



JK-20U53Z/63Z/93Z/457Q
产品使用说明书&产品零件图册
Manual book & parts book

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一、机 器 简 介

曲线缝缝纫机系列产品是多品种锁式曲形线迹工业用刺绣机器。

本系列机种用于绣品、服装、巾被、鞋帽、手套、皮件、箱包等行业，被广泛应用于薄、中厚料上作直形、曲形缝纫。

本机结构采用连杆挑线，旋梭匀线，针杆摆动，差动齿轮勾线，倒顺针机构，并设有膝提机构。具有运转平衡、操作灵活、缝修方便、线迹美观整齐等特点。

I . BRIEF INTRODUCTION OF THE MACHINE

Series products of Curved-stitching Sewing machine are multi-purposed, locked-type and curved stitching mechanism for industrial embroidery.

This series of machines can be used in the trades of embroidery, garment, beddings, shoes and hats, gloves and leather pieces and suitcases and handbags. It can also be extensively applied to the material with thin or medium thickness for linear and curvilinear sewing.

The machine is designed as a structure which can be expected to stitch-up of pricks with connecting-levers, to crochet with shuttles or differential gears, and provided with swaying needle-staff, clockwise can counter-clockwise units and kneeing device. The machine features in smooth running, flexible operation, convenient maintenance as well as neat and beautiful stitches.

二、技术规格及用途

II. Main Technical Specifications and Application

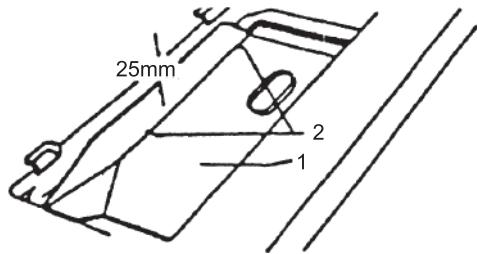
名 称 Description		曲 形 缝 Curved-stitching	双 针 曲 形 缝 Double Curved-stitching	
最高 缝速 Max. Speed	直 形 缝		2000针/分 2000 stitches/min	
	曲 形 缝 Curvilinear	横针距1~5毫米 Horizontal needle distance 1~5mm		
		横针距5~12毫米 Horizontal needle distance 5~12mm		
最大线迹长度 Max. Length of stitches	直形线迹 Linear		5毫米 5mm	
	曲形线迹 Curvilinear	左针位 Left-needle Position	12毫米 12mm	
		中针位 Central-needle Position		
双针间距 Distance. Between double stitches	右针位 Right-needle Position	——	6毫米(指单针摆动宽度) 6mm(Swaying width of Single needle)	
			2.5, 3.5, 4.5 (可换) 2.5, 3.5, 4.5(Changeable)	
压脚提升高度 Height of Presser foot	手 提 Hand stitch		不低于6毫米 no less than 6mm	
	膝 提 Kneeling stitch		不低于12毫米 12mm	
最大缝纫厚度 Max. Thickness of sewing		不少于8层纱布 No less than 8 layers		
机 针 规 格 Specification of needle		DPX5 (Nm700~130)		
缝 线 Thread		No. 40-100涤 棉线或类似丝线 No. 40~100 terylene and the like		
机头体积(长×宽×高) Dimension of machine head(L×W×H)		450 × 180 × 320毫米 450 × 180 × 320mm		
电 动 机 功 率 Motor Power		0.37千瓦 0.37KW		
用 途 Application		粗缝、拼缝、套结缝、 装饰缝及一般Z字形缝 For rough stitching, piece-together stitching, Loop stitching, Z-Shape stitching and decorating stitching	双针条状及曲折装 饰缝 For double stitching and curved-strokes decorations	

三、机器安装和操作准备

1、机器安装

(1)油盘安装

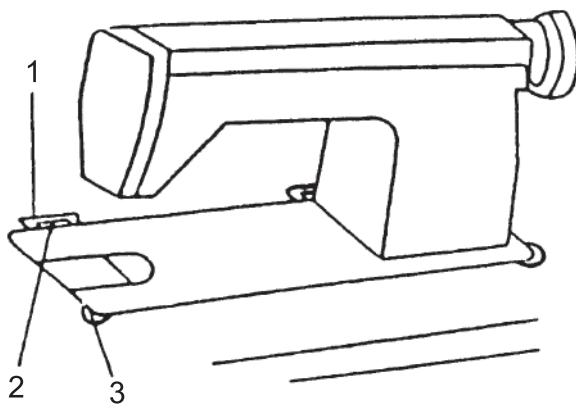
见图一，用四只圆钉2将油盘1固定在台板框孔内，并确保油盘至台板面距离为25毫米，油盘右边缘与台板右框边平齐。



图一 Figurel 1

(2)机头安装：(见图二)

机头在安装时，首先将机头连续勾座1和机头座垫2用铁钉固定在相应位置，安装四只橡皮座垫3时，一定要使铁钉全部埋入橡皮圈内。然后将机头装上连接勾放在台板上，并注意转动要灵活，四角要平稳。



图二 Figurel 2

2、操作准备

(1)揩擦机器：

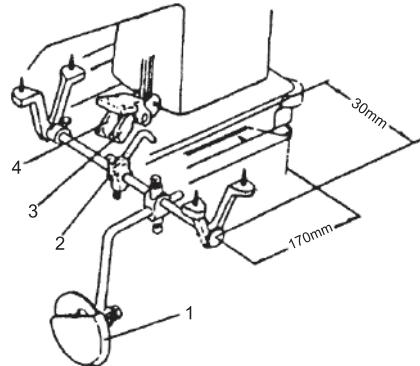
机头装箱前为了防止机件生锈，各部分均

(3)膝控部件的安装：

按图三进行安装，并注意转动要灵活。

①膝碰块1的位置根据操作者的情况进行调节，以保证操作位置。

②调节件2的位置，当件2控制件3运动时，则膝部可以来控制机针的摆动；当件2控制件4时，则膝部可以控制压脚的提升。



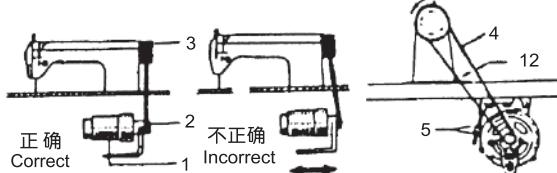
图三 Figurel 3

(4)电动机安装：(见图四)

①将电机1左右移动，使缝纫机主动轮件3与电动机皮带轮件2的位置调整成一直线即可。

②缝纫机运转方向，从机头主动轮上侧看，应是逆时针方向。电动机的转向应一致。电动机转向可用电动机上的电源插头换转180° 调整转向。

③O型皮带4的张力调整，旋松螺母5，转动电动机调节皮带张力。皮带张力的大小可用手指将皮带按下，使皮带如图示弯曲成12-20毫米程度即可。



图四 Figurel 4

涂有除锈油脂，同时机头装箱后，还可能在贮藏和长途运输阶段造成油脂硬化和积聚在机器表面的灰尘，所以必须将表面的油脂和灰

尘用汽油和洁净的软布揩擦干净。

(2)检查：

机器出厂后，在长途运输中有可能受到强烈的振动而使机件松动或变形，所以在清洗油污以后，应该作一次周密的检查，并用手转动主动轮，看机件之间有无转动困难，碰撞现象或其它不均匀的阻力，不正常的声响，如有应作适当的调整，调至机器运转正常后才可正式试车。

(3)润滑：

机器运转之前，用软布揩擦干净之后，对所有运转和滑动部份和图五中的加油点都应充分加油。

如果机器是连续使用的，应该每天加油数次。

必须使用2号缝纫机白油或HJ-7机械油。

(4)试车：

新机器第一次使用和长期搁置未用重新使用时，应先进行空载运转。此时特别注意：上轮转向应是逆时针（从上轮的外侧面来看），并将压脚提升，开始时应低速运转，如运转正常，则逐步提高到2000转/分。数分钟后再检查各部分零件磨损情况，直至机器情况正常时才正式使用。

III. INSTALLATION AND PREPARATION FOR OPERATION

1. Installation

(1) Fixing of oil Disk

Fix the oil disk (1)with 4 pins (2)onto the frame openings of the plate. Make sure the distance between the oil disk and the plate surface is equal to 25mm. The right side of the oil disk should be kept in line with the right frame of the plate(see Figure 1).

(2) Installation of machine Head(see Figure 2)

In Installation,the base of connecting hook (1) and the pad (2) should be firstly fastened firmly at a proper place with the metal nails when the 4 rubber pads (3) are being fixed. Make sure the metal nails should be embeded entirely into the rubber washer.Then the machine head can be installed on the plate with connecting hooks. Attention should be attached to flexible movement and the 4 angles being flat and stable.

(3) Installation of knee-control component

The installation of this component should be conducted according to the Figure 3, and much importance be attached to the flexibility of operation.

① The location of the knee-control block 1 ought to be adjusted in accordance with the operator's working condition to ensure convenience in operation.

② How to locate the adjuster 2: When adjuster 2 is aimed to control the movement of part 3 the knee component can be used to control the swaying of the needle. When the adjuster 2 is aimed to control the movement of part 4, the knee component can be used to control the upraising of presser foot.

(4) Installation of motor(see Figure 4)

① Turn the motor 1 from side to side in a bid to ensure the driving wheel of the sewing machine 3 being in line with the pulley of the motor 2.

② How to regulate the running direction: Viewed from the outside of the driving wheel, the running direction should be counter-Clockwise. Make sure that the turning of the motor should be in uniform and regular direction which can be regulated by the power plug on the motor with change of 180° .

③ How to regulate the tension of O-shaped Belt 4.

Release the Nut 5, and turn the motor so that the Belt tension can be regulated. If press down the belt with your fingers and bend it over to 12-20 mm as shown in Figure 4, the tension is considered as ideal one.

2. Preparation for Operation

(1) Cleaning the machine

Before shipping, every part of the machine head is intended to be coated with antirust grease in a bid to prevent the components from being rusted. After shipping, the applied grease might be hardened during the long-distance transportation or in storage, and particles and dust accumulated on the surface of the machine. And thus all the hardened grease, particles and dust should be wiped clean with gasoline and soft cloth.

(2) Installation

After leaving factory, the machine is possibly subject to violent vibration during the long distance transportation so that the components could be loosened or deformed. A close and comprehensive inspection is needed when all the oily stain has been wiped clean. Turn the driving wheel manually to see if there is any difficulty in turning of the components ,any bump or obstruction, or any abnormal sounds. If any, the affected components should be adjusted until the machine is capable of running regularly.

(3) Lubrication

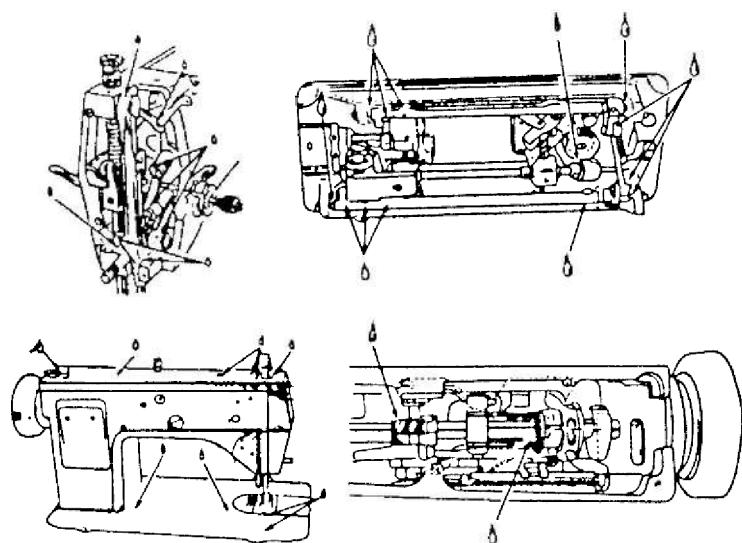
After the machine being wiped clean with soft cloth but before operating, all ,the turning and movable parts and the oil holes in Figure 5 should be fully lubricated.

When the machine is needed to run continuously, lubrication should be made several time each day.

No 2 white lubricant of HJ-7 mechanical oil is preferentially used.

(4) Test run

When a new machine is operated at the first time or a machine is newly used after a long time of laying off, the machine should be made idle-running, What is more important at the moment is that the running direction of upper wheel should be counter- clockwise (viewed from the outside of the upper wheel)and the presser foot raised. At the beginning, the running should be at low speed, and could be gradually increased to 2000r/m when it comes to normal state. A few



图五 Figure 5

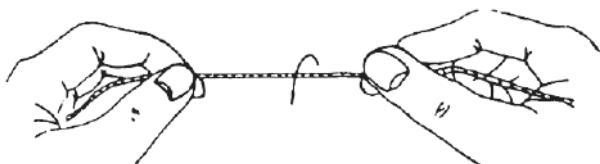
Minutes later, it is necessary to reexamine any sign of wear and tear about the components until the machine can be operated normally.

四、机器的操作

1、缝线的选择

面线应采用左旋线。底线则左、右旋线均可使用。

缝线旋向的鉴别，可按图六所示把缝线握住，以右手按图箭头方向搓转缝线。若线股越搓越紧，则是左旋线。反之即为右旋线。



图六 Figure 6

2、机针、缝线和缝料的配合

请使用DP×5机针，机针号数根据使用的缝料、缝线参考下表进行选择。

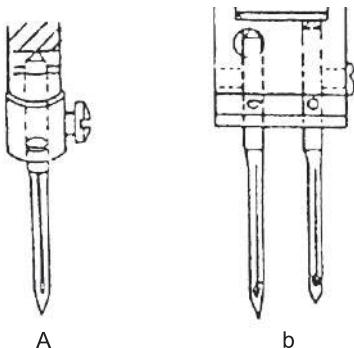
机针号码 Needle Number	缝线的种类及号码 Number, Kind of thread			缝料种类 Kind of material
	棉线 Cotton	丝线 Silk	尼龙 Nylon	
65~75(9#~11#)	80~150	240~30	3~56	乔其纱、薄麻布、手帕、绸缎绣花 Georgette, gunny, napkin, embroidered-Satin
75~90(11#~14#)	60~80			服装卡其、薄呢绒、绣字、绣花 Khaki, woolen fabric embroidery
90~100(14#~16#)	40~60	16~18		绒布、全毛哔叽呢、绸缎上绣花、手套上绣花 Cotton flannel, woolen serge, embroidered satin and gloves
100~130(16#~22#)	30~40	21~60	10~40	人造革、鞋、帽、拎包、皮件上绣花 Artificial leather, shoes and hats, suit-case embroidered leather-piece

参考上表按所缝布料选择合适的机针。

*如使用特殊缝线如金银丝，请使用大号的机针（14#-16#）以缝出满意的针迹。

*if specific thread (gold-or-silver thread) is used, large-size needles(14#-16#) are needed for satisfying stitches.

3、机针安装



图七 Figure 7

见图七，机针安装时一定要使针孔及机针长槽面向操作者，机针尾部一定要插到孔底，然后拧紧支头螺钉。

4、绕梭心线：(见图八)

(1)左手抓住上轮，右手将离合螺钉A朝自己方向转动，松开；

(2)将梭心置于绕线器芯轴B，尽可能地按下；

(3)如图，将线通过上过线板二孔C1、C2和夹线板D，然后把线头在梭心上绕上几圈，将线量调节压板E压向梭芯，开机；

(4)梭心线绕满后会自动停止绕线。

调节梭心绕线量，可用螺丝刀固定线量调节轴G，松开螺钉F，转动压板E，可调整梭心的绕线量。把压板E调离自己方向，可多绕线；反之则少绕线。一般调整到绕线量小于梭心外径0.5~1mm，再紧固螺钉F。

梭心线应排列整齐而紧密。如松浮不紧，可旋转夹线螺母调节夹线板的压力；如排列不齐，可松开螺钉H，上下调节上过线板组件I，使之排列整齐后再紧固螺钉H。

5、穿面线和引底线

穿面线时针杆应在最高位置，然后从线架上引出线头，曲折缝按图九a所示将线头依次穿过1-11，最后穿过机针孔12，并引出100毫米左右的线备用。双针曲折缝按图九b穿面线。

引底线时，先将面线线头捏住转动主动轮，使针杆向下运动，再回升到最高位置，然后拉起捏住的面线线头，底线即被牵引上来，最后把底、面二根线头一起置于压脚下前方。

6、装梭心(见图十)

(1)梭心装入梭心套，将线从长槽①及压线簧②下拉出。

(2)将线拉出压线簧末端的孔③。

(3)把线穿过过线孔④留出60毫米长的线头。

注意：牵拉线5时，梭心顺时针方向转动是正确的；若是逆时针方向转动，应把梭心翻个面重装。

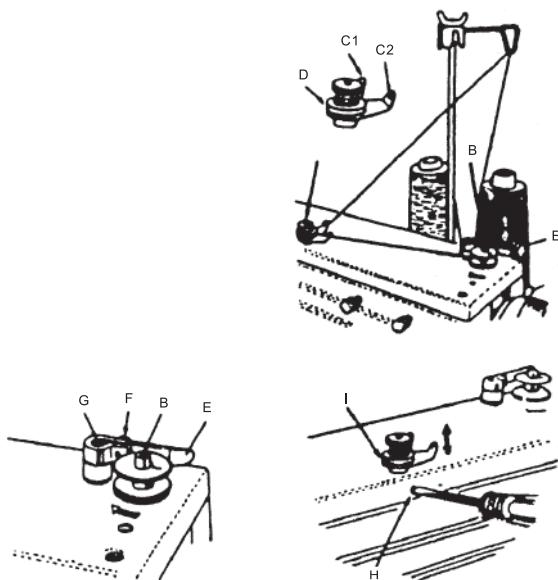
7、装卸梭心套(见图十一)

装梭心套的时候，机针应该在最高位置。

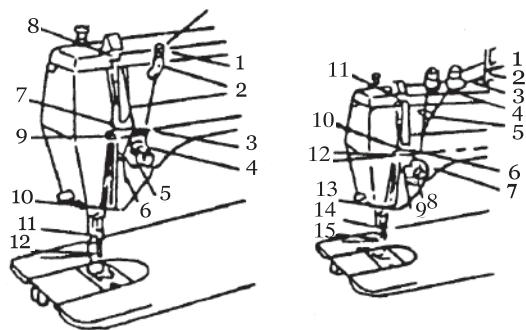
先拉开梭门盖1之后把梭心套3照图十一所示放入旋梭2中。放入时请注意梭心套与旋梭轴上的定位槽相扣合。

卸梭心套时，必须将梭门盖向上扳开并且扳足，之后捏着扳开的梭门盖徐徐地拿下梭心套，如此才能使梭心套钩住梭心，不让梭心脱落。

套，如此才能使梭心套钩住梭心，不让梭心脱落。

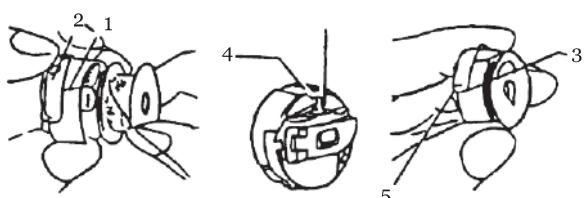


图八 Figure 8

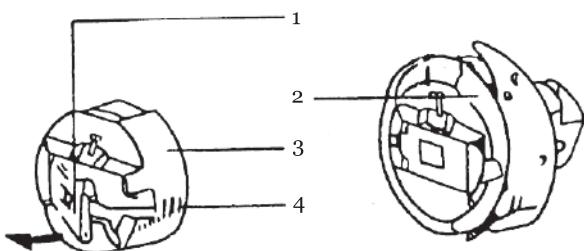


a 图九 Figure 9

b



图十 Figure 10



图十一 Figure 11

8、直针距及倒顺送料的调节(见图十二)

直针距的调节：

(1)按顺时针方向旋转针距旋钮B，可使直针距变小。

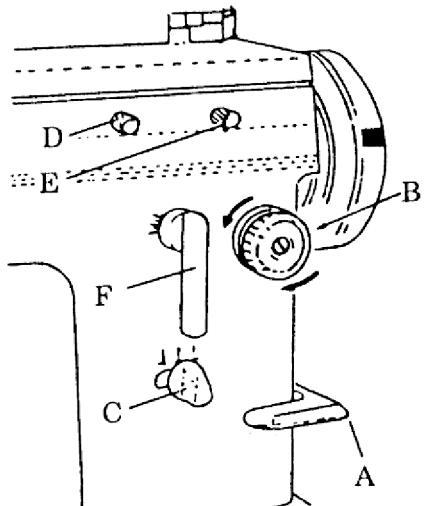
(2)按逆时针方向旋转针距旋钮B，可使直针距变大。

针距旋钮B上的刻度只是参考值，并非精确值。

倒顺送料的调节：

(1)当倒顺把手A处于自由状态时，机器处于顺进料状态。

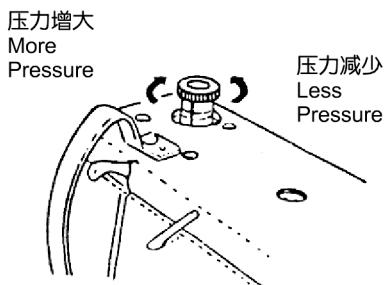
(2)当按下倒顺把手A到最低位置时，机器处于倒送状态。



图十二 Figure 12

9、压脚压力的调节：

压脚的压力，在保证顺利送料的前提下压力越小越好。一般厚料压力要大，薄料压力要小些。如图十三，顺时针旋转调压螺母，压力增大；逆时针旋转调压螺母，压力减小。



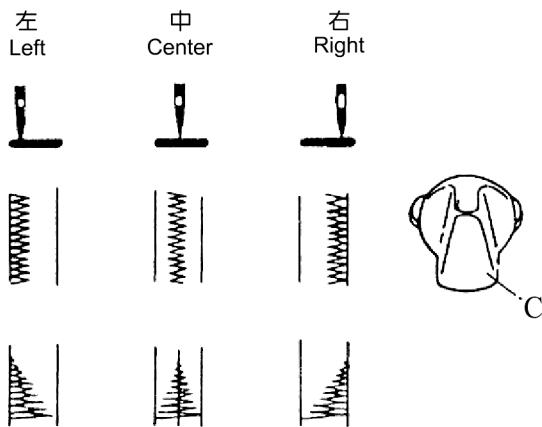
图十三 Figure 13

10、针位的选择：

左、中、右针位对直缝与曲折缝都适用。

机针位于中间位置适合于一般缝纫，只有在缝纫位置有特殊要求时，才能将机针置于左或右针位。

如图十二，只要将左、中、右手柄C移到预想的位置，就会缝出相应的针迹，如图十四。



图十四 Figure 14

11、横针距的调节(见图十二)

(1)当需采用曲形线迹0~12mm之间任一固定值时，可按如下调节：

- 松开横针定位螺钉D、E；
- 顺时针转动横针板手F至所需的位置；
- 锁紧横针定位螺钉D、E即可。

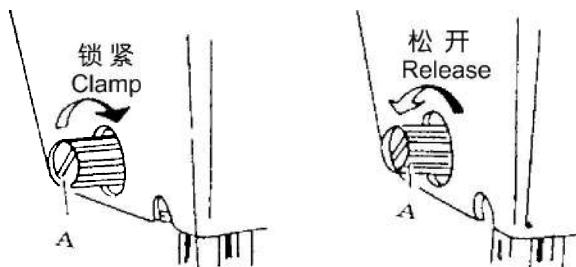
(2)当需采用曲形线迹0~12mm之间任何一固定区间的变动进行缝纫时，例固定区间为2~8mm，可按如下调节：

- 松开横针定位螺钉D(控制窄曲形)、F(控制宽曲形)；
- 把横针板手调至2mm位置，锁紧螺钉D；
- 把横针板手调至8mm位置，锁紧螺钉E。

这样横针距就可在指定的窄曲形2mm至宽曲形8mm之间任意变动。

12、直缝锁紧装置：(见图十五)

当横针距调节至0进行直缝时，顺时针旋转直缝锁紧偏心套A，锁紧针杆摆动架，则直缝效果会更佳。当进行曲折缝纫时，则要逆时针旋转偏心套A，使之锁紧在机壳上，松开针杆摆动架。



图十五 Figure 15

IV. HOW TO OPERATE

1. Selection of stitches

Left-handed rotation stitches can only be applied to the surface, while either left-handed or right-handed rotation stitches can be applied to the bottom.

The rotational direction of stitches can be identified according to the indication shown in Figure 6. Hold the stitch with both hands and then twist it by the right hand and in the direction as the arrow shows. If the more it twists, the tighter it becomes, undoubtedly it should be left-handed rotation stitch. Otherwise it is right-handed one.

2. Coordination of Needle, Thread and material

DP X 5 needle is chosen in preference. The number of needle can be selected in line with the material and thread used. (See the following Table)

Decent needles can be selected in accordance with the material listed in the above Table.

3. Assemblage of Needle (see Figure 7)

When assembling, make sure that the needle hole and its long slot should face the operator with the rear part of needle inserted deep into the hole bottom, Then tighten firmly the set screw.

4. Winding thread around the shuttle core (see Figure 8)

(1) Get the shuttle core onto the axis of the winder B, and clamp it down to the full;

(2) Shown as the Figure, Let the thread run through the two holes C1, C2 on the upper thread-running plate and the thread-holding plate D; then the end of the thread is made to go around the shuttle core for several circles. In the case the thread-volume-adjusting plate E is clamped toward the shuttle core, operate the machine immediately;

(3) If the full thread around the shuttle core is found, it can be expected to stop winding automatically.

To regulate the winding volume of the shuttle core, a screwdriver can be used to secure the volume-regulating shaft G, and then loosen the screw F and turn the pressing plate E. If more winding volume is needed, the pressing plate is made to go against the operator and vice versa. In general, the volume can be set to less than 0.5~1mm of the external diameter of the shuttle core, then secure the screw F.

The thread around the shuttle core should be arranged neat and compact, If too Loose or relax, the pressure of thread-holding plate should be strengthened by turning the nut; If being in uneven arrangement, release the set screw H, and adjust the component of the upper thread-running plate 1 until the thread arrangement is satisfactory, and then fix it.

5. Threading surface and Bottom stitches

When threading the surface stitches, the needle staff should be at the top position. The end is led from the thread rack, curved stitching are made to run through 1-13 as shown in Figure 9a and then through the needle hole 12, meanwhile a length of 100mm should be drawn out for spare

Thread. The threading surface stitches of double curvea stitches should be made as shown in Figure 9b.

When threading the bottom stitches, firstly hold the end of surface stitch, then turn the driving wheel to make the needle staff run downward and immediately back to the top position. Pull up the end of surface stitch, resulting in drawing the bottom stitch upward. Finally, both ends of the surface stitch and the bottom stitch are set to the front of presser foot altogether.

6. Mounting of shuttle core (see Fingure 10)

(1) Mount the shuttle core onto the case and pull out the thread from the long slot ① and thread-pressing spring ②.

(2) Pull the thread out of the end-hole 3 of the thread pressing spring;

(3) Run the thread through the thread-conveying hole 4 and leave aside the end about 60mm.

Note: When drawing the thread end, it's normal for the shuttle core to turn clockwise; If not in this case (or counter clockwise) the shuttle core should be remounted after turning over its side.

7. Mounting and Dismounting of the case (of the shuttle core) (see Figure 11)

When mounting the case, the needle should be at the top position. Pull apart the front cover 1 of the shuttle and set the case 3 into the rotation shuttle according to the indication shown in Figure 11, but it should be noted that the case and the locating groove of the shuttle shaft could be engaged in a good state.

When dismounting, pull the cover outward till to the full stop, then it firmly and gradually take down the case so that the case could be expected to hook up the core which won't be disengaged.

8. Adjustment of material-feeding

Adjustment of vertical needle distance (see Figure 12)

(1) The vertical needle distance can be reduced by turning the knob B clockwise.

(2) The distance can be increased by turning the knob B counter-clockwise.

The scale on the knob B is designed only for reference, which is not an exact value.

Adjustrument of material-feeding

(1) When the handle A is found in a free state, the material-feeding can be considered in a direct motion.

(2) But when the Handle A is pressed down to the lowest position, the material-feeding can be considered in reverse motion.

9. Adjustment of the pressure of presser foot

On t he condition that the material-feeding can be conducted directly and regularly, the pressure of the presser foot should be a moderate one father than a big one. In general, the pressure should be increased on sewing the thick material. If on sewing the thin material, the pressure reduced. Shown as the Figure 13, turn the nut for adjusting pressure clockwise and the pressure tends to go up, while turn the nut counter-clockwise, and the pressure down.

10. Selection of needle position

The three positions, left, central and right, are suitable for both the linear stitching and the curvilinear one.

The central position can be expected to suit for conventional sewing. Only when a particular sewing is needed, can the needle be set to the left or right position.

Seen in the Figure 12, if the single-sided curved handle C is set to the predicted position, the proper stitchings can be effected (also see Figure 14)

11. Adjustment of horizontal needle distance (see Figure 12)

(1) If any one fixed value between 0~12mm of curvilinear stitchings is needed, the adjustnen-can be made as follows;

a. Release the horlizontal needle set screws D, E;

b. Turn the spanner F clockwise to a position needed;

c. Lock the screws D, E;

(2) On sewing when a variation of any one fixed area between 0~12mm of curvilinear stitchings is needed (For example 2~8mm), the adjustment car be made as follows:

a. Loosen the set screw D (for control of the narrow curvilinear one) and F (for control of the wide curvilinear one);

b. Set the spanner to the position of 2mm and lock the screw E.

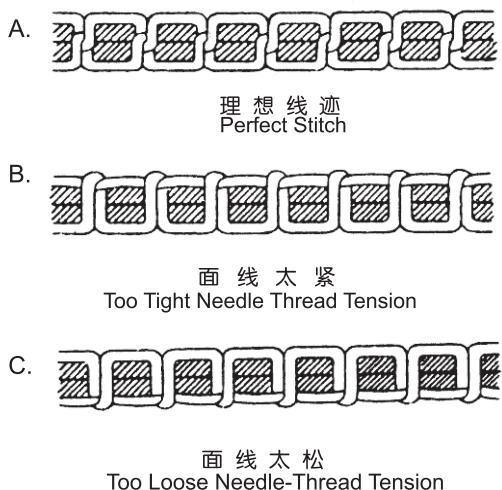
In this way, the horiaontal needle distance can be changed from 2mm (the narrow one)and 8mm (the wide one) randomly.

12. Locking unit for linear stictching (see Figure 15)

When the horizontal needle distance is set to position for Linear stitching, turn the linear and Locking eccentric sleeve A clockwise, secure the needle-bar swaying rack and then the effect of the linear stitching will be better When the curvilinear stitchings are made, the eccentric sleeve A should be turned counter-clockwise and locked securely onto the machine housing, then release the swaying rack of the needle bar.

五、缝 线 的 张 力

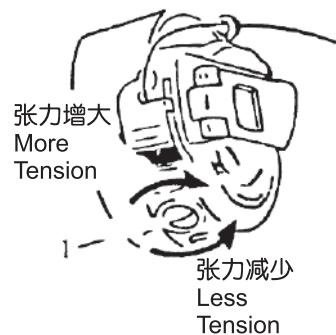
调整面线张力与底线张力到最佳位置，如图十六，使面线与底线锁在两层缝料的中间而上、下线迹不能太松太紧，缝料不能起~~皱~~。



图十六 Figure 16

1、底线张力的调节

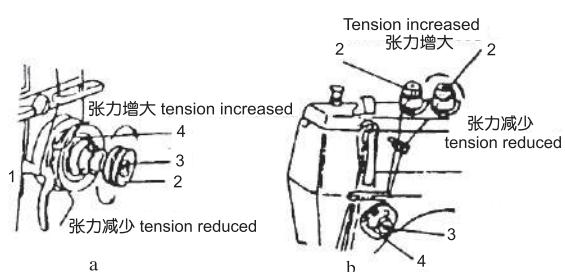
如图十七，旋动底线张力螺钉1调节底线张力。手持线头，悬起梭心套，梭心套能以自身重量从线上徐徐滑下。此时度线张力为适宜。



图十七 Figure 17

2、面线张力的调节(见图十八)

放下压脚，旋动画线张力螺母2调节面线张力，或旋松夹线器紧定螺钉，旋动螺钉3来调节挑线簧4的位置来调节面线张力。使缝纫的线迹达到理想的线迹。



图十八 Figure 18

V. TENSION OF STITCHES

Adjust the tension of surface stitches and of the bottom stitches to the best extent (see Figure 16) so that the coil of surface stitches and of the bottom stitches could be locked between the two layers of material, and all the stitchings should not be too tight nor too loose with the material to be sewn uncreased.

1. Adjustment of Bottom stitch Tension

In the light of indication shown in Figure 17, turn the screw 1 for adjusting the tension of bottom stitches. Hold the end in your hand and suspend the case of shuttle core upward. Then the case will slide down on its own weight, which shows that the tension of bottom stitches has reached the best extent.

2. Adjustment of the surface stitch Tension

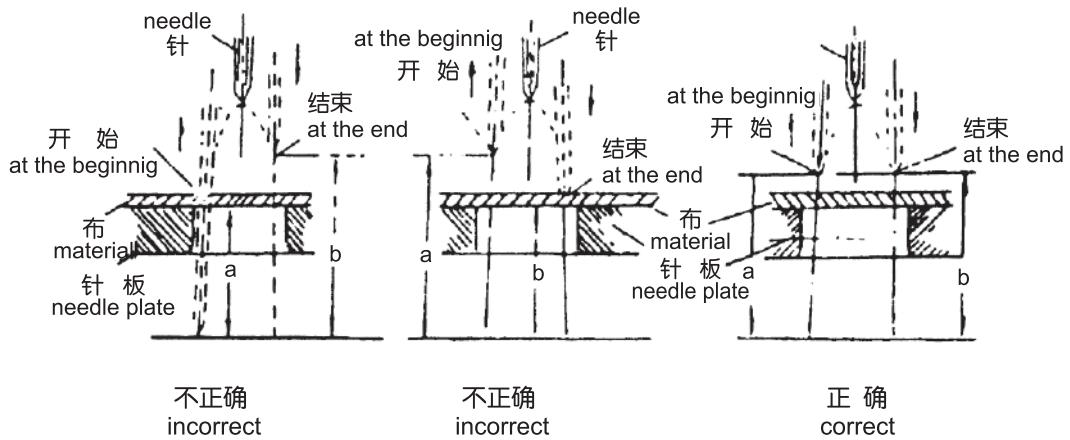
In the light of indication shown in Figure 18, turn the nuts for adjusting the tension of the surface stitches. Alternatively, release the set screw 2 on the thread-holder, then turn screw 3 for adjusting the positon of stitch spring 4, aiming at regulating the tension of surface stitches. As a result, the width of bottom stitches could be maintained perfect.

六、机器的定位与调整

1、机针左右对称高度的调节

如图十九所示，当机针行程在动作的开始和动作的结束时，如果针行程左右运动的高度不相等，就会出现跳针现象，同时，针也会将布扯破，这样就不会绣出好产品。

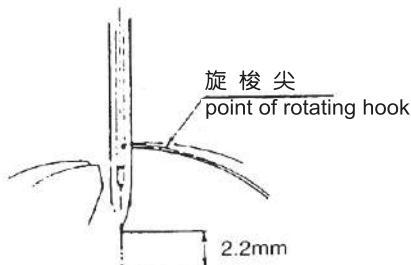
要想获得正确协调的运动位置，应拆除上盖，松开上轴上的螺旋齿轮支头螺钉，轻轻的拨动齿轮，注视针迹，将机针的运动调至协商位置，拧紧支头螺钉。



图十九 Figure 19

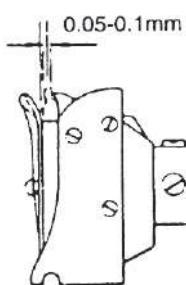
2、旋梭定位

①将摆针宽度固定在零位上，用手朝自己方向转动带轮，使机针(双针曲折缝指右边的机针，下同)从下极限上升2.2毫米，此时旋梭尖应在机针中心线上(图二十)。

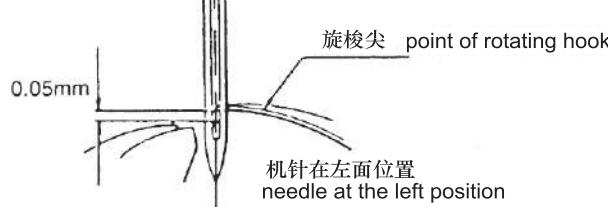


图二十 Figure 20

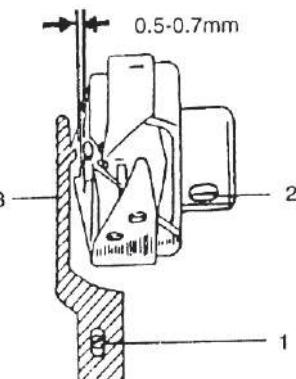
②如需调整，可旋松旋固定螺钉，将旋梭尖对至机针中心线上，此时机针小缺口和旋梭之间隙约为0.05-0.1毫米(图二十一)。



图二十一 Figure 21



图二十二 Figure 22



图二十三 Figure 23

VI. LOCATION AND REGULATION OF THE MACHINE

1. Regulation of symmetrical position of horizontal stitches

As shown in Figure 19. When the height of the left and right movement during the needle travelling is not the same, either at the beginning or in the end, skipping will be found and the embroidery material might tear by the needle. In this way no good embroidery could be produced.

In order that the correct and coordinate position of movement could be achieved, the following steps should be taken; remove the upper cover, release the set screw on the gear of upper shaft and then slightly turn the gear to observe the stitches and adjust the movement of the needle until to the coordinated position, at length tighten the set screw.

2. location of rotating shuttle

3、针杆高度

①调节摆针宽度到最大，用手朝自己方向转动带轮，使机针位于左面位置，旋梭尖在机针中心，此时机针孔上沿至旋梭尖尺寸应为0-0.5毫米。(图二十二)

②如针杆高度位置不对，则拆去面板，旋松针杆连接轴螺钉，提高或放低针杆达到高度要求再旋紧螺钉。

4、旋梭的装卸(见图二十三)

取下旋梭之前，先将针杆升到最高位置，再卸下针板，机针和梭心套，然后旋下旋梭定位钩螺钉1，卸去旋梭定位钩3；而后松开旋梭的三只螺钉2，使旋梭在它的传动轴上能够自同转动，接着用手转动上轮，使送料牙架走向高处。到此，可以用手去旋转旋梭，使它让过将和送料牙架相碰位置，而后取出。

装卸梭过程是依次先拆后装的回复。

(1) Manually so to raise the needle (In case of double curvilinear stitches, the needle is referred to the one on the right side, The same below) by 2.2mm from fht lower limit, when the point of rotating shuttle would be at the central line of the needle. (See Figure 20)

(2) If necessary, loosen the set screw on the rotating shuttle, the point of which should be aligned with the central line of the needle. At the moment, the space between the notch of needle and the rotating shuttle is about 0.05-0.1mm (see Figure 21).

3. Height of the needles stasff

(1) Set the width of swaying needle to the maximum and turn the belt pulley toward the operator manually to make the needle stand at the left position and the shuttle point at the centre of the needle. At the moment the length from the needle hole till the shuttle point should be 0~0.5mm (see Figure 22)

(2) If the height of needle staff is not in the correct position, it is necessary to remove the panel, release the connecting screw on the needle staff, and then raise or lower the staff to the standard height. After that, re-tighten the screw.

4. Mounting and Dismounting of Rotating shuttle (see Figure 23)

To start with, raise the needle staff to the maximum before removing the rotating shuttle, then remove needle plate, needle and the case of shuttle core, meanwhile take down the screw 1 on the locating hook for the rotating shuttle and the locating hook 3 itself; release the three screws 2 on the shuttle, which is capable of rotating freely along the driving spinde, Turn the upper wheel manually to make the feeding rack go upward. Af this point, turn the rotating shuttle manually to allow the feeding rack passing by the position to be touched and then remove it.

The mounting or shuttle is done in an inverted order with the process of dismounting.

七、一般故障及其处理方法

VII. FAULTS LOCATING AND HOW TO TREAT

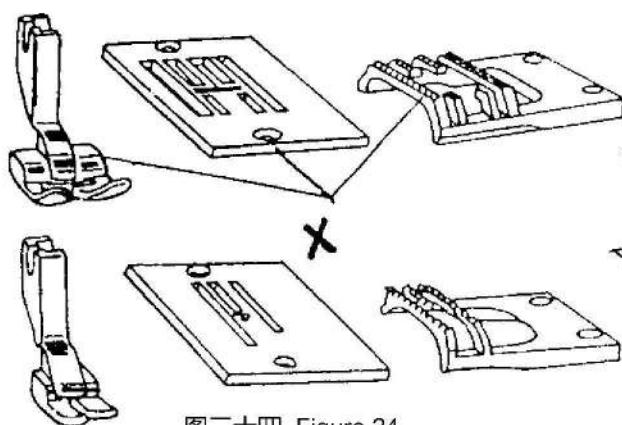
故障类型 Type	产 品 原 因 Cause of Fault	处 理 方 法 How to treat
断 针 Needle is broken	1、机针太细或机针弯曲 2、机针装法错误 3、缝纫时用手推拉缝料 4、缝料过于紧固 1、needle is too fine or bent 2、installation of needle not correct 3、to pull-push manually during sewing 4、material too solid or too thick	调换机针 参看图七 稍许加以扶持，不可推位 请按技术规格规定使用 replace the needle see Figure 7. Slightly adjust, don't pull-push manually material selected in line with specification
跳 针 Skipping	1、机针弯曲或者机针粗细和缝料厚薄不相称 2、机针装法错误 1、needle is bent or it's thickness is not matched with the material 2、installation of needle not correct	调换机针 参看图七 replace the needle see Figure 7.
断面线 Needle thread broken	1、穿线错误 2、面线太紧 3、线的质量差 4、机针太细，面线太粗 1、threading is incorrect 2、needle thread too tight 3、poor quality of thread 4、needle too fine or needle thread too rough	参看图九 参看图十八减少面线张力 调换缝线 调换机针 see Figure 9 tension of needle thread should be reduced (see Figure 18) replace the thread replace the needle
断底线 Bobbin thread broken	1、底线太紧 2、梭心绕线松乱，不匀 3、针板孔毛糙或磨损 1、The needle thread too tight 2、the thread-winding looses or uneven 3、hole of needle plate rough or worn out	减少底线张力 重新绕线 更换针板或用“O”砂布砂光 tension of bobbin thread reduced re-winding the thread replace needle plate or to smooth the hole with emery cloth
针迹松浮 Stitches are loosened	1、底面线没有调好 2、挑线簧过松 1、Thension of bobbin thread and needle thread not well-adjusted 2、Thread take-up spring too loosened	调整底、面线参考图十八调节挑线簧张力 bobbin thread and needle thread should be well adjusted (see Figure 18) to adjust the tension of stitch-spring
缝料起皱 Material gets Creased	1、缝料过簿而针距太长 2、底、面线张力过紧 3、压脚压力过强 1、material too thin and needle distance too big 2、Tension of bobbin thread and needle thread too high 3、pressure of presser foot too high	适当调整 调节夹线螺母，挑线簧和梭皮螺钉 放松调压螺钉，减轻压脚的压力 well-adjusted Thread-holding nut, Thread take-up spring and screw should be regulated release pressure-adjusting screw and reduce the pressure of presser foot

八、几种缝纫方法和附件的使用

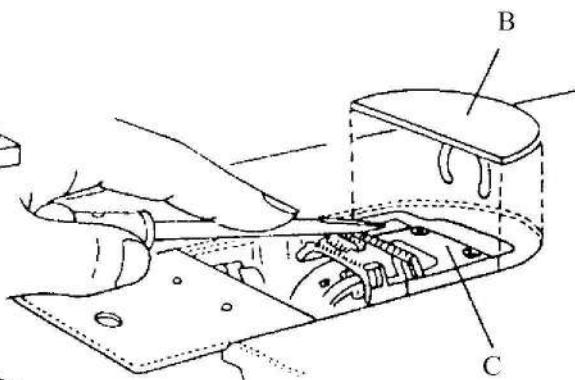
1、直缝：

采用专用的直缝压脚、针板与送料牙(图二十四)比采用多功能的压脚、针板与送料牙进行直缝，效果会更佳，适用范围会更广。

进行直缝时，横针距必须调至0，采用直缝锁紧装置锁紧针杆摆动架，并换上专用压脚、针板、送料牙。更换送料牙时(图二十五)，先卸下针板和针板内盖板，把推板往外拉，松开二只螺钉，卸下多功能送料牙，换上专用送料牙。



图二十四 Figure 24



图二十五 Figure 25

2、刺绣：

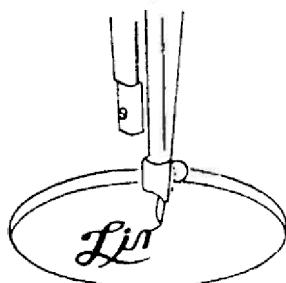
刺绣前的准备工作：

①必需使横针距在0~12mm之间任意调节，把直针距调至0位，并调整膝控部件(见图三)，使件2控制3运动，则膝部可以控制机针的摆动。

②卸下压脚、针板、针板内盖板、推板和送料牙，换上绣花板；

③用左手捏紧面线线头，用手朝自己方向转动带轮，使底线从针板孔中拉出；

④确保内外绷格将缝料绷紧，否则引起跳针，断线及缝料缩(如图二十六)。



图二十六 Figure 26

3、拉链缝：

这种缝法采用拉链压脚(图二十七)，便于针迹接近突出的边，并旋松螺钉B，调节压脚，使机针位于压脚的左、右边槽A，可适用于图二十八中几种情况等。

4、卷边缝

卷边缝采用卷边压脚(图二十九)

拆掉多功能压脚，换上卷边压脚，采用直缝法，针位选择中间，就可以进行如图三十的卷边缝。

5、包梗缝：

进行包梗缝时，更换上专用的包梗压脚、针板、送米牙(图三十一)，针位选择中间，横针距调节至3mm之内，把一条较粗的线穿过包梗压脚的小槽A，就可以进行包梗缝。(图三十二)

6、装饰缝：

只要变换左、中、右的针位，及熟练控制横针距，就可以缝出如图三十三的图案。

7、其它一些实用缝法(见图三十四)。

VIII. MODES OF SEWING AND APPLICATION OF ACCESSORIES

1. Linear Sewing

In case of linear sewing, the best effect and wider scope of application will be achieved if by adoption of the special linear presser foot, needle plate and material-feeding tooth(see Figure 24) rather than the multi-functional ones.

During linear sewing, the horizontal needle distance should be set to O position, and the linear locking unit with swaying rack of locking needle shaft can be used in combination with special presser foot, needle plate and material-feeding tooth. To replace material-feeding tooth, firstly remove needle plate and its inner cover, then push the thrust plate outward, release two screws, and replace the multi-functional material-feeding tooth with the special one.

2. Embroidery

Preparation before embroidering

(1) It should be noted that and free regulation can be made at the horizontal needle distance between 0~12mm. Set the vertical needle distance to O position and will adjust the knee-control parts (see Figure 3) to make the component 2 control the movement of the component 3. As a result, the "knee" can be predicted to control the swaying of the needle;

(2) Remove the presser foot, needle plate, inner cover, thrust plate and material-feeding tooth. After that, the embroidering plate is put into use;

(3) Hold firmly the end of the surface stitches with your left hand, turn the belt pulley manually toward the operator, and then makes the bottom stitches pull out from the holes of the needle plate;

(4) Make sure to stretch tightly the material between the internal and external embroidering frame. Otherwise, skipping, stitches-breaking or material creased might be found (see Figure 26).

3. Zippered Sewing

This mode is preferable to make use of zippered presser foot (see Figure 27) in a bid to make the stitches more accessible to the projecting stitches. Then release the screw B, regulate the presser foot and set the needle to the presser foot and set the needle to the left and right grooves A of the presser foot. This mode is expected to suit for the sewings, seen in the Figure 28.

4. Hem-wrapping mode

In this mode, the hem-wrapping presser foot can be used as we wish (see Figure 29). Remove the multi-functional presser foot and replace it with the hem-wrapping one. This is also a mode of linear sewing with the needle set to the central position, shown as in the Figure 30, the hem-wrapping operation can be effected.

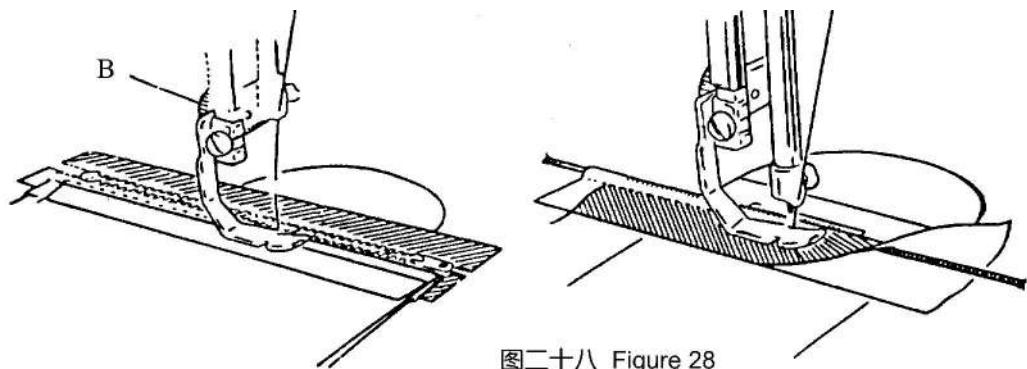
5. Stem-wrapping mode

During the sewing with the stem-wrapping mode, the special stem-wrapping presser foot, needle plate and material-feeding tooth (see Figure 31) should be put into use. The needle is set to the central positon and the horizontal needle distance set to 3mm, and then run the rougher thread through the small groove A on the stem-wrapping presser foot so that the sewing of this mode will be smoothly conducted (see Figure 32).

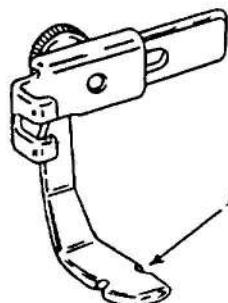
6. Decoration Sewing

If the left, central and right needle positions can be freely changeable and the horizontal needle distance skillfully controlled, the patterns of the decoration sewing will be well achieved as seen in the Figure 33.

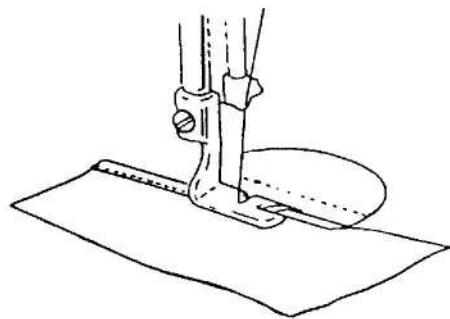
7. Other modes of practical sewing (see Figure 34)



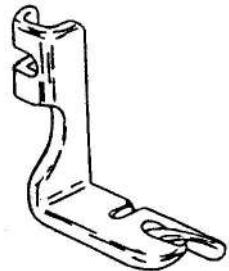
图二十八 Figure 28



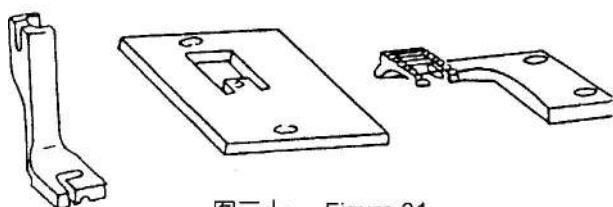
图二十七 Figure 27



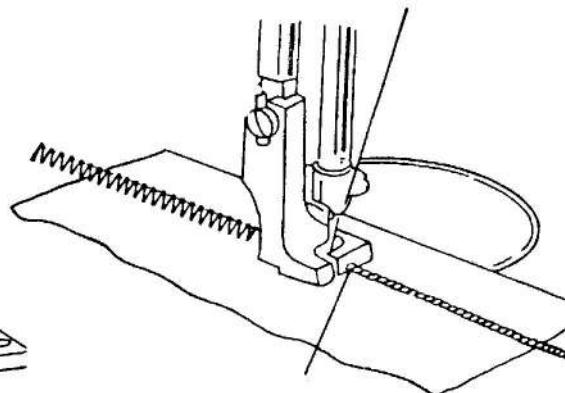
图三十 Figure 30



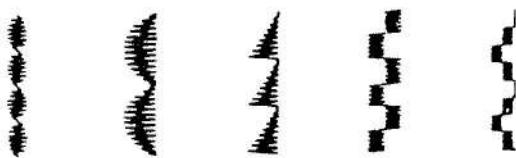
图二十九 Figure 29



图三十一 Figure 31



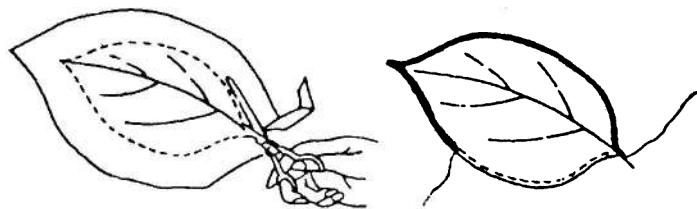
图三十二 Figure 32



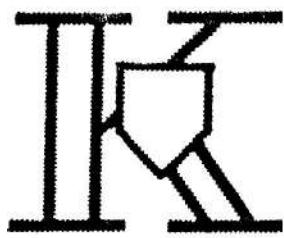
图三十三 Figure 33



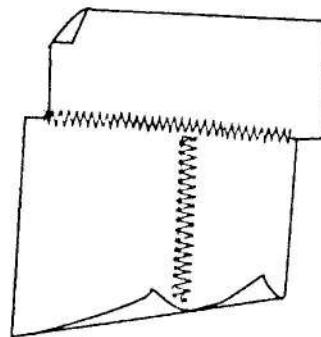
锁 钮 眼
Button hole



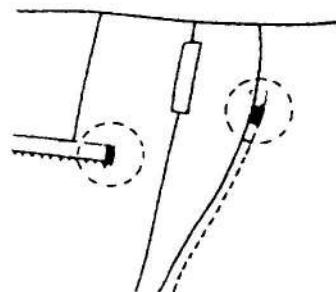
荷 叶 绣
Lolus-leaves Embroidery



绣 字
Word-Embroidery

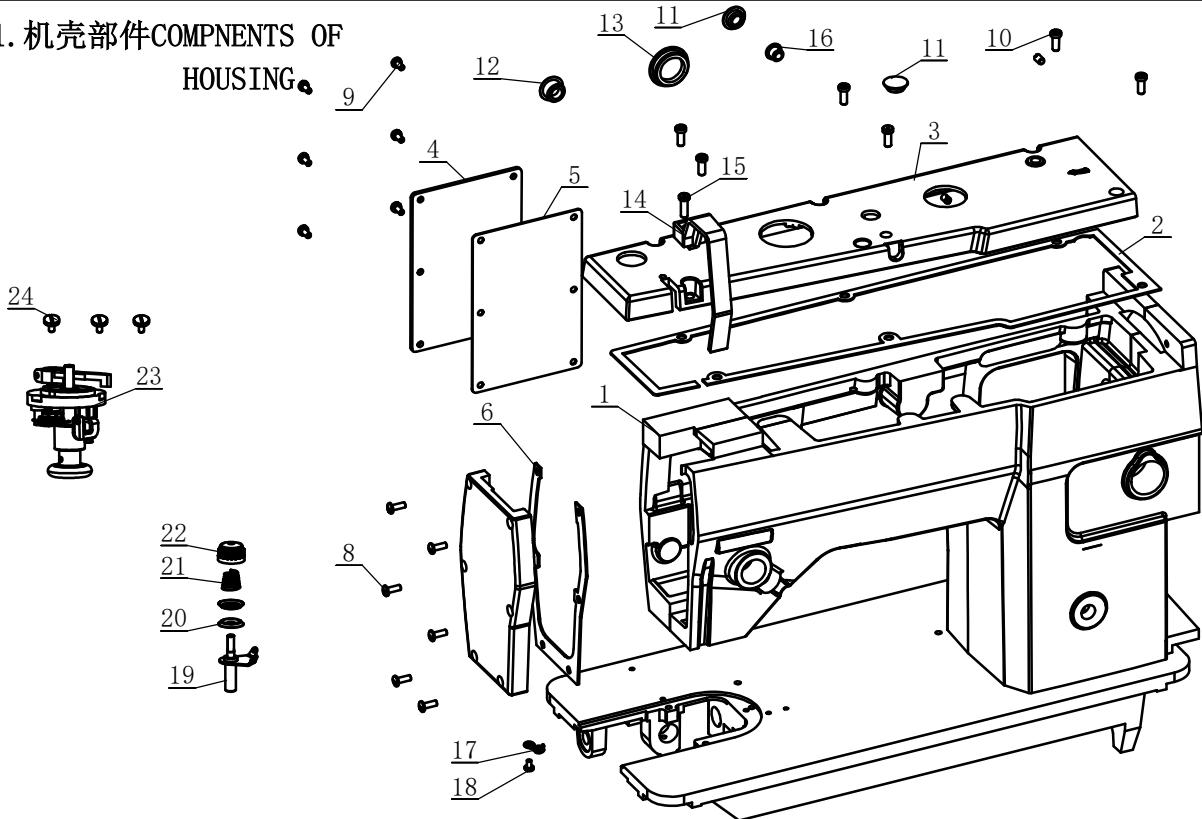


拼 缝
Piecing-together Sewing



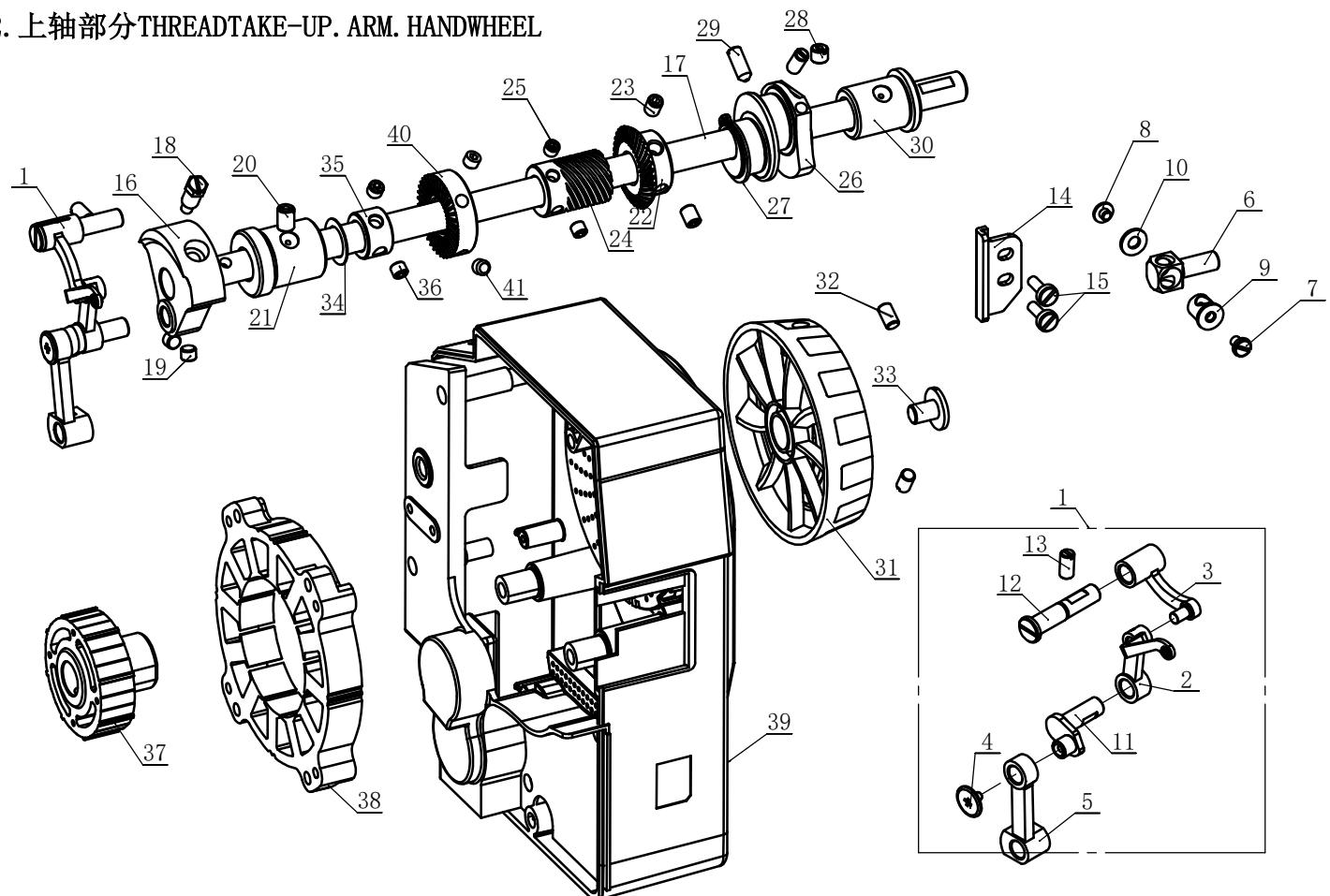
套 结 缝
Looping Sewing

1. 机壳部件COMPONENTS OF HOUSING



序号 SerNo	图纸编号 Code No.	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T1-1	机壳 Housing	✓	✓	✓	✓	1
2	U93T1-32	上盖垫片 Arm top cover packing			✓		1
3	U93T1-3	上盖 Upper cover	✓	✓	✓	✓	1
4	U93T1-4	后盖板 Back cover	✓	✓	✓	✓	1
5	U93T1-33	后盖垫片 Rear cover gasket			✓		1
6	U93T1-34	面板垫片 Panel gasket			✓		1
7	U93T1-7	面盖 Face plate	✓	✓	✓	✓	1
8	U93T1-6	面板螺钉 Face Plate screw	✓	✓	✓	✓	6
9	U93T1-8	后盖螺钉 Back cover screw	✓	✓	✓	✓	6
10	U93T1-31	上盖螺钉 Upper cover set screw	✓	✓	✓	✓	6
11	U93T1-29	橡皮塞（中）Rubber plug (medium)	✓	✓	✓	✓	2
12	U93T1-54	橡皮塞 Rubber plug	✓	✓	✓	✓	1
13	U93T1-28	橡胶塞（大）Rubber plug (big)	✓	✓	✓	✓	1
14	U93T1-27	挑线杆保护罩 Thread take-up guard	✓	✓	✓	✓	1
15	U93T1-26	挑线杆保护罩螺钉 Thread take-up guards screw .	✓	✓	✓	✓	1
16	U93T1-30	橡皮塞（小）Rubber plug (small)	✓	✓	✓	✓	1
17	U93T1-4	线勾Face plate thread guide	✓	✓	✓	✓	1
18	U93T1-5	线勾螺钉Face plate thread guide screw	✓	✓	✓	✓	1
19	U93T1-33-1	小夹线器Bobbin winder tension stud comp.	✓	✓	✓	✓	1
20	U93T1-33-2	压线板Bobbin winder tension disc	✓	✓	✓	✓	2
21	U93T1-33-4	上夹线簧Bobbin winder tension spring	✓	✓	✓	✓	1
22	U93T1-33-3	夹线器螺母 Bobbin winder tension regulating thumb nut	✓	✓	✓	✓	1
23	U93T1-46	绕线器组合Bbobin winder bracket comp.	✓	✓	✓	✓	1
24	U93T1-47	绕线器固定螺钉Bbobin winder bracket comp. screw	✓	✓	✓	✓	3

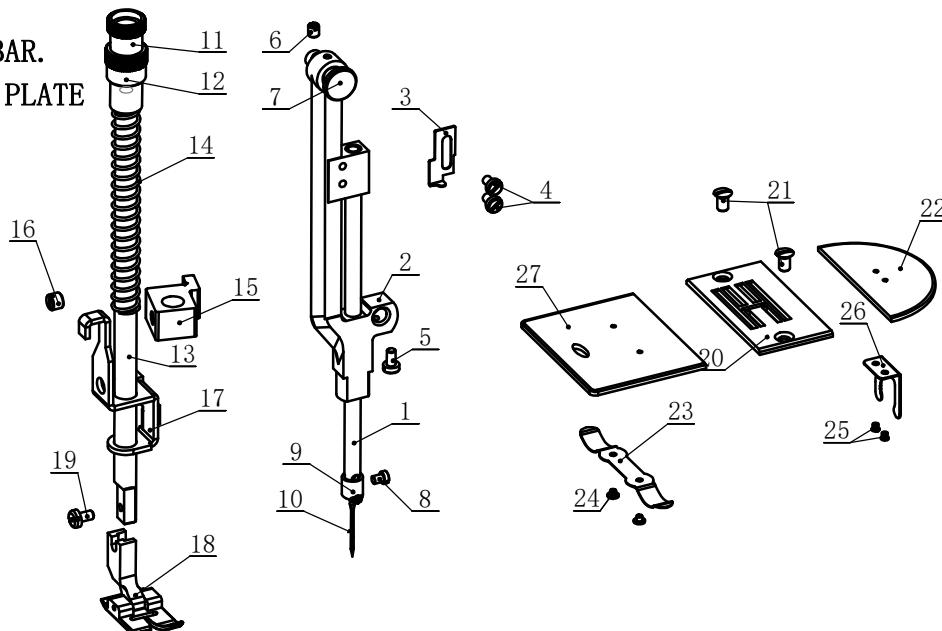
2. 上轴部分THREAD TAKE-UP. ARM. HANDWHEEL



序号 SeriNo	图纸编号 GodeNo	图纸名称 Description	U93Z	U53Z	U63Z	U457	数量 Qty
1	U93T2-20-0	挑线杆组件 Thread take-up lever with thrad eyelet bushing	✓	✓	✓	✓	1
2	U93T2-20-11	挑线杆 Thread take-up lever thread eyelet bushing	✓	✓	✓	✓	1
3	U93T2-20-5	挑线摇杆 Thread take-up lever link	✓	✓	✓	✓	1
4	U93T2-20-1	倒牙螺钉 Neede bar connecting link cap screw	✓	✓	✓	✓	1
5	U93T2-20-2	小连杆 Needle bar connecting link	✓	✓	✓	✓	1
6	U93T2-14	针杆连接轴体 Needle bar connecting stud comp	✓	✓	✓	✓	1
7	U93T2-16	针杆连接轴销紧定螺钉 Needle bar set screw	✓	✓	✓	✓	1
8	U93T2-12	针杆连接轴销螺钉 Needle bar connecting stud hinge pin screw	✓	✓	✓	✓	1
9	U93T2-15	针杆连接轴销 Needle bar vonnected stud hinge pin	✓	✓	✓	✓	1
10	U93T2-13	针杆连接轴销垫圈 Needle bar connecting stud hinge pin washer	✓	✓	✓	✓	1
11	U93T2-20-3	针杆曲柄 Thread take-up crank	✓	✓	✓	✓	1
12	U93T2-20-6	挑线杆摇杆销 Thread take-up lever link hinge pin.	✓	✓	✓	✓	1
13	U93T2-20-7	挑线摇杆销螺钉 Thread take-up lever link hinge pin set screw	✓	✓	✓	✓	1
14	U93T2-17	小连杆导板 Needle bar connecting link guide	✓	✓	✓	✓	1
15	U93T2-18	小连杆导板螺钉 Needle bar connectiong link guide screw	✓	✓	✓	✓	2
16	U93T2-20-9	挑线曲柄 Needle bar crank comp.	✓	✓	✓	✓	1
17	U93T2-29	上轴 Arm shaft (horizonta)	✓	✓	✓	✓	1
18	U93T2-20-8	挑线曲柄螺钉 Needle bar crank position screw	✓	✓	✓	✓	1
19	U93T2-20-10	针杆曲柄紧固螺钉 Thread take-up crank position screw	✓	✓	✓	✓	2
20	U93T2-21	上轴前套紧定螺钉 Arm shaft (horizontal) flanged bushing(front) set screw	✓	✓	✓	✓	1

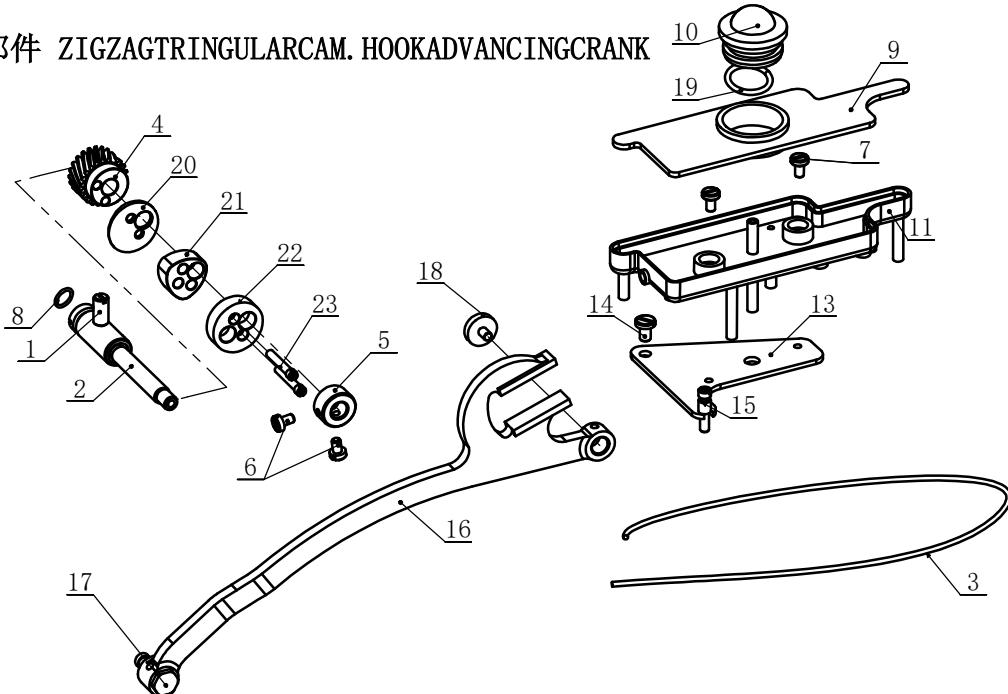
序号 SeriNo	图纸编号 GodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
21	U93T2-22	上轴前轴套Arm shaft (horizontal) flanged bushing(front)	✓	✓	✓	✓	1
22	U93T2-26	上轴弧齿锥齿轮Arm shaft (horizontal) bevel gear comp.	✓	✓	✓	✓	1
23	U93T2-25	上轴弧齿锥齿轮螺钉Arm shaft (horizontal) bevel gear set screw	✓	✓	✓	✓	2
24	U93T2-24	上轴螺旋齿轮Arm shaft (horizontal) worm gear comp.	✓	✓	✓	✓	1
25	U93T2-23	上轴螺旋齿轮螺钉Arm shaft (horizontal) worm gear set screw	✓	✓	✓	✓	2
26	U93T2-28	送布凸轮Feed and feed lifting eccentric ring	✓	✓	✓	✓	1
27	U93T2-68	凸轮挡圈Cam retaining ring	✓	✓	✓	✓	1
28	U93T2-31	上轴后套螺钉Clamp stop motion flanged gushing set screw	✓	✓	✓	✓	1
29	U93T2-27	送布凸轮螺钉Feed and feed liftiong eccentric set set screw	✓	✓	✓	✓	2
30	U93T2-30	上轴后轴套Clamp stop motion flanged bushing	✓	✓	✓	✓	1
31	U93T2-34	上轮Hondwheel	✓	✓	✓	✓	1
32	U93T2-57	上轮紧固螺钉Upper wheel fastening screw	✓	✓	✓	✓	2
33	U93T2-58	上轮螺钉Arm shaftscrew	✓	✓	✓	✓	1
34	U93T2-56	上轴挡圈垫圈Upper shaft retaining ring washer	✓	✓	✓	✓	1
35	U93T2-54	上轴挡圈Upper shaft retaining ring	✓	✓	✓	✓	1
36	U93T2-55	上轴挡圈螺钉Upper shaft retaining ring screw	✓	✓	✓	✓	2
37	U93T2-60	转子rotor	✓	✓	✓	✓	1
38	U93T2-61	定子stator	✓	✓	✓	✓	1
39	U93T2-62	电机罩Motor cover	✓	✓	✓	✓	1
40	U93T2-45	驱动轮Driving wheel	✓	✓	✓	✓	1
41	U93T2-46	驱动轮螺钉Drive wheel screw	✓	✓	✓	✓	2

3. 摆针部件 NEEDLE BAR.
PRESSER BAR. THROAT PLATE



序号 SeriNo	图纸编号 CodeNo	图纸名称 Descripton	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T2-8	针杆Needle bar (hollow)	✓	✓	✓	✓	1
2	U93T2-3	针杆摆动架Needle bar frame	✓	✓	✓	✓	1
3	U93T2-5	针杆定位片Needlebar timing indicatorplate	✓	✓	✓	✓	1
4	U93T2-6	针杆定位片螺钉Needle bar timing indicatorplate screw			✓		2
5	U93T2-4	针杆偏心销螺钉Zigzagstitchregulatorforkeccentric connec tinonpi nsetscrew			✓		1
6	U93T2-2	针杆摆动销螺钉Needlebarframepinsetscrew	✓	✓	✓	✓	1
7	U93T2-7	针杆摆动架销Needlebarframepinset	✓	✓	✓	✓	1
8	U93T2-11	机针紧定螺钉Needle clamp thread guard set screw	✓	✓	✓	✓	1
9	U93T2-9	针杆线勾Needle clamp thread guard	✓	✓	✓	✓	1
10	U93T2-10	机针Needle (size#14)	✓	✓	✓	✓	1
11	U93T6-1	调压螺钉Presser regulating thumb screw	✓	✓	✓	✓	1
12	U93T6-19	调压螺母Preaaer regulationong thumb screw nut	✓	✓	✓	✓	1
13	U93T6-3	压紧杆Presser bar	✓	✓	✓	✓	1
14	U93T6-2	压杆簧Presser bar Sring	✓	✓	✓	✓	1
15	U93T6-9	压脚导架Presser bar guide Bracket comp.	✓	✓	✓	✓	1
16	U93T6-10	压脚导架螺钉Presser bar quide Bracket screw	✓	✓	✓	✓	1
17	U93T6-11	挺线定位座Presser bar lifting and releasing lever bracket	✓	✓	✓	✓	1
18	U93T6-5	压脚组件Presser foot (SpringHinged) Comp.	✓	✓	✓	✓	1
19	U93T6-4	压脚螺钉Presser foots crew	✓	✓	✓	✓	1
20	U93T1-7	针板Throat plate	✓	✓	✓	✓	1
21	U93T1-8	针板螺钉Throat plate screw	✓	✓	✓	✓	2
22	U93T1-9-1	针板内盖板Bed plate	✓	✓	✓	✓	1
23	U93T1-6-2	推板簧Bed slide spring	✓	✓	✓	✓	1
24	U93T1-6-3	推板簧螺钉Bed plate bracket screw	✓	✓	✓	✓	2
25	U93T1-9-3	针板内盖板螺钉Bed plate bracket screw	✓	✓	✓	✓	2
26	U93T1-9-2	针板内盖板簧Bed plate bracket	✓	✓	✓	✓	1
27	U93T1-6-1	推板Bed slide	✓	✓	✓	✓	1

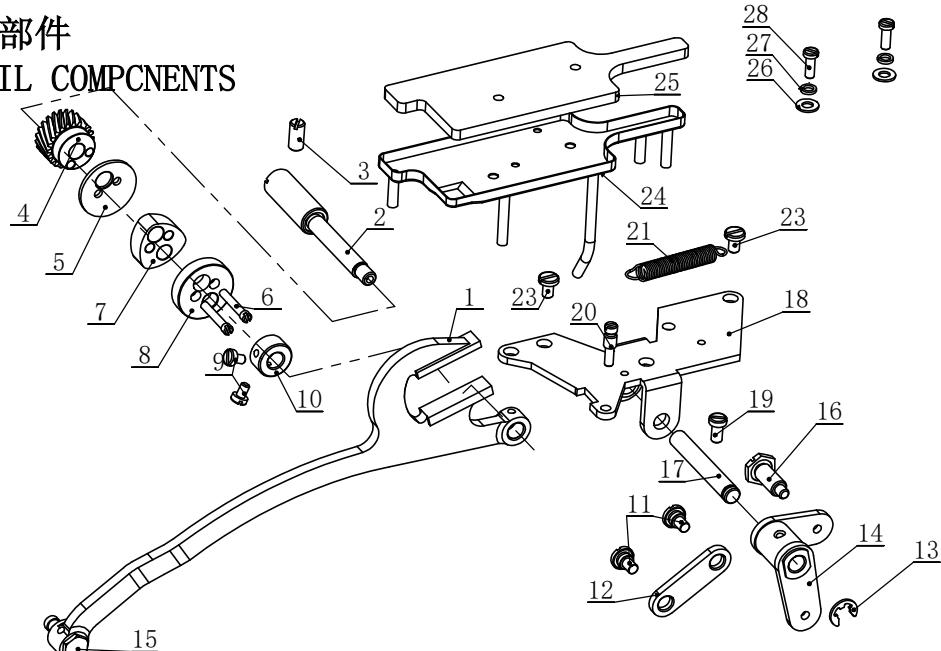
4. 摆针轴部件 ZIGZAGTRIANGULARCAM. HOOKADVANCINGCRANK



序号 SeriNo	图纸编号 Code No	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T5-3	摆针轴螺钉 Zigzag triangulat cam shaft set screw.	✓	✓	✓		1
2	U93T5-2	摆针轴Zigzag triangulat camp shaft	✓	✓	✓		1
3	U93T4-4	摆针轴油线Zigzag triangular camp shaft oil wick	✓				1
4	U93T5-4	摆针齿轮Zigzag triangulat cam p shaft oil comp.	✓	✓	✓		1
5	U93T5-10	摆轴轴挡圈Zigzag triangular cam shaft collar comp.	✓	✓	✓		1
6	U93T5-9	摆针轴挡圈螺钉Zigzag triangular cam shaft collar set screw	✓	✓	✓		2
7	U93T4-8	小油盘螺钉Oil reservoirl set screw	✓	✓	✓	✓	2
8	U93T4-9	摆针轴O型圈Zigzag triangulat camp shaft o-ring			✓		1
9	U93T4-11	小油盘上盖Oil reservoir top cover			✓		1
10	U93T5-71	油窗Oil gauge window			✓		1
11	U93T4-12	小油盘Oil Reservoir comp.			✓		1
12	U93T4-13	小油盘油线Oil reservoir oil wick			✓		1
13	U93T5-49	小油盘安装板Oil reservoiri plate			✓		1
14	U93T5-51	差动曲柄定位架螺钉Oil reservoir plate setscrew(back)			✓		1
15	U93T5-68	摆针曲柄弹簧螺钉Oil reservoir plate set screw(front)	✓	✓	✓	✓	1
16	U93T5-1	摆针拨叉 Zigzag stich regulator fork	✓	✓	✓	✓	1
17	U63T5-13	针杆偏心销Zigzag stich regulator fork eccentric connection pin	✓	✓	✓	✓	1
18	U93T5-18	摆针拨叉螺钉Bight amplitude side block cap screw	✓	✓	✓	✓	1
19	U93T4-20	油窗O型圈Oil gauge window o-ring			✓		1
20	U93T5-5	偏心挡圈Zigzag triangulat cam shaft comp.	✓	✓	✓	✓	1
21	U93T5-7	摆针偏心凸轮Zigzag triangulat cam shaft comp.	✓	✓	✓	✓	1
22	U93T5-8	摆针偏心凸轮组合Zigzag triangulat cam shaft comp.	✓	✓	✓	✓	1
23	U93T5-6	摆针偏心凸轮连接螺钉Zigzagtriangulat cam shaftcomp.	✓	✓	✓	✓	2

4. 摆针轴差动部件

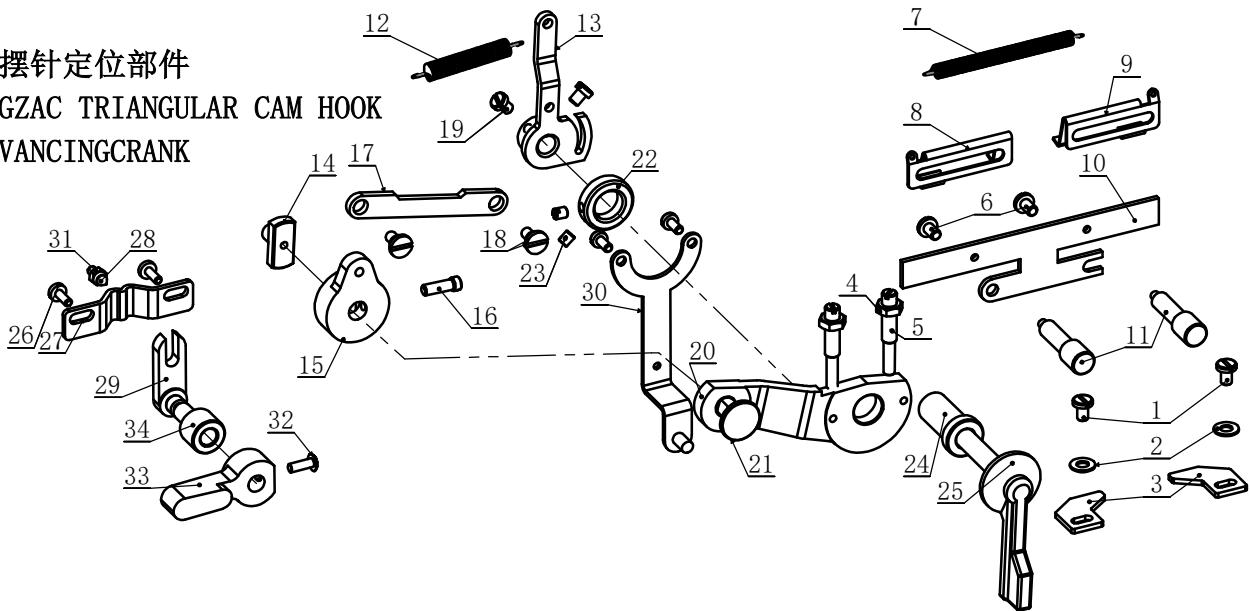
DIFFERNTAL OIL COMPCNENTS



序号 SeriNo	图纸编号 CodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T5-1	摆针拨叉Zigzag stitch regulator fork	✓	✓	✓	✓	1
2	U93T5-2	摆针轴轴Zigzag triangulat camp shaft	✓	✓	✓	✓	1
3	U93T5-3	摆针轴螺钉 Zigzag triangulat cam shaft set screw.	✓	✓	✓	✓	1
4	U93T5-4	摆针齿轮Zigzag triangulat cam p shaft oil comp.	✓	✓	✓	✓	1
5	U93T5-5	偏心挡圈Zigzag triangulat cam p shaft oil comp.	✓	✓	✓	✓	1
6	U93T5-6	摆针偏心凸轮连接螺钉Zigzagtriangulat cam shaftcomp.	✓	✓	✓	✓	2
7	U93T5-7	摆针偏心凸轮Zigzag triangulat cam p shaft oil comp.	✓	✓	✓	✓	1
8	U93T5-8	摆针偏心凸轮后挡圈Zigzag triangulat cam p shaft oil comp.	✓	✓	✓	✓	1
9	U93T5-9	摆针轴挡圈螺钉Zigzag triangular cam shaft collar set screw	✓	✓	✓	✓	2
10	U93T5-10	摆轴轴挡圈Zigzag triangular cam shaft collar comp.	✓	✓	✓	✓	1
11	U63T5-18	差动连杆连接螺钉Eight amplitude slide block srank link hinge screw		✓			2
12	U63T5-12	小左动连杆Differential connecting shaft		✓			1
13	U63T5-44	差动连接轴挡圈Retainer of differential connecting shaft		✓			1
14	U63T5-45	差动曲柄组件Differential crank components		✓			1
15	U63T5-13	针杆偏心销Zigzag stich regulator fork eccentric connection pin		✓			1
16	U63T5-53	大差动连杆连接螺钉Screw of differential connecting bar		✓			1
17	U63T5-48	差动连接轴Differential connecting shaft		✓			1
18	U63T5-49	差动曲柄定位架组件Locating rack components		✓			1
19	U63T5-50	定位架轴套支头螺钉Screw of locating rack		✓			1
20	U93T5-68	摆针曲柄弹簧螺钉Oil reservoir plate set screw(front)	✓	✓	✓	✓	1
21	U93T5-24	摆针调节曲柄弹簧Eight amplitude slide block srank spring	✓	✓	✓	✓	1
22	U93T5-14	摆针滑块Eight amplitude slide block	✓	✓	✓	✓	1
23	U93T5-51	差动曲柄定位架螺钉Oil reservoir plate setscrew(back)	✓	✓	✓	✓	2
24	U63T5-54	小油盘Oil tray		✓			1
25	U63T5-56	油盘毡Wheel of oil tray		✓			1
26	U63T5-57	平垫圈Flat washer		✓			2
27	U63T5-59	弹性垫圈Flat washer		✓			2
28	U63T5-58	小油盘螺钉Oil tray screw		✓			3

5. 摆针定位部件

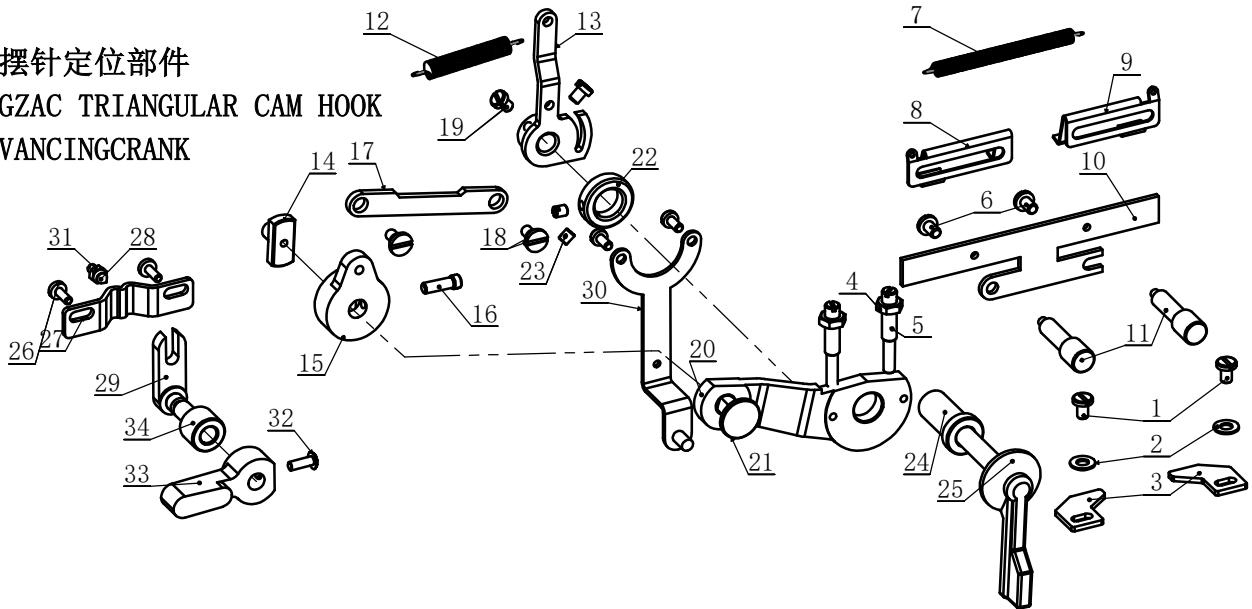
ZIGZAC TRIANGULAR CAM HOOK
ADVANCINGCRANK



序号 SeriNo	图纸编号 CodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T5-37	摆针针距定位块Bight amplitude stop plate (left) (right) screw	✓	✓	✓	✓	2
2	U93T5-36	摆针针距定位垫圈Bight amplitude stop plate (left) (right) washer	✓	✓	✓	✓	2
3	U93T5-34	摆针针距定位块Bight amplitude stop plate (left) (rught)	✓	✓	✓	✓	2
4	U93T5-22	摆针定位块紧定螺母Bight and L-C-R position lever arm regulating screw nut	✓	✓	✓	✓	2
5	U93T5-21	摆针定位块调节螺钉Bight and L-C-R position leber arm regulating screw	✓	✓	✓	✓	2
6	U93T5-39	摆针针距定位架螺钉Bight amplitude regulating plate holder set screw	✓	✓	✓	✓	2
7	U93T5-43	摆针针距定位架拉簧Bight amplitude regulating plate holder set screw	✓	✓	✓	✓	1
8	U93T5-42	摆针针距调节架(B)Bight amplitude regulating plate (right)	✓	✓	✓	✓	1
9	U93T5-41	摆针针距调节架 (A)Bight amplitude regulating plate (left)	✓	✓	✓	✓	1
10	U93T5-40	摆针针距定位架Bight amplitude regulating plate holder	✓	✓	✓	✓	1
11	U93T5-38	摆针定位螺钉Bight amplitude regulating plate thumb screw	✓	✓	✓	✓	2
12	U93T5-24	摆针调节曲柄弹簧Bight amplitude slide block srank spring	✓	✓	✓	✓	1
13	U93T5-25	摆针调节曲柄组件Bight amplitudle slide block srank and guide comp.	✓	✓	✓	✓	1
14	U93T5-14	摆针滑块Bight amplitude slide block	✓	✓	✓	✓	1
15	U93T5-15	摆针导块座Bight amplitude slide block srank guide comp.	✓	✓	✓	✓	1
16	U93T5-16	摆针导块座螺钉Bight amplitude slide blocksrank guides sdut set screw	✓	✓	✓	✓	1
17	U93T5-17	摆针调节连杆Bight amplitude slide block srank link	✓	✓	✓	✓	1
18	U63T5-18	差动连杆连接螺钉Bight amplitude slide block srank link hinge screw	✓	✓	✓	✓	2
19	U93T5-23	摆针调节曲柄套螺钉Bight amplitude slide block srank set screw	✓	✓	✓	✓	2
20	U93T5-19	摆针定位块组件Bight amplitude slide block srank link	✓	✓	✓	✓	1
21	U93T5-20	摆针定位块连接销Bight amplitude slide block guide stud	✓	✓	✓	✓	1
22	U93T5-28	摆针扳手轴套垫圈Bight amplitude slide block srank shatf bushing collar comp	✓	✓	✓	✓	1

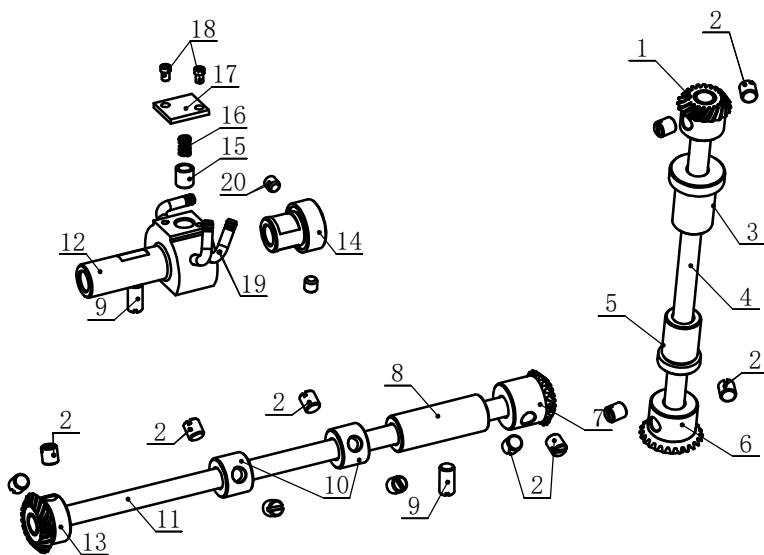
5. 摆针定位部件

ZIGZAC TRIANGULAR CAM HOOK
ADVANCINGCRANK



序号 SeriNo	图纸编号 CodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
23	U93T5-26	摆针扳手定位挡圈螺钉Bight amplitude slide block srank shaft bushing collar set screw	✓	✓	✓	✓	2
24	U93T5-29	摆针扳手轴套Bight amplitude slide block crank shaft bushing	✓	✓	✓	✓	1
25	U93T5-30	摆针扳手组件Bight amplitude slide block crank shaft knob comp	✓	✓	✓	✓	1
26	U93T5-64	左中右定位架螺钉Bight amplitude L-C-R positing block set screw	✓	✓	✓	✓	2
27	U93T5-61	左中右定位架Bight amplitude L-C-R positing block	✓	✓	✓	✓	1
28	U93T5-64	左中右定位螺钉Bight amplitude L-C-R positing lever screw pin	✓	✓	✓	✓	1
29	U93T5-69	摆针扳手轴Hand component shaft	✓	✓	✓	✓	1
30	U93T5-61	左中右扳手组件Bight amplitude L-C-R positing lever comp.	✓	✓	✓	✓	1
31	U93T5-18-2	下过线钉螺母左中右扳手组件Bight amplitude L-C-R positing lever screw pin nut	✓	✓	✓	✓	1
32	U93T10-3	压脚扳手螺钉Bight amplitude L-C-R positing lever thumb stud	✓	✓	✓	✓	1
33	U93T10-1	压脚板手Bight amplitude L-C-R positing lever thumb stud	✓	✓	✓	✓	1
34	U93T5-70	摆针扳手轴套Sleeve of homd componentshaft	✓	✓	✓	✓	1

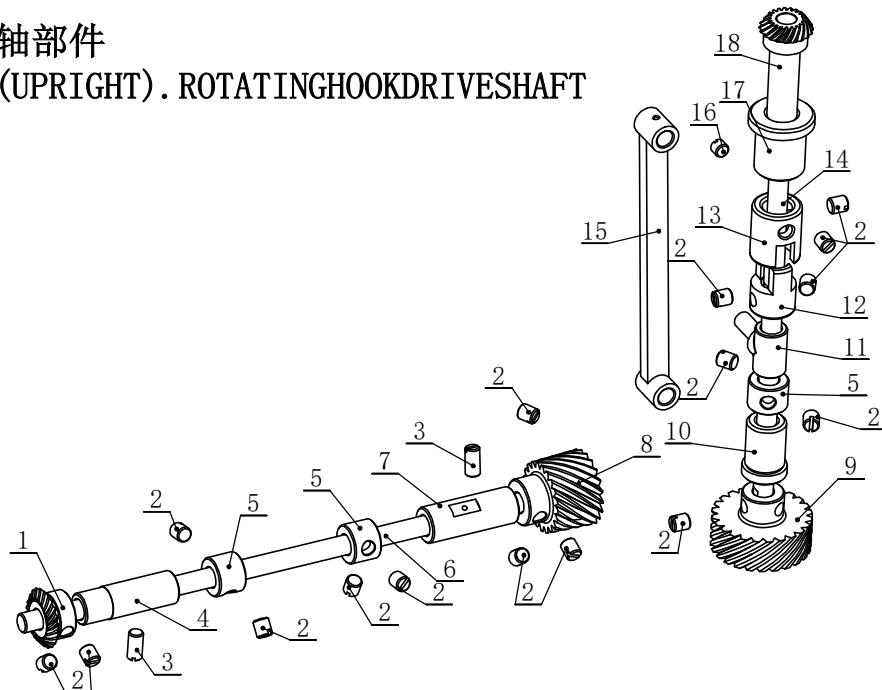
6. 下轴、立轴部分 ARMSHAFT (UPRIGHT). ROTATINGHOOKDRIVESHAFT



序号 EsriNo	图纸编号 CodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T4-35	立轴弧齿锥齿轮Arm shaft (upright) bevel bear (upper) comp.	✓	✓	✓	✓	1
2	U93T4-30	下离合套筒螺钉Arm shaft (upright)bevel gear (upper) set screw.	✓		✓	✓	12
3	U93T4-33	立轴上轴套Arm shaft (upright)gevel bear (upper)	✓		✓	✓	1
4	U93T4-37	立轴Arm shaft (upright)	✓		✓	✓	1
5	U93T4-27	立轴下轴套Arm shaft (upright)bushing(lower)	✓		✓	✓	1
6	U93T4-26	立轴弧齿锥齿轮Arm shaft (upright)bushing (lower) comp.	✓		✓	✓	1
7	U93T4-24	下轴弧齿锥齿轮Rotating hook drive shaft screw gear (back) set screw	✓		✓	✓	1
8	U93T4-21	下轴后轴套Rotating hook drive shaft bushing (back)	✓	✓	✓	✓	1
9	U93T4-17	下轴前后轴套螺钉Rotating hook drive shaft retainer collar set screw	✓	✓	✓	✓	2
10	U93T4-19	下轴 (立轴) 挡圈Rotating hook drive shaft retainer collercomp.	✓	✓	✓	✓	2
11	U93T4-22	下轴Rotating hook drive	✓	✓	✓	✓	1
12	U93T6-15	油泵Rotating hook drive shaft bushing(front)			✓		1
13	U93T4-15	下轴弧齿锥齿轮Rotating hook drive shaft bevel gear (front) comp.	✓	✓	✓	✓	1
14	U93T6-19	动泵轴Oil pump shaft			✓		1
15	U93T6-20	油泵柱塞Oil pump stopperv			✓		1
16	U93T6-21	油泵柱塞弹簧Oil pump stopper spring			✓		1
17	U93T6-22	油泵柱塞压板Oil pump stopper pressural plate			✓		1
18	U93T6-23	油泵柱塞压板螺钉Oil pump stopper pressural plate screw			✓		2
19	U93T6-24	油泵钢管Oil pump tube			✓		3
20	U93T6-25	动泵轴紧定螺钉Oil pump shaft set screw			✓		2

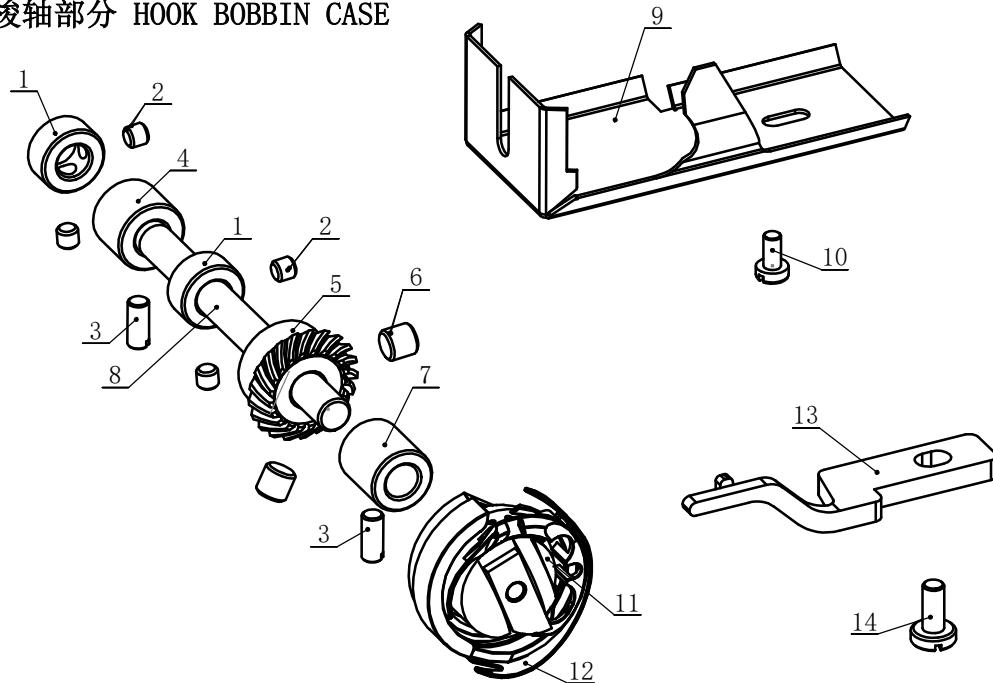
6. 下轴立轴部件

ARMSHAFT (UPRIGHT). ROTATINGHOOKDRIVESHAFT



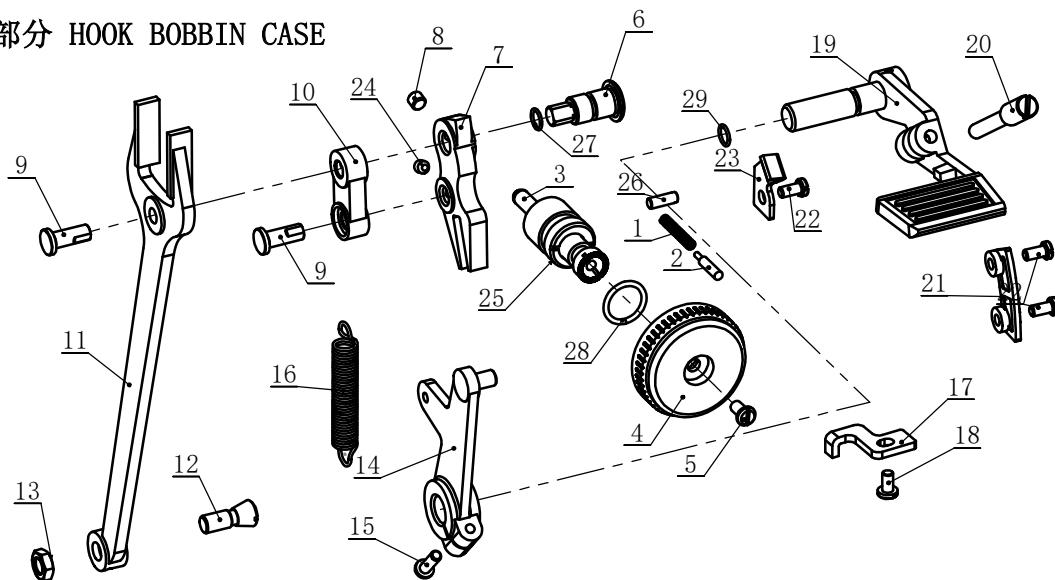
序号 SeriNo	图纸编号 CodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T4-15	下轴弧齿锥齿轮Rotating hook drive shaft bevel gear(front) comp.	✓	✓	✓	✓	1
2	U93T4-30	下离合套筒螺钉Arm shaft (upright) bevel gear (upper) set screw.	✓	✓	✓	✓	20
3	U93T4-17	下轴前后轴套螺钉Rotating hook drive shaft retainer collar set screw	✓	✓	✓	✓	2
4	U53T4-18	下轴前轴套Front sleeve of lower shaft		✓	✓	✓	1
5	U93T4-19	下轴(立轴)挡圈Rotating hook drive shaft retainer collarcomp.	✓	✓	✓	✓	3
6	U93T4-22	下轴Lower shaft	✓	✓	✓	✓	1
7	U93T4-21	下轴后轴套Rotating hook drive shaft bushing (back)	✓	✓	✓	✓	1
8	U63T4-24	下轴差动齿轮Differential gear		✓			1
9	U63T4-26	立轴差动齿轮Differential gear		✓			1
10	U63T4-27	立轴下轴套Lower sleeve of vrtial shaft		✓			1
11	U63T4-28	差动滑套Differetial shaft sliding-cover		✓			1
12	U63T4-31	上离合套筒Upper clutce sieve		✓			1
13	U63T4-29	下离合套筒Lower clutce sieve		✓			1
14	U63T4-37	立轴Vertical shaft		✓			1
15	U63T4-36	大差动连杆Differential connecting bar		✓			1
16	U63T4-34	立轴上轮套筒螺钉Screw of upper sleeve		✓			1
17	U63T4-33	立轴上轴套Upper sleeve of vrtial shaft		✓			1
18	U63T4-35	立轴弧齿锥齿轮Arc-cone gear		✓			1

7. 旋梭轴部分 HOOK BOBBIN CASE



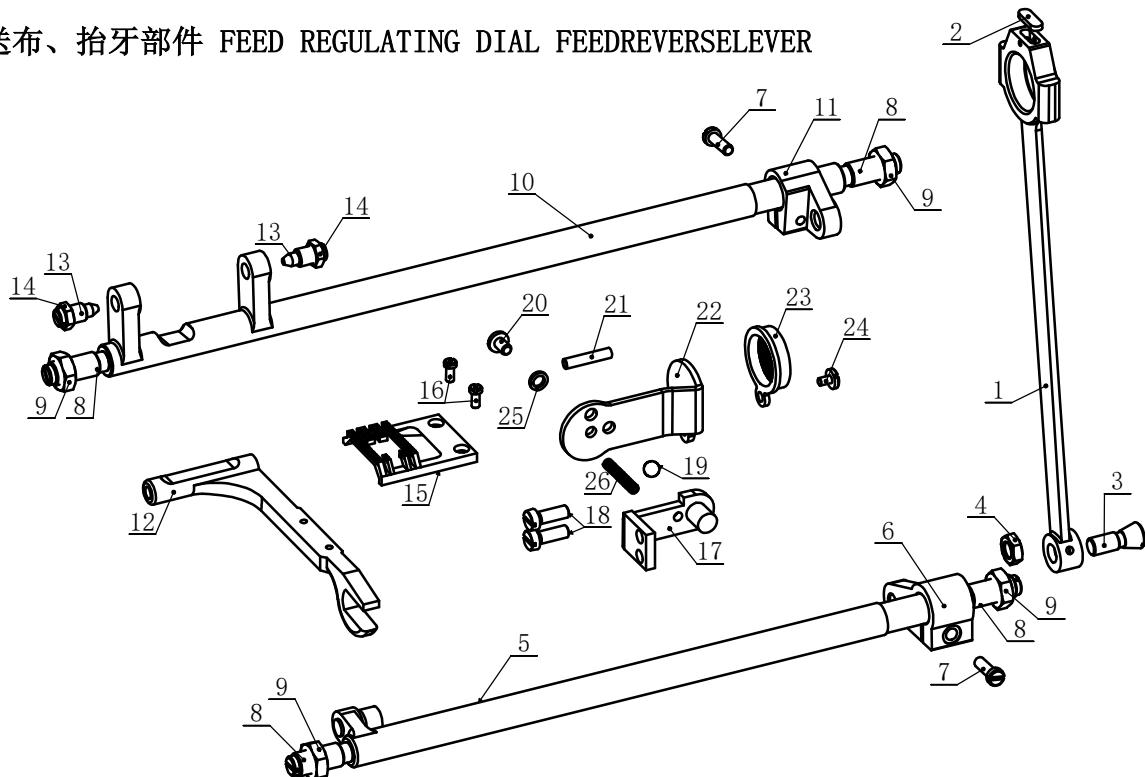
序号 SeriNo	图纸编号 CodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T4-8	旋梭轴挡圈Rotating hook shaft retainer coller comp	✓	✓	✓	✓	2
2	U93T4-9	旋梭轴挡圈螺钉 Rotating hook shaft retainer coler screw	✓	✓	✓	✓	4
3	U93T4-11	旋梭轴后轴套螺钉Rotating hook shaft bushing(shotr) set screw	✓	✓	✓	✓	2
4	U93T4-10	旋梭轴后轴套Rotating hook shaft bushing (shot)	✓	✓	✓	✓	1
5	U93T4-14	旋梭轴弧齿锥齿轮Rotating hook bebelgear comp	✓	✓	✓	✓	1
6	U93T4-13	旋梭轴弧齿锥齿轮螺钉Rotating hook bebelgear set screw	✓	✓	✓	✓	2
7	U93T4-6	旋梭轴前轴套Rotating hook shaft bushing (long) set screw	✓	✓	✓	✓	1
8	U93T4-12	旋梭轴Rotating hook shaft gushing (long)	✓	✓	✓	✓	1
9	U93T1-13	旋梭防护罩Rotating hook shaft bebel gear cober	✓	✓	✓	✓	1
10	U93T1-14	旋梭护罩螺钉Rotating hook shaft bevel gear cover screw	✓	✓	✓	✓	1
11	U93T4-4	梭心Rotating hook bobbin	✓	✓	✓	✓	1
12	U93T4-5	旋梭Rotating hook Rotating hook bobbin case hder comp	✓	✓	✓	✓	1
13	U93T4-1	旋梭定位板Rotating hook bobbin case tension springnacket	✓	✓	✓	✓	1
14	U93T4-2	旋梭定位板螺钉Rotating hook bobbin hlder position bract screw	✓	✓	✓	✓	1

8. 牙叉部分 HOOK BOBBIN CASE



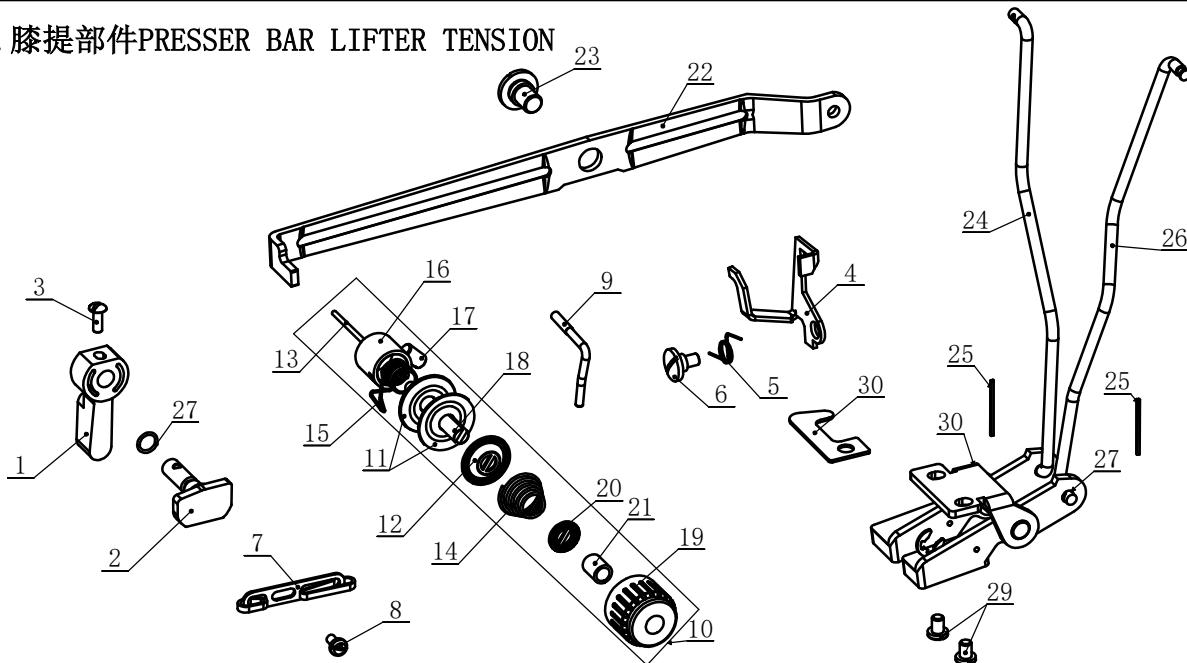
序号 SeriNo	图纸编号 Code No	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T7-17	针距定位钉压簧Feed regulating stud lock pin spriqn	✓	✓	✓	✓	1
2	U93T7-17	针距定位钉Feed regulating stud lock pin	✓	✓	✓	✓	1
3	U93T7-1	针距调节螺杆Feed regulating stud	✓	✓	✓	✓	1
4	U93T7-16	针距旋钮Feed regulating dial	✓	✓	✓	✓	1
5	U93T7-14	针距旋钮螺钉Feed regulating dial screw	✓	✓	✓	✓	1
6	U93T7-2	针距座销Feed regulating hinge stud	✓	✓	✓	✓	1
7	U93T7-4	针距座Feed regulating comp	✓	✓	✓	✓	1
8	U93T7-3	针距座支头螺钉Feed regulating hinge dial set screw	✓	✓	✓	✓	1
9	U93T3-21	针距座连接销Feed connection lind hinge scrw	✓	✓	✓	✓	2
10	U93T3-5	针距座连杆Feed connection lind	✓	✓	✓	✓	1
11	U93T3-20	牙叉Feed forked connection	✓	✓	✓	✓	1
12	U93T3-6	小圆锥螺钉Feed forked connection hinge screw	✓	✓	✓	✓	1
13	U93T3-3	小圆锥螺母Feed forked connection hinge screw nut	✓	✓	✓	✓	1
14	U93T7-8	倒针曲柄Feed forked lever link comp	✓	✓	✓	✓	1
15	U93T7-10	倒针曲柄螺钉Feed reverse lever link screw	✓	✓	✓	✓	1
16	U93T5-24	摆针调节曲柄拉簧Feed reverse lever return spring	✓	✓	✓	✓	1
17	U93T7-7	倒针复位拉簧勾螺钉Feed reverse lever return spring bracket	✓	✓	✓	✓	1
18	U93T7-6	倒针复位拉簧勾螺钉Feed reverse lever Iritum spring bracket screw	✓	✓	✓	✓	1
19	U93T7-12	倒针扳手Feed reverse lever screw	✓	✓	✓	✓	1
20	U93T7-13	倒缝扳手螺钉Feed reverse lever adjusting screw	✓	✓	✓	✓	1
21	U93T8-25	倒针调节指示牌Feed reverse lever adjusting scrw friction	✓	✓	✓	✓	1
22	U93T8-28	倒针调节挡板螺钉Reverse feed indicator plate set screw	✓	✓	✓	✓	3
23	U93T8-27	倒针调节挡板Reverse feed indicator plate	✓	✓	✓	✓	1
24	U93T7-22	针距座连接销紧定螺钉Feed regulating hinge stud set screw	✓	✓	✓	✓	1
25	U93T7-19	方牙螺套Toothed nut	✓	✓	✓	✓	1
26	U93T7-20	方牙螺套支头螺钉Screw of toothed nut	✓	✓	✓	✓	1
27	U93T8-29	针距座销O型圈Feed reverse hinge stud o-ring			✓		1
28	U93T8-30	方牙螺套O型圈Toothed nut o-ring			✓		1
29	U93T8-31	倒针板手轴O型圈Feed reverse lever o-ring			✓		1

9. 送布、抬牙部件 FEED REGULATING DIAL FEEDREVERSELEVER



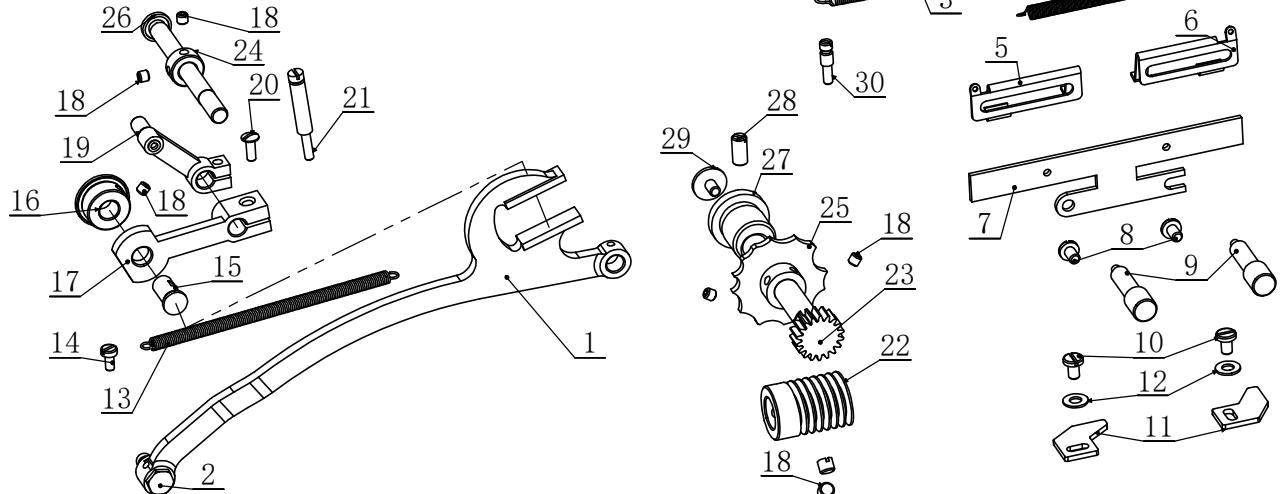
序号 SeriNo	图纸编号 GodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T3-2	抬牙连杆Feed lifting rock shaft crank connecting rod comp.	✓	✓	✓	✓	1
2	U93T3-1	油毡Feed lifting rock shaft crank connecting rod cap pad.	✓	✓	✓	✓	1
3	U93T3-6	小圆锥螺钉Feed forked connection hinge screw	✓	✓	✓	✓	1
4	U93T3-3	小圆锥螺母Feed forked connection hinge screw nut	✓	✓	✓	✓	1
5	U93T3-17	抬牙轴组件Feed lifting rock shaft comp	✓	✓	✓	✓	1
6	U93T3-19	抬牙曲柄Feed lifting rock shaft crank comp	✓	✓	✓	✓	1
7	U93T3-10	送布曲柄螺钉Feed rock shaft crank clamping screw	✓	✓	✓	✓	2
8	U93T3-7	大顶尖螺钉Feed lifting rock shaft screw center	✓	✓	✓	✓	4
9	U93T3-8	大顶尖螺母Feed lifting rock shaft screw center nut	✓	✓	✓	✓	4
10	U93T3-15	送布轴Feed rock shaft	✓	✓	✓	✓	1
11	U93T3-9	送布曲柄Feed rock shaft crank comp	✓	✓	✓	✓	1
12	U93T3-16	牙架Feed bar	✓	✓	✓	✓	1
13	U93T3-13	小顶尖螺钉Feed rock shaft screw center	✓	✓	✓	✓	2
14	U93T3-14	小顶尖螺母Feed rock shaft screw center nut	✓	✓	✓	✓	2
15	U93T3-12	送布牙Feed bog	✓	✓	✓	✓	1
16	U93T3-11	送布牙螺钉Feed bog screw	✓	✓	✓	✓	2
17	U93T9-22-1	固定架Holding yoke	✓	✓	✓	✓	1
18	U93T9-23	固定加紧固螺钉Holding yoke fastening screw			✓		2
19	U93T9-25	钢珠Roller			✓		1
20	U93T9-26	滚珠螺钉Roller screw			✓		1
21	U93T9-27	吸油管Oil suction pipe			✓		1
22	U93T9-22-2	滤油架Splashing yoke of oil			✓		1
23	U93T9-29	过滤罩Filter sieve			✓		1
24	U93T9-30	滤油罩螺钉Filter sieve screw			✓		1
25	U93T9-31	滚珠螺钉垫圈Roller screw			✓		1
26	U93T9-24	留珠弹簧Roller spring ring			✓		1

10. 膝提部件PRESSER BAR LIFTER TENSION



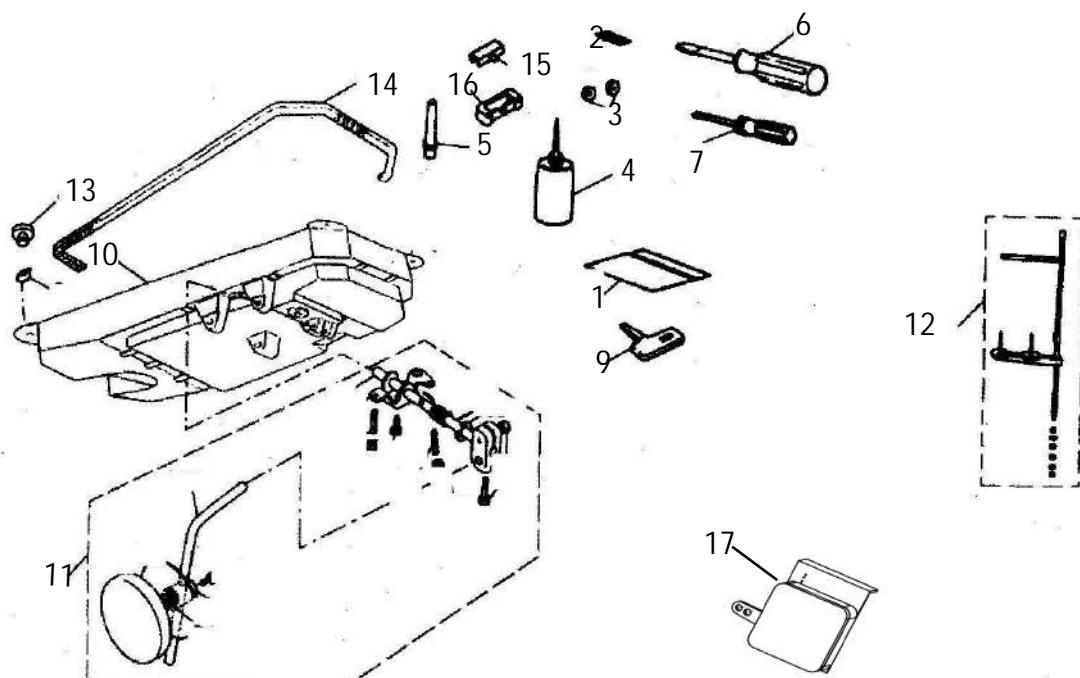
序号 SeriNo	图纸编号 CodeNo	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T10-1	压脚板手Bight amplitude L-C-R positing lever thumb stud	✓	✓	✓	✓	1
2	U93T10-2	压脚板手凸轮组件Ppresser bar liften cam stud	✓	✓	✓	✓	1
3	U93T10-3	压脚扳手螺钉Bight amplitude L-C-R positing lever thumb stud	✓	✓	✓	✓	1
4	U93T1-15	松线杠杆Tension releasing lever	✓	✓	✓	✓	1
5	U93T1-16	松线杠杆扭簧Tension releasing lever spring	✓	✓	✓	✓	1
6	U93T1-17	松线杠杆螺钉Tenson releasing lever hinge screw	✓	✓	✓	✓	1
7	U93T1-19	双过线架Thread guard	✓	✓	✓	✓	1
8	U93T1-20	双过线架螺钉Thread retainer set screw	✓	✓	✓	✓	1
9	U93T1-18	下过线钉Thread retain	✓	✓	✓	✓	1
10	U93T1-23	夹线器组件Tension comp	✓	✓	✓	✓	1
11	U93T1-23-5	夹线板Tension disc	✓	✓	✓	✓	2
12	U93T1-23-6	松线板Tension releasing disc	✓	✓	✓	✓	1
13	U93T1-21	松线钉Tension releasing pin	✓	✓	✓	✓	1
14	U93T1-23-7	夹线簧Tension spring	✓	✓	✓	✓	1
15	U93T1-23-3	挑线簧Tension take-up spring	✓	✓	✓	✓	1
16	U93T1-23-1	夹线器调节座Tension take-up spring regulator comp	✓	✓	✓	✓	1
17	U93T1-22	夹线器紧定螺钉Tension stud set screw	✓	✓	✓	✓	1
18	U93T1-23-4	夹线螺钉Tension stud	✓	✓	✓	✓	1
19	U93T1-23-9	夹线器螺母Tension releasing thumb nut	✓	✓	✓	✓	1
20	U93T1-23-8	夹线制动板Tension releasing thumb nut washer	✓	✓	✓	✓	1
21	U93T1-23-2	夹线器螺钉紧固螺钉Tension take-up spring regulator screw	✓	✓	✓	✓	1
22	U93T6-17	抬压脚杠杆Lifting lever	✓	✓	✓	✓	1
23	U93T6-18	抬压脚杠杆螺钉Lifting lever hinge screw	✓	✓	✓	✓	1
24	U93T6-15	抬压脚拉杆Lifting lever connecting rod	✓	✓	✓	✓	1
25	U93T6-14	开口销Lifting ever connecting rod pin	✓	✓	✓	✓	2
26	U93T6-16	膝提横针拉杆Bight amplitud 4e slide block crank knee operating connection	✓	✓	✓	✓	1
27	U93T10-29	压脚扳手轴O型圈Presser bar lifter cam stne o-ring	✓	✓	✓	✓	1
28	U93T10-30	膝提杠杆组件Bell crar comp	✓	✓	✓	✓	1
29	U93T6-12	膝提杠杆座螺钉Bell crank bracket screw	✓	✓	✓	✓	2
30	U93T10-32	油管定位块Tubing positioning block			✓		1

U457摆针花模组件COMPONENTS OF SWAYING NEEDLE



序号 SerInt	图纸编号 Code No	图纸名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T5-1	摆针拨叉 Zigzag stitch regulator fork	✓	✓	✓	✓	1
2	U63T5-13	针杆偏心销Zigzag stich regulator fork eccentric connection pin	✓	✓	✓	✓	1
3	U93T5-24	摆针调节曲柄弹簧Bight amplitude slide block srank spring	✓	✓	✓	✓	1
4	U93T5-43	摆针针距定位架拉簧Bight amplitude regulating plate holder set screw	✓	✓	✓	✓	1
5	U93T5-42	摆针针距调节架(B)Bight amplitude regulating plate (right)	✓	✓	✓	✓	1
6	U93T5-41	摆针针距调节架 (A)Bight amplitude regulating plate (left)	✓	✓	✓	✓	1
7	U93T5-40	摆针针距定位架Bight amplitude regulating plate holder	✓	✓	✓	✓	1
8	U93T5-39	摆针针距定位架螺钉Bight amplitude regulating plate holder set screw	✓	✓	✓	✓	2
9	U93T5-38	摆针定位螺钉Bight amplitude regulating plate thumb screw	✓	✓	✓	✓	2
10	U93T5-37	摆针针距定位块螺钉Bight amplitude stop plate (left) (right) screw	✓	✓	✓	✓	2
11	U93T5-34	摆针针距定位块Bight amplitude stop plate (left) (rught)	✓	✓	✓	✓	2
12	U93T5-36	摆针针距定位垫圈Bight amplitude stop plate (left) (right) washer	✓	✓	✓	✓	2
13	457-16	拉簧Spring				✓	1
14	U93T1-14	旋梭护罩螺钉Rotating hook shaft bevel gear cover screw	✓	✓	✓	✓	1
15	U457-10	短销Short sale				✓	1
16	U457-12	牙叉套Fork sleeve				✓	1
17	U457-14	拔叉驱动杆Regulator fork drive lever component				✓	1
18	U93T4-9	旋梭轴挡圈螺钉 Rotating hook shaft retainer coler screw	✓	✓	✓	✓	7
19	457-15	从动杆组件Follwing lever component					1
20	475-16	从动轴组件螺钉Screw of following lever				✓	1
21	U457-07	驱动杆螺钉Screw of drive lever				✓	1
22	U93T2-24	上轴螺旋齿轮Spiral of gear of upper shaft	✓	✓	✓	✓	1
23	457-17	摆针齿轮Gear of swaying needle				✓	1
24	U93T4-8	旋梭轴挡圈Rotating hook shaft retainer coller comp	✓	✓	✓	✓	1
25	457-18	花模组件Cam component				✓	1
26	U457-09	从动轴Following shaft				✓	1
27	457-06	斜齿轮套Leaning gearsleeve				✓	1
28	U93T5-3	摆针轴螺钉 Zigzag triangulat cam shaft set screw.	✓	✓	✓	✓	1
29	457-19	倒牙螺钉Left-hand screw				✓	1
30	U93T5-68	摆针曲柄弹簧螺钉Oil reservoir plate set screw(front)	✓	✓	✓	✓	1

ACCESSORIES AND ATTACHMENT



序号 SerNo	图号 CodeNo	名称 Description	U53Z	U63Z	U93Z	U457Q	数量 Qty
1	U93T11-1	纸箱Accessory box	✓	✓	✓	✓	1
2	U93T11-2	机针Needle	✓	✓	✓	✓	1包
3	U93T11-3	梭芯Bobbin	✓	✓	✓	✓	5
4	U93T11-4	油壶Oil reservoir	✓	✓	✓	✓	1
5	U93T11-5	机头支柱Machine rest pin	✓	✓	✓	✓	1
6	U93T11-6	螺丝起子(大) Screw driver, L	✓	✓	✓	✓	1
7	U93T11-7	螺丝起子(中) Screw driver, M	✓	✓	✓	✓	1
8	U93T11-7	螺丝起子(小) Screw driver, S	✓	✓	✓	✓	1
9	U93T11-8	T型开刀 Screw drive (for throat plate)	✓	✓	✓	✓	1
10	U93T11-9	油盘组件Oil reservoir asm	✓	✓	✓	✓	1
11	U93T11-10	膝靠组件Knee lifter asm	✓	✓	✓	✓	1
12	U93T11-11	线架组件Spool thread stand rod asm	✓	✓	✓	✓	1
13	U93T11-12	油盘支座Oil reservoir rubber cushion	✓	✓	✓	✓	4
14	U93T11-13	油盘坐垫Oil reservoir felt cushion	✓	✓	✓	✓	1
15	U93T11-14	机头连接勾组件Machine hinge plate asm	✓	✓	✓	✓	2
16	U93T11-15	机头连接勾座Rubber cushion	✓	✓	✓	✓	2
17	U93T11-16	众邦调速器	✓	✓	✓	✓	1

ZB-20U 电控使用说明书

1. 显示及操作界面



序号	图标	说明	备注
1		上移键	用于快速设置最高速度和调节参数。
2		下移键	用于初始化参数，进入设置界面，快速调节最高速度等。

2. 待机界面

待机界面第 1 位数码管显示“P”，第 2 位数码管显示当前设定的停针位置，上、下停针如图 1 所示。



图 1 上、下停针显示界面

3. 快速设置速度

在待机界面短按▲键或▼键可设置速度，短按▲键速度递增 100RPM（数值递增 1），短按▼键速度递减 100RPM（数值递减 1），长按▲键（▼键）可实现快速递增（递减），设置参数自动保存。

4. 设置停针位

在待机界面长按▲键可设置停针位，参数自动保存。

5. 参数设置

在待机界面长按▲和▼组合键（约 3s）可进入参数设置界面，第 1 位数码管显示“F”第 2 位数码管不显示（以下简称 F 界面，是设置界面之一）如图 2 所示。



图 2 显示 F 界面

进入参数设置界面后，短按▲变更序列号，按▼键后，显示对应参数值，再按▼键进行参数值变更；如果参数值修改，短按▲保存，显示“oK”（如图 3），并回到当前序列号显示界面，如果参数值没有修改则直接回到当前序列号显示界面。在设置界面内电机运行将退出到待机界面。F 界面序列号按下面表格循环：

序列号	参数定义	设定范围	出厂值	备注
L	缝纫最高速度	05 - 50	20	以 500rpm 为单位递减
M	停针位开关	0 - 1	1	0: 关闭 1: 开启
d	补针功能	0 - 2	1	0: 关闭 1: 补半针 2: 补一针
G	安全开关	0 - 1	1	0: 关闭 1: 开启
H	休眠时间	0 - 6	3	单位：10min 设置 0 则关闭休眠功能
C	提速参数	0 - 9	5	数值越大提速越快
n	点针参数	0 - 9	3	数值越大点针区间越大
V	速度显示使能	0 - 1	0	0: 关闭 1: 开启
R	低压报警值	0、10-15	0	0: 关闭 10: 100VAC 11: 110VAC 12: 120VAC 13: 130VAC 14: 140VAC 15: 150VAC
Y	高压报警值	0、26、27	26	0: 关闭 26: 264VAC 27: 274VAC
A	过厚加力开关	0 - 1	1	0: 关闭 1: 开启



图 3 显示 oK

6. 恢复出厂设置

在待机界面，长按■键 3s，所有的参数恢复出厂设置，数码管显示“oK”。

7. 报错一键清除

当系统报错显示错误报警后，按■键重新检测错误是否存在，如果不存在则解除错误报警，存在则继续报警（此功能只限于 E4、E5、E6 和关机提醒 OF）；当系统报错 E5（定位器信号异常）或 E7（机头安全开关报警）时，长按■键可关闭停针功能或安全开关报警功能并解除报警；如果不解除报警，一直显示报警号，直到故障消除。详细的报错代码表见[错误代码说明表](#)。

8. 数码管显示说明

数字部分：

实际数值	0	1	2	3	4	5	6	7	8	9
数码管显示										

英文字母部分：

英文字母	A	B	C	D	E	F	G	H	I	J
数码管显示										
英文字母	K	L	M	N	O	P	Q	R	S	T
数码管显示										
英文字母	U	V	W	X	Y	Z				
数码管显示										

9. 错误码说明表

错误码	内容	对策
OF	机器待机约 30 分钟未运行，进入休眠状态 供电电压太低	按 □ 或 ▾ 键一键唤醒机器； 若还未能消除报警，请检查供电电压是否正常；
E1	电机堵转	请转动手轮检查机头是否卡住或者干涩转动困难； 检查电机插件是否松动或者脱落； 检查加工物料是否过厚，电机因扭力不足而无法贯穿。
E2	控制器异常	请关电后重新上电，如果不能消除报警，请检查： 电机负荷过大，请减轻负荷后重启电机； 缝料是否太厚； 机器是否缺少润滑； 若以上不能解决问题请联系维修人员。
E4	电机霍尔信号异常	请检查电机编码器插头连接是否可靠，编码器信号线是否有断线，插针是否退出或者变形。
E5	定位器信号异常	请转动手轮，如果不能消除报警，关电后重新上电，如果还不能消除报警，请检查编码器/定位器插头连接是否可靠； 电机定位器霍尔异常； (如果定位器损坏或者不需要定位功能时，当报 E5 后，长按 ▾ 键约 3s 关闭停针位功能)。
E6	调速器异常	调速器未插； 请检查调速器插件/插针是否松动或者脱落； 如果不能消除报警，更换调速器；如果还是不能消除报警，可能电控调速器信号异常，请联系维修人员。
E7	机头安全开关报警	机头安全开关打开时，机头倾倒会出现此报警；关闭安全开关或者恢复机头位置，如果不能消除报警，请联系维修人员。
EA	软件过流	请关电后重新上电，如果不能消除报警，请联系维修人员。
Eb	系统过电压	立即切断电源，并检查供电电压是否超过 264V，如果是，请调整供电电压到额定电压后再开机工作(额定电压：220V)。
EC	系统欠电压	立即切断电源，并检查供电电压是否低于 154V，如果是，请调整供电电压到额定电压后再开机工作(额定电压：220V)。
EJ	电流检测电路故障	请检查电路板是否干净清洁； 请检测电源电压是否正常； 请等待电源重新开启/复位 (请仔细检查电源板各项机能)。

注：如果根据错误处理对策仍然不能消除错误报警，请及时联系厂家处理。

ZB-20U Electronic Control Manual Book

1. Display and operation interface



S/L	Icon	Instruction	Remark
1	[▲]	Move up button	It is used for fast setting the Max. speed and parameters adjustment.
2	[▼]	Move down button	It is used for initialization parameters, entering into the setting interface, and adjusting the Max. speed fast, etc..

2. Standby interface

In standby interface, the first tube displays “P”, the second tube displays present setting needle position, up and bottom needle position displayed as picture 1.



Picture 1, up and bottom needle position display

3. Fast speed setting

In standby surface, the speed can be adjusted by short pressing the button of [▲] or [▼]. Short press the button of [▲], the speed will increase 100rpm(the value increase 1), and short press the button of [▼], the speed will decrease 100rpm(the value decrease 1). Long press the button of [▲] or [▼], the speed will progressively increase or decrease. The parameters will be automatically saved.

4. Needle position setting

In standby surface, the needle position can be set by long pressing the button of □, the parameters will be automatically saved.

5. Parameters setting

In standby surface, long press the button of □ and □ together(around 3 seconds) can enter into the parameters setting surface, the first tube displays “F”, the second tube displays nothing(the following is called “F” interface, one of the setting interface), display as



Picture 2, display “F” interface

When entering into the parameters setting interface, short press the button of □ to change the serial No., press the button of □, the corresponding parameter value can be displayed, then again press the button of □ to change the parameter value; If the parameter value is changed, then short press the button of □ to save, it will display “ok”(as picture 3), and it will be back to the present serial No. display interface. If the parameter value is not changed, then it will be back to the present serial No. display interface directly. In setting interface, the motors operation will be back to the standby interface. “F” interface’s serial No. will cycle as the followings:

S/L	Parameter definition	Setting range	Ex-factory value	remark
L	Max. Sewing speed	05 - 50	20	progressively decrease per 500 RPM
M	Needle position	0 - 1	1	0: off 1: on stitches
d	Needle.stitches.compensation	0 - 2	1	0: off 1: half stitch 2: one stitch
G	safety switch	0 - 1	1	0: off 1: on
H	Sleep time	0 - 6	3	Units: 10min If setting value as 0, then the sleep function off
C	speed increase parameter	0 - 9	5	the bigger value, the faster speeding up
n	pedal parameter	0 - 9	3	the bigger value, the bigger critical value of pedal position in low speed operation
V	speed display	0 - 1	0	0: off 1: on
R	low voltage alarm value	0、 10-15	0	0: off 10: 100VAC 11: 110VAC 12: 120VAC 13: 130VAC 14: 140VAC 15: 150VAC
Y	high voltage alarm value	0、26、 27	26	0: off 26: 264VAC 27: 274VAC
A	adding force for heavy materials	0 - 1	1	0: off 1: on



Picture 3, display ok

6. Restore factory Settings

Restore factory Settings In the standby interface, long press for 3 seconds, all parameters will be restored to factory Settings, and the digital tube will display "OK".

7. One key clean error

Report error with one key to clear When the system reports an error and displays an error alarm, press to re-detect whether the error exists. If it does not, then Remove the error alarm, and continue to alarm if it exists (this function is limited to E4, E5, E6 and shutdown reminder OF); Long press when the system reports E5 (abnormal locator signal) or E7 (nose safety switch alarm) Turn off the needle stop function or the safety switch alarm function and remove the alarm; If the alarm is not removed, the alarm is always displayed No., until the fault is removed. See the error code description table for detailed error code reporting.

8. Panel display instruction

Digital tube display description Digital part:

The actual number is	0	1	2	3	4	5	6	7	8	9
display										

Digital tube According to English letters:

Digital tube According to English letters:	A	B	C	D	E	F	G	H	I	J
--	---	---	---	---	---	---	---	---	---	---

Tube display										
Digital tube According to	K	L	M	N	O	P	Q	R	S	T
Tube display										
Digital tube According to	U	V	W	X	Y	Z				
Tube display										

9. Error code description table Note

If the error alarm cannot be eliminated according to the error treatment policy, please contact the manufacturer to deal with it in time.

Error code	Error	solution
OF	Error code content countermeasures OF The machine will stand by for about 30 minutes Run, enter hibernation state Supply voltage is too low	Press or key one key to wake up the machine; If the alarm has not been eliminated, please check whether the power supply voltage is normal.
E1	motor is locked	Please turn the handwheel to check whether the nose is stuck or hard to turn dry; Check whether the motor plug-in is loose or off; Check whether the processed material is too thick and the motor cannot penetrate due to insufficient torsion.
E2	Controller Abnormal	Please turn off the power and turn it on again. If the alarm cannot be eliminated, please check: Motor load is too large, please reduce the load and restart the motor; Whether the seam material is too thick; Whether the machine lacks lubrication; If the above can not solve the problem, please contact the maintenance personnel.
E4	Hall signal of E4 motor is abnormal	Please check whether the plug connection of the motor encoder is reliable and whether the signal line of the encoder is reliable Has broken wire, whether the pin is withdrawn or deformed.
E5	Synchronizer signal abnormal	Please turn the handwheel, if the alarm cannot be eliminated, reboot machine, if Can not eliminate the alarm, please check whether the encoder/locator plug connection is reliable; Hall of motor locator is abnormal; If the locator is damaged or does not need the positioning function, when the E5, long Press the key for about 3S to turn off the needle stop function.
E6	governor abnormal	Governor is not inserted Please check whether the governor plug/pin is loose or fall off; If the alarm cannot be eliminated, replace the governor; If you still can't get rid of the alarm, The signal of the electronic governor may be abnormal, please contact the maintenance personnel.
E7	When the nose safety switch is opened	the nose tipping alarm will appear; Turn off the safety switch or restore the nose position. If the alarm cannot be eliminated, contact the maintenance personnel.
EA	software over-current	please reboot machine, if the alarm cannot be eliminated, please contact the maintenance personnel.

Eb	system over-voltage	Cut off the power supply immediately and check if the supply voltage exceeds 264V. If so, Please adjust the power supply voltage to the rated voltage before starting work (rated voltage: 220 v).
EC	system under-voltage	Cut off the power supply immediately and check whether the supply voltage is below 154V. If so, Please adjust the power supply voltage to the rated voltage before starting work (rated voltage: 220 v).
EJ	EJ current detects circuit faults Please check whether the circuit board is clean	Please check whether the power supply voltage is normal; Please wait for the power to be turned on/reset (please check the function of the power board carefully).

If the error alarm cannot be eliminated according to the error treatment policy, please contact the manufacturer to deal with it in time.

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