



ChangZhou TengChao Machinery Co.,Ltd

Ultrasonic Lace Sewing Machine

User's Manual



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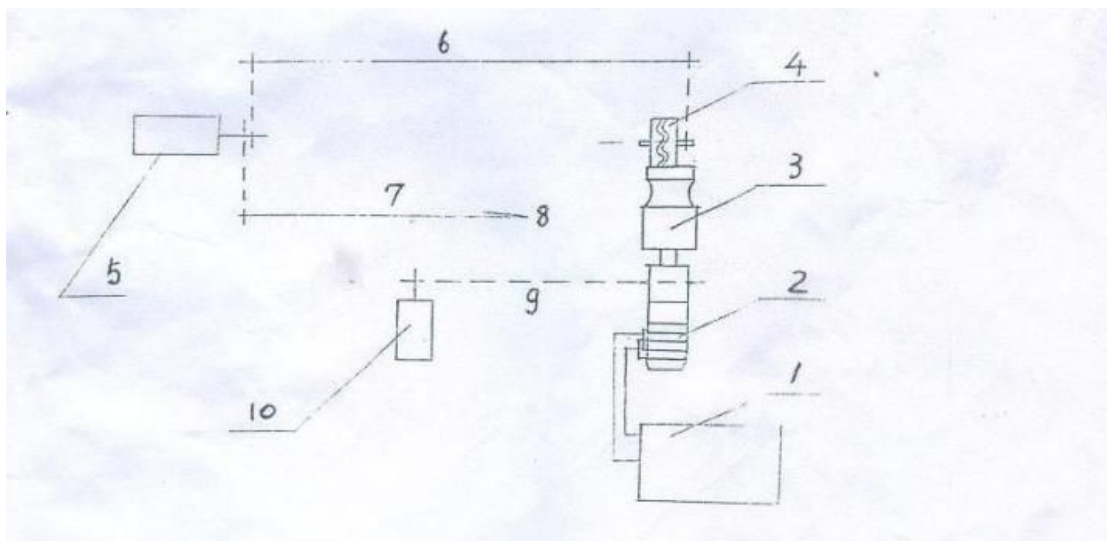
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1. Main Models

技术参数 Parameter

品 名 Item	超声波花边机 Ultrasonic Lace Sewing Machine			
型 号 Model	TC-60	TC-100	TC-150	TC-200
电 源 Power Supply	220V/110V 50-60Hz			
输入功率 Input Power	2000W	2500W	2500W	2500W
输出频率 Output Frequency	20KHz			
运行速度 Speed	0-20M/分钟 0-20M/minute	0-18M/分钟 0-18M/minute	0-15M/分钟 0-15M/minute	0-15M/分钟 0-15M/minute
模具宽度 Roller Width (直径Ø50MM)	23mm-60mm	23mm-100mm	23mm-150mm	23mm-200mm
毛重 Gross Weight	140KG	160KG	165KG	170KG
包装尺寸 Packing Size	(L)1270mm*(W)650mm*(H)1300mm			
压力系统 Air System	手动或气动 Pneumatic Type or Manual Type			
环境温度 Working Temperature	-10℃-28℃			

2. Basic Principle





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(1) Generator (2) Ceramic Rings (3) Amplitude Changing Lever

(4) Roller (5) Upper Motor (6) Driving System of roller

(7) Driving System of Press Wheel (8) To Press Wheel

(9) Driving System Of Changing Level

(10) Lower Motor

As Shown in picture, when 220V,50Hz current is supplied into ultrasonic generator, the generator begins to work. If the output of frequency is raised to 20KHz, the output voltage of ultrasonic generator reaches 20KHz. This current passes through changer, then the changer turns electric energy into mechanical vibration wave. The amplitude of mechanical vibration wave is adjusted by amplitude-change lever, 20KHz of vibration wave is outputted through amplitude level.

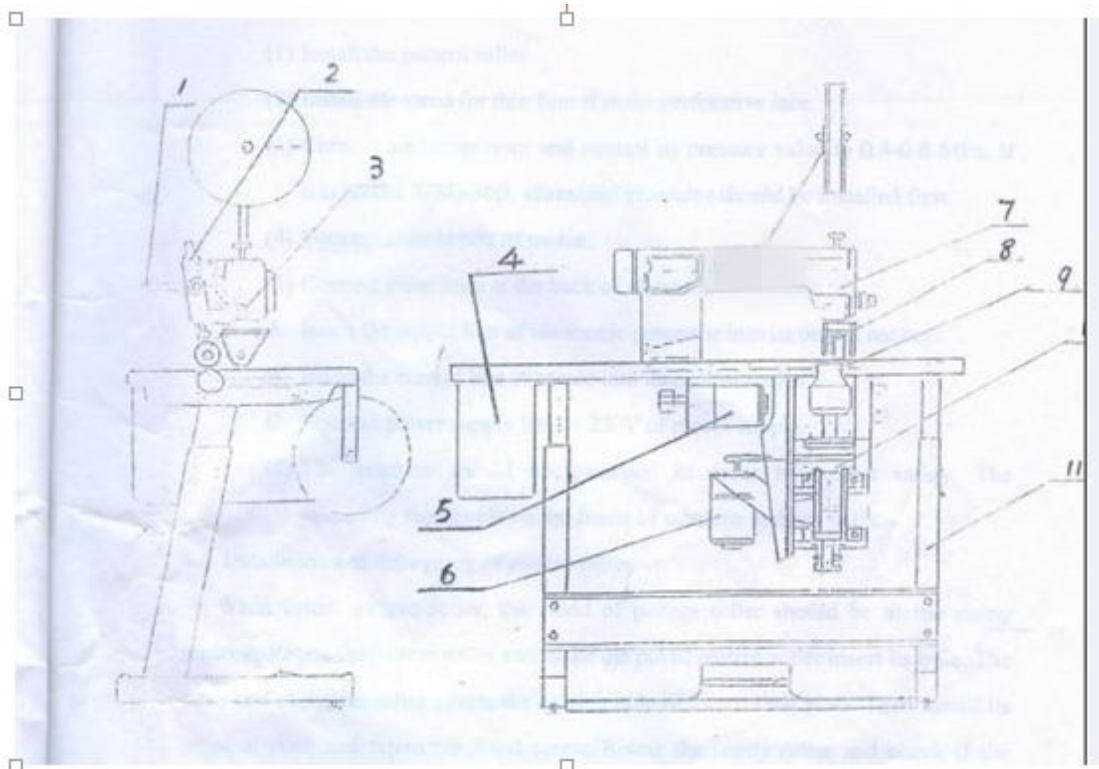
When there is shell fabric between pattern and vibration wave, the bulge part of pattern wheel will undertake 20KHz vibration wave. It will cut the fabric and melt its side and emboss the fabric. At the same time the concave part of pattern wheel will not undertake pressure. That is to say it can not undertake 20KHz vibration wave and the passed fabric can not take place any change. In this way, when fabric passes through the convex surface



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of pattern wheel, various patterns can be formed

3.Structure



- | | | |
|--------------------------|------------------------|-----------------------|
| (1)Handle Of Press Wheel | (2)Body Of Press Wheel | (3) Upper Press Wheel |
| (4)Generator | (5)Upper Motor | (6) Lower Motor |
| (7)Machine Head | (8)Roller | (9)Amplitude Changing |
| Level | (10) Changer | (11) Machine Frame |



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4.Installation and debugging

Before the machine is delivered to customer, it is installed basically.What customer need to do is as follows:

- (1)Install the roller
- (2)Install the stand for thin film if make perforative lace
- (3)Connect air compressor and control its press valve from 0.4-0.8Mpa.If it is model WSD-50B,ultrasonic generator should be installed first
- (4)Connect control box of motor
- (5)Connect three lines at the back of generator:
 - ①Insert the output line of generator into its output socket
 - ②Insert the control line of motor into its control socket
 - ③Connect power supply line to 220V of power supply
- (6)The machine should be grounded in order to protect safety.The grounding terminal is on the frame of machine and has mark

4.1.Installation and debugging of roller

When install roller, the stand of roller should be at the raising position.Rotate the roller and make the pin of roller insert its hole.The other end of roller insert the bearing of its terminal plate.Then install its



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terminal plate and fasten the fixed screw. Rotate the handy wheel and check if the rotation of roller is normal

Start the manual valve and make the stand of pattern lay down. Check if the roller is tangency to the platform of amplitude changing. Adjust the deflection-rectifying mechanism at the left terminal plate of roller and make sure the roller is tangency to the platform of amplitude changing. Then fasten the screw of the deflection-rectifying mechanism

The press of roller should be adjusted in accordance with the thickness of fabric. Usually, high pressure is necessary for chemical fabric. but it is normally adjusted to what the fabric is just cut down, Excess pressure can make the pattern mould and the working plane of the tool head be worn out easily. Adjust the control valve of pressure till the correct and clean patterns appear on the fabric

Installation of Fabric

1. Thread the fabric to be processed through the pattern mould and the press wheel (or send to the pattern mould directly).
2. Put down the press wheel and the pattern mould respectively to press the fabric (or send to the pattern mould directly).

4.2. Install stand of film

Install thin film or paper belt on the disk's middle of stand and the screw nut and make the thin film or paper belt rotate freely

5. Procedures of operation



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- (1) Switch the power supply, turn on the switch of power supply, connect gas source and press the button of “test”. If the display of amperemeter is about 1.2A and the ultrasonic is normal, it indicates that the system of ultrasonic is normal
- (2) Step the footplate of control panel. At this time, the upper press wheel and roller should be on the state of raising. Check if the platform of amplitude changing lever of roller and low press wheel are rotated. Adjust the speed control knob of roller and the speed control knob if the speed is changed. If so, it indicates that the operation of driving system is normal
- (3) Put the fabric between the pattern mould and the press wheel (the printing paper tape or film depending on need), press down the pattern mould and the press wheel.
- (4) Step the control pedal again to start the operation
- (5) During the period of operation, much attention should be paid to the first or late procedures.

6. Maintenance and notes

- (1) Oil the parts of mechanical driving in time. It is not permitted that the cloth piece and scraps of paper block it
- (2) It is not allowed to let water enter into generator and changer.



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- (3) There is high voltage inside ultrasonic generator. Do not near it in order to avoid electric shock
- (4) The machine should be grounded reliably
- (5) When ultrasonic generator is in operation, it is not allowed that the output terminal is open-circuit
- (6) When operation, if the working current of ultrasonic generator is too high or the wave is not enough (The phenomenon are not edge-cutting and not penetration), this machine should be shut down immediately. After the fault is removed, then start it again
- (7) This machine can continuously operate about 8 hours
- (8) This machine must maintain in time
- (9) When install roller or operate, much attention should be paid, do not stretch your fingers into roller
- (10) When the machine is not in use, the pattern mould and the press wheel should be released or power supply should be switched off.



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7. Common Troubles and Remedies

	Common Troubles	Causes	Remedies
1	Fabric couldn't be cut , but pile drawn or raised	1.Machine speed is too fast. 2.No paper tape or film is filled up. 3.Pressure insufficient. 4.Pattern mould or plane of tool head worn out. 5.Low voltage of power supply.	1.Reduce speed suitably. 2.Fill up paper tape or film. 3.Increase pressure suitably. 4.Replace with new pattern mould and grind the plane. 5.Equipped with 1500W electronic AC stabilizer.
2	Some holes couldn't be punched , half side couldn't be punched ,but pile drawn or raised.	1.Pattern mould is installed leanly. 2.Working plane of tool head not level. 3.No paper tape or film is filled up.	1.Readiust pattern mould. 2.Readjust working plane of tool head. 3.Fill up paper tape or film.
3	Materials or auxiliaries run off tracking.	1.Guide wheel sets of paper tape or film are skew. 2.Pulley set is skew.	1.Readjust pattern mould. 2.Adjust pulley set.
4	Pattern mould(or tool head)doesn't turn.	1. Speed governing circuit failed.. 2. Broken copper sheet on control circuit board of motor. 3. Coil of motor burnt out. 4. Motor idles or driving part is blocked. 5. Synchronous belt broken.	1. Replace with 110V rely and control box. 2. Check circuit and fine trouble. 3. Replace motor. 4. Check all parts from motor to pattern mould (or too head)and gearbox. 5. Replace Synchronous belt.
5	Pattern mould (or tool head)at full speed	1.Speed-governing circuit failed. 1. Speed-measuring coil broken. 2. Relay damaged. 3. Speed-governing circuit failed.	1.Check speed=governing failure. 2.Replace speed-measuring coil. 3.Replace relay. 4.Replace control box.
6	No strong and even	1.Tool head (welding head) failed.	1.Replace tool head (welding head).



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	ultrasonic wave on working plane of tool head (welding head),no wave but abnormal sound	<p>2.Piezocrystal damaged.</p> <p>3.Connecting screw of tool head broken.</p> <p>4.Frequency of generator couldn't be traced.</p> <p>5.Fuse of ultrasonic output broken.</p> <p>6.Some transistors in large power transistor set broken.</p> <p>7.Bad contact of connectors in circuit of ultrasonic generator.</p> <p>8.Bad contact of top relay on speed-governing board.</p> <p>9.Bad contact of damage of brush contacting with copper ring.</p>	<p>2.Replace piezocrystal.</p> <p>3.Replace screw.</p> <p>4.Adjust current slightly or to minimum.</p> <p>5.Replace fuse.</p> <p>6.Replace damaged transistor.</p> <p>Check all connectors and ensure good contact.</p> <p>7.Check all connectors and ensure good contact.</p> <p>8.Replace 110V relay.</p> <p>9.Reinstall or replace.</p>
7	Current leakage feeling by hand	<p>1.Reverse of phases of power supply.</p> <p>2.Bad grounding of energy converter.</p>	<p>1.Connect phase and zero wires correctly.</p> <p>2.Find places with bad contact.</p>

8.Promises to maintenance

(1) Guarantee to repair within 6 months calculated from the date of delivery

(2)Titles of repairing to be guaranteed:

- ① Ultrasonic generator ② Ultrasonic changer
- ③ Amplitude –change lever(the surface worn does not belong to the range of free repairing

(3) The ordinary worn and east-worn parts do not belong to the range of free repairing

(4) Way to repair

- ① Customer may carry the machine or parts to our plant for repairing
- ② According to the request of customer,our technicians could go to the customer's side for repairing.All the charges occurred should be born by customers

(6) Our plant will not to be in charge of free repairing if the following conditions were taken place:

- ① Damaged by human factors, for example, machine is damaged caused by putting other objects into it
- ② Privately disassembling machines
- ③ Changing thr parts of machine privately



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The guarantee period is invalid automatically if the above mentioned condition occur and the fee for repairing should be paid by customers



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