GLOBAL

BT 13060

MANAUL

Contents

Accessories:

1、Accessories of the machine head

1	Thead stand	1Set	7	Hexagon apanner	1Set	13	ScrewM5X12	9Pcs
2	Hinge	2Sets	8	Oil can	1Pc	14	Nut M5	9Pcs
3	Rubber wasger	4Pcs	9	Needle	5Pcs	15	Screw St3X10	6Pcs
4	Oil pan	1Pc	10	Bobbin	5Pcs	16	Silicon oil box	1Pc
5	Big screw driver	1Pc	11	Rubber ring	3Pcs	17		
6	Smsll screw dvtrer	2Pcs	12	Foot pedal support	1Pc	18		

2、Accessories of control box

1	Operation box	1PC	7	Hexagon apanner	1Set	13	Screw St6.3X30	4Pcs
2	Download line	1Pc	8	Oil can	1Pc	14	Screw St4.2X30	4Pcs

Ⅰ、Brief Instruction

GA204-108(1311) is a new designed and high efficiency computerized pattern sewing machine for sewing heavy duty materials. It use Servo motor to drive, cam thread take-up, single needle, shuttle hook. It controlled by computer programs, so it can sew the special patterns. The lock stitch is beautiful, flat and well combined. It especially used for sewing signs, leather, power maintenance, rock climbing, overhead work, etc all kinds of safety belts.

Ⅱ、Features

It adopt advanced electromechanical and pneumatic integration technology, its presser foot lifting device and clamp device are finished by computer to control the cylinder, the feeding mechanism is also controlled by computer program, so it can sew different patterns. The large bobbin decreased changing bobbin frequency.

It is easy for operation, even inexpert can make the perfect stitch. Besides, it can store 1000 patterns, these patterns are created by StyleEdit, the user who can download the self-edited patterns from PC for use at any time.

Ⅲ、Main Specifications

Max. sewing speed: 800S.P.M
Clearance under prsser foor: 18mm
Needle: DYX3 180-250#
Sewing area: 130X110mm
Thread: polyester 0.3-1mm
Max. stitch thickness: 12mm
Bed size: 580X320X550
Mainn motor power: 750W
Air compressor working pressure: 0.6Mpa

Ⅳ、Operation Instruction

Before using,please carefully read Maintemance Manual.

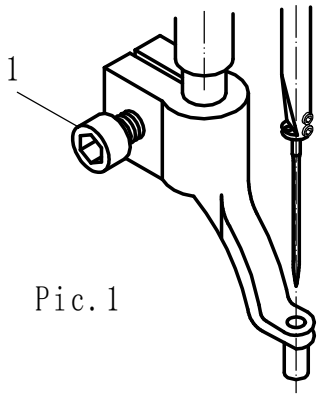
1. The machine has been adjusted before leaving the factory. According to the ichnography, the user can assemble the machine.(Referring to IX)
2. Insert the interfaces.(Referring to X)
3. Checking machine: Turn the handwheel clockwise, the movement of handwheel and needle should be balanced.
4. Checking clamp: Turn the handwheel, make the needle and presser foot at the top position, push the clamp move to front, back, left and right, the movement should be no resistance. Then move the clamp the center and turn on the power.
5. Before working we must process emply sewing.(Referring toXII)

Note:When process empty sewing, it is better to move off the needle to avoid it broken when to reset the needle,it mrst straightly set to the bottom and fasten the screw.

Ⅴ、Machine adjustment

1.Adjust presser foot and needle

The presser foot and needle should move synchronously.When the needle puncture the workpiece and to its boottom, the presser foot should press the workpiece tightly,as the shuttle draw the loop,the presser foot lifted. (Pic.1)

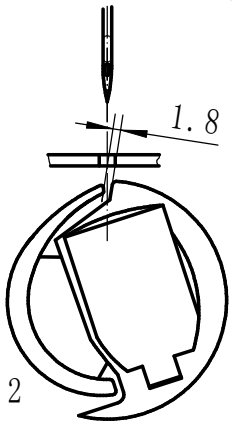


Pic.1

2.Adjust presser foot lift

The height of presser foot should catch tge tgicknee of material.Adjust it upward when tosew the thick material; oppodite ,adjust it dornward.

Loosen the screw(1)to move the presser foot upward or downward.(Pic.2)



Pic.2

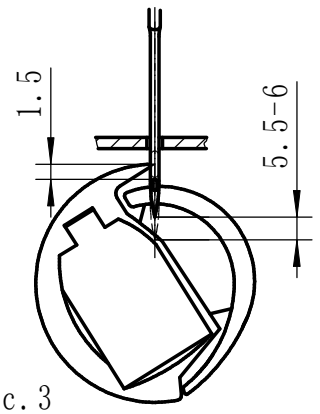
3.Adjust needle and shuttle hook

(1)Thread-off position:

When the needle nove to its top position is happen to the needle center the clearance is about 1.8mm.(Pic.2)

(2)Lift needle amount:

When the needle move to its bottom position, the shuttle hook at its max anticlockwise position, at this time the needle moves upward 5.5-6mm,the shuttle tip is at the needle center. The distance between shuttle tip and needle threading hole is 1.5-2mm.(Pic.3)

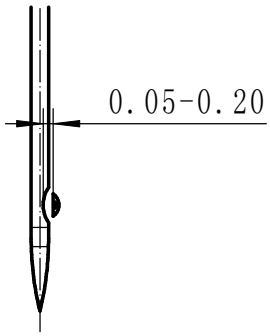


Pic.3

(3)Adjust the clearance of shuttle tip and needle gap:

When the shuttle tip moves to the center of the needle, the clearance between shuttle tipand needle gap is 0.05-0.20mm. (Pic.4)

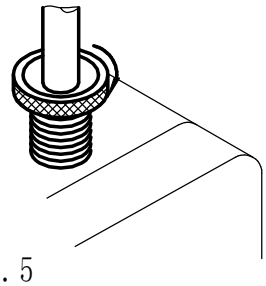
The large clearance, the shrttle tip is hard to draw the thread loop and cause skip thread.The small clearance, the shuttse tip may knock te needle ad make the needle broken.



Pic.4

4. Adjust the pressure of presser foot

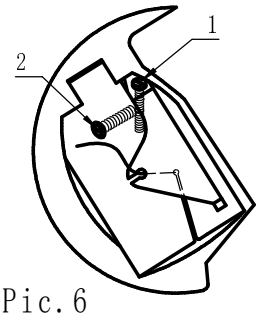
It is according to the material, light or thick. Turn the screw clockwise to increase the pressure; Opposite to decrease the pressure. (Pic.5)



Pic.5

5. Adjust the tension of upper thread and bobbin thread

When normally sewing, the upper thread and bobbin thread should be twisted in the middle of the workpiece. Upper thread loose, it is easy crimpy under the workpiece; Bobbin thread loose, it is easy to loose stitch on the workpiece. Upper thread tension can be adjusted by the thread tension nut. (Pic. 7) And for bobbin thread adjusting, take off the bobbin, loose the screw 2, and adjust the screw 1. (Pic.6)



Pic.6

6. Emergency stop operation

When under the condition of thread breaking or run off the bobbin thread, press the emergency stop switch, the machine stops and automatically in the state of empty sewing. After take measure of that, the user can turn the handwheel and make the main shaft to the upper needle position, on the operation panel press "+", "?" to back to the stitch position for continuing sewing. If the user want to stop sewing, press the "Cancel" and quit to empty sewing state.

7. Setup sewing speed

Safety belts require high sewing quality, there are many stitch works and its thickness and pattern are different. The thick place, the stitch is large, and the pattern is complex, so it is need low speed.

Suggestion: New machine should use the low speed.

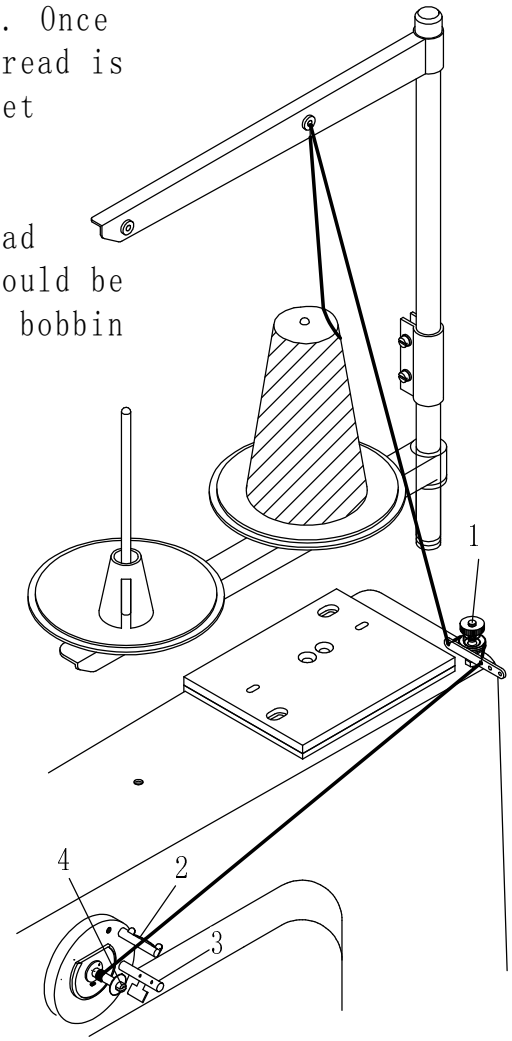
8. Adjusting the work-piece clamping force

The clamping force must be adjusted when the rope in different floppy range. To realize it by adjusting the button of pressure-reducing valve. Turning clockwise to increase the pressure, counterclockwise to reduce the pressure. The clamping force is directly related to the diameter of the rope. Different ropes should match the different clamp.

Ⅵ、Winding the bobbin thread

The machine is equipped with built-in bobbin winder. Place the bobbin onto the bobbin winder shaft 4.Take reference of picture 7, pass the thread through thread tension set 1 and 2. wind the thread several times around the bobbin in direction indicated by arrow, then start the machine to winding the lower thread. Once winding of the bobbin thread is completed, the bobbin set lever 3 will return automatically.

Note: the amount of thread wound onto the bobbin should be a maximum of 80% of the bobbin capacity.

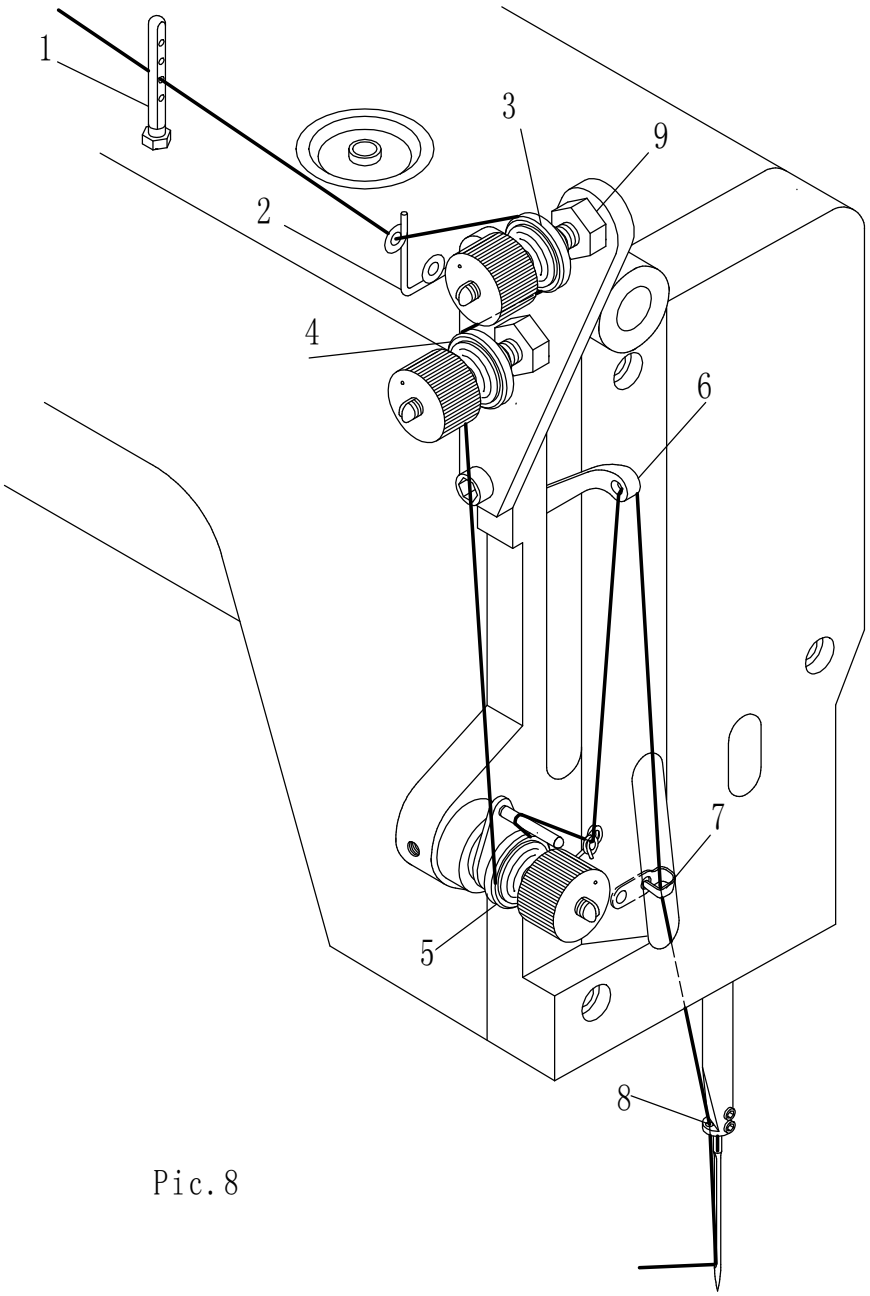


Pic.7

Ⅶ、Threading the upper thread

When threading the upper thread, the needle bar should in top position.

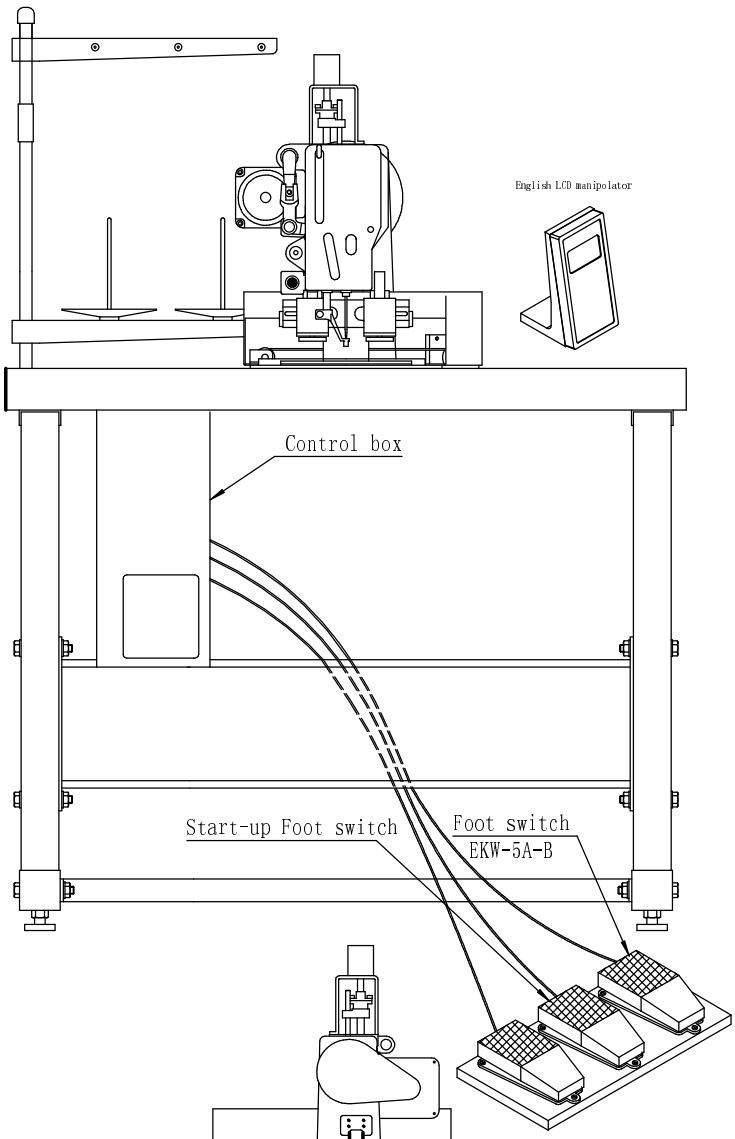
Following the order of 1 to 8 as shown in the illustration given below.(Pic 8)



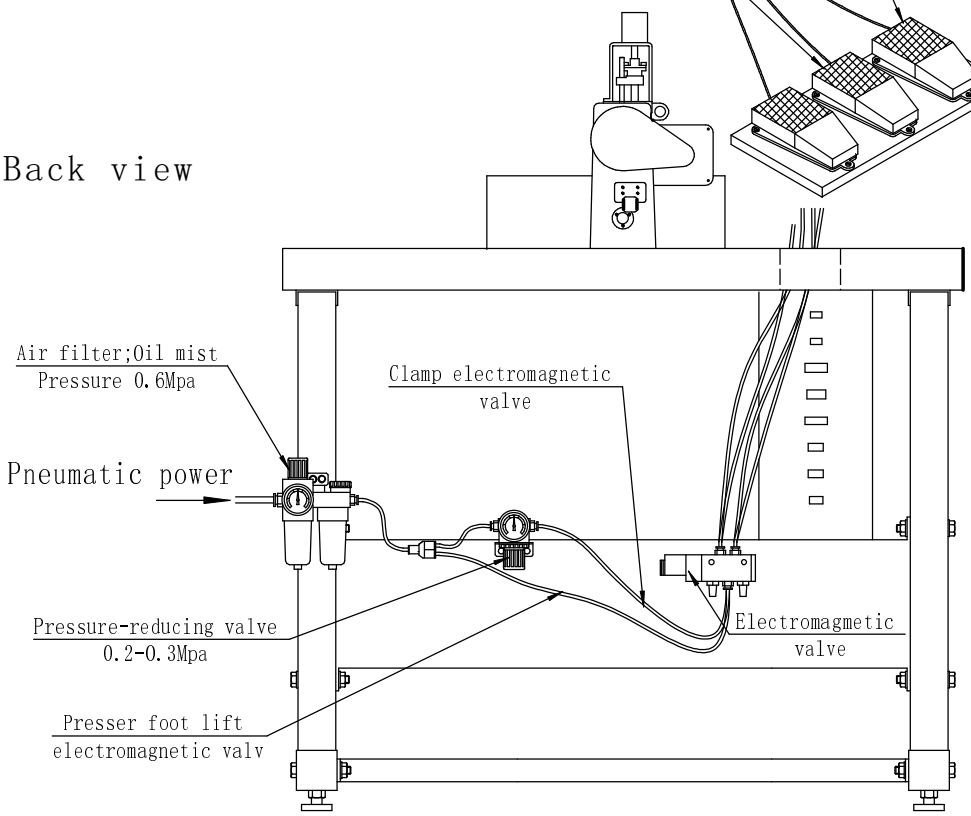
Pic.8

Ⅷ、Plan view of complete machine

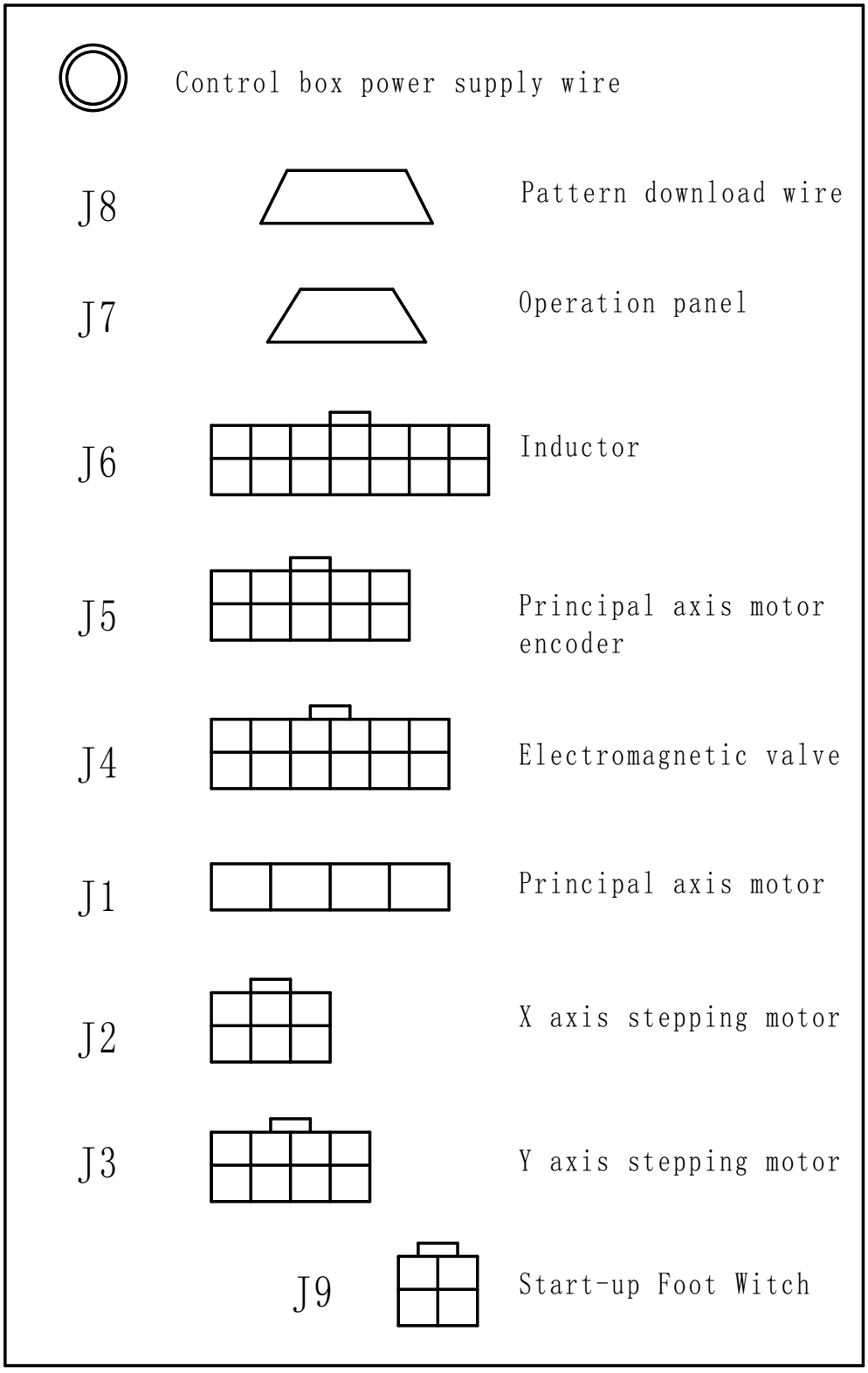
Front view



Back view

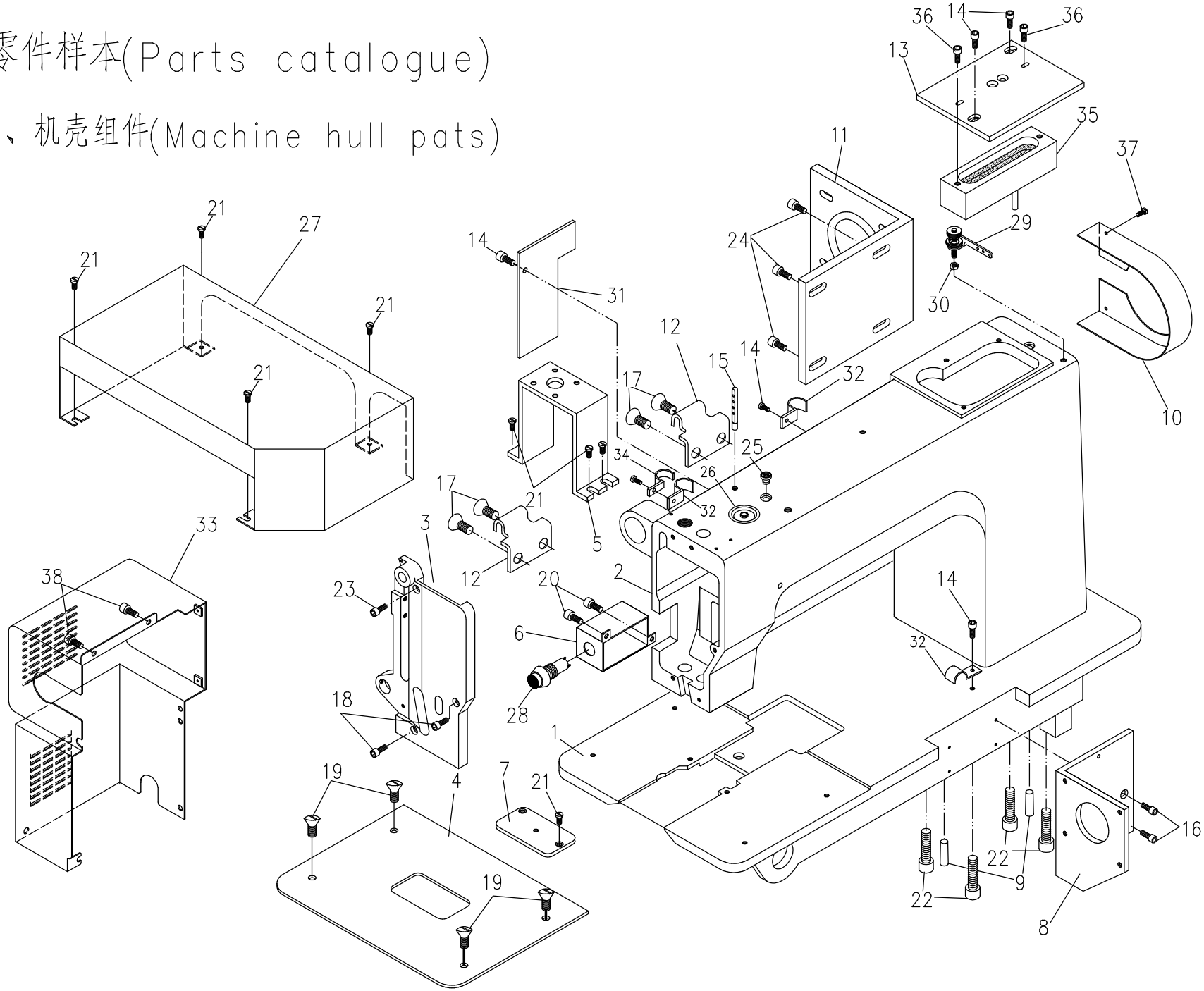


Ⅸ、Outside connection



十、零件样本(Parts catalogue)

（一）、机壳组件(Machine hull pats)



（一）、机壳组件(Machine hull parts)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	1070101	底板	bottom piate	1	毛坯同204-370
2	1070102	机壳	head case	1	
3	SF0104	前盖	face plate	1	
4	1070104	缝台板	sewing board	1	
5	1070105	抬压脚汽缸支座	cylinder support	1	
6	1070106	急停开关防护罩	shield cap	1	
7	1070107	针板	needle plate	1	
8	1070108	纵向电机座	electromotor support	1	
9	GS105	机壳销	pin	2	
10	1070110	皮带罩	belt hood	1	
11	1070111	主轴电机支承板	electromotor support	1	
12	GXR222	合页2	hinge 2	2	
13	GK201	上盖板	upper cover plate	1	
14	GS13310	上盖板螺钉	screw	4	
15	GS101	穿线钉	threading screw	1	
16	GS13320	纵向电机座螺钉	screw	4	
17	GS17520	合页2螺钉	screw	4	
18	GS13325	前盖板螺钉	screw	2	
19	GS16212	缝台板螺钉	screw	4	
20	GS13212	开关防护罩螺钉	screw	2	
21	GS172	针板螺钉	screw	11	
22	GS13635	机壳螺钉	screw	4	
23	GS13318	前盖板螺钉	screw	1	
24	GS13416	电机支承板螺钉	screw	4	
25	GK209A	小油堵	small oil seal	4	
26	GK208	大油堵	big oil seal	1	
27	1080127	防尘罩	shield cap	1	
28	1070128	急停开关	switch	1	
29	1070131	绕线器夹线组件	tensin threed stand	1	
30	GL203	螺母	nut	1	
31	1070133	小窗口盖板	cover plate	1	
32	1070134	电线压板I	press plate	3	
33	1070139	电机罩	electromotor shield cap	1	
34	1070136	电线压板II	press plate	1	
35	GK203	油盒	oil box	1	
36	GS12212	油盒螺钉	screw	2	
37	GS12104	护针板螺钉	screw	2	借用204
38	GS12310	电机罩螺钉	screw	4	
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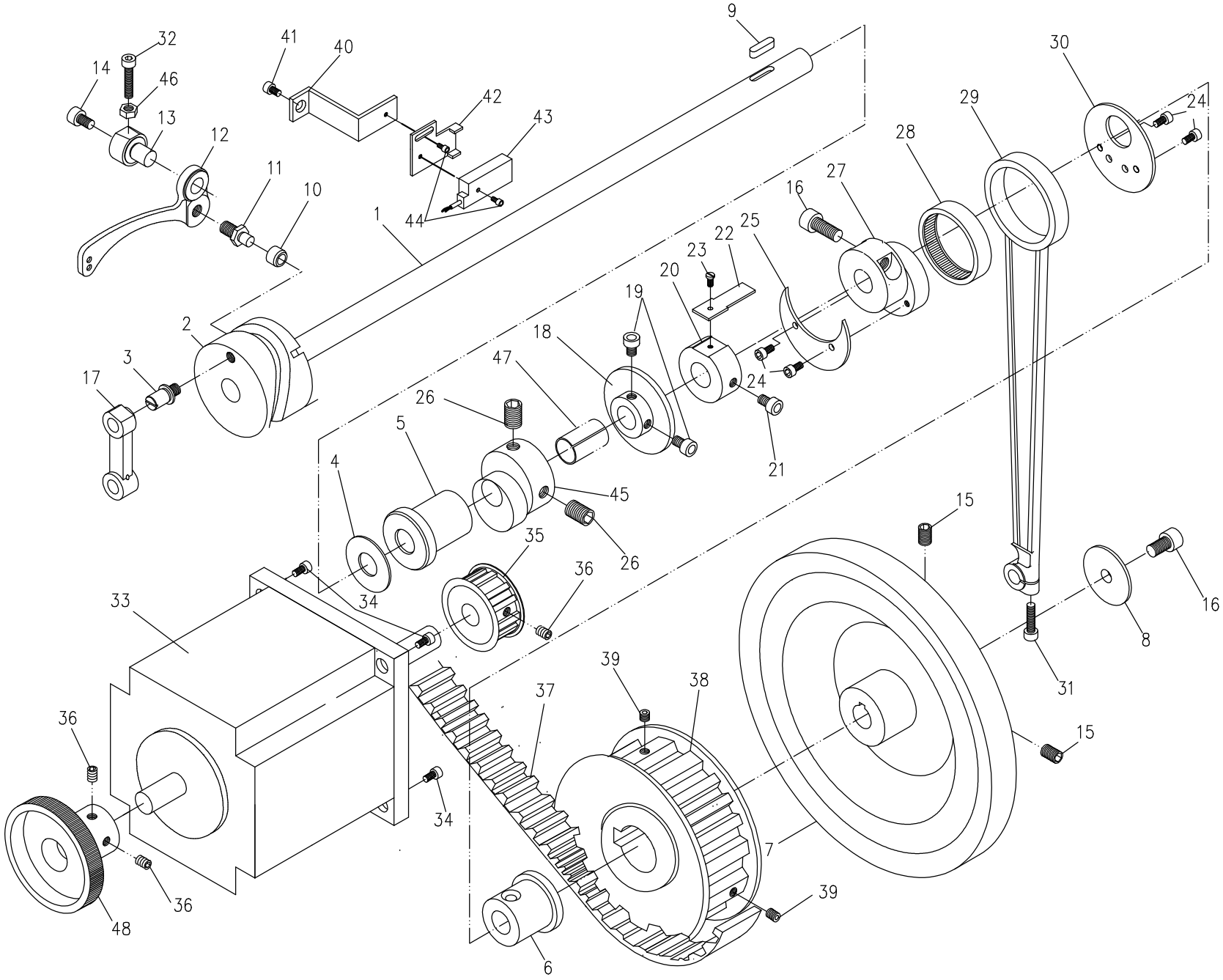
（二）、上轴、挑线组件(Arm shaft and thread take-up)



（二）、上轴、挑线组件(Arm shaft and thread take-up)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	GZ107	上轴	upper shaft	1	108A借用GA204-420上轴
2	GP104	挑线凸轮	raising thread cam	1	
3	GX100	挑线凸轮连杆销钉	screw	1	
4	GS215	前轴套垫片	washer	1	
5	GO109	上轴前轴套	shaft bushing front	1	
6	GO107	上轴后轴套	shaft bushing back	1	
7	1070207	大皮带轮	on turns	1	
8	GK217	皮带轮垫片	washr	1	
9	GK216	上轴键	upper shaft key	1	
10	GU100	挑线滚轮	roller shaft	1	
11	GZ105	挑线滚轮轴	roller shaft screw	1	
12	MO212	挑线杆	thread take-up lever	1	
13	MO213	挑线杆轴	raising thread shaft	1	
14	GS13412	挑线杆轴螺钉	screw	1	
15	GS11516	皮带轮紧固螺钉	screw	2	
16	GS13525	皮带轮安全螺钉	screw	2	
17	1070217	针杆连杆	small connecting rod	1	
18	GP112	主动摩擦轮	driving frictiong wbeel	1	
19	GS13410	主动摩擦轮螺钉	screw	2	
20	1070220	上轴感应铁固定环	fixer loop	1	
21	GS13412	固定环螺钉	screw	2	
22	1070222	上轴感应铁	iron-inductor	1	
23	GS12206	感应铁螺钉	screw	1	
24	GS13206	偏心套挡片螺钉	screw	4	
25	GK237	偏心挡片B	side plate（B）	1	
26	GS11510	偏心套紧定螺钉M8X1	screw	1	
27	GO129	偏心套	eccentric sleeve	1	
28	HK4512	轴承	needle roller bearing	1	
29	GH129	大连杆体	connecting rod	1	
30	GK236	偏心挡片A	side plate（A）	1	
31	GS13316	大连杆体紧固螺钉	screw	1	
32	GS13440	挑线杆轴紧固螺钉	screw	1	
33	1070233	主轴电动机	electromotor	1	
34	GS13316	主轴电机安装螺钉	screw	4	
35	1070235	主轴电动机带轮	electromotor wheel	1	
36	GS11405	电机带轮紧固螺钉	screw	2	
37	1070237	同步带	in-phase belt	1	
38	1070238	主轴带轮	principal axis wheel	1	
39	GS11416	主轴带轮紧固螺钉	screw	2	
40	1070240	上轴传感器支座	sensor support	1	
41	GS13310	支座螺钉	screw	1	
42	1070242	上轴传感器固定架	sensor rivet support	1	
43	1070243	传感器	sensor	1	
44	GS13108	传感器螺钉	screw	2	
45	1070245	压脚升降偏心轮	presser foot lift cam	1	
46	GL106	锁紧螺母	nut	1	
47	1070247	偏心内套	eccentric sleeve bushing	1	
48	1070247	主电机手轮	electromotor wheel	1	
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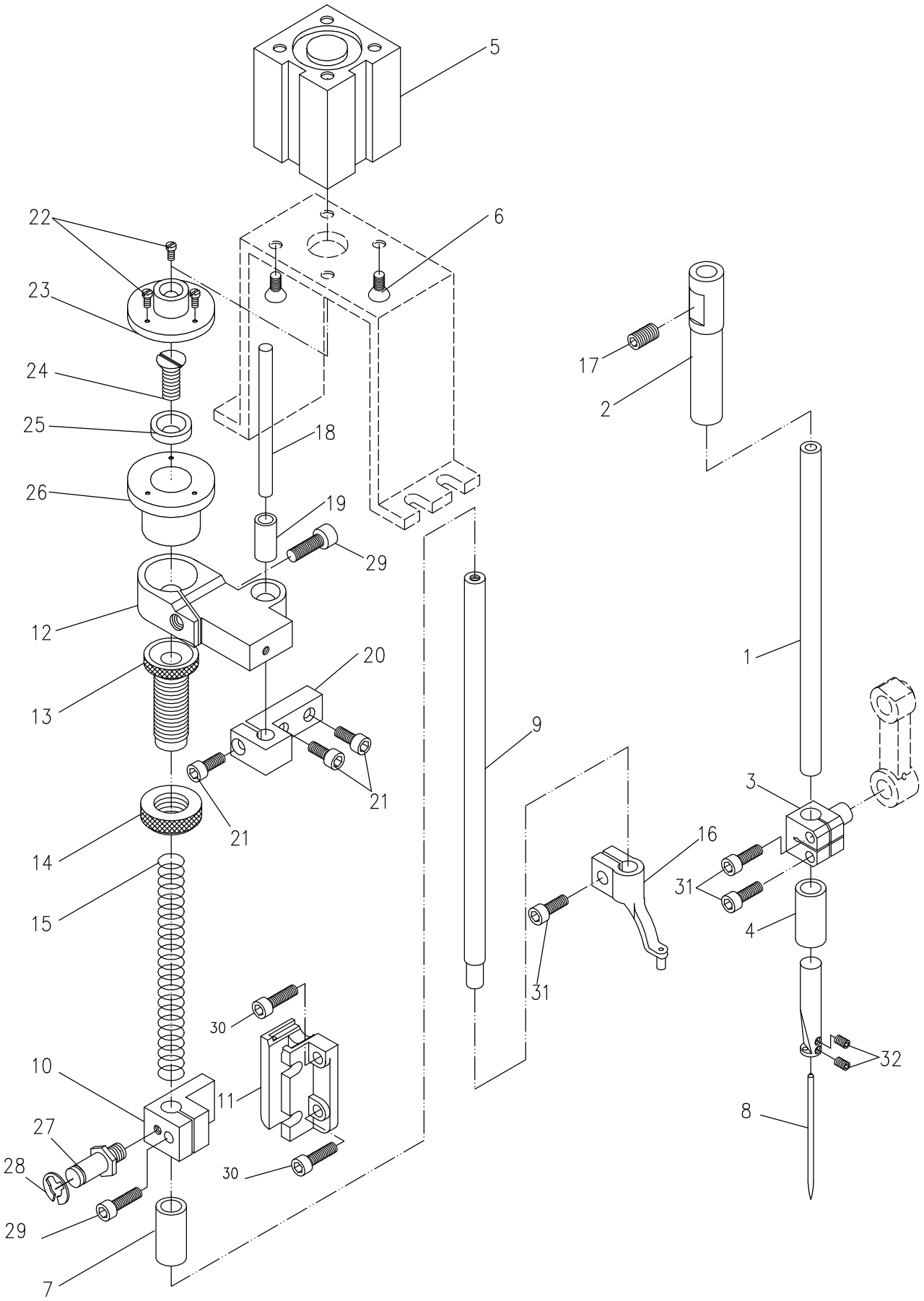
（三）、针杆、压杆组件(Needle bar and presser bar)



（三）、针杆、压杆组件(Needle bar and presser bar)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	1070301	针杆	needle bar	1	
2	M0302	针杆上衬套	bushing	1	
3	GH118	针杆连接轴	needle bar connecting shaft	1	
4	M0304	针杆下衬套	bushing	1	
5	1070305	压脚提升汽缸	cylinder	1	
6	GS16312	汽缸固定螺钉	screw	4	
7	M0307	压杆下衬套	pressing rod lower bushing	1	
8	DY×3	机针	needle	1	
9	1070309	压杆	pressing rod	1	
10	1070310	压杆导架	oriented bracket of pressing rod	1	
11	GK226	压脚升降定位滑道	presser lifting locating slideway	1	
12	1070312	压脚提升导向块	block	1	
13	GZ125	调压螺钉	presser regulated screw	1	
14	M0314	调压锁紧螺母	nut	1	
15	GW201	压杆大簧	presser bar big spring	1	
16	1070316	压脚	presser foot	1	
17	GS11306	针杆上衬套螺钉	screw	1	
18	1070318	压脚提升导向杆	presser oriented shaft	1	
19	GU105	针杆连接轴滚柱	reller	1	同GB180-2
20	1070320	压脚提升导向座	presser oriented support	1	
21	GS13216	导向座螺钉	screw	2	
22	GS13212	压脚提升套筒端盖螺钉	screw	3	
23	1070323	压脚提升套筒端盖	sleeve lid	1	
24	GS16316	压杆端盖螺钉	screw	1	
25	1070325	压杆端盖	screw	1	
26	1070326	压脚提升套筒	sleeve	1	
27	1070327	抬压脚连杆螺钉	screw	2	
28	E-05	开口挡圈	block ring	2	
29	GS13320	压杆导架紧固螺钉	screw	2	
30	GS13325	滑道螺钉	screw	2	
31	GS13316	针杆连接轴螺钉	screw	3	
32	GS11205	针夹螺钉	screw	2	
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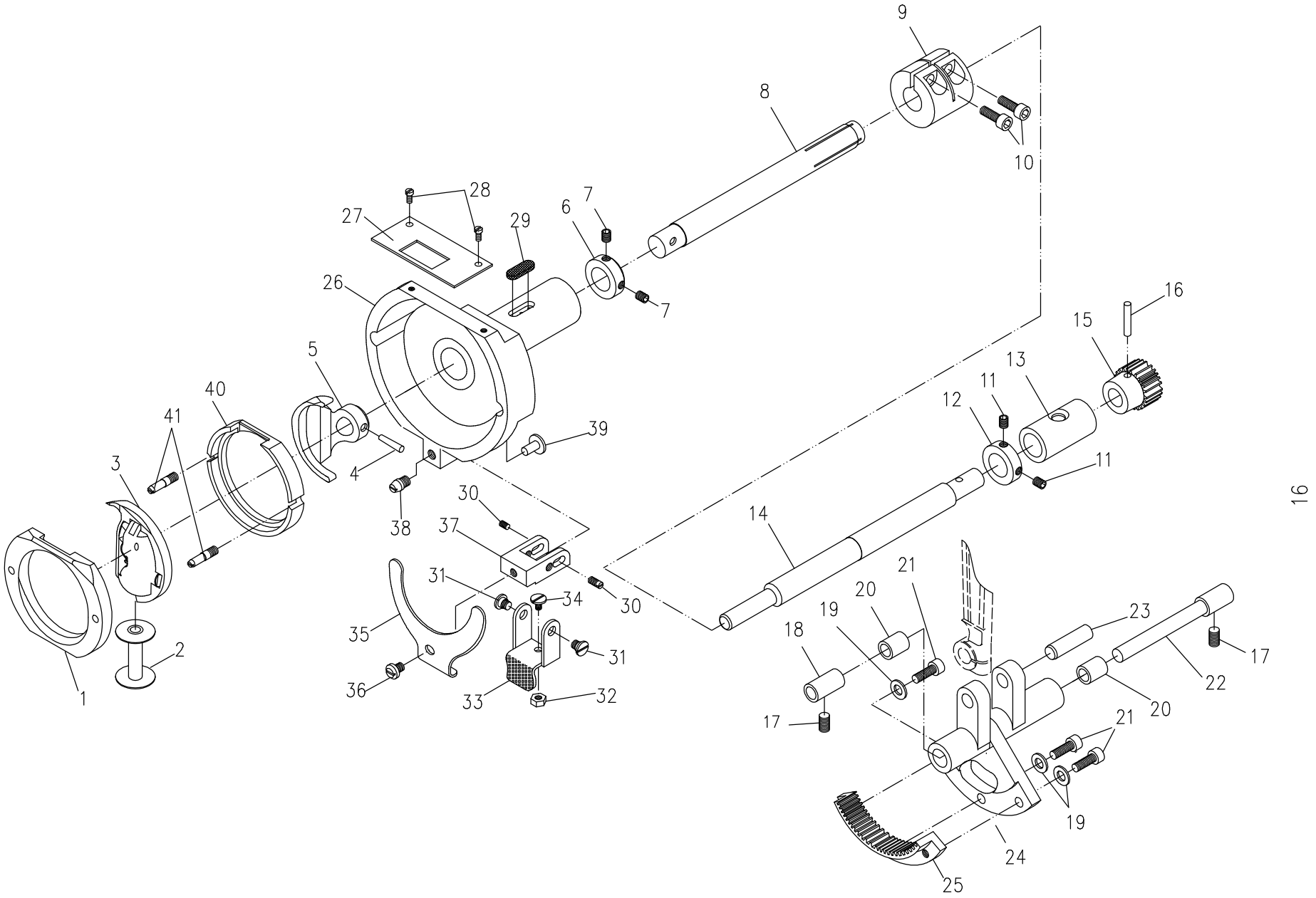
（四）下轴、摆轴组件(Lower shaft and pendulum shaft)



（四）下轴、摆轴组件(Lower shaft and pendulum shaft)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	GN118	梭床盖	bobbin bed cover	1	
2	GN116	梭心	bobbin	1	
3	GN111/9	摆梭	shuttle hook	1	
4	GX121	摆梭托锥肖	pin	1	
5	GR258	摆梭托	swinging shuttle support	1	ø3X21
6	GK242	下轴II挡圈	block ring	1	
7	GS11305	下轴挡圈紧定螺钉	screw	2	
8	GZ113	下轴II	below axis II	1	
9	GZ239	下轴紧圈	tight ring of lower shaft	1	
10	GS13416	下轴紧圈螺钉	screw	2	
11	GS11305	下轴1挡圈螺钉	screw	2	
12	GK240	下轴1挡圈	biocking ring of lower shaft	1	
13	CO131	下轴轴套	back shaft bushing	1	
14	GZ112	下轴1	lower shaft（1）	1	
15	GP107	下轴小齿轮	small gear of lower shaft	1	
16	MO415	小齿轮锥销	pin	1	
17	GS10414	下摆轴轴套螺钉	screw	2	
18	GO130	下摆轴轴套	bushing	1	
19	MO519	扇形齿轮螺钉垫圈	washer	3	
20	GO132	下摆轴架小套	bushing	2	
21	GS13318	扇形齿轮紧固螺钉	screw	3	
22	GZ111	下摆轴	swinging shaft	1	
23	GZ128	大连杆销轴	shaft	1	
24	GK238	摆轴架	pendulum axle stand	1	
25	GP106	扇形齿轮	pendulum axle fan-shaped gear	1	
26	GN117	梭床座	body of shuttle bed	1	
27	MO417	护针挡片	needle protectting board	1	
28	GS12104	护针板螺钉	screw	2	
29	GK249	梭床油毡垫	oil felt	1	
30	GS10208	压紧架转轴螺钉	screw	2	
31	GX112	板手转轴螺钉	screw	2	
32	GL203	板手轴位螺母	nut	1	
33	GK243	压紧架板手	press stang spanner	1	
34	GX113	板手轴位螺钉	screw	1	
35	GW111	压盖簧	ring-pressing spring	1	
36	GX117	压盖簧螺钉	screw	1	
37	GK241	梭床压紧架	bobbin bed press stand	1	
38	GX109	压紧架轴位螺钉	screw	1	
39	GX108	压紧架轴位销钉	screw	1	
40	GN110	梭床	bobbin bed	1	
41	GS163	梭床螺钉	bobbin bed screw	2	
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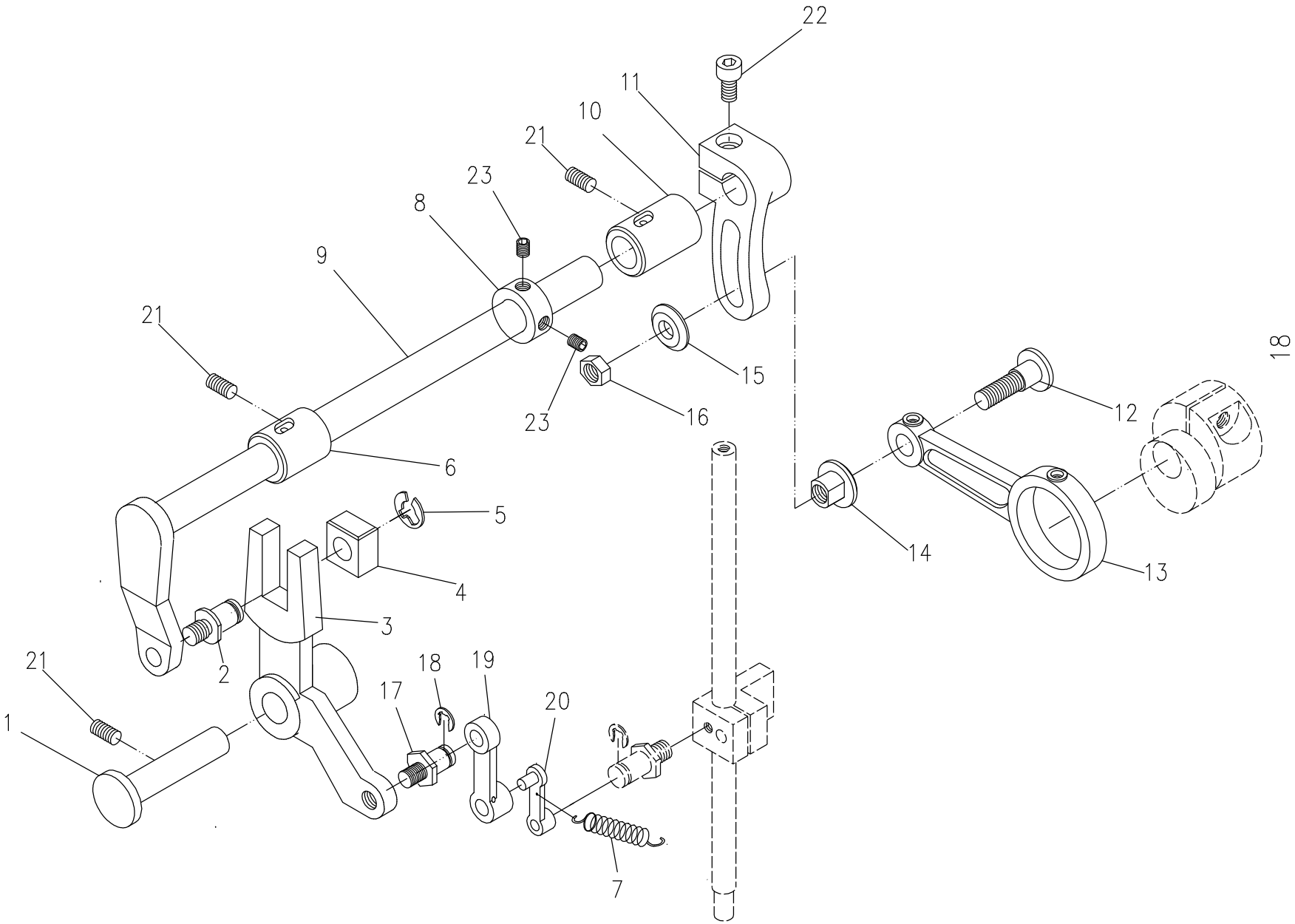
（五）、同步压脚升降组件(Presser foot lift timing)



（五）、同步压脚升降组件(Presser foot lift timing)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	810-1216	挑线曲柄连杆销	pin	1	
2	GZ136	抬牙滑块销钉	pin	1	
3	1070503	压脚升降叉杆	presser foot lift feeth fork	1	
4	GU111	铜滑块	glide block	1	
5	GW203	抬牙轴卡簧	shaped snap spring	1	
6	GO127	压脚升降轴前轴套	lifting shaft front sleeve	1	
7	GW122	绕线器拉簧	spring	1	
8	SF1303	压脚升降轴挡圈	lifting shaft biocking ring	1	
9	1070509	压脚升降轴	pressing foot lift shaft	1	
10	GO126	压脚升降轴后轴套	lifting shaft back sleeve	1	
11	GH146	压脚升降调整后曲柄	lifting adjusting back crank	1	
12	GS150	轴位螺钉	screw	1	
13	GD0606	压脚升降偏心轮连杆	lifting connecting rod	1	
14	GL108	调整螺母	nut	1	
15	GR245	轴位螺钉垫圈	washer	1	
16	GL106	锁紧螺母	nut	1	
17	1070327	抬压脚连杆螺钉	screw	1	
18	E-05	开口挡圈	E-type	2	
19	1070519	抬压脚连杆(下)	below connecting rod	1	
20	1070520	抬压脚连杆(上)	top connecting rod	1	
21	GS11308	压脚升降轴前后轴套螺钉	screw	3	
22	GS13416	压脚升降曲柄螺钉	screw	1	
23	GS11306	升降轴挡圈螺钉	screw	2	
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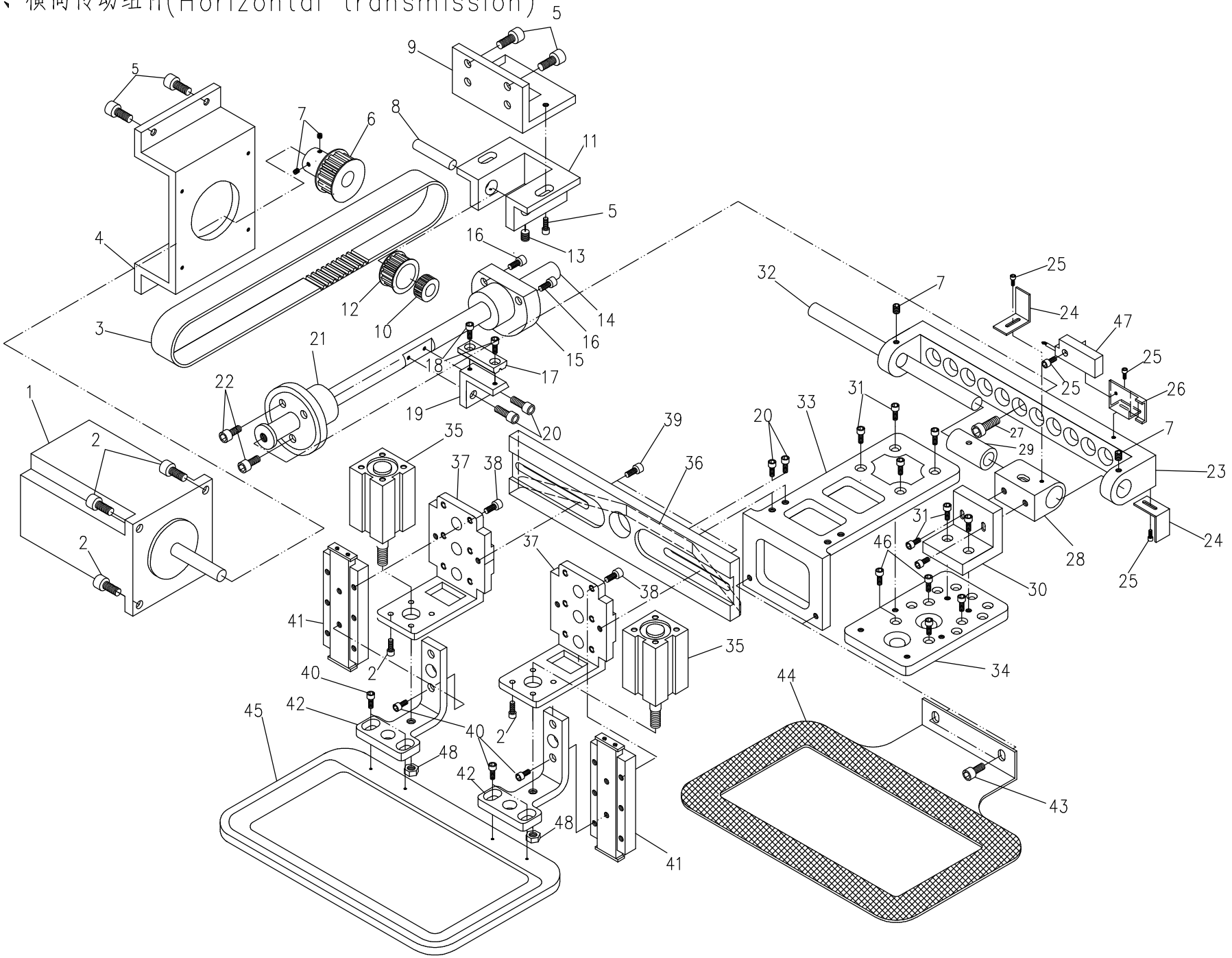
（六）、横向传动组件(Horizontal transmission)



（六）、横向传动组件(Horizontal transmission)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	1070601	横向电动机	electromotor	1	
2	GS13216	电机安装螺钉	screw	6	
3	1070603	横向同步带	synchronization belt	1	
4	1070604	横向电机座	electromotor support	1	
5	GS13316	电机座安装螺钉	screw	4	
6	1070606	电机带轮	belt pulley	1	
7	GS11305	电机带轮紧定螺钉	screw	2	
8	1070608	被动带轮轴	belt pulley axis	1	
9	1070609	带轮支架	belt pulley support	1	
10	GK09108	挑线杆轴承	belt pulley bearing	2	同GA-204
11	1070611	被动带轮支座	belt pulley support	1	
12	1070612	被动带轮	belt pulley	1	
13	GS11205	带轮轴紧定螺钉	screw	2	
14	1070614	横向导向轴	oriented axis	1	
15	1070615	横向导向轴后套	back sleeve	1	
16	GS13318	后套安装螺钉	screw	3	
17	1070617	横向齿形带压板	dentiform prees board	1	
18	GS13110	齿形带压板螺钉	screw	2	
19	1070619	皮带固定座	belt fixer	1	
20	GS13210	固定座螺钉	screw	6	
21	1070621	横向导向轴前套	front sleeve	1	
22	GS13310	前套安装螺钉	screw	3	
23	1070623	纵向导向轴支架	oriented axis support	1	
24	1070624	感应铁	iron-inductor	1	
25	GS13106	感应铁螺钉	screw	4	
26	1070242	纵向感应器固定架	fixer support	1	
27	GS13416	横向导向轴固定螺钉	screw	1	
28	1070628	导向座	oriented support	1	
29	GO141	抬牙轴套	sleeve	1	同GB180-2
30	1070630	导向弯板	bend board	1	
31	GS13310	弯板安装螺钉	screw	8	
32	1070632	纵向导向轴	oriented axis	1	
33	1080633	绣框支架	sew up support	1	
34	1070634	导向座基板	dorienterd board	1	
35	1080635	夹紧汽缸	clamp cylonder	2	
36	1080636	左右压脚支座	presser foot support	1	
37	1080637	汽缸支座	cylinder support	2	
38	GS13110	汽缸支座螺钉	screw	12	
39	GS13212	支座连接螺钉	screw	4	
40	GS13206	连接板螺钉	screw	8	
41	1080641	导向座组件	orienterd support	2	
42	1080642	压脚连接板	presser foot board	2	
43	GS13208	下绣框螺钉	screw	2	
44	1080644	下绣框	below sew up case	1	
45	1080637	上绣框	top sew up case	1	
46	GS13112	导向座基板螺钉	screw	4	
47	1070243	感应器	sensor	1	
48	GL106	锁紧螺母	nut	2	
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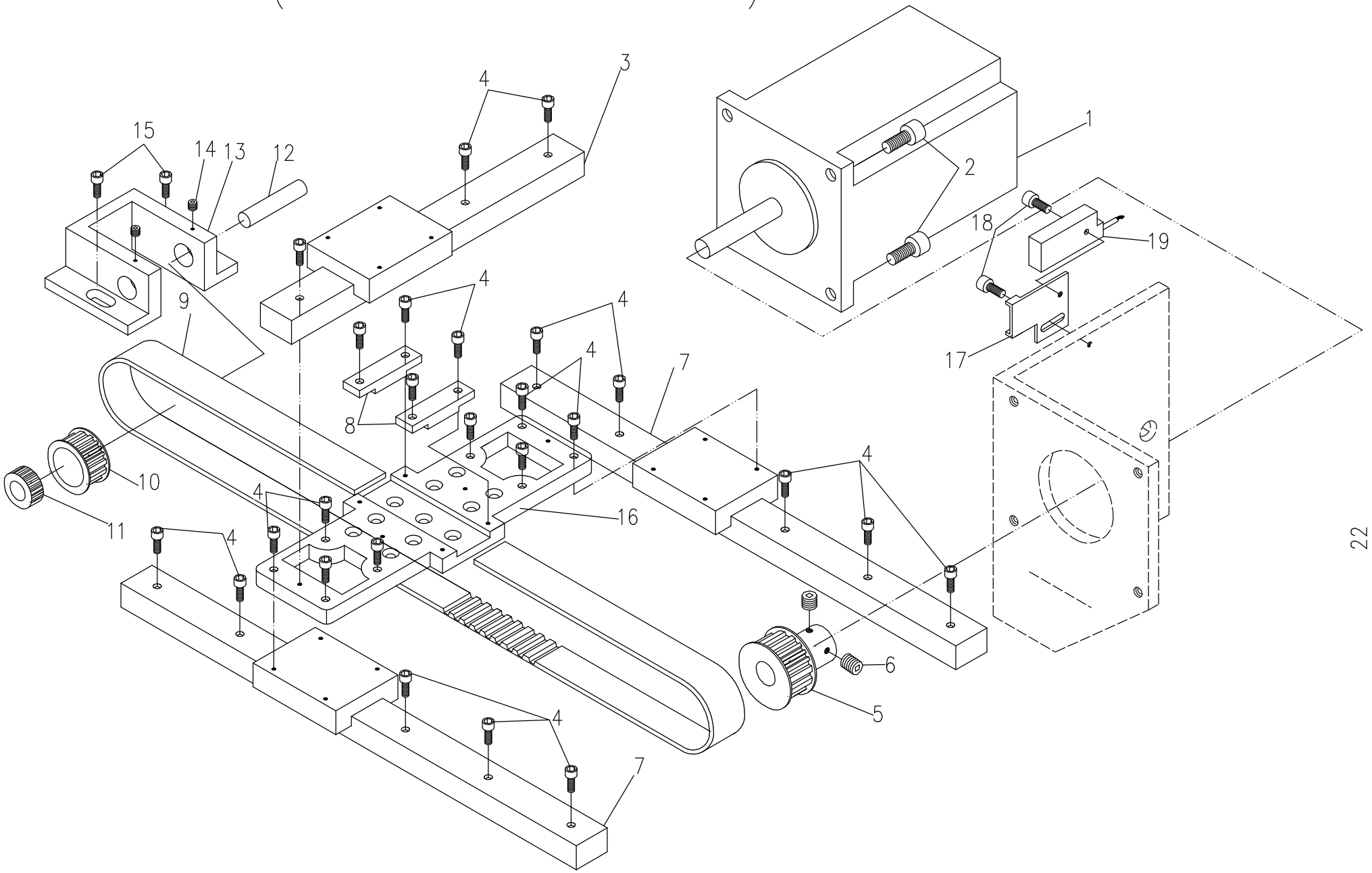
（七）、纵向转动组件(Vertical transmission)



（七）、纵向转动组件(Vertical transmission)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	1070701	纵向电动机	electromotor	1	
2	GS13212	电机安装螺钉	screw	4	
3	1070703	横向直线导轨	linear guideway	1	
4	GS13112	导轨安装螺钉	screw	28	
5	1070606	电机带轮	belt pulley	1	
6	GS11305	带轮紧定螺钉	screw	2	
7	1070707	纵向直线导轨	linear guideway	2	
8	1070708	纵向齿形带压板	belt press board	2	
9	1070709	纵向同步带	synchronization belt	1	
10	1070612	被动带轮	belt pulley	1	
11	GK09108	挑线杆轴承	belt pulley bearing	1	同GA-204
12	1070608	被动带轮轴	belt pulley axis	1	
13	1070611	被动带轮支座	belt pulley support	1	
14	GS11205	带轮轴紧定螺钉	screw	2	
15	GS13316	被动带轮支座螺钉	screw	2	
16	1070716	纵向导轨连接板	connet board	1	
17	1070242	上轴传感器固定架	fixer support	1	
18	GS13106	传感器固定架螺钉	screw	2	
19	1070243	传感器	sensor	1	
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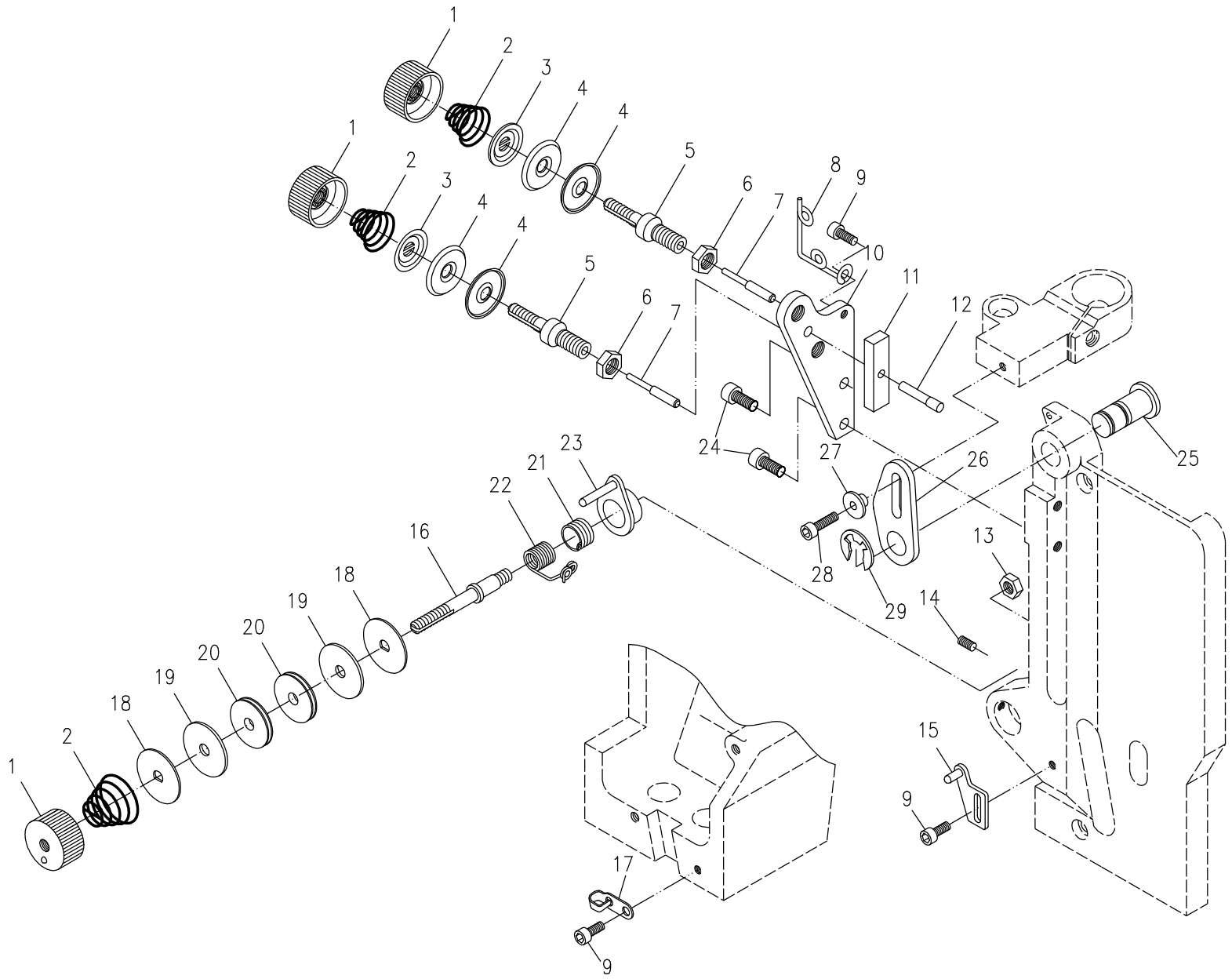
（八）、夹线、过线组件(Thread tension)



（九）、夹线、过线组件(Thread tension)

序号	零件件号	零 件 名 称	Description	件数	备 注
1	GLS204	夹线螺母	tension nut	3	
2	GW115	夹线簧	spring	3	
3	GK232	松线板	thread releasing plate	2	
4	GK123	夹线板	tension plate	4	
5	GZ126	夹线螺钉	screw tension	2	
6	GL205	锁紧螺母	nut	2	
7	GX106	松线钉	loosen bolt	2	
8	M0908	过线圈	thread passing ring	1	
9	GS13208	过线圈螺钉	screw	3	
10	M0910	夹线架	thread tension rack	1	
11	M0911	松线板1	thread releasing plate	1	
12	M0912	松线板销	pin	1	
13	GL204	过线螺钉锁母	nut	1	
14	GS11206	过线器座固定螺钉	screw	1	
15	GKS108	拨簧支架	drawing soring stand	1	
16	M0916	过线螺钉	screw tension	1	
17	GC0819	拦线钩	finger	1	
18	GK233	过线板	thread passing plate	2	
19	GK234	过线轮毡圈	washer	2	
20	GP102	过线轮	thread passing wheel	2	
21	GW109	挑线簧2	thread take-up soring2	1	
22	GW108	挑线簧1	thread take-up spring1	1	
23	GKS107	过线器座	thread passing sead	1	
24	GS13316	松线架螺钉	screw	1	
25	1070825	松线板定位轴	shaft	2	
26	1070826	松线压板	thread releasing plate	1	
27	M0804	松线板连接套	thread loosing sleeve	1	
28	GS13216	连接套螺钉	screw	1	
29	GW211	松线板定位轴卡簧	jump ring	1	
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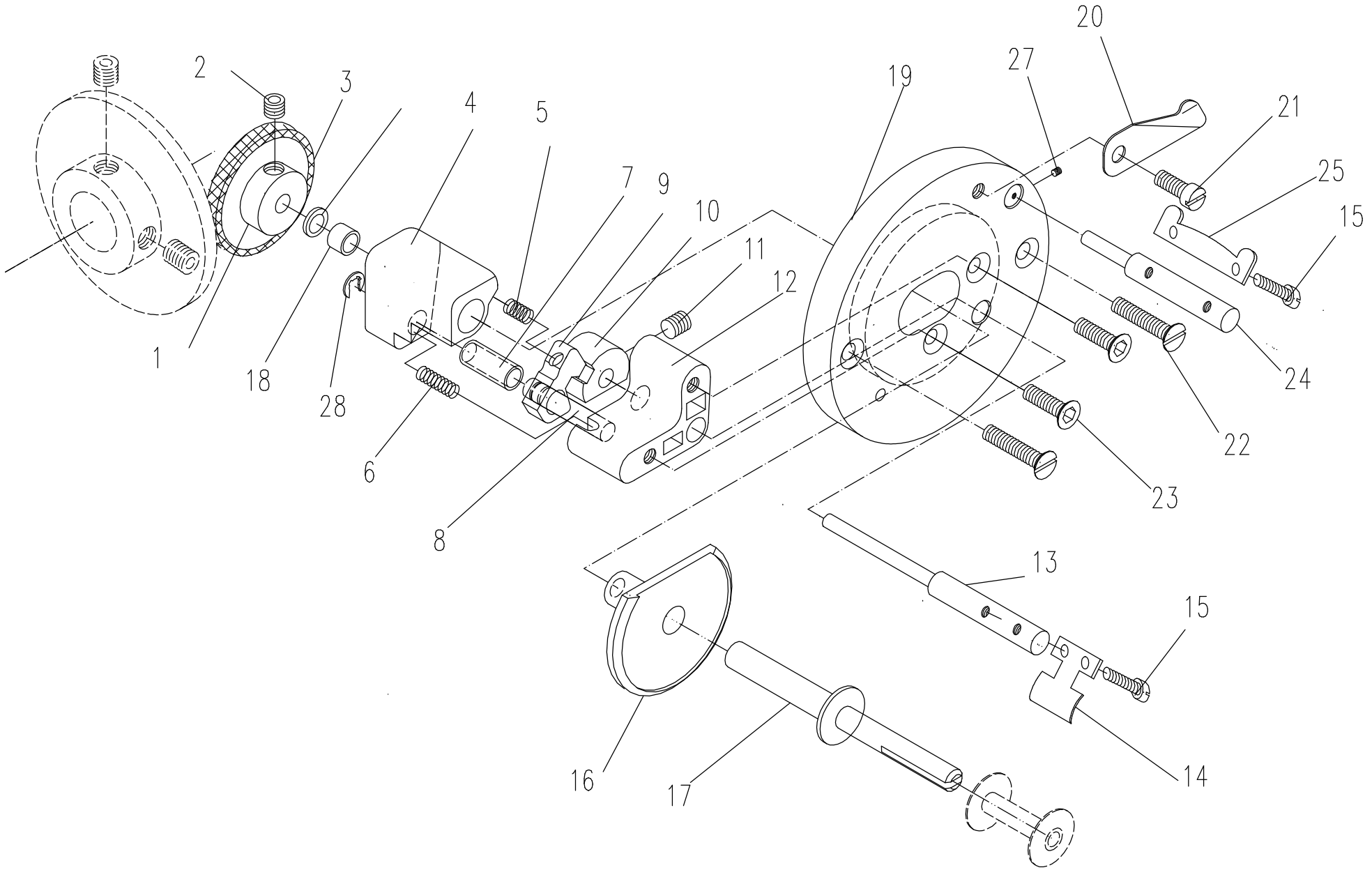
（九）、内置绕线器组件(Built-in bobbin winder)



（九）、内置绕线器组件(Built-in bobbin winder)

序号	零件件号	零 件 名 称	Description	件数	备　　注
1	EL0918	被动摩擦轮胶圈	rubber ring	1	
2	GS11306	被动摩擦轮紧定螺钉	screw	1	
3	EL0920	被动摩擦轮	driven friction wbeel	1	
4	EL0921	绕线压力板座	thread coiling presser plate seat	1	
5	EL0922	压力弹簧2	presser spring 2	1	
6	EL0923	压力弹簧1	presser spring 1	1	
7	EL0925	压力板小套	presser plate small bushing	1	
8	EL0924	压力板芯轴	presser plate shaft	1	
9	EL0926	绕线压力板	thread coiling presser plate	1	
10	EL0927	绕线控制板	thread coiling controller plate	1	
11	GS11305	绕线控制板顶丝	screw	1	
12	EL0929	绕线控制板座	thread coiling controller plate seat	1	
13	1070913	满线跳板轴	full reel springboard shaft	1	
14	1070914	满线跳板	full reel springboard	1	
15	GS13112	满线跳板调整螺钉	regulate screw	1	
16	EL0933	压力板座底盘	presser plate base dial	1	
17	1070917	梭心轴	bobbin shaft	1	
18	EL0941	绕线压力板座套	thread coiling presser plate washer	1	
19	EL0936	绕线器接盘	bobbin winder connecting dial	1	
20	EL0937	小剪刀	small scissors	1	
21	GS13208	小剪刀紧固螺钉	screw	2	
22	GS17212	绕线器接盘螺钉	screw	2	
23	GS16210	绕线器接盘螺钉	screw	2	
24	1070924	排线板轴	shaft	1	
25	1070925	排线板	plate	2	
26	D-05	摩擦轮平垫	washing	2	
27	GS11105	排线轴紧定螺钉	screw	2	
28	E-04	开口挡圈	E-type	1	
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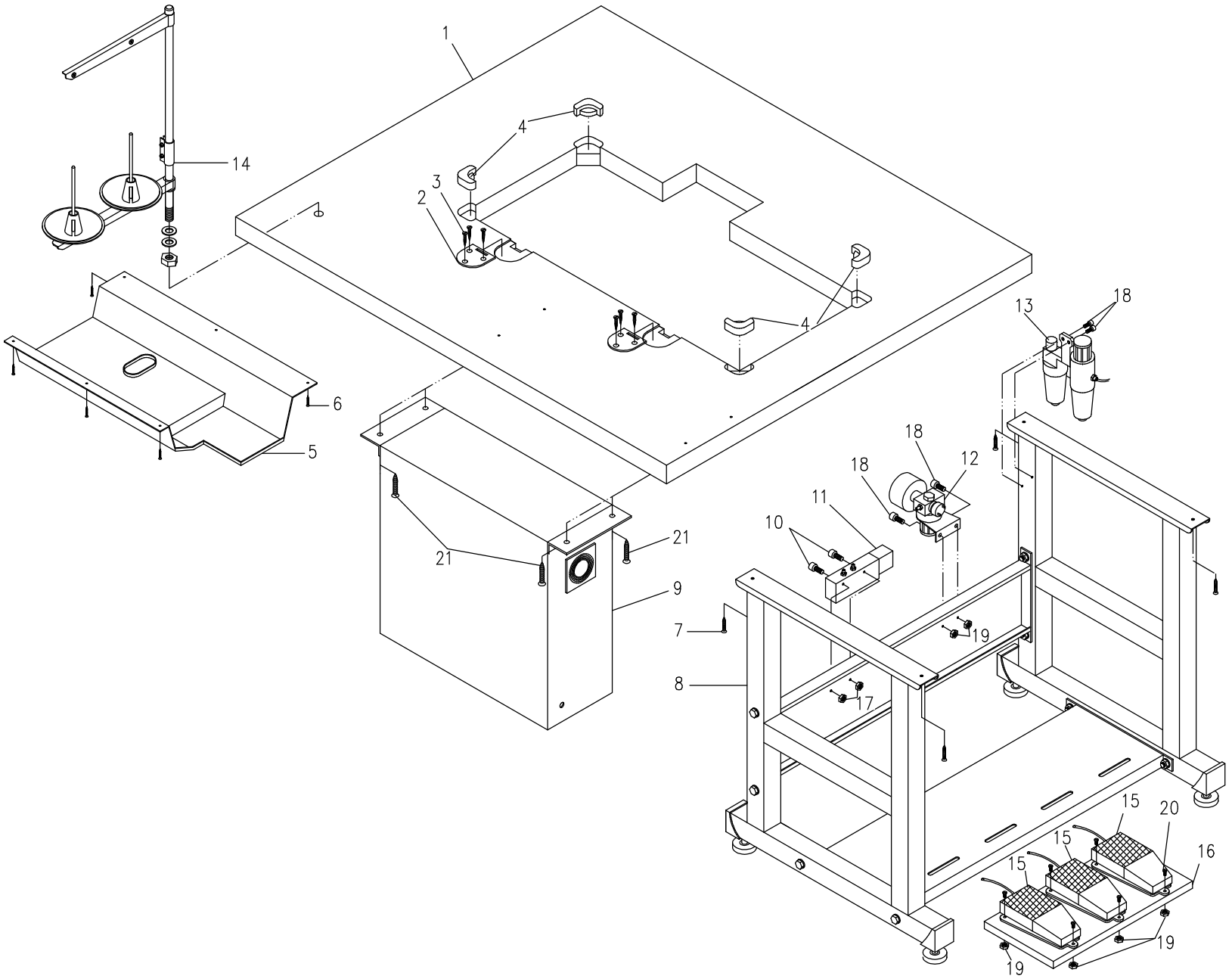
（十）、台板、机架组件(Table top and stand)



（十）、台板、机架组件(Table top and stand)

序号	零件件号	零 件 名 称	Description	件数	备 注
1	1071001	台板	table	1	
2	GKR200	合页1	hinge	2	
3	GC1005	合页螺钉	screw	6	
4	GC1004	机头胶垫	rupper cushion	4	
5	GKR216	接油盘	oil pan	1	
6	GBS112	木螺钉	screw	6	
7	GC1021	机架台板紧固螺钉	screw	4	
8	1071008	机架	stand	1套	
9	1071009	电控箱	electron control	1	
10	GS13280	电磁阀螺钉	screw	2	
11	1071011	电磁阀	electromagnetisin valve	3	
12	1071012	减压阀及空气压力开关两连件	decompress valve and switch	1	
13	1011013	空气油雾滤清器	air-oil filter	1	
14	M1014	线架	thread stand	1套	
15	1071015	脚踏开关	jury-mast switch	3	
16	1071016	脚踏开关底板	pedal	1	
17	GL204	电磁阀安装螺母	nut	2	
18	GS13312	螺钉	screw	4	
19	GL205	螺母	nut	11	
20	GS12312	脚踏开关固定螺钉	screw	9	
21	ST6.3X30	电控箱自攻螺钉	screw	4	
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XI Control Box Operation Instruction

1 Control box hardware specifications

1.1 Power specification

Voltage: Single Phase AC220V±15％.
Current: Average current is lower than 3A. Peak current is lower than 5A.

1.2 Replace the fuse

There are three piece fuses on the main control board.

The capacity and the usage of the Fuse

No.	Capacity	Usage
FP1	10A	AC main power protection
FP2	10A	Step driver protection
FP4	10A	Solenoid protection

Fuse replacement: in order to prevent to get an electric shock accidents, please be sure to turn off the power and wait for at least 5 minutes to open the box and so on. In the bottom right corner of main control board has three rectangular green plastic box, pulled out clasp bonnet and change the broken fuse. (see 1.3 Inner structure of the Control Box).

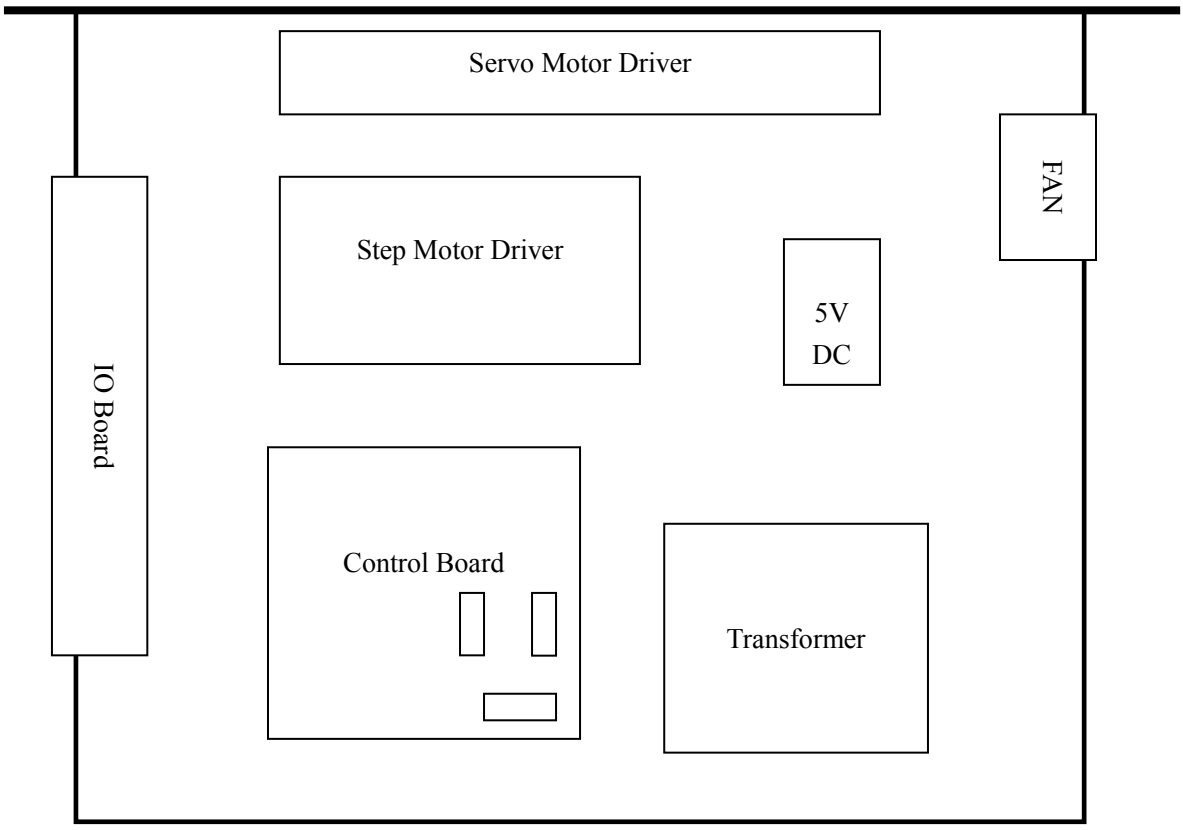
1.3 X/Y origin detector

When sensor iron approach the sensor, the sensor's red LED will light up. In the entire motion range of the X or Y axis, red LED light up on a small interval. The installation position of the sensor iron should be adjusted to make sure that the red light will light up at one end of the whole motion range, otherwise, the origin position will not be found correctly. The space between the sensor iron and the sensor should be less than 2 mm, or the sensor will not detect the existence of the sensor iron.

1.4 Motors installation

There is no limitations to the installation of the servo motor and X、Y step motor. The user should note that the lateral direction to the operator is set to X axis and the longitudinal direction to the operator is set to the Y axis.

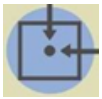
1.5 Inner structure of the Control Box



2 Operation of the Sewing Machine

2.1 Keys Description

Key	Shape	Name	Usage
1		Power LED	Lights up when the power is ON
2		Sewing-ready LED	Lights up when sewing is ready
3		Error LED	Lights up when error occurs
4		Thread winding key	Used for the bobbin thread winding
5		Needle threading key	Makes easy to thread the needle
6		Pattern No. key	Used to change the sewing pattern
7		X scale key	Sets the scale value of the lateral direction
8		Y scale key	Sets the scale value of the longitudinal direction
9		Bobbin thread setting key	Sets the value on the bobbin thread counter
10		Bobbin thread replacement key	Used to reset the bobbin thread counter
11		Read out key	Access to USB disk operations page
12		Write in key	back up patterns
13		Data delete key	Delete last data when input a pattern
14		Speed change key	Inserts speed change code when input a pattern

15		Delete/Exit/Cancel key	Able to cancel the input data being on the way
16		Forward key	Advances the feed by one stitch
17		Backward key	Retreats the feed by one stitch
18		Return to origin key	The clamp moves to the origin
19		Test key	Can do trial sewing
20		Input selection key	
21		Code key	Sets the graph drawing mode
22		F1 key	Origin of pattern setting key
23		F2 key	Display mode/Mirror copy key
24		Curve point key	Can store the point on a curve
25		Menu key	Access to menu lists
26		Jump feed key	Inserts jump feed code when input a pattern
27		Point sewing key	Sets the height of intermediate presser.
28		Line sewing key	Sets sewing parameters when input a pattern
29		Trimming code key	Insert trimming code when input a pattern
30		End point key	Specify the point on a line or the end point on a curve.
31		Execution/Finish key	Can be used when the input of one element is finished
32		Enter key	Confirm operation
33		Numerical key/Jog key	Inputs data / Jog the movement
34		Numerical key 0	Input data 0

2.2 Adjusting zero position

When the motors are installed to the machine head for the first time, their zero position must be adjusted.

After you press the return to origin key  , the motors should go to there respective origin.

1) Servo-motor should turn forward and finally stop at needle upper position;

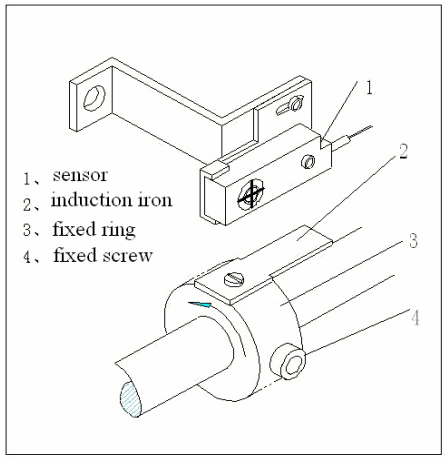
2) X motor should make clamp move to the right and finally reach nearby the left side of the needle;

3) Y motor should make clamp move to the front and finally reach nearby the back side of the needle;

Note that the X motor origin and Y motor origin of the machine locate in one side of the sewing area, not the middle of the sewing area.

You should adjust the position of corresponding sensor until the above requirements are met.

2.2.1 Adjusting the position of the induction rion for the sensor of the needle upper position



When induction iron near the sensor, the sensor's red lights will light up. Adjust the induction iron fixed ring installation position, make the needle bar in the suiltable location called “needle upper position” when the red light inside the sensor lights up. Normal when needle bar begin move from up downward, X/Y stepping motor begins to feed.In each round of the main shaft,the red light shine one time and the clamp feed one time.User should adjust the installation position of fixed ring of the induction iron appropriately according to the thickness of the fabric and the stitch pitch size. When the needle bar from the highest position moves down 1~2 mm or so, make sensor red light shining, this is an ideal position.

The red light should be light up before the needle bar reach the highest position in the case of sewing thick rope,thick material ,the feed pith is large or the thread should not be too tight,.

The adjustment method is: open the upper cover, turn the handwheel to let the needle bar in the right position, unscrew fixed ring installation screw 4 then turn the induction iron fixed ring 3 to make the red light light up in the nearest location.

2.3 Basic operation

Operation options	Operation steps
Change to the other sewing pattern	**1)** When the machine is on the idle state, press the key  to select a new one from the existing patterns. **2)** Press the key  to decrease the pattern number or press the key  to increase the pattern number repeatedly or continuously until you find the pattern you wanted. **3)** Press the key  to load the pattern to memory. Or press the key  to abort the change.
Setting the location of pattern center	You can sew a pattern at any location within the clamp by setting the location of the pattern center. **1)** When the machine is on the idle state, press the key  and the clamp will be moved to the location of the pattern center. **2)** If the pattern center need to be adjusted,press the key  or  to change the location in X direction and press key  or  to change in Y direction repeatedly until the clamp reach the correct position.Then press the  key to confirm the change. **3)** You can press the key  and  repeatedly to feed the pattern forward or backward to check if the pattern center setting is correct. If not, press the key  to exit the trial feed mode and then you can repeat the above step 1) and 2) to adjust it again.
Setting the scale of X direction	**1)** When the machine is on the idle state, press the key  to change the sewing length in X direction.The unit of the length is mm and the maximum length can not exceed 200% of the original pattern. **2)** Continuously press the key  to decrease the length or press the key  to increase the length. **3)** Press the key  to confirm the change to the X scale or press the key  to abort the change..

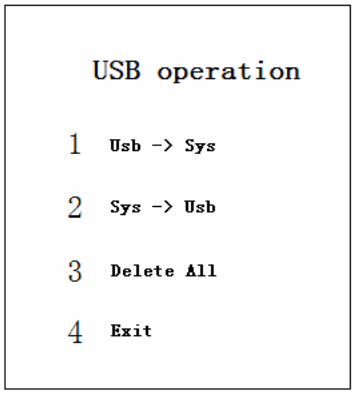
Setting the scale of Y direction	**1)** When the machine is on the idle state, press the key  to change the sewing length in Y direction.The unit of the length is mm and the maximum length can not exceed 200% of the original pattern. **2)** Continuously press the key ◂4 to decrease the length or press the key 6▸ to increase the length. **3)** Press the key ↵ to confirm the change to the Y scale or press the key CL to abort the change..
Setting sewing speed	**1)** When the machine is on the idle state, press the button  to change the sewing speed. The adjustable range is 50~800 RPM. The top sewing speed is limited by system parameters P-1. **2)** Continuously press the key ◂4 to reduce the speed value or press the key 6▸ to increase the speed value. **3)** Press the key ↵ to confirm the change or press the key CL to abort the change..
Trial Feed	When the machine is on the idle state, you can continuously press the key  to feed the clamp forward or press the key  to feed backward. By this way,you can check the contour of a sewing pattern.
Setting the location of the second origin	1) Select the pattern to be changed. 2) Lower the clamp. 3) Continuously press the key ◂4 or 6▸ to change the location in X direction and press the key 8▴ or 2▾ to change in Y direction until the clamp reach the desired position .Then press the ↵ key to save the change to the location of the second origin. Note: 1) The default location of the second origin is the first stitch position. 2) The clamp will be moved to the second origin after the sewing finish. 3）The clamp will be moved to the second origin after the key ↵ pressed.

Bobbin thread winding	**1)** Press the key  to confirm the sewing pattern **2)** Press the key  to enter bobbin thread winding function **3)** Depress the start pedal to start winding **4)** Depress the start pedal again to stop winding **5)** Repeat step 3)-4) if needed. **6)** Press the key  to exit winding function
Needle threading	**1)** Press the key  , the intermediate presser will lay down, you can thread the needle now. **2)** After threading, press the key  and the intermediate presser will go up.
Sewing a pattern	**1)** Press the key  to make a confirm to all of the changes. The clamp will be moved to first stitch or the second origin point of the pattern. **2)** Depress the clamp pedal to lower down the clamp. **3)** Depress the start pedal. The intermediate presser will lay down and the sewing indicator light up and sewing begins. **4)** When sewing finished, the clamp will be moved to the second orign. Then the clamp and intermediate presser go up and sewing indicator black out .
Clearing failure warning	When something is wrong with the machine, the display screen will show warning message and the error LED will light up. Some times you can press the key  to clear the failure warning, and at same time let the error LED off. But some serious fault can not be cleared until the power is turned off or the fault is resolved. Note::if the warning message is “Main motor overload”,you need turn off the power to the machine and wait at least 8 seconds before turn on the power again.
Power LED	When the power is on, the power LED lights up; when power is off, it goes out.
Using the temporarily stopping button	You can push the temporarily stopping button to stop the machne immediately when the sewing is proceeding and some accident happens,such as in the case of needle breakage, thread breakage, bobbin thread used out,etc. When the stop button is pushed, the main shaft stops immediately and the machine enter the trial feed state. At this time you can feed the stitches forward or backward manually by pressing the key  and  to resolve the problem. When

	you finished and need to continue the sewing,just depress the start pedal. If you want to abort the sewing, just press the key  . Here you can press the key  to make your threading easy.
Pedal for Clamping	You can depress the clamp pedal to raise or descend the clamp. For rope-sewing machine, the clamp wll be tighten up or be relaxed instead. In some machine the clamp will be split into two part,which can be controlled by two pedal independently.

2.4 Transfering patterns by a USB disk

1.Naming Rule 1) pattern number 1-120;file name: number+ . sss e.g.:NO.2 pattern saved as 2.sss,NO.120 pattern saved as 120.sss 2)user should put the pattern files in the root directory of the USB disk, do not put in a sub-directory,otherwise, control box could not find those patterns.	
2.service conditions 1)System parameters P-42 should be set as 1 2)If a control box do not support USB disk, the system parameters P-42 automatic turn to be 0, USB function can't operate	
3.Operation rules and methods 1) on the condition the electric power on, directly plug in the USB, and choose pattern, the system follows USB first principle, operation box only show pattern Numbers in the USB, namely 1 ~ # 999 patterns. 2) When need to put USB patterns data copied to the system, on the condition the electric power on, first plug in USB and press [read] button, screen show USB operating menu 3) When need to put in a single copy of the system patterns to USB, choose the right pattern, then plug in USB and press [test] key, it can save to USB.	
4.Operation orders introduction a) 1 button Copy the patterns data from USB into system. System begin from 1 pattern , search with copy, if the system has the same pattern exist, the system will give some instructions, then press [confirm] button, the system will cover the same pattern ,press [cancel] button, does not cover the same system of pattern, press [implement/end] key to exit operation, return to USB operating menu interface. When search out NO.120 pattern, the system automatically return to USB operating menu interface.	

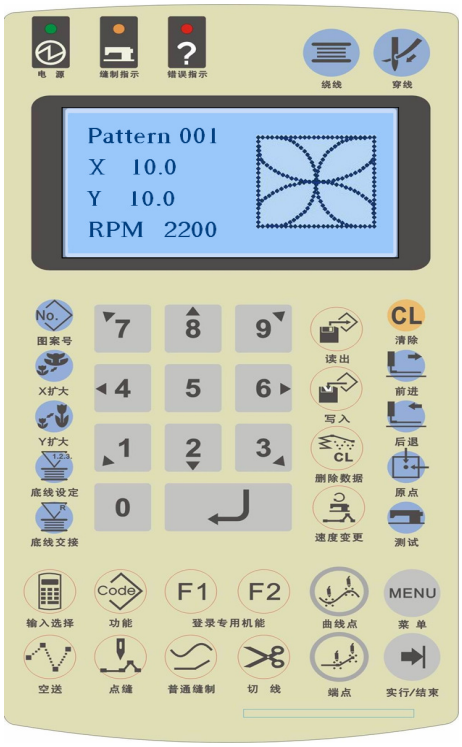
b) 2 button Copy the patterns data from system into USB. System begin from 1 pattern , search with copy, if the USB has the same pattern exist, the system will give some instructions, then press [confirm] button, the system will cover the same pattern ,press [cancel] button, does not cover the same system of pattern, press [implement/end] key to exit operation, return to USB operating menu interface. After operation, the system automatically return to USB operating menu interface. c) 3 button Clear all the patterns data in the system. Remove process real-time display, the whole operation ended, the system automatically return to USB operating menu interface. d) 4 button Exit USB and system data interaction. After pressing the button ,system will be out of USB operating condition, and return to normal sewing wait states. If USB is still being inserted in at the same time, system will only sew the patterns in the USB. If USB has pulled out, it can choose any of the system patterns	

2.5 Adjusting system parameters

STEP	INTERFACE
press the button  to get in the main menu interface. press the button  , the cursor go to the [system parameter], press the button  , enter the system parameter selection.	Edit pattern 中文界面 System parameter Initialization Download Device Maintenance Test Device
Sets the system parameters: press the button  and the button  to adjust parameters items or parameters, press the button  to switch between parameters items and parameter values .(parameter table refer to appendix 1)	Item P-01 Value 800 Max speed

3 Pattern Inputing

User can draw pattern freely in our system, in many ways, change freely .
Next we will list some patterns to make a reference, master the methods, drawing your own patterns.



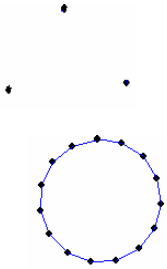
3.1 Create a new pattern

STEP	INTERFACE
1) press the button MENU 菜 单 to get into main menu interface .Press the button ↵ and choose [Edit pattern]	Edit pattern 中文界面 System parameter Initialization Download Device Maintenance Test Device
2) press the button ↵ and get into [New pattern]	New pattern Modify pattern Delete pattern Delete all
3) setting drawing pattern parameters : press the button ◂4 and the button 6▸ to adjust parameters value, press the button 8▴ and the button 2▾ or the button to change parameters items and parameter values two options , (note: condensing the stitches set to at most five stitches. When pattern data is saved, all the end of a thread will be condensing, the repeat stitches do effective only for round or closed graph), press the button, ↵ enter the next level parameters Settings.	Parameter Set Fixed 0 Repeat 0

4) Press the button ◂4 and the button 6▸ to adjust parameters value, press the button 8 and the button 2 or the button  to move to choose and change the right parameters item. Explanation: width is refers to the double, cross line or the distance between multiple-lines. If is to draw the single line, the parameters has no meaning. When set to the minimum width, if is to draw the cross line, actual the effect is to draw a single line, if is to draw the double or more actual the effect is to draw the two line or more repeat line. Lift presser food: refers to the height of the presser foot. the presser food control by motor drive ,we can set each stitch of the presser food height; when the presser food is control by the air valve or electromagnet , et each stitch of the presser food height can't be change. Left, right and middle: refers to the first stitch of the zigzag seam or cross lines. After setting the parameters like the right picture, and click button ↵ to enter the next level parameters Settings	RPM 800 press 0 mm stitch 2.5 mm width 2.0 mm ZigzagMDot 0 left
5) when clamp down, main shaft back to up-stop-needle position, x axis and y axis back to origin point. x and y 's first value is relative coordinates, the second value is absolutely coordinate. Press ◂4 、6▸、8、2、1、3、7、9 button to move needle to first stitch position (do not beyond drawing range).	Dot :0000/0000 point x: 0.0 0.0 0 y: 0.0 0.0 H 0 stitch 2.5 P 0 800
6) press the button Code to callout the drawing selection .Press the button 8 and button 2 to change selection ,press the button ↵ to confirm .	Line Dot Circle√ Curve Arc Zigzag

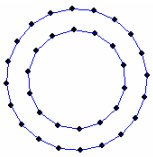
7) If choice is a straight line, the way round, arc or curve, the coil, double or more support line operations, (if is tortuous seam or points to sew, the step operating omit, directly into the next step 8)) 7) if the choice is a straight line, round, drawing arc or curve, the coil, double or more support line operations, (if is tortuous seam or points to sew, the step operating omit, directly into the next step 8))

single 1



Here in painting circle for example, and each choose the practical effect:
If is walk wired, appeared in "wired 1", key, confirmed according to wired go. Law is: the first three points for input, and then get a single round.

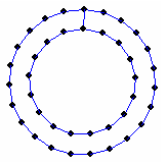
value 2
dir for. Rev. cross
mode in->out out->in
collect side mid



If will be 1, into 2 or other number (line up to number nine), then the screen display for the right, more than double the line or setting mode drawing:

Choose downstream: each circle of the direction of the first round with all the same, every draw a circle to be automatic and cut the line. Law is: the first to continuous input three point, and then get independent several concentric circles.

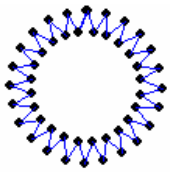
value 2
dir for. Rev. cross
mode in->out out->in
collect side mid



Choose the reverse: two nearby round to the same, corresponding to the middle of the width, automatic insert stitchs, the last round ends, plus a thread. Law is: the first to continuous input three point, and then get connected to several concentric circles.

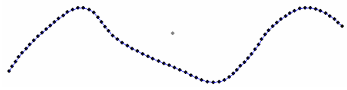
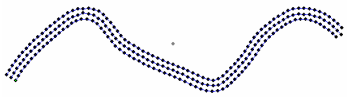
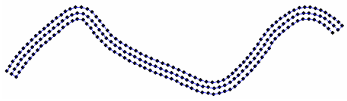
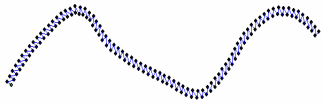
value 2
dir for. Rev. cross
mode in->out out->in
collect side mid

Choose cross: only needs two round, inside the circle at a point on the outside and a point of connection, form 3 Angle stitch.
Cross in point: choose sideline, in which the points were in the sideline, select the centre line, in which the points were in the midline.



EX.
1. Image arc with round are the same
2. Draw a line, two straight lines cross, is in fact the tortuous seam, so choose straight line, no to cross algorithm, directly in the above step 6) choose twists and turns to sew.

8) According to the direction key  for mobile, to the location in key, so the repeated 8) operation, until you paint so far, if want to make up different flowers form, and then to 6) step choice, Law explains: * draw a line to 2 points, draw a circle to 3 points, image, arc to 3 points, painting and stitch to 2 points, painting points to enter a point, painting curves can be put any points * each input a point, to press the ok button, only curve of some or all of the input end points, according to the need according to cut the line, non-stitch feeding, Code or the end, the four key in a key, to begin to calculate the pattern of stitches. If the pattern stitch count, more than the biggest pin number, will cancel the parts. * stitchs of the maximum distance between is 12.7 cm, more than the distance, will be to cut the line. * * range beyond giving prompt information.	Dot:0002/0002 point x:-24.0 50.0 1 y:00 25.0 H 0 stitch:2.5 P 1 800
9) Graphic picture finish, the need to cut the line is key  , no shear line mark, don't cut the line.	
10) Press  (implement/end), the whole process finish.	
11) press  (test), the screen display painting of the pattern and its information. press key  , confirmed the test pattern.	test X 12.7 Y 36.7 RPM 500
12) Hold  (forward) and  (back) keys, to send cloth test, test and correct, and press button  to exit inch test, step on big presser foot and start to testing sewing.	
13) Meet the requirements and press(test)  key, save pattern (also can press [menu] button to enter the main menu to modified), to confirm press button,  not to save press the button  (cleaning) to exit.	ENTER to Save CL to give up

14) press the button ↵ to save the new pattern. Also can use the old pattern number to replace old data.	Save as 033
15) Here in painting curve for example, and show each choose the practical effect: If is sewing in single line, appeared in the line one, press the key ↵ If turn 1 into 2 or other number, we should get into the pattern for painting double line or multiple lines: Setting: stitch for 3 mm, width is 3 mm. A. Like picture show, input 10 points B. press [implement /end] key, turn input points into stitches of the pattern. C. In 3 line, choose downstream, from inside to outside, D. In 3 line, choose the reverse, from the outside to inside E. go cross	a. input 10 points  b. Form a line after press [implement /end] key  c. 3 lines in forward cross 3 dir for. Rev. cross mode in->out out->in collect side mid  d. 3 lines in reverse value 3 Dir For. Rev. cross Mode in->out out->in collect side mid  e. cross value 2 Dir For. Rev. CROSS Mode in->out out->in collect side mid 

16) To draw a line under for example, and show each choose the practical effect:

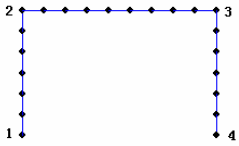
If is sewing single line, appeared in "line 1", press button  ;

If turn 1 into 2 or other number, we should get into the pattern for painting double line or multiple lines:
Setting: stitch for 3 mm, width is 3 mm.

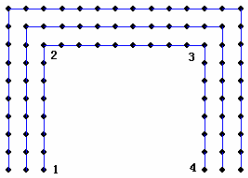
A. according to Numbers order, input four points,
B. add trimming, press[implement /end] button, press test key, get single line design.
C. In 3 line, choose downstream, from inside to outside, after the above a, b two steps, form c picture
D. in 3 line, choose the reverse, from the outside to inside, through the above a, b two steps, form d picture

a. Form 4 points.

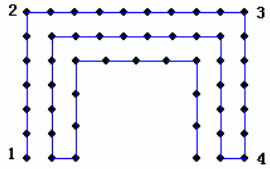
b. Following 4 points above.



c. 3 lines in forward
value 3
Dir For. Rev.
Mode in->out out->in
collect side mid



d. 3 lines in reverse
value 3
Dir For. Rev. cross
Mode in->out out->in
Collect side mid

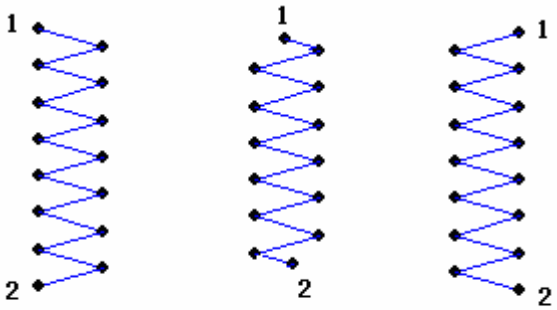


17) zigzag seam

A). again seaming.

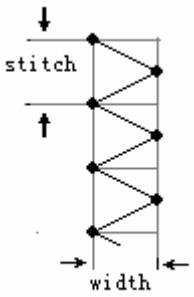
B). set points (0 to 9) in the middle.

C). when have start from left, middle and right three ways. according to the new design step 4) press the[input choose 输入选择] key to choose, which set by system parameters 64.

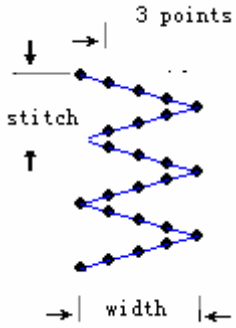


Starting position: Left Middle Right

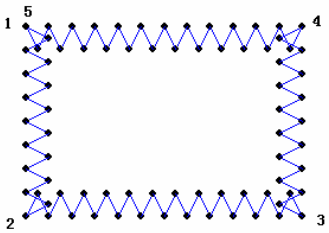
a. 0 points in the middle，zigzag seam



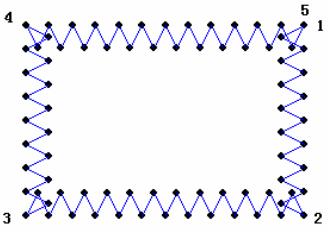
b. 3 points in the middle, max to 9



c. From left , follow 1,2,3,4,5，1&5 are the same point.

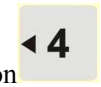
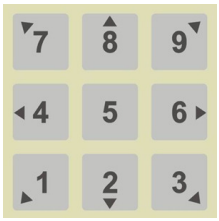


d. From right , follow 1,2,3,4,5，1&5 are the same point.



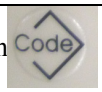
3.2 Modify an existing pattern

all the unfinished design can be modified under the modify mode

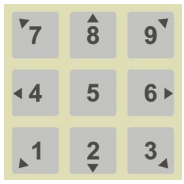
STEP	INTERFACE
1) press the  (menu) keys to go into the main menu interface. Choose [Modify Pattern], press  button to enter.	Edit pattern 中文界面 System parameter Initialization Download Device Maintenance Test Device
2) press the button  to choose [modify pattern],press button  to enter.	New Pattern Modify Pattern Delete Pattern Delete All
3) choose the NO of the pattern you want to modify(press button   to choose) press button  en enter modify mode	pattern 001 CL to exit Enter to choose
4) In the modify mode, press anyone of eight movement key to automatic modify the present stitches' (the default is the first stitch) absolutely coordinate.	
5) press the  (forward) keys and  (back) keys to fast moving to the next stitch or the last stitch, and show the x axis and y axis absolute coordinates. Press anyone of the eight movement key to modify the current stitch's absolutely coordinate	pattern 2 stitch 0001/0199 x:0.0 H0 y:-44.0 800
6) press the[NO.]  key, then press  (move left) and  (move right), can slow down to next stitch or last stitch, press  (confirmed) key to exit the slow choice.	pattern 2 stitch 0002/0199 X:0.0 H0 Y:-54.0 800

3.3 Input select key

STEP	INTERFACE
1) In the modified mode, press  [input select] key, appear the picture right. Explanation: * front condensation :condense stitches before the current stitches . * back condensation: condense stitches after the current stitches. * speed : set the current speed. * intermediate presser: to set the stitchs value in current high of intermediate presser(speed and intermediate presser must be set before this press [common sewing] key to enter setting). * moving stitch: with the current stitch position as the starting, move the stitch position. * remove the stitch: with the current stitch position as the starting, delete designated stitchs. * inserting: from the current stitch , continuous insert multiple stitches, the system automatically according to the movement to calculate the stitchs inserting, or insert a shear line mark or a graphics, different insert type press  [input select] key to choice.	F-Fixed B-Fixed RPM M-foot Modify Delete INS
2) press the button  , the 'insert' option, then press the  [input select], Select "stitch position" 'trimming' and "image" function.	F-Fixed B-Fixed RPM M-foot Modify Delete INS + Trim IMAG
3) Now we have a inserting stitch 032 as an example, and then insert a graphics for example. In the image above ,press button  , increase the number to stitch 032	F-Fixed B-Fixed speed MidFoot modify delete INS+ trim IMAG
4) press  [input choice] key, jump to "trimming", press  (enter) key, then insert a trimming mark after current point.	INS 000 trim IMAG
5) press  [input choice] key, jump to "image", press  (enter) key, then insert new image after current point.	INS 000 trim IMAG

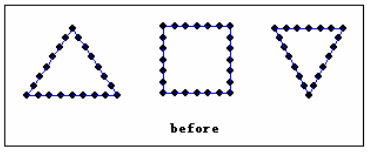
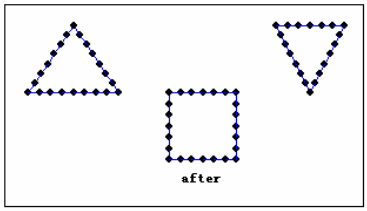
STEP	INTERFACE
6) The interface of inserting new image is similar with new design , only a little different: the absolutely coordinate data of new pattern is (0, 0), and in inserting image interface the value is by the current the insertion point absolutely coordinate of the decision. Other operations have no difference.	Dot:0000/0000 point x: 0.0 0.0 0 y: 0.0 0.0 H 0 stitch 2.5 P 0 800
7) press button  and appear right side picture ,we can add patterns with 'straight line' , 'circle "and" arc line "etc (this step is the same with new patterns ,we can reference to the pattern of steps after 6)	Line √ Dot Circle Curve Arc Zigzag
8) After adding graphics , first press  (implement/ end) key, then press the button  (test),there will be combination graphics of original design and new painting. To save press button  first, then  key, namely save. (as the picture shows)	ENTER to Save CL to give up

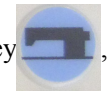
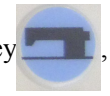
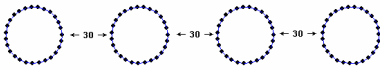
3.4 Pattern input key

STEP	INTERFACE
1) When entering 'modify pattern "interface, such as the picture show.	Pattern 2 Stitch 0001/0199 x:0.0 H0 y:-44.0 800
2) * press key  and key  to modify the X of the current stitch * press key  and key  to modify the Y of the current stitch * press  、  、  、  key to modify the X/Y of the current stitch at the same time .	
3) press the  (forward) key and  (back) key, and	Pattern 2 Stitch 0002/0199

STEP	INTERFACE
move to the next stitch or the last stitch, and display the x axis and y axis absolute coordinates. Then press the above 8 one of the movement key to modify the stitch absolutely coordinate.	x:3.0 H0 y:-44.0 800
4) After complete, press the test button, and display the modified pattern, then press button to save modified pattern data.	

3.5 Section moving, rotation and copy

STEP	INTERFACE
1) In the modify mode interface ,after pressing the (non-stitch feeding) key after, we can make moving, rotate and copy to pattern section.	Area 0000 0.0 0.0 Rotate Rotate Copy
2) press key 2 and key 8, we can undertake 'Section Moving' and 'rotate 90 degree' and 'rotate 180 degree'and copy function setting.	Area length x y Rotate 90 Rotate 180 y Copy value x y
3) 'Area' function setting, is to pattern a section of the moving, it needs access to the function in operation, first is to find the first section position, then give total length of section by press Forward/Back Key automatically, and then presents it coming changes. The absolute value of x is distance moving left and right :left is minus ,right is plus .The absolute value of y is distance moving up and down: up is minus , down is plus.	Area length x y
4) press [input select] key, we can select in 'Section Length', 'x relative value', ' y relative value ', these three items; press key ◂4 and key 6▸, for adjustment to the selected item . For example: the original pattern is composed by three patterns, we need to put in the middle of the pattern (25 stitch dot) moves down 30 mm, gives the command as: Area 25 0 30 and press the ok button, press test	 

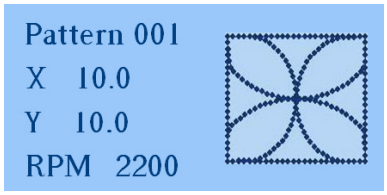
STEP	INTERFACE
key  , pattern display such as picture show.	
5) 'Rotate 90 degree' function setting, is to make a rotation of 90 degree .	Rotate 90
6) 'Rotate 180 degree' function setting, is to make a rotation of 180 degree	Rotate 180
7) 'Copy 'function setting, is to the pattern for overall backup ,forming new pattern to the position with the older pattern depends on the last two parameters : x relative value is the distance of the move left and right : the left is minus, the right is plus, y relative value is the distance of the move up and down : up minus, down is plus.	Copy value x y
8) press[input select] key  , we can select in 'value', 'x relative value' and 'y relative value' these three item ;press Keys  and key  , for the selected item adjustment. For example: design is a ,if we need to copy out three circle, the crosswise interval is 30 mm between them, the lengthways interval is 0, each design automatic trimming at the end. Given command as: Copy 3 30 0 and press the ok button  , press test key  , design display such as picture.	

3.6 Pattern for non-stitch feeding

STEP	INTERFACE
1) Usually, non-stitch feeding go straightly between two point ; But to avoid obstacles, should go for the s curve or other route to make a non-stitch feeding.	
2) Non-stitch feeding design, can be made up when drawing design, also can be in modified mode, through the insert image way, to go into the non-stitch feeding pattern	

3) Non-stitch feeding design and sewing design are draw in the same way, the only difference is in non-stitch feeding design each stitch speed is agreed to 0。	Speed 0 press 0 stitch 2.5 mm width 2.0 mm ZigzagMDot 0 R
4) Before drawing non-stitch feeding design , you should set speed to 0,after finished, then return sewing speed, for drawing the sewing patterns.	
5) Also can be in modified mode ,each stitch speed of non-stitch feeding design set to 0, sewing the design of each with the stitch speed can not be 0 Methods: A) in the modified mode, use forward or backward key, get non-stitch feeding design of the first stitch position pos1 and final stitch position pos2, then move stitch back to the first stitch position, then calculate the length of the non-stitch feeding design as pos2-pos1 + 1; for example is 50. B) press [common sewing] key, appear the information as right side show. change speed from 2700 to 0, and press ok button. C) press [input select] key, appear information right side. Using 2 or 8 key, to move item to speed , by A) turn the value to 50. Press the ok button exit. D) press test key, and then testing seam. E) press test key, save pattern and exit.	Modify speed: Speed 2700 press 0 stitch 2.5 mm width 2.0mm ZigzagMDot 0 L Modify speed IMAG: F-Fixed B-Fixed RPM 50 M-foot Modify Delete INS 000 Trim IMAG

3.7 Inserting stitch quickly

STEP	INTERFACE
press OK button  under the sewing interface as picture show	

STEP	INTERFACE
press Key  to get into the specified number stitch set, input sewing number, confirmation sewing.	Quick Find Stitch Enter stitch number 1～888 0001

3.8 Translation of the pattern/Change pattern center（F1）

STEP	INTERFACE
Get into the interface of modify pattern as shown in picture, press F1, then move the first stitch point of the pattern to designated location and press the ok button, then press the key test, try send cloth test. Note that if not press the ok button, and the operation of other key, system will give some note "movement of the design not confirmed,"	pattern 2 stitch 0002/0199 x:3.0 H0 y:-44.0 800

3.9 Re-Curve（F2）

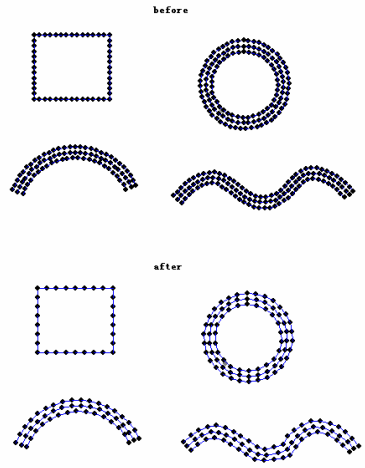
STEP	INTERFACE
1） in the main interface, press F2 to change input method: digital or browse. **2)** in modify pattern mode, press F2. Appear information as shown in the picture	Re-Curve 1/2 L<->R U<->D EnStitch
3) press the ok button to get into the re-curve mode Re-curve fit only for the use of curves algorithm for a design . To develop pattern, set up to draw in single line, test and modify the stitches on the line, then turn to re-curve function, and turn it into a double, multiple or cross line	Re-Curve 1/2
4) If choose single line mode, you can modify stitch length upon the current stitch length. If choose multiple lines, you can draw forward, reverse or cross multiple line according to the current stitch length, width parameters, press [ordinary sewing/普通缝制] key to enter setting about the current stitch length, width parameters .	Speed 800 press 0 stitch 2.5 mm width 2.0mm ZigzagMDot 0 L

3.10 Inputting symmetrical pattern

STEP	INTERFACE
1) in modify pattern mode, press F2. Appear information shown in the picture	Re-Curve 1/2 L<->R U<->D EnStitch
2) press the no. 2 or 8 key, to move the cursor to the left/ right symmetry or up/down symmetry, and press the ok button to enter symmetric seam. For that is about to left and right sides is symmetrical.	Add Curve 1/2 L<->R U<->D EnStitch
3) in left/right symmetry: when value shows 2 means both new design and origin design ;when the number show 1 means new design without origin design 。X relative value show the distance between left and right :left is minus ,right is plus 。Y relative value show the distance between up and down :up is minus ,down is plus .	L<->R value x y
4) if set as shown in the picture, it means draw new left/right symmetric design in the origin position.	L<->R 1 0.0 0.0
5) in up/down symmetry ,X relative value show the distance between left and right: left is minus, right is plus ,Y relative value show the distance between up and down :up is minus ,down is plus .when Value shows 2 means both new design and origin design; when the Value show 1 means new design without origin design.	U<->D value x y
6) if set as shown in the picture, it means draw new up/down symmetric design in the origin position.	U<->D 1 0.0 0.0

3.11 Modification of the feed pitch

STEP	INTERFACE
1) in pattern changes mode, press F2. Appear information shown in the picture	Re-Curve 1/2 L<->R U<->D EnStitch
2) press the no. 2 or 8 key, to move the cursor to stitch length change, and press the ok button to enter to operation.	En-stitch 2.0 mm

STEP	INTERFACE
3) press 4 key or 6 key to change the value of stitch length. After the completion of the modified and press the ok button.	En-stitch 3.5 mm
4) picture give out the total stitch value	pattern 1 stitch 0001/0199 x: 3.0 H0 y: -4.5 800
5) press test key to display the pattern which have stitch length changed. whether in a straight line, round, arc or curve, the pattern will be draw according to the new stitch length. **6)** to try send cloth test. 7) press test key save modification of the pattern, and exit the modified mode. Note: modify original stitch length will not change the size of the but decrease original graphics stitch value	

3.12 Drawing repeat design

STEP	INTERFACE
1) repeat sewing means a straight line, a round, a arc or a curve need to repeat sewing many times in a place .	
2) in the new pattern, after the choosing the algorithm, appear single line 1, we can change 1 into number of repeat sewing. And according to forward way, reverse way, to set sewing direction.	
3) press [common sewing] key, change width into 0.1, the system will take value as repeat sewing	Speed 800 press 0 stitch 2.5 mm width 0.1 mm ZigzagMDot 0 个
4) after setting as 2)-3) two steps , the drawing design will be repeat sewing design	

3.13 Deleting pattern

STEP	INTERFACE
* press [menu] key to enter the main menu, Choose [Edit pattern],Enter [delete pattern] menu.	Edit pattern 中文界面 System parameter Initialization Download Device Maintenance Test Device
(1) choose the name of the pattern to delete and press the ok button (2) follow delete operation, system will report operation results. * deleting single or multiple pattern is in the same way	New Pattern Modify Pattern Delete Pattern Delete All

4 Download patterns from PC

The system can store up to 120 patterns.These patterns could be created from a computer and be downloaded to the control box. The pattern editor software is called <Style Edit>, we could offer users this software, which can be used in PC with windows' OS.

Download pattern instruction:

1) After user connect the control box to a computer correctly by a RS232 cable, users can right click on the "my computer" on the desk. If your notebook do not have this kind of COM, you need to buy a translator to add this COM.
2) Be care about when in different PC operation system , the using COM number could be different. Users should make sure to set a correct number in the <style edit> software, otherwise the download can not work.
3) → "property" → "hardware" → "device manager" ,to check out if you have "COM(COM or LPT)" item in the interface of "device manager". If have, double click on the item and you will see the connecting COM (below example show the COM number is 4), then in the software "set COM parameter" → "COM" input 4 to finish. If you can not see the COM in your device manager, and your connection have no problem, it means you computer can not connect with the control box and can not download patterns, in this condition , please call the local professor to help.

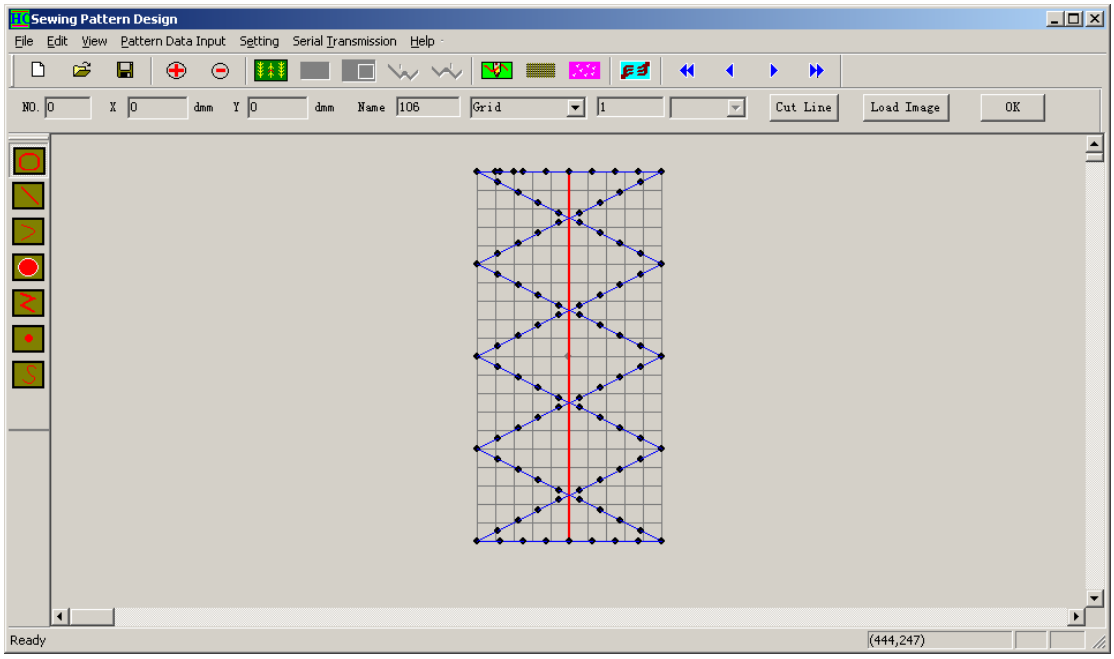
4) The system can store 120 patterns, and each pattern can have 3000 stitches at most.

The operation steps of download pattern from computer

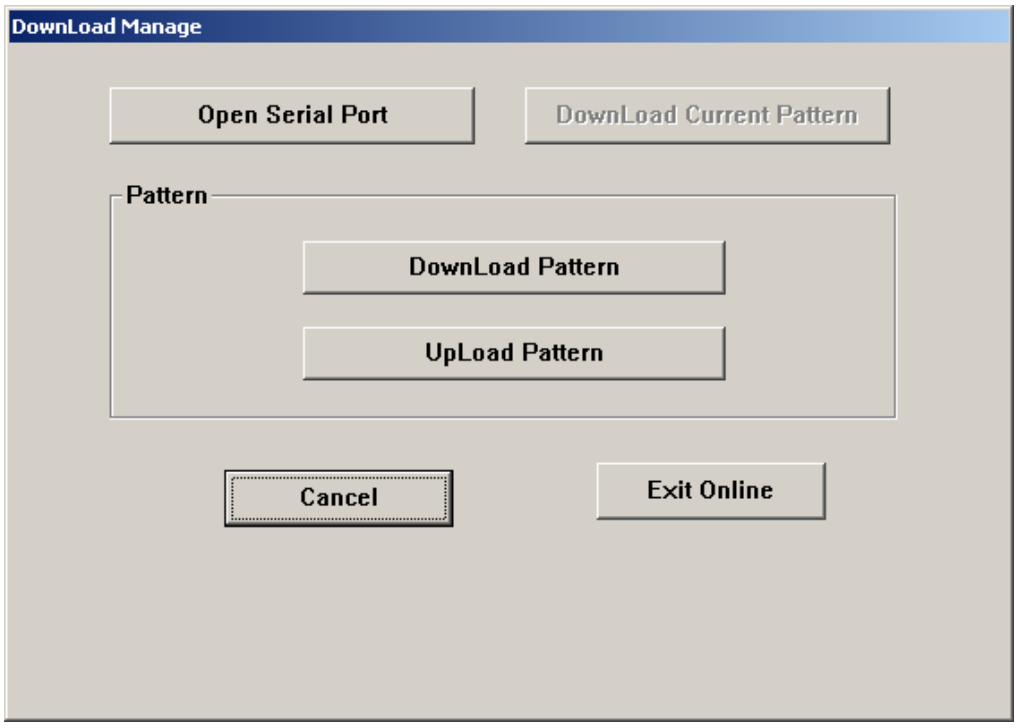
1) First turn off power, then connect the computer by the download lines (there is a matching port in the computer), then turn on the power to enter the main interface;
2) Press MENU button under main interface to enter the main menu;
3) Move cursor to “download pattern” item and press the confirm button;
4) The screen show “download pattern exit with “Escape” key. This command means the system is ready to receive data from computer ,and waiting computer operation command;
5) Open the software “StyleEdit” on the computer to enter pattern interface.
6) Click on the “COM transmission” ,and choose to click on “set COM”, then a dialog “set COM parameter” show up, input the correct number, then confirm to exit. Then Click on “download pattern” under “COM transmission”, then dialog “download manager” show up, then click on “open COM” to turn it into “close COM”. (if a warning show “open COM fail”, exit and change the number) then press the “open” under the “download pattern” and choose the patterns wanted and begin the download.
7) After finish download, a tips “download pattern success”, then press “exit connection” ,confirm key ”exit download”, after a sound from the operation box ,the system will return main operation interface. If press the "Escape" key you can cut off the connection with PC in the midway.

Main operations about pattern transmission with computer:

- Download pattern
- Upload pattern
- Download current pattern



Main interface of pattern edit tool



Operation interface of connection to control box

5 Maintainance of IO Devices

5.1 Input devices check

STEP	INTERFACE
* press MENU， enter into main menu to select press button 8 and 2 ， select “Device maintain” *press button ↵ to enter	Edit pattern 中文界面 System parameter Initialization Download Device Maintenance Test Device
press button ↵ ， enter into input Check（to allocate the problem when the system send alarming signal ， then clear the trouble and return to normal）	Input Check Output Check Origin point adjust
every seconds ， refresh every item of input detection automatically ， operate X ,Y and Servo Motor axis（pull up the motor wire before you do the operation） and the switch . notice：the normal phenomenon is as follows： *when XY axis sensor is covered up ， x P. or y P. is L,L stands for low level ， H stands for high level。 *when Servo Motor axis rotates one round ， Up P. will switch from “on” to “off” . *when Servo Motor axis rotates normally， Servo Motor encoder will change from 0 to 1440 or from 0 to 9999 *when press big pressing box drops , B-foot shows “on” ， when loosen it，B-foot shows “off” 。 *when press Pedal START ，“start” shows “on” ，loosening it shows “off” 。 *when press “ temporarily stopping“ switch ，”Em.s” shows “on” ， loosening it shows “off”	x P. H B-Foot off y P. L start off Up P. off Panel EnCoder 230 Em.S off

5.2 Output devices check

STEP	INTERFACE

STEP	INTERFACE
*press button 8 and 2 to select different output items press button 4 and 6 to test the select *the seven items listed up“ output check” ， when pressing 4 （move left）and 6 （move right），the motor will move to the opposite direction ， electromagnet or electric valve will deliver the sound of “absorb” and “release”	x motor Trim y motor Nipper B-Foot sweep MidFoot

notice：

the purpose of input and output detection：

1，to search and locate the problem of system equipment

2，to maintain the equipment work safely

6 Appendix

Appendix 1. System parameter list

NUMBER	FUNCTION	RANGE	initialization value	UNIT	REMARK
P-01	Max speed	400～ 800	800	rpm	RELATE TO MACHINE
P-02	Speed of 1st stitch	50～ 400	300	rpm	
P-03	Speed of 2nd stitch	400～ 600	600	rpm	
P-04	Speed of 3rd stitch	600～ 800	800	rpm	
P-05	X Zero Offset	-80 ～ 80	0	mm	RELATE TO MACHINE
P-06	Y Zero Offset	-80 ～ 80	0	mm	RELATE TO MACHINE
P-07	trimming speed	200 ～ 450	200	rpm	
P-08	trimming angle	0 ～ 180	110	°	
P-09	loose ends angle	0 ～ 360	160	°	
P-10	Close trim angle	0 ～ 360	360	°	
P-11	pwm period	1 ～ 9999	1000		
P-12	PWM for trimming electromagnet	1 ～ PWM	300		
P-13	PWM for scanning electromagnet	1 ～ PWM	300		
P-14	PWM for loosing electromagnet	1 ～ PWM	300		
P-15	PWM time	20～3000	300		
P-16	Test pause	0 ～ 60	2	s	
P-17	Enable Servo Motor	0- forbidden, 1-enable	1		
P-18	X sensor polarity	0-normal, 1- Negation	0		
P-19	Y Sensor polarity	0-normal, 1- Negation	0		
P-20	cut after temporarily stopping	1 enable, 0 forbidden	1		
P-21	Needle Up Position				Relate to motor type
P-22	Current coding		0~4319		Read only
P-23	Forbidden 0/enable 1turn foot	0 ～ 1	0		
P-24	Bottom line counting	0 DEC , 1 INC	0		
P-25	Production Display	0 forbidden ,	1		

		1 enable			
P-26	Product initialization value	0 ～ 9999999	0		
P-27	F1shortcut function	0 ～ 10	1		
P-28	F2shortcut function	1 ～ 6	2		round
P-29	Enable trim	0 forbidden , 1 enable	1		
P-30	Test mode	1 ～ 2	1		1:test all 2：test main shaft
P-31	Needle Up Pos test	0～100	0		
P-32	Set origin point	1 ～ 3	1		
P-33	0 Sewing/1 Test	0 ～ 1	0		
P-34	x of 2nd origin			mm	
P-35	y of 2nd origin			mm	
P-36	Low speed test	-30 ～ 30	0		
P-37	Voltage test switch	forbidden 0 ～ enable 1	0		
P-38	lower limit of voltage warning	140 ～ 200	168	v	
P-39	Upper limit of voltage warning	240 ～ 300	265	v	
P-40	Current voltage	168 ～ 265	220	v	
P-41	Machine type				
P-42	USB operation	0 forbidden ～ 1 enable	0		
P-43	Re-stitch value	0 ～ 300	0		Only for closed figure
P-44	Condensation stitch end	0 forbidden ～ 1 enable	0		
P-45	Presser box signal value				
P-46	Synchronization time test	(6060)26 (8686)0			
P-47	Zero speed	1-4	3		1 slow，4 fast
P-48	Simulate speed	1-4	3		1 slow，4 fast
P-49	Sewing speed	1-5	3		P-57= 0，fastest
P-50	Lift foot in sew end	0 forbidden ～ 1 enable	1		
P-51	Pause after trim	0 forbidden ～ 1 enable	0		Pause after trim，step on the pedal to sew
P-52	winding speed	400 ～ 600	400	rpm	
P-53	Reserved	0 ～ 2	0		
P-54	Max Sewing speed	50 – 800	800		RELATE TO MACHINE Password needed to

					modify
P-55	Clamp length offset	-30 ～ 30	0	mm	
P-56	Clamp width offset	-30 ～ 30	0	mm	
P-57	Drawing point coordinate	0 forbidden ～ 1 enable	1		Set to 0 to speed up drawing
P-58	sweeping open Angle	90 ～ 360	80	°	
P-59	sweeping close Angle	180 ～ 360	360	°	
P-60	Lift box after trim	0 forbidden ～ 1 enable	0		
P-61	Zero time	10 ～ 2000	150	ms	
P-62	Sweeping time	50 ～ 2000	100	ms	
P-63	Lift mid-presser foot time	50 ～ 2000	100	ms	
P-64	Zigzag starting Position	left，right	left		
P-65	Cloth type	1 thin 2 thick 3 extremely thick	1		
P-66	Sweeping switch	1 on 0 off	1		
P-67	Non-stitch feeding time	10 ～ 200	20	ms	
P-68	Main shaft launch time	40 ～ 1000	50	ms	
P-69	Loose when threading	0open 1close	0		
P-70	Mid-foot max height	0~24	24	mm	
P-71	Pause pos after trim	0 behind 1 front	0		
P-72	Servo motor type		1		
p-73	Panel Version		1015		
p-74	Lift mid-foot when modifying		1		
p-75	Step motor type	6060,8686			
p-76	Input mode:0/1	0 number、 1 scanning	1		
p-77	Mid-foot motor direction of rotation		0		
p-78	Mid-foot motor drive ratio test		0		
p-79	loose line Switch	0-1	1		
p-80	X drive ratio	（8686）763；（6060）1125			
P-81	Y drive ratio	（8686）763；（6060）1125			
P-82	X Range(mm)	130;300;500			

P-83	Y Range(mm)	60;200;110			
P-84	State of left clamp	0-1	0		
P-85	State of right clamp	0-1	0		
P-86	Direction of rotation of shaft motor	0~1	0		
P-87	Servo Motor downtime		20		
P-88	Time of overturn		100		
P-89	Direction of overturn		0		
P-90	Max feed pitch		250		
P-91	Initial Speed adjust for X axis	（6060）165；（8686）110			
P-92	Target Speed adjust for X axis	（6060）180；（8686）110			
P-93	Pausement when start empty moving		0		
P-94	Press foot moving when threading		0		
P-95	Initial Speed adjust for Y axis	（6060）165；（8686）110			
P-96	Target Speed adjust for Y axis	（6060）180；（8686）110			
P-97	Yt	（6060）50；（8686）100			
P-98	Xt	（6060）50；（8686）100			

Appendix 2. Trouble Indication Table

Warning Display	Fault Cause	Troubleshooting
System locking	Emergency stop switch pressed	Check the emergency stop switch and connection
Main motor overload	Main motor blocked	Check the mechanical load of shaft motor
	Low AC voltage	Check the AC power voltage
	Encoder failure	Check the shaft motor/encoder connection
X goto zero fault	X sensor failure	Check the X sensor and connection; Check if the X sensor is working properly by menu "Input devices check"
	X motor or driver failure	Check X motor and driver connection; Check if the X motor is working properly by menu "Output devices check"
Y goto zero fault	Y sensor failure	Check the Y sensor and connection; Check if the Y sensor is working properly by menu "Input devices check"
	Y motor or driver failure	Check Y motor and driver connection; Check if the Y motor is working properly by menu "Output devices check"
Buzzer warning	The bottom line counter warning	turn off or reset bottom line handover
X goto zero fault(while X sensor and X motor work properly)	X sensor polarity error	Check and modify X sensor polarity via system parameter setting.
Y goto zero fault(while Y sensor and Y motor work properly)	Y sensor polarity error	Check and modify Y sensor polarity via system parameter setting.