot toward the needle, trim the knot off and then thread the needle.

C: Looper thread Trim the knots off neatly after passing through the eye of the looper.

3. If the machine is not threaded Thread the machine properly by referring to the label attached to the machine.

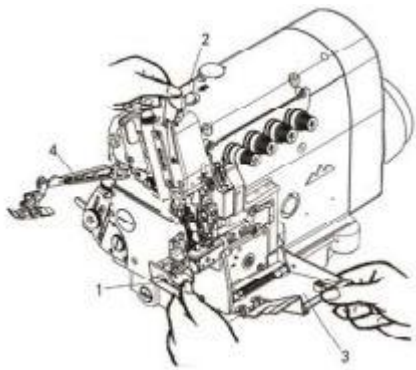


Fig.9

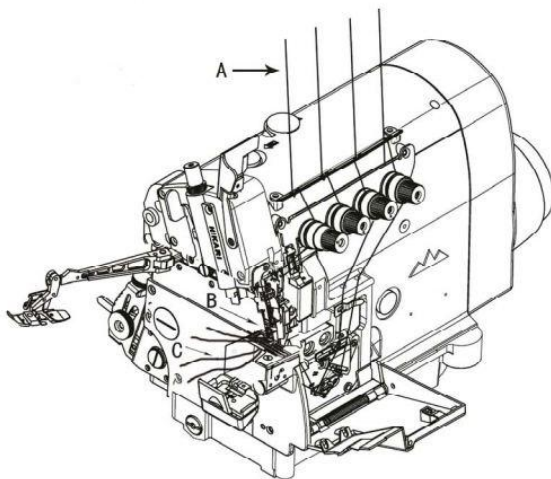


Fig.10

Please read the safety instructions carefully fist

➤ Adjusting presser foot pressure

The presser foot pressure should be as light as possible, yet sufficient to feed the fabric correctly and provide the uniform stitch formation.。

Adjust presser foot pressure by turning adjustment screw 3. (图 16)

➤ Adjusting the differential feed ratio

1. Loosen nut, to increase the differential feed ratio, bring lever down. The finished fabric is shrunk. To decrease the differential feed ratio, bring lever up. The finished fabric is stretched.。

2. After this adjustment is made, tighten nut. (图 17)

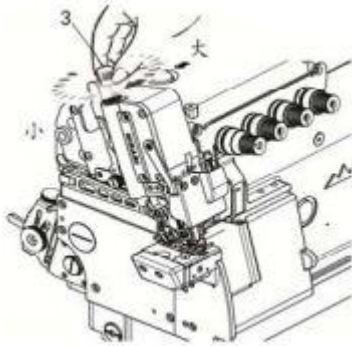


Fig.16

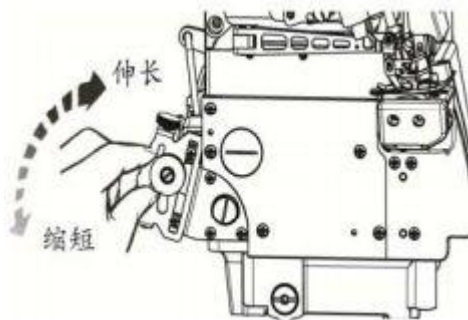


Fig.17

➤ Adjusting stitch length

Always turn off the power and unplug the machine when adjusting the stitch length.

1. With push button 1 depressed, turn handwheel 2 so that the push button 1 goes further into the depth (图 19)

2. With the push button in the place stated in 1. Turning handwheel 2 counterclockwise produces coarse stitches. Turning handwheel 2 clockwise produces fine stitches

NOTE:

Stitch length adjustment must only be made after the differential feed ratio has



CAUTION

Always turn off the power, disconnect the power cord and then only well-qualified technicians should replace and adjust the knife.

Pay attention to the knife edges not to injure your hands and fingers.

Please read the safety instructions carefully first

➤ Replacing the upper knife

1. Loosen screw 1. Bring lower knife holder 2 to its farthest position to the left. Tighten screw 1 temporarily.
2. Remove screw 3 and upper knife 4. Replace the upper knife with a new one. Tighten screw 3 temporarily. Turn the handwheel until the upper knife holder is at its lowest position. There should be 0.5-1.0mm overlap of the upper and lower knives. Adjustment is made by moving the upper knife up or down. Tighten screw 3.
3. Cross upper knife 4 and lower knife 6 with each other at the center (A) of their cutting edges (Fig.21). Loosen screw 1. Then check to make sure that the upper knife tightly touches the lower knife. Tighten screw 1.
4. To check proper cutting, place a thread between the upper and lower knives and turn the handwheel.

➤ Replacing the lower knife

1. Loosen screw 1. Bring lower knife holder 2 to its farthest position to the left. Tighten screw 1 temporarily.
2. Loosen screw, remove lower knife, replace it with a new knife. Adjust the lower knife so that the cutting edge is 0-0.3mm below the top surface of the needle plate. Tighten screw 5.
3. Follow procedures 3 and 4 in "Replacing the upper knife".

➤ Adjusting overedge width

1. Loosen screw 1. Bring lower knife holder 2 to the farthest position to the left. Tighten screw 1 temporarily.
2. Loosen screw 6, Adjusting overedge width by moving upper knife clamp 8 to the left or right.
3. Follow procedures 3 and 4 in "Replacing the upper knife".

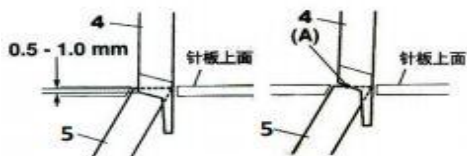


Fig.18

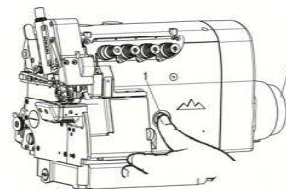


Fig.19

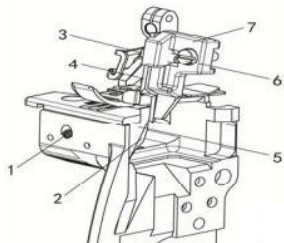


Fig.20

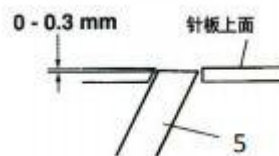


Fig.21

➤ Sharpening the knives

The upper knife is need to resharpen is for some time. Resharpen the lower knife for the proper cutting action.

1. Resharpen the lower knife ((Fig 21))

Please read the safety instructions carefully fist

If you sharpen the lower knife improperly, insufficient cutting will be obtained or the lower knife will become immediately dull. Be careful.

2. Upper knife

A special knife grinder is needed to sharpen the upper knife. It is recommended when sharpening the upper knife that you ask Hikari direct distributors or our agents. To increase efficiency, always prepare a spare upper knife.

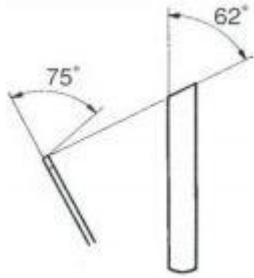


Fig.21

➤ Changing the fulcrum on the presser arm



CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should change the fulcrum on the presser arm.

1. Set the presser foot, and then bring down the feed dog to the bottom of its travel.
2. Move collar to the right while pressing presser foot shaft in the direction of A, tighten screw. (There should be a clearance of 1mm between presser foot lift lever and upper limit screw.)
3. Check to see if the slot(s) of the needle(s) on the presser foot is (are) aligned with that (those) on the needle plate. If not, loosen fixed presser foot bushings screw, and adjust presser arm by moving it left or right. After this adjustment, tighten screw. (Fig 22、 Fig 23)

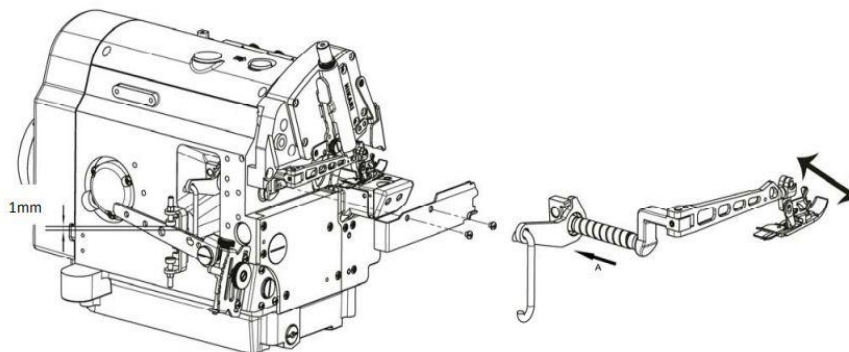


Fig22

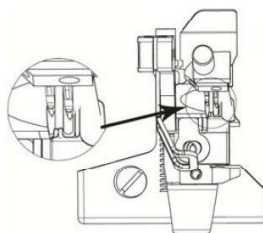


Fig 23

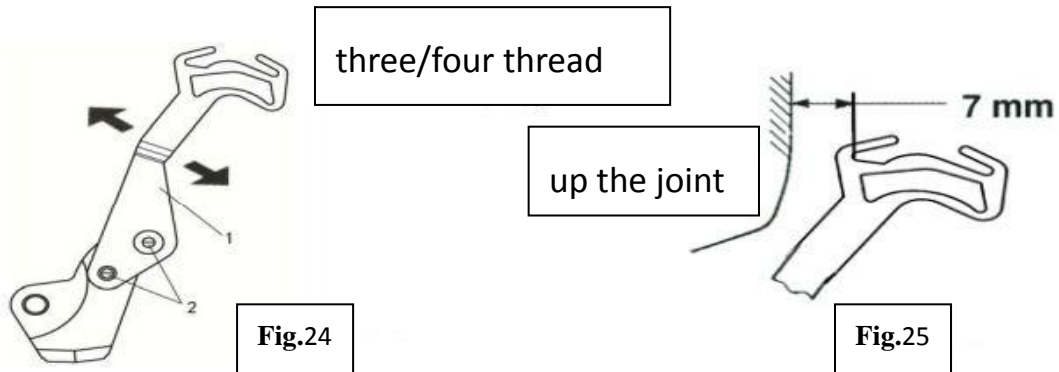
Please read the safety instructions carefully first

➤ Positioning and adjusting the needle thread take - up

CAUTION

Always turn off the power, unplug the machine and then well-qualified technicians should adjust the needle thread take-up.

When needle thread take-up 1 is at the bottom of its travel, adjust the distance from the front of the arm head to the needle thread take-up. To make this adjustment, loosen screws 2.

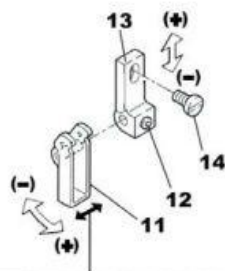


➤ Positioning the thread guides/Adjusting the amount thread to be supplied from the needle thread take - up

The location of each needle thread guide varies with types of machine. When the needle thread take-up is at the bottom and the top of its travel, position each needle thread guide according to the machine being used.

3, 4 thread series Adjusting the needle thread guides (Fig. 26)

Loosen screws 12 and 14. Adjust thread guides 11 and needle thread bracket 13 by moving them in the direction of the arrows. To increase the amount of thread to be supplied, move each thread guide, and needle thread bracket in the direction of (+). To decrease the amount of thread to be supplied, moving each thread guide, and needle thread bracket in the direction of (-). After this adjustment, tighten screws 12 to 14.



Adjust the left-right position of through thread piece No.11, made the line up piece of needle in the centre of two-ply

Fig. 26

7.□ Instructions for use of the machine

➤ Ventilation

1. Insert an 8 mm diameter air tube into the device shown below
2. Turn on the external air switch
3. After ventilation, check whether the air pressure pointer shown below has pointed to the factory-set minimum air pressure (0.5MPa)

Master air valve air pressure 0.5MPa



Figure 2: Schematic diagram of the master air valve

➤ Electrification


1. This equipment uses 220VAC 50HZ AC power supply; make sure that the socket is reliably grounded
2. After the power switch is turned on, the display screen and the operation panel of the machine head are switched on, and the motor is locked.

8.Instructions for use of operation panel

➤ About the pages

There are a total of five user pages in K6. The system will display the corresponding name of the selected page. The five pages are composed of

1) Home page 

2) Action test page 

3) Signal input monitoring page 

4) Parameter setting page 

5) System settings page 

➤ Interface description



Please read the safety instructions carefully fist

➤Main interface

In the lower part of the page is the page switching button; click the button to enter the corresponding page. On the home page, there are three modes for user's choice, namely automatic/semi-automatic attaching of cuffs, semi-automatic upper and lower hems (optional); In addition, there are many auxiliary functions such as hand reset, automatic piece work, quick size switching.

Mode declarations:

Cuff/hem (optional)

Automatic mode (only used for cuff): start by stepping on the foot pedal, and the system will automatically identify the sewing end signal without manual intervention.

Semi-automatic mode: step on the pedal for a long time to complete the sewing.

1) Display the number of products completed:

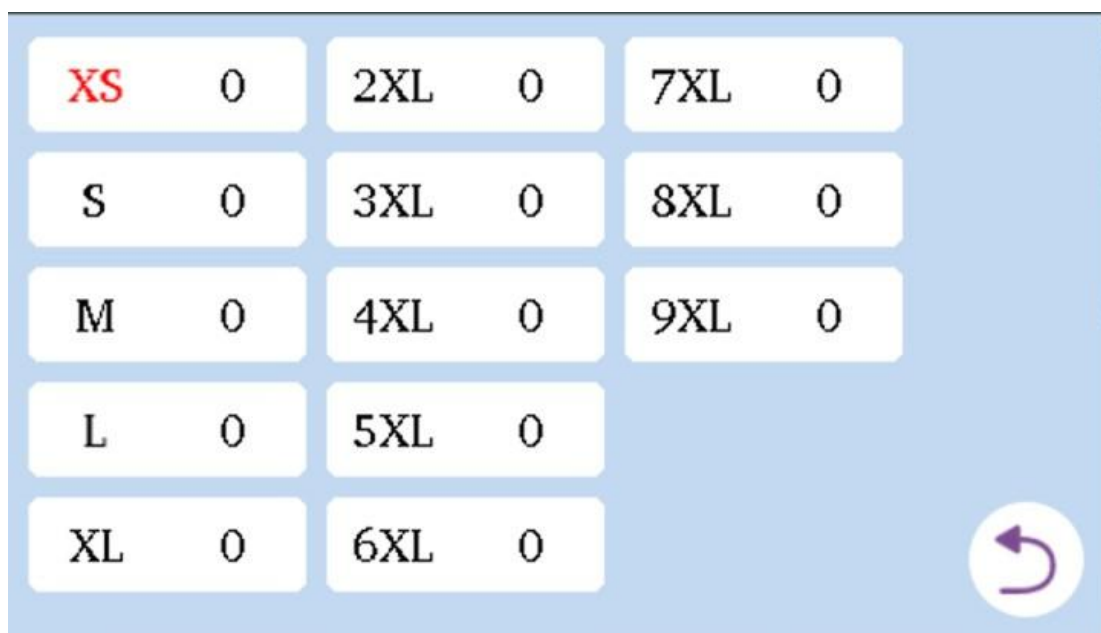


Click the Count button to reset the number of workpieces completed, which can also be corrected by the plus and minus buttons.

2) Size Select page



Click the Size Select button to enter the size setting interface




Please read the safety instructions carefully fist

For example: Click XS to check the current number;


Click the number corresponding to XS, 100 means that the number XS is amplified twice by 10cm, and the selected size will be highlighted in red.

Exit the size setting page by clicking the  Back button and return to the home page, where the current size is also displayed.

3: Threading switch:

Click the Threading On  穿线开 button and the stretching unit automatically stretches to facilitate machine cleaning, threading and other operations. After the operation is completed, click the button again to return to work.

4: Threading switch:

Click the Reset  复位 button to restore the mechanical parts to the preparation stage.

➤Parameter settings

缝制速度	0	松线延迟针数	0	▲ 1/2 ▼
号码差量	0	剪线针数	0	
股位检测针数	0	拉伸延时	0	
剪线速度	0	缝制吹气开关	0	
起缝吸气针数	0	激光灯开关	0	

   参数设置 

Please read the safety instructions carefully fist



Parameter description:

- (1) "**Sewing speed**": the maximum sewing speed in automatic mode.
- (2) "**Number difference**": the size difference between adjacent numbers. The button is provided for users to make a quick switch/selection among numbers.
- (3) "**Number of Overcast detection stitches**": When the machine starts in automatic mode, and begins to detect the number of stitches, the overcast detection cylinder acts to detect the sewing end signal.
- (4) "**Thread trimming speed**": refers to the maximum speed of the machine in automatic mode, after the "thread trimming action" is triggered by the sewing end signal.
- (5) "**Number of stitches under suction**": means that the pneumatic device is automatically turned off when the set number of stitches is reached, after the machine is powered on and the **sewing blowing** button is on automatically.
- (6) "**Number of stitches under tension releasing delay**": After the sewing end signal triggers the "thread trimming action" in automatic mode, the **tension releasing** cylinder will act after the set number of stitches is reached, and the machine enter into the thread trimming stage.
- (7) "**Thread trimming stitches**": In automatic mode, after the tension releasing cylinder is actuated, this round of sewing automatically ends when the set thread trimming stitches are reached.
- (8) "**Stretching delay**": in automatic mode, after the stretching motor stretches to the current size, postpone the movement of the sewing machine.
- (9) "**Sewing suction switch**": to control the sewing suction function. Input 1 to turn on the switch, and input 0 to turn it off.
- (10) "**Laser light switch**": to control the auxiliary edge-to-edge function (optional); Input 1 to turn on the switch, and input 0 to turn it off
- (11) "**Stretching speed**": The speed of the stretching motor.
- (12) "Stretching returning speed": The returning speed of stretching motor.

➤System settings



This page contains the following information:

"Hardware version": the version number of electronic control hardware;

"Software version": the version number of electronic control software ;

"Display version": the version number of operation panel software

User can enter the following sub-pages through the system settings page



1) The locking button , equipped with face recognition technique and not activated yet.



2) The drive parameter setting port . For any modification , please contact the Third R&D Department of the technical center. Non-HIKARI personnel are prohibited from modifying any of the parameters which are not included in this manual.



3) Factory reset button ; press the button according to the operation prompts to restore factory settings.

Please read the safety instructions carefully fist



4) Language settings ; press the button to set the system language and make a switch between the Chinese and the English; user can choose to turn on the buzzer and voice.



U盘升级

5) USB flash disk upgrading page ; press the button to upgrade the software of the screen and the master control.



6) The version history page ; press the button to check the upgrading history of the panel.

➤ Action test




This page is used to assist mechanical device debugging; Click the corresponding switch/run button to activate the corresponding item.

Please read the safety instructions carefully fist

➤Signal monitoring



This page is used to debug the auxiliary mechanical device. The red state  on the panel is related to the detection state of the sensor. As shown in the picture, where the device runs in a normal state, it will turn red or green after being triggered.

Number of stitches in the manual mode: Turn the handwheel by hand, and the number of stitches will increase by 1 for a round.

9. Device adjustment and operation instructions

➤ Procedures for starting the automatic feeding

Automatic mode

1. Turn on the power switch and the system will display the following picture



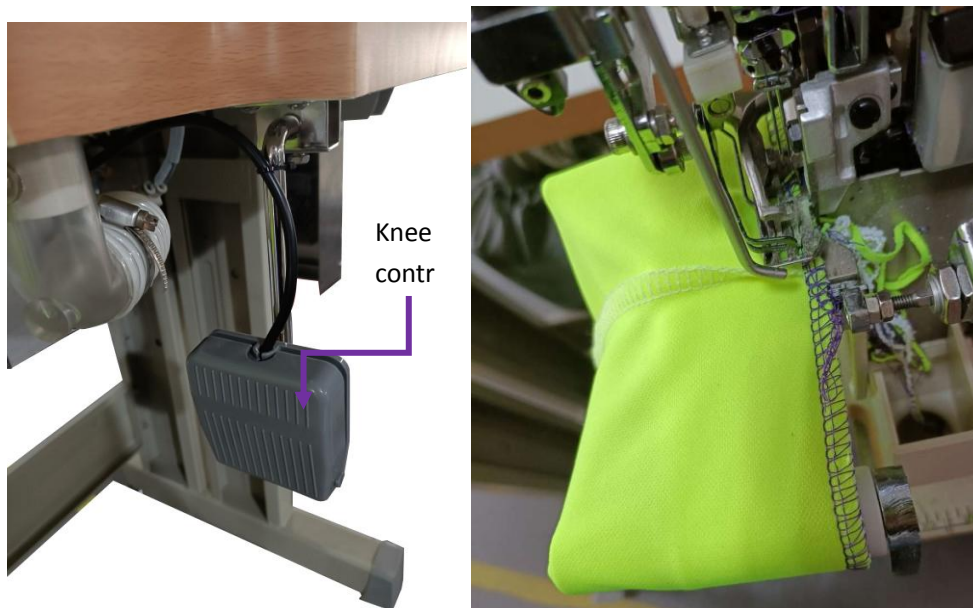
The following actions can only be performed when the system displays the picture shown above.

Automatic mode: lightly step back on the pedal, and lift the presser foot; put the fabric on the cone pulley, and make sure that the overlock of cuffs is aligned to that of sleeves (refer to the picture below); after confirming that everything is correct, step forward on the pedal to automatically trim threads and collect the dust.




Please read the safety instructions carefully fist

Semi-automatic mode: After placing the fabric as shown above, lightly press the knee switch with the side of the knee to stretch the fabric out (see the picture below). After confirming that everything is correct, step forward on the pedal.

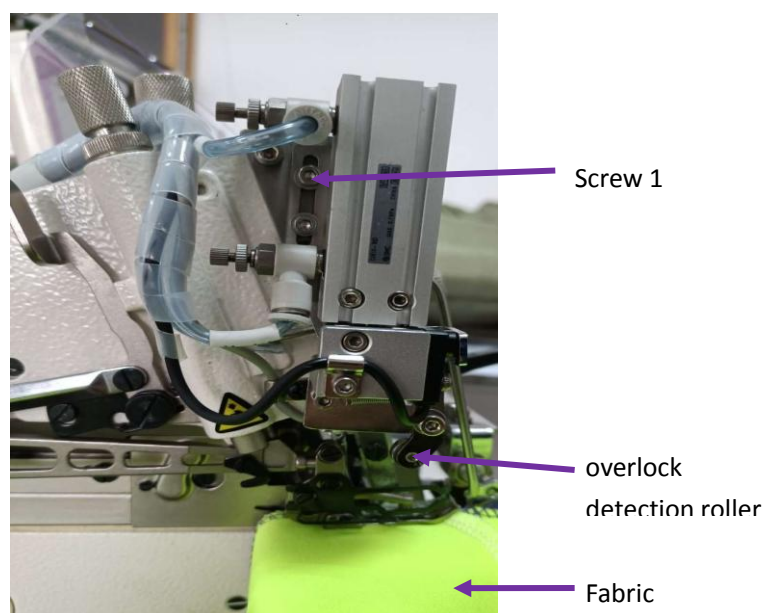


Semi-automatic mode

Click  自动 to switch to semi-automatic mode, in which functions of material returning and overlock detection are inactive. After the material is placed, step forward on the foot pedal to automatically stretch the cuffs. After that, step backward on the pedal to trim threads.

➤ Procedures for adjusting overlock detection sensitivity

1. Loosen screw 1, and adjust up and down the distance from the overlock device to the fabric. The standard distance should be: The overlock detection roller contacts the fabric after being ventilated, and is located beneath the overlock.



Please read the safety instructions carefully fist

➤ Procedures for position adjustment of the returning unit

Loosen the screw 2 and adjust left and right the returning distance. Standard distance: Component 1 should be 3mm away from Component 2.

