JK-53Z/63Z/93Z

产品使用说明书&产品零件图册

Manual book & parts book

JACK 杰克

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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，旋梭勾线，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 crrved 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 prick 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 ma-chine 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

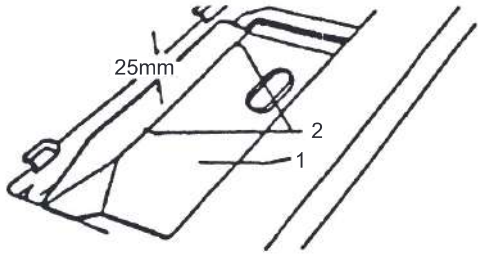
<table>
<tr><td colspan="4">名　　称　Description</td><td>曲　形　缝
Curved-stitching</td><td>双 针 曲 形 缝
Double Curved-stitching</td></tr>
<tr><td rowspan="3">最高缝速
Max. Speed</td><td colspan="3">直　形　缝</td><td colspan="2">2000针/分 2000 stitches/min</td></tr>
<tr><td rowspan="2">曲形缝
Curvilinear</td><td colspan="2">横针距1~5毫米
Horizontal needle distance 1~5mm</td><td colspan="2">1700针/分 1700 stitches/min</td></tr>
<tr><td colspan="2">横针距5~12毫米
Horizontal needle distance 5~12mm</td><td colspan="2">1200针/分 1200 stitches/min</td></tr>
<tr><td rowspan="4">最大线迹长度
Max. Length of stitches</td><td colspan="2">直形线迹
Linear</td><td colspan="2">5毫米
5mm</td></tr>
<tr><td rowspan="3">曲形线迹
Curvilinear</td><td>左针位 Left-needle Position</td><td rowspan="3">12毫米
12mm</td><td rowspan="3">6毫米(指单针摆动宽度)
6mm(Swaying width of Single needle)</td></tr>
<tr><td>中针位 Central-needle Position</td></tr>
<tr><td>右针位 Right-needle Position</td></tr>
<tr><td colspan="4">双 针 间 距
Distance. Between double stitches</td><td>——</td><td>2.5, 3.5, 4.5 (可换)
2.5, 3.5, 4.5(Changeable)</td></tr>
<tr><td rowspan="2">压脚提升高度
Height of Presser foot</td><td colspan="3">手　提
Hand stitch</td><td colspan="2">不低于6毫米
no less than 6mm</td></tr>
<tr><td colspan="3">膝　提
Kneeing stitch</td><td colspan="2">不低于12毫米
12mm</td></tr>
<tr><td colspan="4">最 大 缝 纫 厚 度
Max. Thickeness of sewing</td><td colspan="2">不少于8层纱布
No less than 8 layers</td></tr>
<tr><td colspan="4">机　针　规　格
Specification of needle</td><td colspan="2">DPX5（Nm700~130）</td></tr>
<tr><td colspan="4">缝　　线
Thread</td><td colspan="2">No. 40-100涤
棉线或类似丝线
No. 40~100 terylene
and the like</td></tr>
<tr><td colspan="4">机头体积(长×宽×高)
Dimension of machine head(L×W×H)</td><td colspan="2">450 × 180 × 320毫米
450 × 180 × 320mm</td></tr>
<tr><td colspan="4">电　动　机　功　率
Motor Power</td><td colspan="2">0.37千瓦　0.37KW</td></tr>
<tr><td colspan="4">用　　途
Application</td><td>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</td><td>双针条状及曲折装饰缝
For double stitching and curved-stitches decorations</td></tr>
</table>

三、机器安装和操作准备

1、机器安装

(1)油盘安装

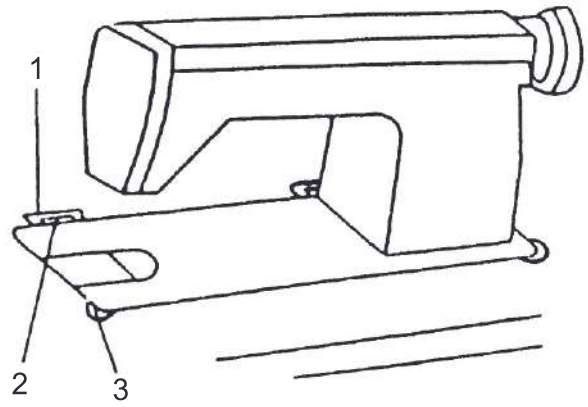
见图一，用四只圆钉2将油盘1固定在台板框孔内，并确保油盘至台板面距离为25毫米，油盘右边缘与台板右框边平齐。



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：

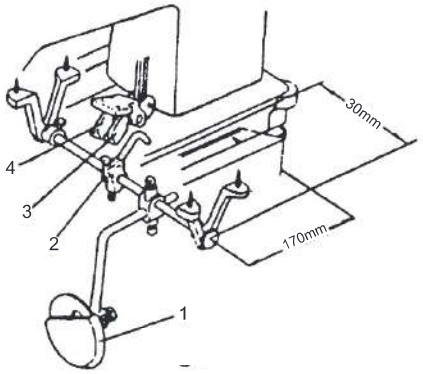
机头装箱前为了防止机件生锈，各部分均涂有除锈油脂，同时机头装箱后，还可能在贮藏和长途运输阶段造成油脂硬化和积聚在机器表面的灰尘，所以必须将表面的油脂和灰

(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。



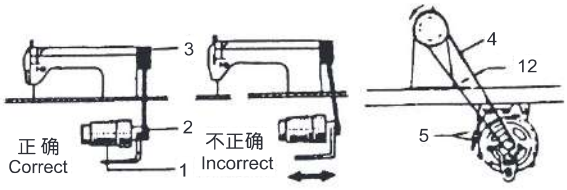
图三 Figurel 3

(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

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 Fiqure 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 eusure 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 driviing 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 theat 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 sa 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 gesoline 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 truning of the components ,any bump or obstruction, or any abnormal sounds. If any, the affacted components should be adjusted until the machine is capable of running regularly.

(3) Lubrication

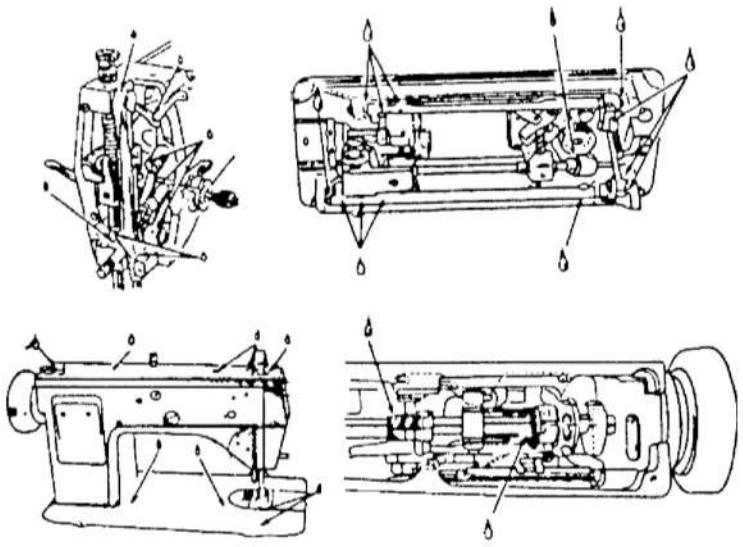
Atfer the machine being wiped clean with soft cloth but before operating, all ,the turning and movable parts and the oil holes in Fiqure 5 should be fully lubricated.

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 increaded to 2000r/m when it comes to normal state. A few



图五 Figure 5

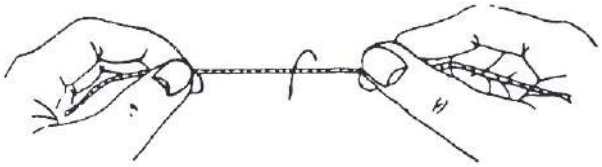
Minutes later, it is necessary to reexamine any sign of wear and tear about the components until the machine can be operated normally.

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。

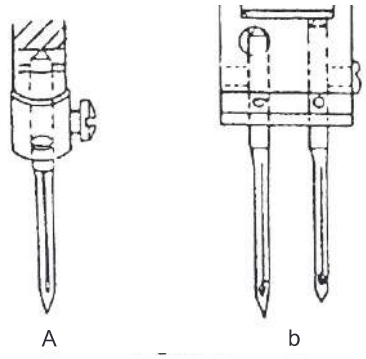
机针号码 Needle Namber	缝线的种类及号码 Namber, Kind of thread			缝 料 种 类 Kind of material
DPX5	棉线 Cotton	丝线 Silk	尼龙 Nylon	
65~75(9#~11#)	80~150	240~30	3~56	乔其纱、薄麻布、手帕、绸缎绣花 Georgette, gunny, napkin, embroidered-Satin
75~90(11#~14#)	60~80			服装卡其、薄呢绒、绣字、绣花 Khaki, woolen fabric embroidery
90~100(14#~16#)	40~60	16~18		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-biece

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-siae needles(14#-16#) are needed for satisfying stitches.

3、机针安装



A b

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。

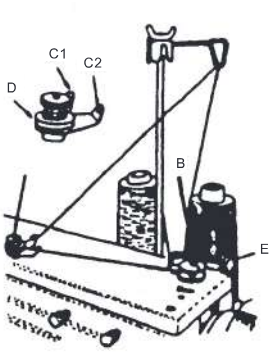
(3)把线穿过过线孔④留出60毫米长的线头。

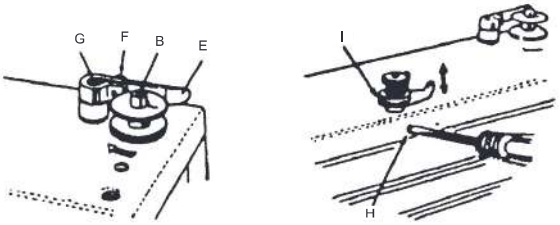
注意：牵拉线5时，梭心顺时针方向转动是正确的；若是逆时针方向转动，应把梭心翻个面重装。

7、装卸梭心套(见图十一)

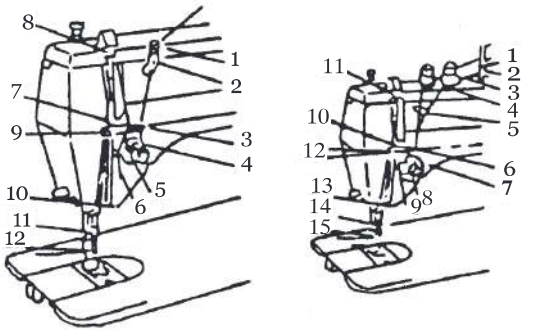
装梭心套的时候，机针应该在最高位置。先拉开梭门盖1之后把梭心套3照图十一所示放入旋梭2中。放入时请注意梭心套与旋梭心轴上的定位槽相扣合。

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

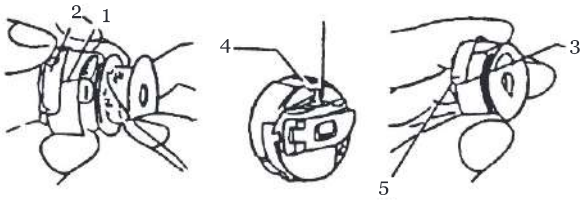




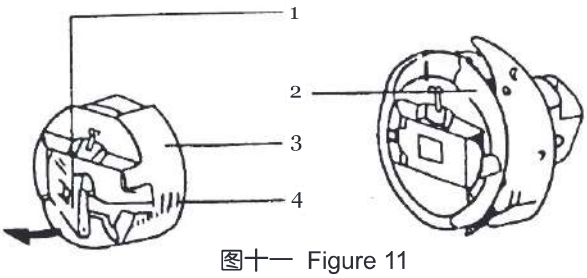
图八 Figure 8



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。

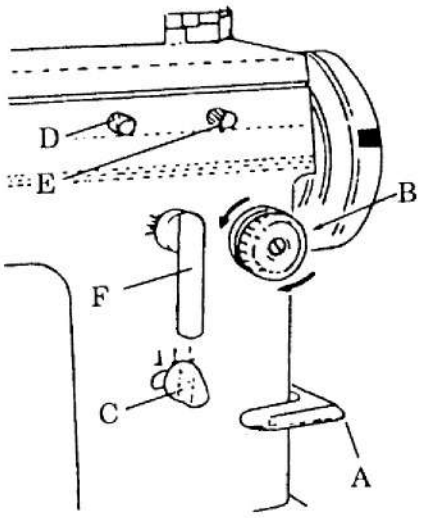
(2)按逆时针方向旋转针距旋钮B，可使直针距变大。

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。

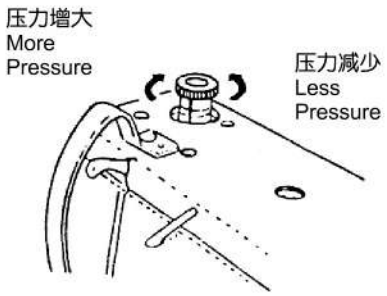
(2)当按下倒顺把手A到最低位置时，机器处于倒送状态。



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。



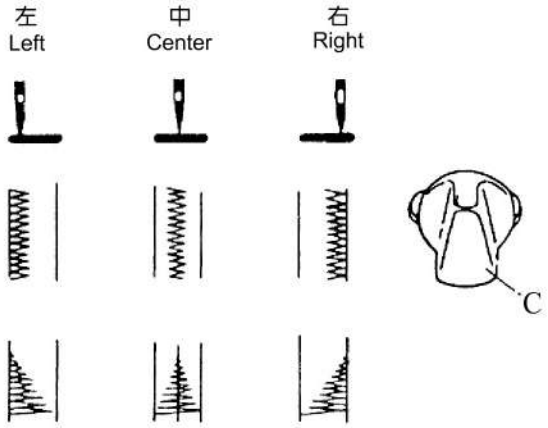
图十三 Figure 13

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：

a、松开横针定位螺钉D、E；

b、顺时针转动横针板手F至所需的位置；

c、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：

a、松开横针定位螺钉D(控制窄曲形)、F(控制宽曲形)；

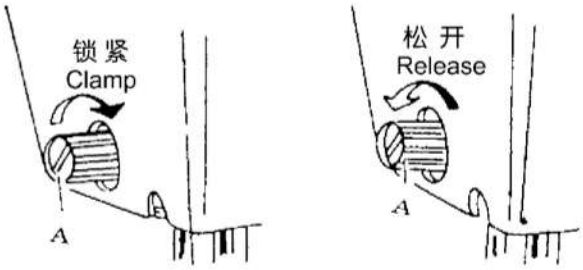
b、把横针板手调至2mm位置，锁紧螺钉D；

c、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 appiled to the bootom.

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 prefrerence. 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 compenent 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 t6hread rack, curved stitchings are made to run through 1-13 as shown in Figure 9a and then throungh 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 shutlle 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.

Adjustrment 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 adjustnencan be made as follows;

a. Release the horlzontal 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.

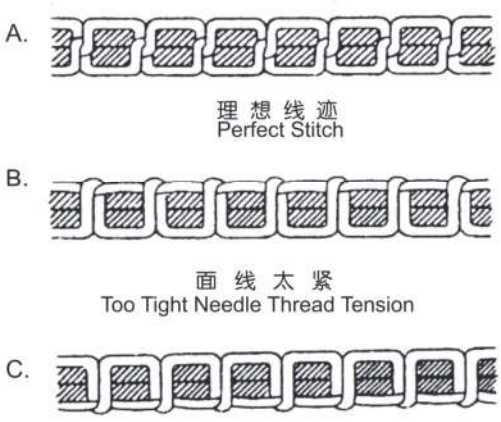
In this way, the horiaontal needle distance can be changed from 2mm (the narrow one)and 8mm (the wide one) randomly.

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 sieeve A should be turned couter-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[illegible]。



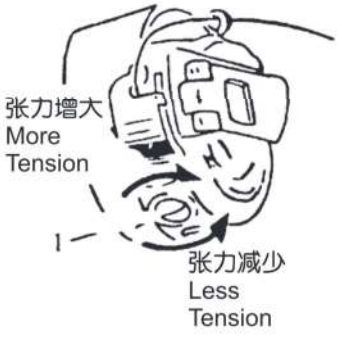
图十六 Figure 16

2、面线张力的调节(见图十八)

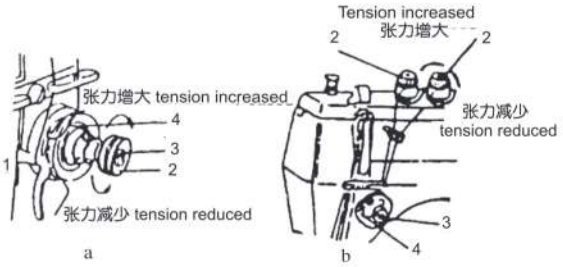
放下压脚，旋动画线张力螺母2调节面线张力，或旋松夹线器紧定螺钉，旋动螺钉3来调节挑线簧4的位置来调节面线张力。使缝纫的线迹达到理想的线迹。

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



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 theat 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

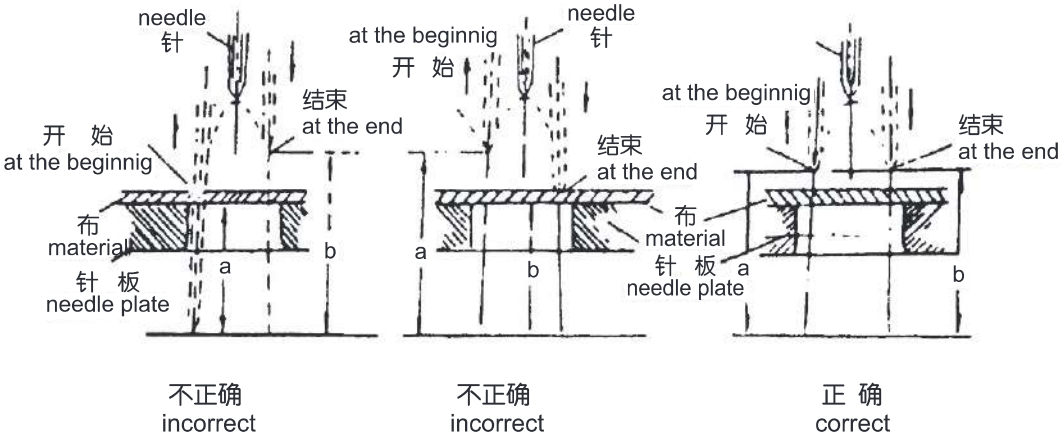
In the light of indication shown in Figure 18, turn the nuts for adjusting the tension of the surface stitches. Alternatively, release the set screw 2 on the thread-holder, then turn screw 3 for adjusting the positon of stitch spring 4, aiming at regulating the tension of surface stitches. As a result,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

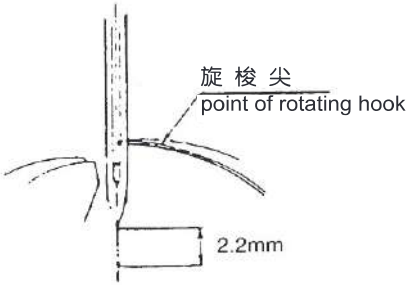
要想获得正确协调的运动位置，应拆除上盖，松开上轴上的螺旋齿轮支头螺钉，轻轻的拔动齿轮，注视针迹，将机针的运动调至协商位置，拧紧支头螺钉。



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)。

3、针杆高度

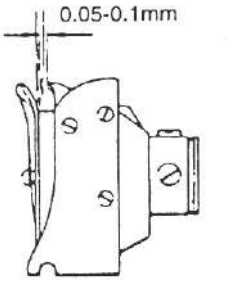
①调节摆针宽度到最大，用手朝自己方向转动带轮，使机针位于左面位置，旋梭尖在机针中心，此时机针孔上沿至旋梭尖尺寸应为0-0.5毫米。(图二十二)

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。

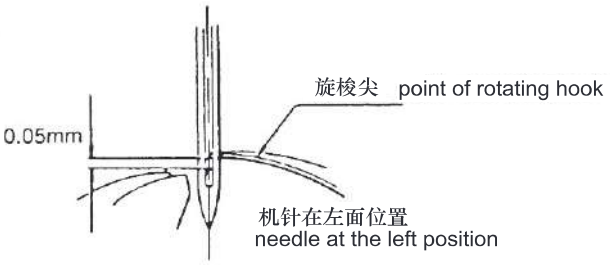
4、旋梭的装卸(见图二十三)

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。

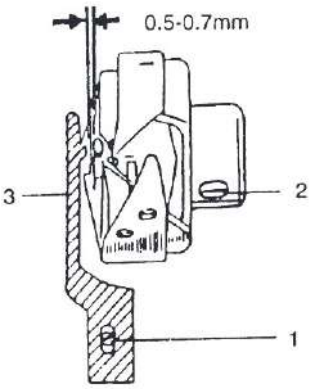
装卸梭过程是依次先拆后装的回复。



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 pro-duced.

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 uptil to the coordinated position, at length tighten the set screw.

2. location of rotating shuttle

(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 needls 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

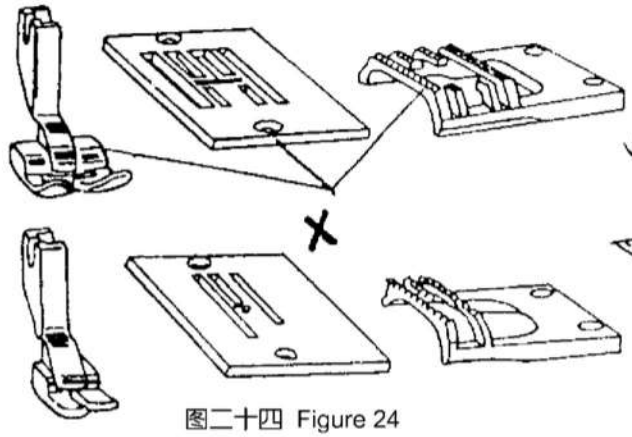
故障类型 Type	产 品 原 因 Cause of Fault	处 理 方 法 How to treat
断 针 Needle is broken	1、机针太细或机针弯曲 2、机针装法错误 3、缝纫时用手推拉缝料 4、缝料过于紧固 1、needle is too fine or bent 2、installation of needle not correct 3、to pull-push manually during sewing 4、material too solid or too thick	调换机针 参看图七 稍许加以扶持，不可推位 请按技术规格规定使用 replace the needle see Figure 7. Sightly 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 looes 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

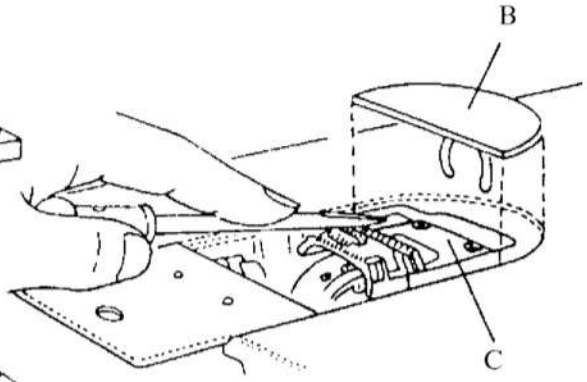
1、直缝：

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：

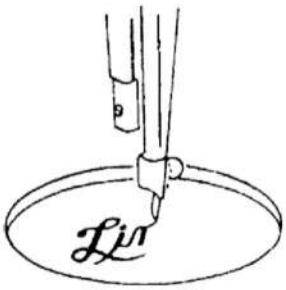
刺绣前的准备工作：

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 aboption 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 lcoking 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 framse. 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.

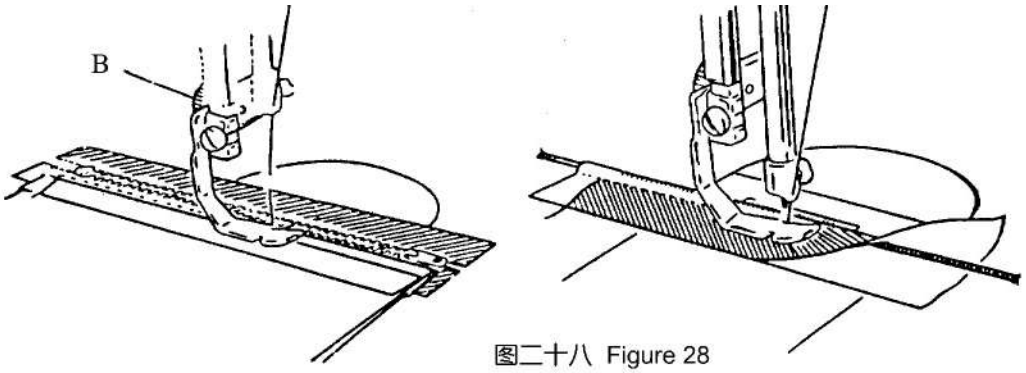
5. Stem-wrapping mode

During the sewing with the stem-wrapping mode, the special stem-wrapping presser foot, needie 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).

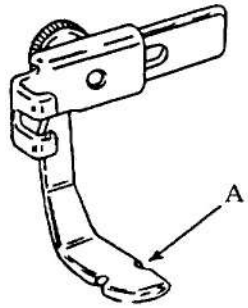
6. Decoration Sewing

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.

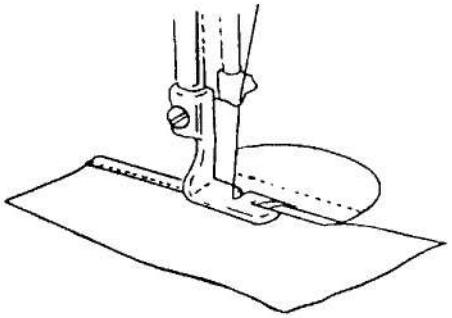
7. Other modes of practical sewing (see Figure 34)



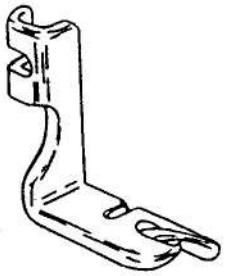
图二十八 Figure 28



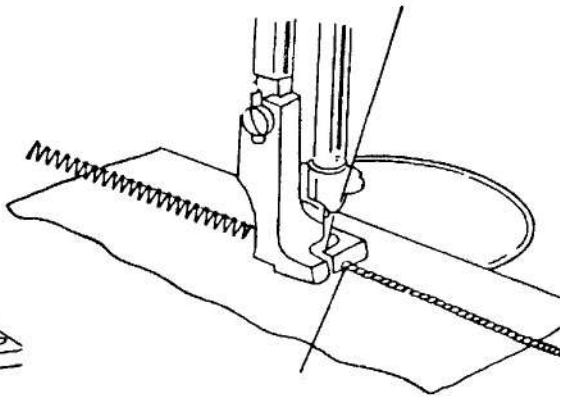
图二十七 Figure 27



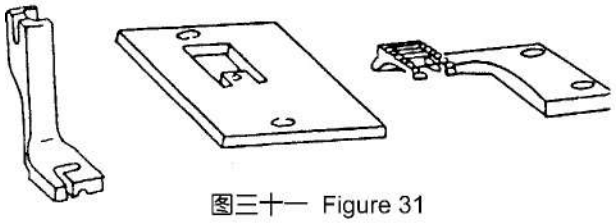
图三十 Figure 30



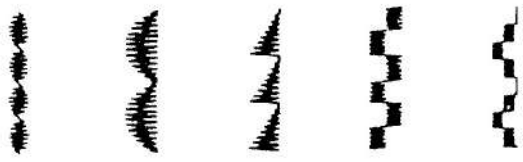
图二十九 Figure 29



图三十二 Figure 32

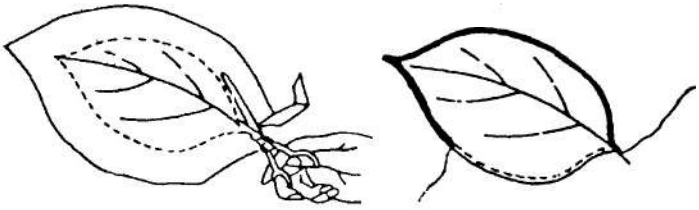


图三十一 Figure 31

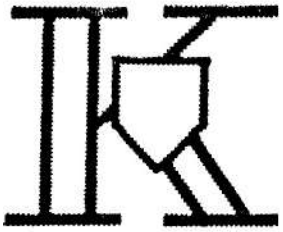


图三十三 Figure 33

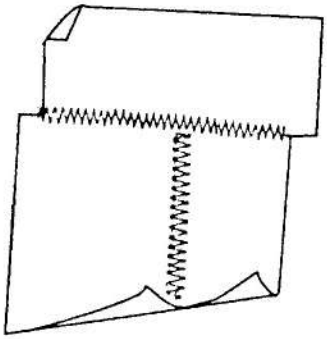
锁钮眼
Button hole



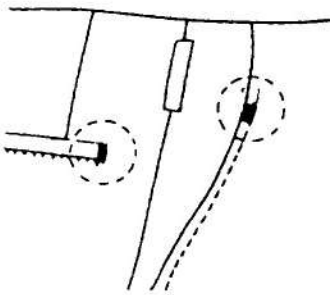
荷叶绣
Lolus-leaves Embroidery



绣　字
Word-Embroidery



拼　缝
Piecing-together Sewing



套结缝
Looping Sewing

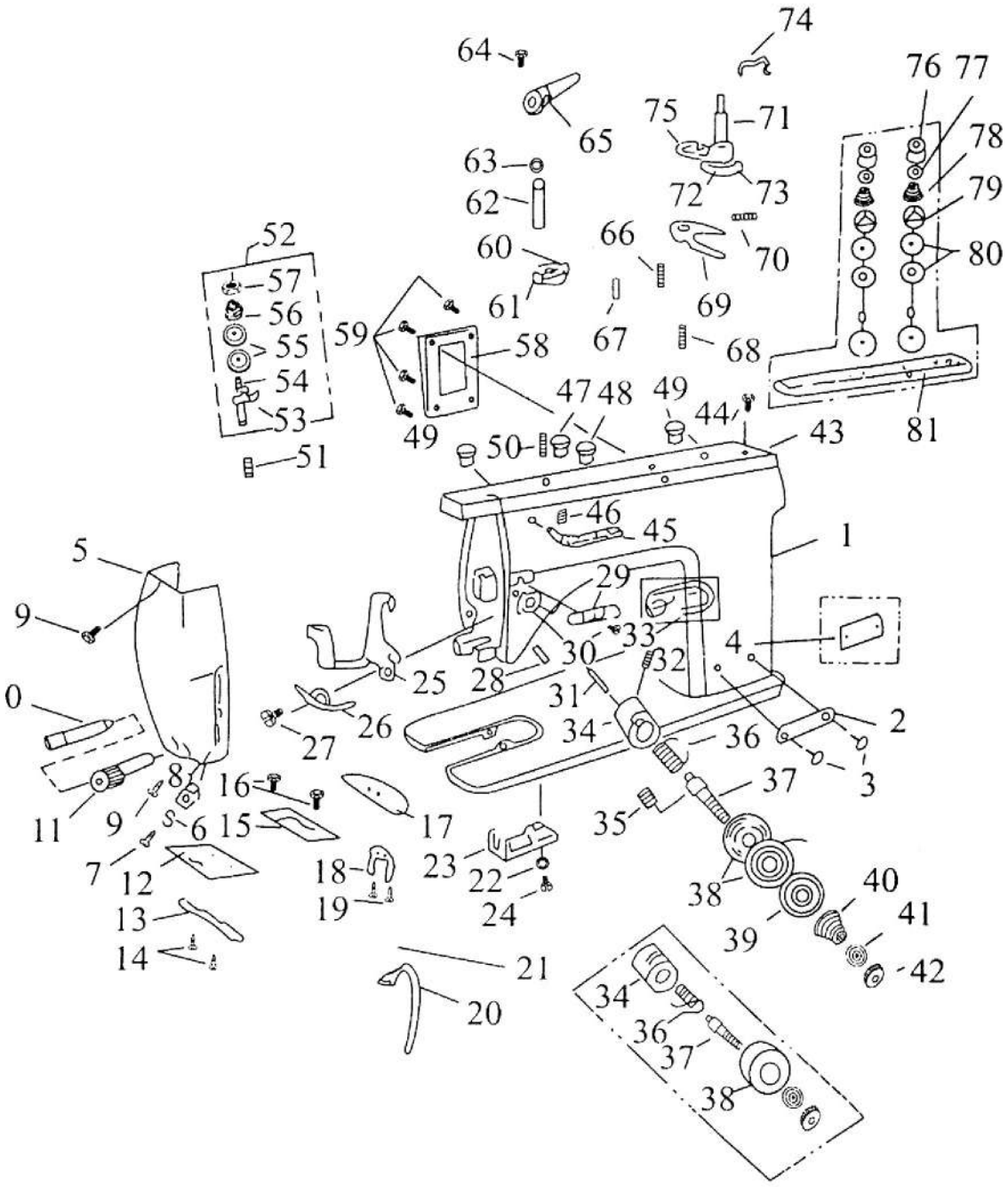
九、零 件 样 本
Ⅸ. COMPONENT EXAMPLE

1、机壳部件 Components of housing

序号 Seri No.	图 号 Code No.	名 称 Description	适用产品 Products applicable			
			曲折缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
1	U43T1-0	机壳 Housing	√	1	√	1
2	U43T1-1-3	铭牌 Model-plate	√	1	√	
3	U43T1-1-7	铭牌铆钉 Model-plate river	√	2	√	2
4	U43T1-1-8	铭牌 Model-plate			√	1
5	U43T1-2-1	面板 Face plate	√	1	√	1
6	U43T1-2-3	面板线勾 Face plate thread guide	√	1	√	1
7	U43T1-2-2	面板线勾螺钉 thread guide screw	√	1	√	1
8	U43T1-2-3	面板线勾螺母 thread guide nut	√	2	√	2
9	U43T1-3	面板螺钉 Face Plate screw	√	2	√	2
10	U43T1-4	直缝锁紧偏心螺钉 Linear lock eccentric screw	√	1	√	1
11	U43T1-5	直缝锁紧偏心 Linear lock eccentric	√	1	√	1
12	U43T1-6-1	推板 Thrust plate	√	1	√	1
13	U43T1-6-2	推板簧 Thrust plate spring	√	1	√	1
14	U43T1-6-3	推板簧螺钉 Thrust plate spring screw	√	2	√	2
15	U43T1-7	针板 Needle plate	√	1	√	1
16	U43T1-8	针板螺钉 Needle plate screw	√	2	√	2
17	U43T1-9-1	针板内盖板 Inner cover plate	√	1	√	1
18	U43T1-9-2	针板内盖板簧 Cover plate spring	√	1	√	1
19	U43T1-9-3	针板内盖板螺钉 Cover plate spring Screw	√	2	√	2
20	U43T1-10	挑线杆防护罩 Thread take up lever shield	√	1	√	1
21	U43T1-11	挑线杆防护罩螺钉 Shield screw	√	1	√	1
22	U43T1-12	垫圈 Washer	√	1	√	1
23	U43T1-13	旋梭防护罩 Rotating hook shield	√	1	√	1
24	U43T1-14	旋梭护罩螺钉 Rotating hook shield screw	√	1		
25	U43T1-15	松线杠杆 Thread-releasing lever	√	1		
26	U43T1-16	松线杠杆扭簧 Thread-releasing lever spring	√	1		
27	U43T1-17	松线杠杆螺钉 Thread-releasing lever screw	√	1	√	1
28	U43T1-18	下过线钉 Lower thread-running pin	√	1		
29	U43T1-19	双过线架 Double thread-running rack	√	1	√	1
30	U43T1-20	双过线架螺钉 Thread-running rack screw	√	1	√	1
31	U43T1-21	松线钉 Thread-releasing pin	√	1	√	1
32	U43T1-22	夹线器紧定螺钉 Thread-hold fixing screw	√	1	√	1
33	U43T1-19a	双过线架 Thread-running rack		1		
34	U43T1-23-1	夹线器调节座 Thread Tension regulator bushing	√	1		1
35	U43T1-23-2	夹线器螺钉紧固螺钉 Fixing screw	√	1	√	
36	U43T1-23-3	挑线簧 Thread take-up sping	√	1		
37	U43T1-23-4	夹线螺钉 Thread tension stud	√	1		
38	U43T1-23-5	夹线板 Thread tension disc	√	2		
39	U43T1-23-6	松线板 Thread tension-releasing disc	√	1		
40	U43T1-23-7	夹线簧 Thread tension spring	√	1		
41	U43T1-23-8	夹线制动板 Thumb nut revolution stopper	√	1	√	1
42	U43T1-23-9	夹线螺母 Thumb nut	√	1	√	1

序号 Seri No.	图 号 Code No.	名 称 Description	适 用 产 品 Products applicable			
			曲 折 缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
43	U43T1-24	上盖 Upper cover	√	1		
44	U43T1-25	上盖后螺钉 Upper cover back screw	√	1	√	1
45	U43T1-26	三眼线勾 3-eyelet hole thread guide	√	1	√	1
46	U43T1-27	三眼线勾螺钉 3-eyelet hole thread guide screw	√	1	√	1
47	U43T1-28	橡皮塞(大) Rubber plug(big)	√	1	√	1
48	U43T1-29	橡皮塞(中) Rubber plug(medinm)	√	1	√	1
49	U43T1-30	橡皮塞(小) Rubber plug(small)	√	1	√	1
50	U43T1-31	上盖定位螺钉 Upper cover set screw	√	2	√	2
51	U43T1-32	上盖夹线螺钉紧定螺钉 Fastening screw	√	1	√	1
52	U43T1-33-0	上盖夹线板组件 Upper thread-guide component	√	1	√	1
53	U43T1-33-1	双眼过线板 Thread-guide			√	1
54	U43T1-33-2	上夹线螺钉 Thread-tension stud			√	1
55	U43T1-33-3	上夹线板 Upper thread-tension disc	√	2	√	2
56	U43T1-33-4	上夹线簧 Upper thread-tension spring	√	1	√	1
57	U43T1-33-5	上夹级螺母 Nut	√	1	√	1
58	U43T1-34	后盖板 Back cover	√	4	√	4
59	U43T1-35	后盖板螺钉 Back cover screw	√	1	√	1
60	U43T1-37	绕线定位块紧定螺钉 locating block set screw	√	1	√	1
61	U43T1-37-1	绕线定位块 Locating block	√	1	√	1
62	U43T1-38	绕线量调节轴 Volume-adjusting spindle	√	1	√	1
63	U43T1-39	绕线量调节轴挡圈 Washer	√	1	√	1
64	U43T1-40	调节压板螺钉 Pressing plate screw	√	1	√	1
65	U43T1-41	绕线量调节压板 Volume-adjusting plate	√	1	√	1
66	U43T1-42	绕线摆杆拉簧 Extension spring pin	√	1	√	1
67	U43T1-43	拉簧销钉 Extension spring	√	1	√	1
68	U43T1-44	绕线曲柄螺钉 Crank screw	√	1	√	1
69	U43T1-45	绕线摆杆 Thread-winding swaying handle	√	1	√	1
70	U43T1-46	绕线摆杆压簧 Swaying handle presser spring	√	1	√	1
71	U43T1-47	绕线芯轴 Axis	√	1	√	1
72	U43T1-48	绕线小轮 Thread-winding small wheel	√	1	√	1
73	U43T1-49	绕线橡皮轮 Thread-winding rull wheel	√	1	√	1
74	U43T1-50	绕线轴簧 Thread-winding axis spring	√	1	√	1
75	U43T1-51	绕线曲柄 Thread-winding crank	√	1	√	1

机壳部件 Components of housing

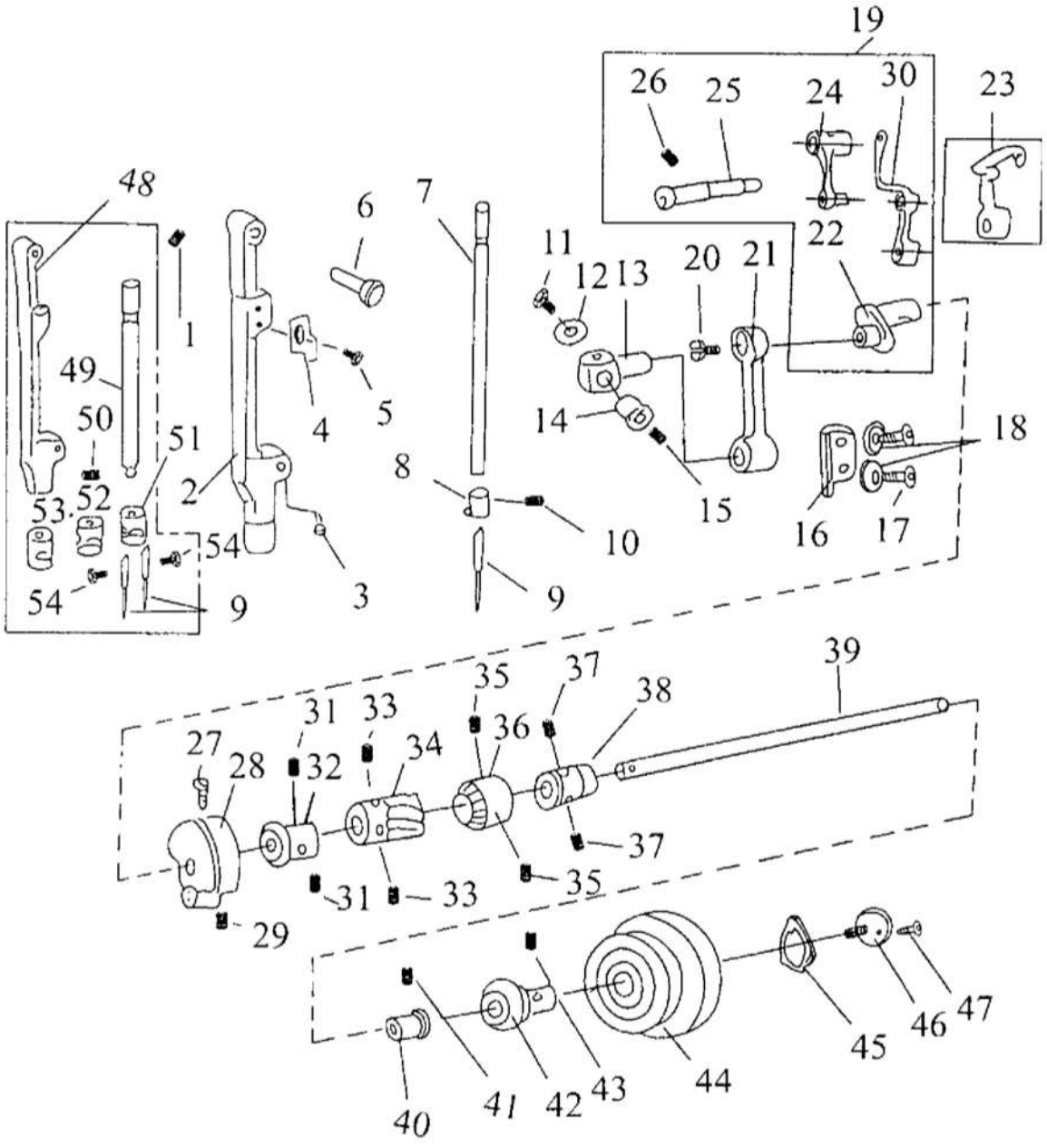


2、挑线刺料部件 Thread take-up and needle bar components

序号 Seri No.	图 号 Code No.	名 称 Description	适用产品 Products applicable			
			曲折缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
1	U43T2-2	针杆摆动销螺钉 Pin screw(swaying rack of needle staff)	√	1	√	1
2	U43T2-3	针杆摆动架 Swaying rack of needle bar	√	1		
3	U43T2-4	针杆偏心肖螺钉 Eccentric pin screw of needle bar	√	1	√	1
4	U43T2-5	针杆定位片 Locating plate of needle bar	√	1	√	1
5	U43T2-6	针杆定位片螺钉 Screw of locating plate	√	1	√	1
6	U43T2-7	针杆摆动架销 Ping of swaying rack(needle bar)	√	1	√	1
7	U43T2-8	针杆 Needle bar	√	1		
8	U43T2-9	针杆线勾 Thread-guide of needle bar	√	1		
9	U43T2-10	机针 Needle	√	1	√	2
10	U43T2-11	机针紧定螺钉 Locking screw of needle	√	1		
11	U43T2-12	针杆连接轴销螺钉 Pin-screw of connecting shaft	√	1	√	1
12	U43T2-13	针杆连接轴销垫圈 Pin-washer of connecting shaft	√	1	√	1
13	U43T2-14	针杆连接轴体 Connecting shaft	√	1	√	1
14	U43T2-15	针杆连接轴销 Pin of connecting shaft	√	1	√	1
15	U43T2-16	针杆连接轴销紧定螺钉 Pin-locking screw of connecting shaft	√	1	√	1
16	U43T2-17	小连杆导板 Guide of small connecting staff	√	1	√	1
17	U43T2-18	小连杆导板螺钉 Screw of guide	√	2	√	2
18	U43T2-19	小连杆导板垫圈 Guide washer	√	2	√	2
19	U43T2-20-0	挑线杆组件 Thread take-up lever component	√	1	√	1
20	U43T2-20-1	倒牙螺钉 Left-spiral screw	√	1	√	1
21	U43T2-20-2	小连杆 Small connecting staff	√	1	√	1
22	U43T2-20-3	针杆曲柄 Crank of needle bar	√	1	√	1
23	U43T2-20-5	挑线摇杆 Stitch-swaying staff	√	1	√	1
24	U43T2-20-6	挑线摇杆销 Pin of swaying staff	√	1	√	1
25	U43T2-20-7	挑线摇杆销螺钉 Pin screw of swaying staff	√	1	√	1
26	U43T2-20-8	挑线曲柄螺钉 Screw of crank	√	1	√	1
27	U43T2-20-9	挑线曲柄 Crank	√	1	√	1
28	U43T2-20-10	针杆曲柄紧固螺钉 Crank fastening screw	√	1	√	1
29	U43T2-20-11	挑线杆 Thread take-up lever	√	1		
30	U43T2-21	上轴前轴套紧定螺钉 Fastening screw(of front sleeve)	√	1	√	1
31	U43T2-22	上轴前轴套 Front sleeve of upper shaft	√	1	√	1
32	U43T2-23	上轴螺旋齿轮螺钉 Screw of spiral gear	√	2	√	2
33	U43T2-24	上轴螺旋齿轮 Spiral gear of upper shaft	√	1	√	1
34	U43T2-25	上轴弧齿锥齿轮螺钉 Screw of arc-cone gear	√	2	√	2
35	U43T2-26	上轴弧齿锥齿轮 Arc-cone gear (upper shaft)	√	1	√	1
36	U43T2-27	送布凸轮螺钉 Screw of feed cam	√	2	√	2
37	U43T2-28	送布凸轮 Feed cam	√	1	√	1
38	U43T2-29	上轴 Upper shaft	√	1	√	1

序号 Seri No.	图 号 Code No.	名 称 Description	适 用 产 品 Products applicable			
			曲 折 缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
40	U43T2-30	上轴后轴套 Back sleeve of upper shaft	√	1	√	1
41	U43T2-31	上轴后轴套螺钉 Fastening screw of back sleeve	√	1	√	1
42	U43T2-32	上轮套筒 Sleeve of balance wheel	√	1	√	1
43	U43T2-33	上轮套螺钉 Sleeve screw	√	1	√	1
44	U43T2-34	上轮 Balance wheel	√	1	√	1
45	U43T2-35	离合垫圈 Clutch waher	√	1	√	1
46	U43T2-36	离合螺钉 Clutch screw	√	1	√	1
47	U43T2-37	离合小螺钉 Small clutch screw	√	1	√	1
48	U43T2-39	针杆摆动架 Swaying rack of needle bar			√	1
49	U43T2-40	双针针杆 Needle har for double needle			√	1
50	U43T2-41	双针扎头紧固螺钉 Fastening screw of double needle clamper			√	1
51	U43T2-42	双针扎头 Double needle clamper (2.5mm)			√	1
52	U43T2-43	双针扎头 Double needle clamper (3.5mm)			√	1
53	U43T2-44	双针扎头 Double needle clamper (4.5mm)			√	1
54	U43T2-45	机针紧定螺钉 Fastening screw			√	2

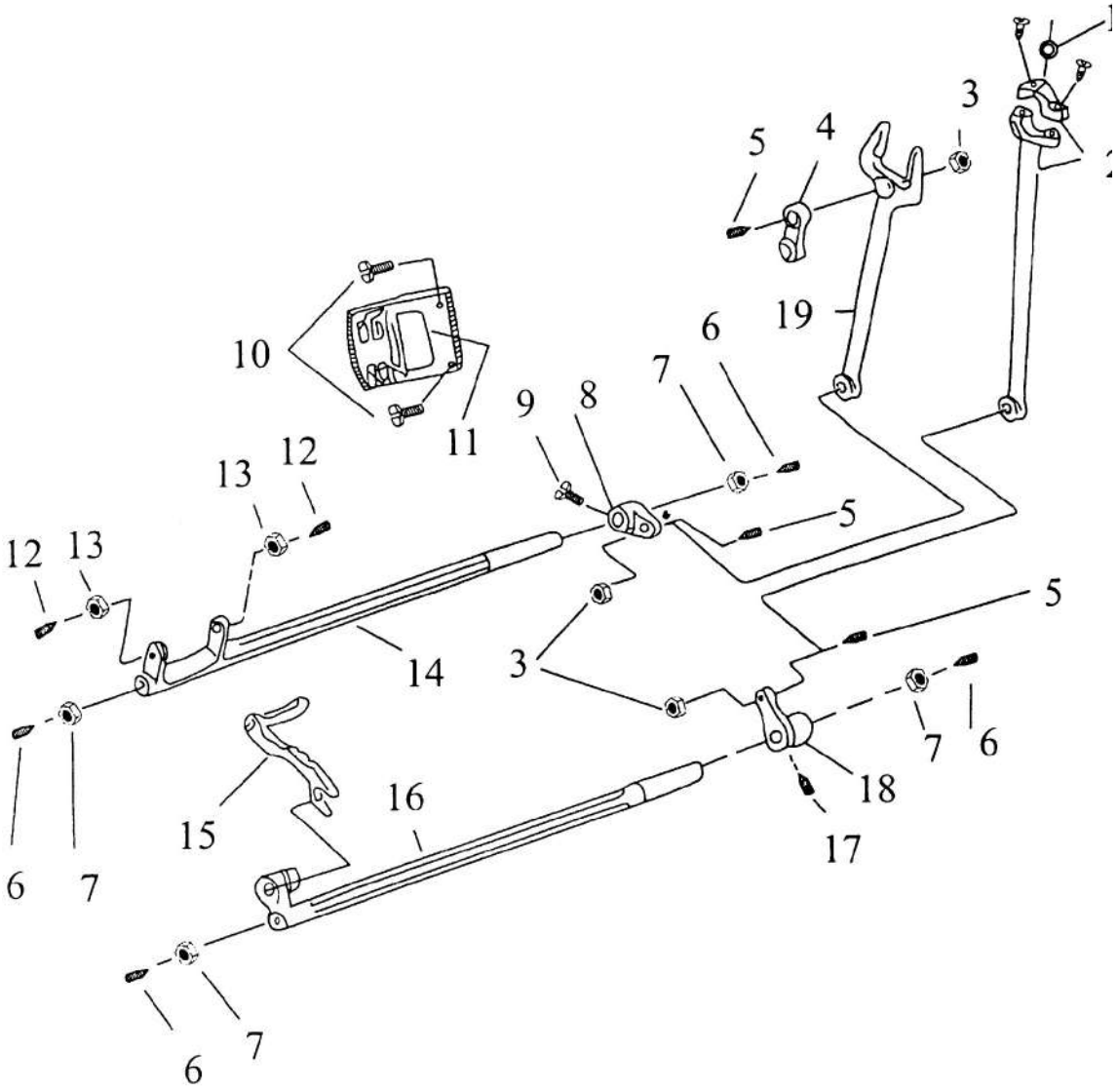
2、挑线刺料部件 Thread take-up and needle bar components



3、送料部件 Materiml-feeding components

序号 Seri No.	图 号 Code No.	名 称 Description	适用产品 Products applicable			
			曲折缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
1	U43T3-1	油毡 Oil felt	√	1	√	1
2	U43T3-2	抬牙连杆组件 Lift feed connecting bar	√	1	√	1
3	U43T3-4	小圆锥螺母 Small come nut	√	4	√	4
4	U43T3-5	针距座连杆 Connecting bar of needle distance base	√	1	√	1
5	U43T3-6	小圆锥螺钉 Small cone screw	√	4	√	4
6	U43T3-7	大顶尖螺钉 Pointed screw	√	4	√	4
7	U43T3-8	大顶尖螺母 Pointed nut	√	4	√	4
8	U43T3-9	送布曲柄 Feed crank	√	1	√	1
9	U43T3-10	送布曲柄螺钉 Feed crank screw	√	1	√	1
10	U43T3-11	送布牙螺钉 Feed crank screw	√	2	√	2
11	U43T3-12	送布牙 Feed dog	√	1	√	1
12	U43T3-13	小顶尖螺钉 Pointed screw of tooth rack	√	2	√	2
13	U43T3-14	小顶尖螺帽 Point nut	√	2	√	2
14	U43T3-15	送布轴 Feed rock	√	1	√	1
15	U43T3-16	牙架 Tooth rack	√	1	√	1
16	U43T3-17	抬牙轴组件 Feed lifting rock shatt component	√	1	√	1
17	U43T3-18	抬牙曲柄螺钉 Feed lifting rock crank screw	√	1	√	1
18	U43T3-19	抬牙曲柄 Feed lifting rock crank	√	1	√	1
19	U43T3-20	牙叉 Feed fork connecting rod	√	1	√	1

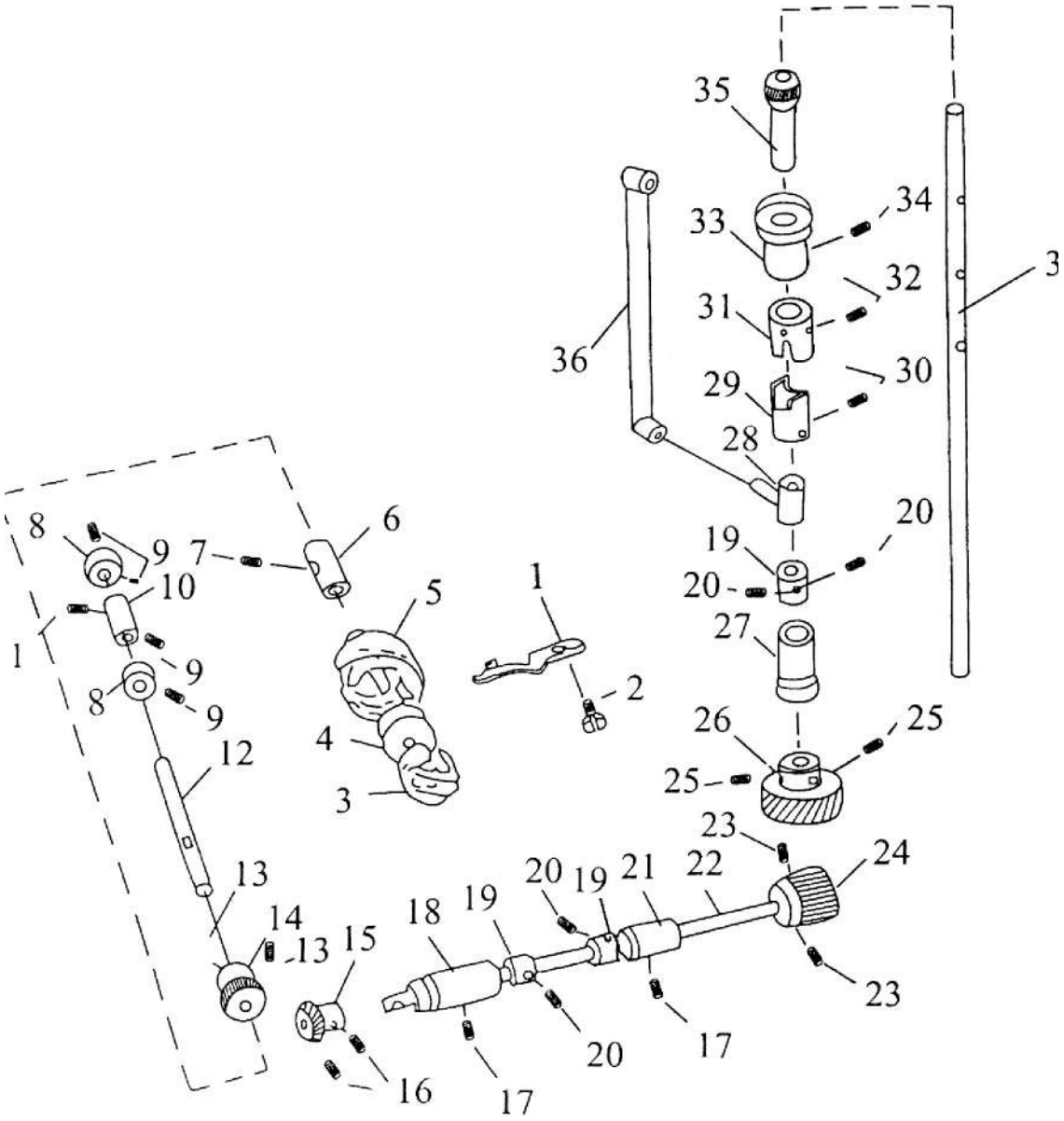
送料部件 Materiml-feeding components



4、勾线部件 Thread-hooking Components

序号 Seri No.	图 号 Code No.	名 称 Description	适用产品 Products applicable			
			曲折缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
1	U43T4-1	旋梭定位板 Locating plate of rotating hook	√	1	√	1
2	U43T4-2	旋梭定位板螺钉 Screw of locating plate	√	1	√	1
3	U43T4-3	梭心套 Bobbin case	√	1	√	1
4	U43T4-4	梭心 Bobbin	√	1	√	1
5	U43T4-5	旋梭 Rotating hook	√	1	√	1
6	U43T4-6	旋梭轴前轴套 Front sleeve of rotating hook shaft	√	1	√	1
7	U43T4-7	旋梭轴前轴套螺钉 Front sleeve screw	√	1	√	1
8	U43T4-8	旋梭轴挡圈 Retainer of rotating hook shaft	√	2	√	2
9	U43T4-9	旋梭轴挡圈螺钉 Retainer screw	√	4	√	4
10	U43T4-10	旋梭轴后轴套 Back sleeve of rotating hook shaft	√	1	√	1
11	U43T4-11	旋梭轴后轴套螺钉 Screw of back sleeve	√	1	√	1
12	U43T4-12	旋梭轴 Rotating hook shaft	√	1	√	1
13	U43T4-13	旋梭轴弧齿锥齿轮螺钉 Screw of arc-cone gear	√	2	√	2
14	U43T4-14	旋梭轴弧齿锥齿轮 Arc-cone gear of rotating hool shaft		1		1
15	U43T4-15	下轴弧齿锥齿轮 Arc-cone gear of lower shaft	√	1	√	1
16	U43T4-16	下轴弧齿锥齿轮螺钉 Screw of Arc-cone gear	√	2	√	2
17	U43T4-17	下轴前后轴套螺钉 Screw	√	2	√	2
18	U43T4-18	下轴前轴套 Front sleeve of lower shaft	√	1	√	1
19	U43T4-19	下轴(立轴)挡圈 Lower shaft retainer	√	3	√	3
20	U43T4-20	下轴(立轴)挡圈螺钉 Retainer screw of lower shaft	√	6	√	6
21	U43T4-21	下轴后轴套 Back sleeve of lower shaft	√	1	√	1
22	U43T4-22	下轴 Lower shaft	√	1	√	1
23	U43T4-23	下轴差动齿轮螺钉 Screw of differential gear(lower shaft)		2		2
24	U43T4-24	下轴差动齿轮 Differential gear	√	1	√	1
25	U43T4-25	立轴差动齿轮螺钉 Screw of differential gear	√	2	√	2
26	U43T4-26	立轴差动齿轮 Differential gear(vertical shaft)	√	1	√	1
27	U43T4-27	立轴下轴套 Lower sleeve of vertical shaft	√	1	√	1
28	U43T4-28	差动滑套 Differential shaft sliding-sleeve	√	1	√	1
29	U43T4-29	下离合套筒 Lower clutch sleeve	√	1	√	1
30	U43T4-30	下离合套筒螺钉 Screw	√	2	√	2
31	U43T4-31	上离合套筒 Upper sleeve of vertical shaft	√	1	√	1
32	U43T4-32	上离合套筒螺钉 Screw	√	2	√	2
33	U43T4-33	立轴上轴套 Upper sleeve of vertical shaft	√	1	√	1
34	U43T4-34	立轴上轮套筒螺钉 Screw of upper sleeve	√	1	√	1
35	U43T4-35	立轴弧齿锥齿轮 Arc-cone gear	√	1	√	1
36	U43T4-36	大差动连杆 Differential connecting bar	√	1	√	1
37	U43T4-37	立轴 Vertical shaft	√	1	√	1

. 勾线部件 Thread-hooking Components

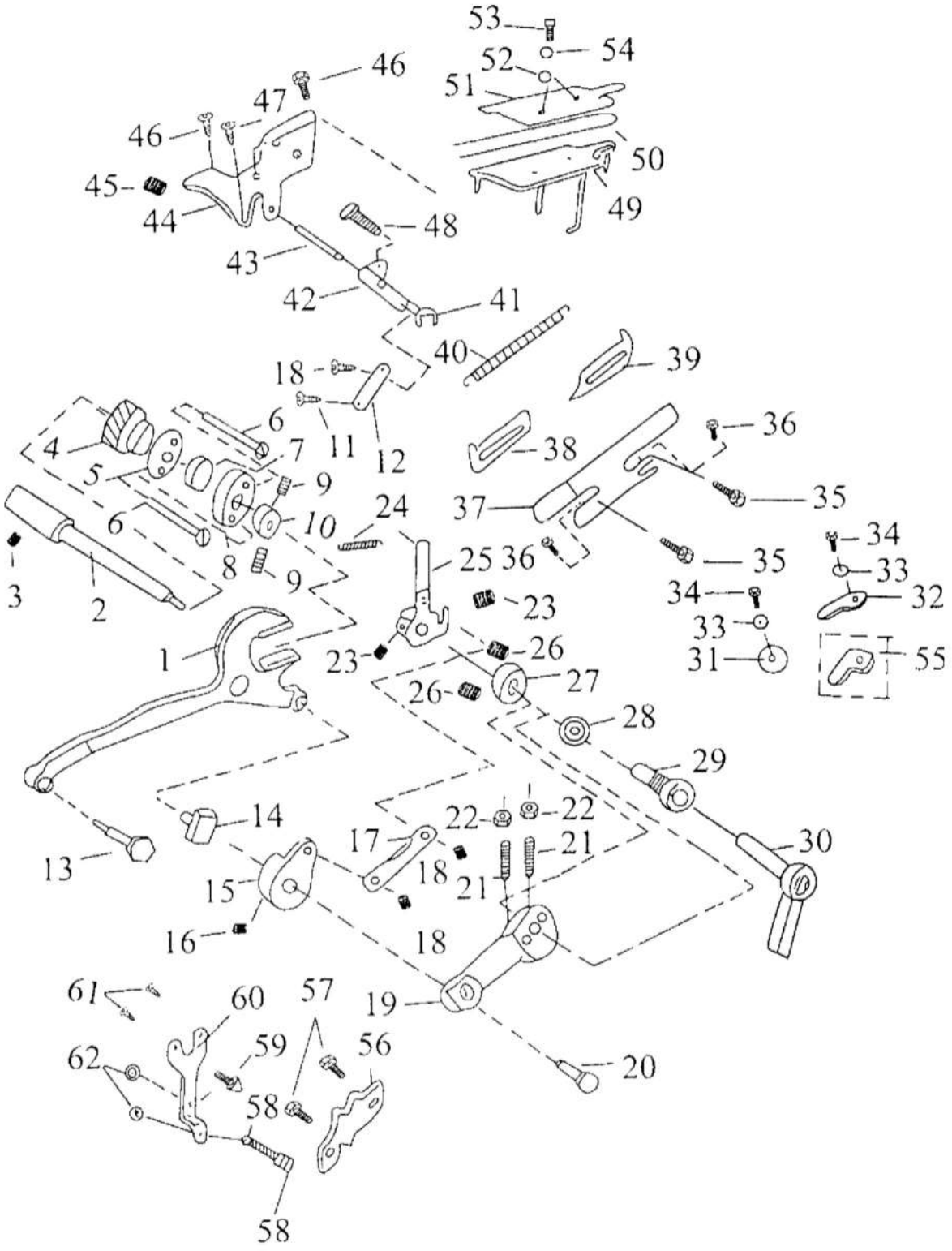


5、摆针部件 Components of Swaying needle

序号 Seri No.	图 号 Code No.	名 称 Description	适用产品 Products applicable			
			曲折缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
1	U43T5-1	横针拔叉 Horizontal needle fork	√	1	√	1
2	U43T5-2	摆针轴 Shaft of swaying needle	√	1	√	1
3	U43T5-3	摆针轴螺钉 Screw	√	1	√	1
4	U43T5-4	摆针齿轮 Gear of swayinn needle	√	1	√	1
5	U43T5-5	偏心挡圈 Eccentric retainer	√	1	√	1
6	U43T5-6	摆针偏心凸轮连接螺钉 Connecting screw	√	2	√	2
7	U43T5-7	摆针偏心凸轮 Eccentiric retainer	√	1	√	1
8	U43T5-8	摆针偏心凸轮后挡圈 Rack retainer	√	1	√	1
9	U43T5-9	摆针轴挡圈螺钉 Retainer screw	√	2	√	2
10	U43T5-10	摆轴轴挡圈 Retainer shaft	√	1	√	1
11	U43T5-11	摆针滑块连接螺钉 Connecting screw	√	1	√	1
12	U43T5-12	小左动连杆 Differential connecting bar	√	1	√	1
13	U43T5-13	针杆偏心销 Eccentric pin of needle bar	√	1	√	1
14	U43T5-14	摆针滑块 Sliding block of swaying needle	√	1	√	1
15	U43T5-15	摆针导块座 Guide base of swaying needle	√	1	√	1
16	U43T5-16	摆针导块座螺钉 Screw of guie base	√	1	√	1
17	U43T5-17	摆针调节连杆 Adjustable connecting bar	√	1	√	1
18	U43T5-18	差动连杆连接螺钉 Connecting screw of differential connecting bar	√	3	√	3
19	U43T5-19	摆针定位块 Locating block of swaying needle	√	1	√	1
20	U43T5-20	摆针定位块连接销 Connecting pin of guide	√	2	√	2
21	U43T5-21	摆针定位块调节螺钉 Adjusting screw of locating block	√	2	√	2
22	U43T5-22	摆针定位块紧定螺母 Fastening nut of locating crank	√	2	√	2
23	U43T5-23	摆针调节曲柄套螺钉 Screw for adjusting crank sleeve	√	1	√	1
24	U43T5-24	摆针调节曲柄弹簧 Spring for adjusting crank	√	1	√	1
25	U43T5-25	摆针调节曲柄组件 Adjusting crank component	√	1	√	1
26	U43T5-26	摆针扳手定位挡圈螺钉 Screw of spanner locating retainer	√	2	√	2
27	U43T5-27	摆针扳手定位挡圈 Locating retainer of spanner	√	1	√	1
28	U43T5-28	摆针扳手轴套垫圈 Washer	√	1	√	1
29	U43T5-29	摆针扳手轴套 Spanner sleeve	√	1	√	1
30	U43T5-30/31	摆针扳手组件 Spanner component	√	1	√	1
31	U43T5-34	摆针针距左定位块 Left locating block for stitch wide	√	1	√	1
32	U43T5-35	摆针针距右定位块 Right locating block for stitch wide	√	1		
33	U43T5-36	摆针针距定位垫圈 Washer of locating block	√	2	√	2
34	U43T5-37	摆针针距定位块螺钉 Screw of locating block	√	2	√	2
35	U43T5-38	摆针定位螺钉 Locating screw	√	2	√	2
36	U43T5-39	摆针针距定位架螺钉 Lcating rack for stitch wide	√	2	√	2
37	U43T5-40	摆针针距定位架 Screw of locating rack	√	1	√	1
38	U43T5-41	摆针针距调节架(A) Adjusting rack (A) for stitch wide	√	1	√	1
39	U43T5-42	摆针针距调节架(B) Adjusting rack (B)	√	1	√	1
40	U43T5-43	摆针针距定位架拉簧 Extension spring of lcoating rack	√	1	√	1

序号 Seri No.	图 号 Code No.	名 称 Description	适 用 产 品 Products applicable			
			曲 折 缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
41	U43T5-44	差动连接轴挡圈 Petainer of differential connecting shaft	√	1	√	1
42	U43T5-45	差动曲柄轴 Differential crank	√	1	√	1
43	U43T5-48	差动连接轴 Differential connecting shaft	√	1	√	1
44	U43T5-49-0	差动曲柄定位架组件 Locating rack component	√	1	√	1
45	U43T5-50	定位架轴套支头螺钉 Set screw of locating rack sleeve	√	1	√	1
46	U43T5-51	差动曲柄定位架螺钉 Screw of crank locating rack	√	2	√	2
47	U43T5-52	拉簧螺钉 Screw of extension spring	√	1	√	1
48	U43T5-53	大差动连杆连接螺钉 Connecting screw	√	1	√	1
49	U43T5-54	小油盘 Oil tray	√	1	√	1
50	U43T5-55	油纱带 Oil gauze	√	1	√	1
51	U43T5-56	油盘毡 Felt of oil tray	√	1	√	1
52	U43T5-57	平垫圈 Flat washer	√	2	√	2
53	U43T5-58	小油盘螺钉 Screw of oil tray	√	2	√	2
54	U43T5-59	弹性垫圈 Elsatic washer	√	2	√	2
55	U43T5-61	右、中、右定位架 Locating rack	√	1	√	1
56	U43T5-62	左、中、右定位架螺钉 Screw	√	2	√	2
57	U43T5-63	左、中、右扳手组件 Handle component	√	1	√	1
58	U43T5-64	左、中、右定位螺钉 Locating pin	√	1	√	1
59	U43T5-65	左、中、右定位拨杆 Adjusting rack	√	1	√	1
60	U43T5-66	左、中、右调节架螺钉 Screw	√	2	√	2
61	U43T5-67	左、中、右定位螺钉，螺母 Screw, nut	√	2	√	2

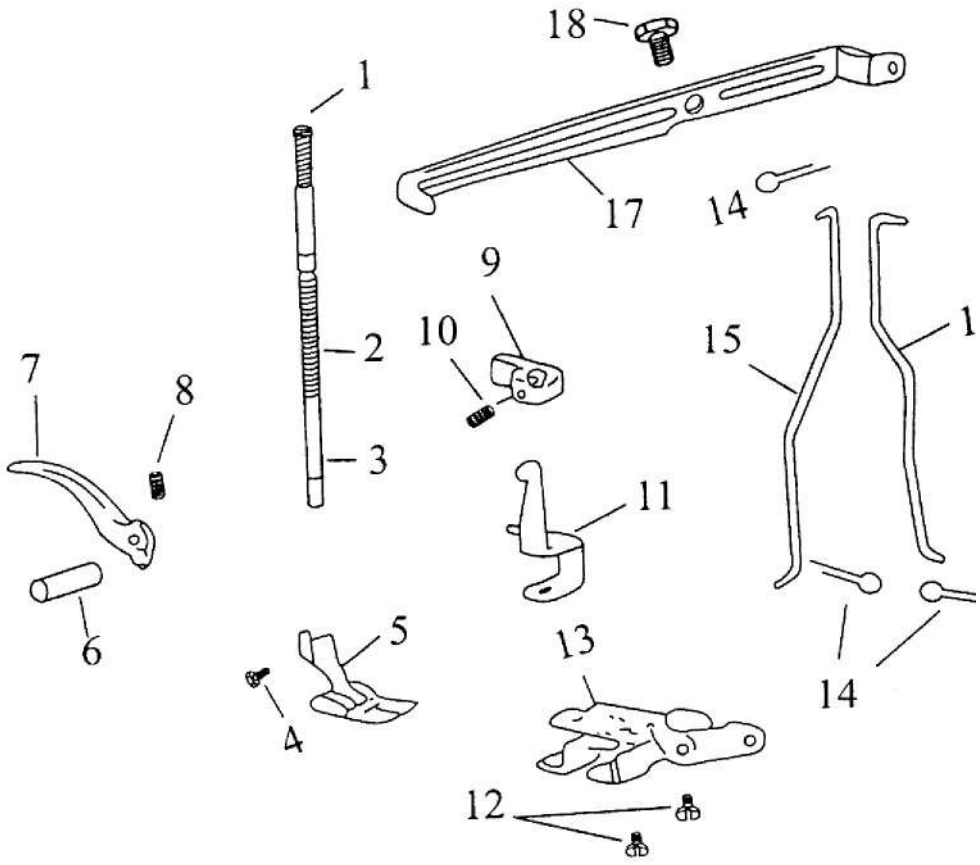
5、摆针部件 Components of Swaying needle



6、压脚部件 Components of presser foot

序号 Seri No.	图 号 Code No.	名 称 Description	适用产品 Products applicable			
			曲折缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
1	U43T6-1	调压螺钉 Screw for pressures-adjusting	√	1	√	1
2	U43T6-2	压杆簧 Pressing bar spring	√	1	√	1
3	U43T6-3	压紧杆 Presser bar	√	1	√	1
4	U43T6-4	压脚螺钉 Screw of presser foot	√	1	√	1
5	U43T6-5-0	压脚组件 Presser foot component	√	1	√	1
6	U43T6-6	压脚扳手销 Spanner pin	√	1	√	1
7	U43T6-7	压脚扳手 Spanner	√	1	√	1
8	U43T6-8	压脚扳手销螺要 Spanner pin screw	√	1	√	1
9	U43T6-9	压脚导架 Presser bar bracket	√	1	√	1
10	U43T6-10	压脚导架螺钉 Screw of bracket	√	1	√	1
11	U43T6-11	挺线定位座 Locating base	√	1	√	1
12	U43T6-12	膝提杠杆座螺钉 Screw of lever base	√	2	√	2
13	U43T6-13-0	膝提杠杆组件 Component of locating base	√	1	√	1
14	U43T6-14	开口销 Open-pin	√	3	√	3
15	U43T6-15	抬压脚拉杆 Presser foot rod	√	1	√	1
16	U43T6-16	膝提横针拉杆 Rod of horizontal needle	√	1	√	1
17	U43T6-17	抬压脚杠杆 Presser foot lever	√	1	√	1
18	U43T6-18	抬压脚杠杆螺钉 Lever screw	√	1	√	1

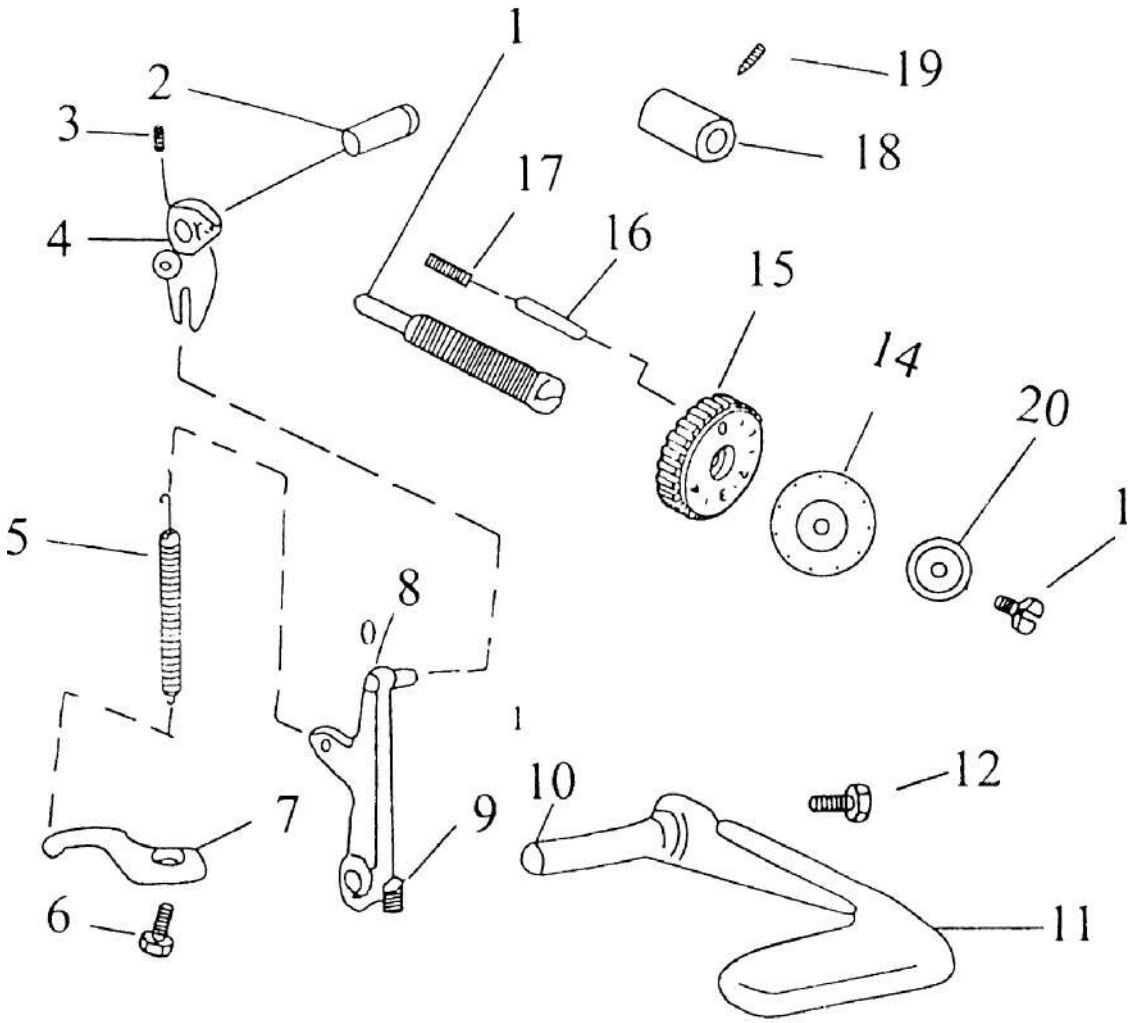
压脚部件 Components of presser foot



7、倒顺针距部件 Components of Needle Distance of Reversal Stitch

序号 Seri No.	图 号 Code No.	名 称 Description	适用产品 Products applicable			
			曲折缝 Curved-stitching	数量 Qty	双针曲折缝 Double Curved-stitching	数量 Qty
1	U43T7-1	针距调节螺杆 Feed adjusting screw	√	1	√	1
2	U43T7-2	针距座销 Pin	√	1	√	1
3	U43T7-3	针距座支头螺钉 Set screw	√	1	√	1
4	U43T7-4	针距座 Feed regulator	√	1	√	1
5	U43T7-5	倒针复位拉簧 Restoring extension spring of reversal stitch	√	1	√	1
6	U43T7-6	倒针复位拉簧勾螺钉 Screw of extension spring hook	√	1	√	1
7	U43T7-7	倒针复位拉簧勾 Restoring extension-spring hook	√	1	√	1
8	U43T7-8	倒针曲柄 Crank of reversal stitch	√	1	√	1
9	U43T7-10	倒针曲柄螺钉 Crank screw	√	1	√	1
10	U43T7-11	倒针扳手轴 Spanner shaft	√	1	√	1
11	U43T7-12	倒针扳手 Spanner of reversal stitch	√	1	√	1
12	U43T7-13	倒针板手螺钉 Spanner screw	√	1	√	1
13	U43T7-14	针距旋钮螺钉 Knob screw	√	1	√	1
14	U43T7-15	针距指示牌 Indication plate for needle distance	√	1	√	1
15	U43T7-16	针距旋钮 Knob	√	1	√	1
16	U43T7-17	针距定位钉 Locating Pin	√	1	√	1
17	U43T7-18	针距定位钉压簧 Pressing spring of locating pin	√	1	√	1
18	U43T7-19	方牙螺套 Toothed nut	√	1	√	1
19	U43T7-20	方牙螺套支头螺钉 Screw of toobthed nut	√	1	√	1
20	U43T7-21	针距指示牌垫圈 Washer of Indication Plate	√	1	√	1

倒顺针距部件 Components of Needle Distance of Reversal Stitch



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。

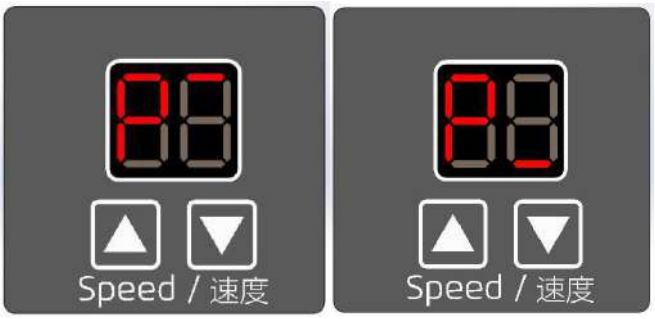


图 1 上、下停针显示界面

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

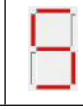
在待机界面，长按键 3s，所有的参数恢复出厂设置，数码管显示“oK”。

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。

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