

HIKARI® 富山
高端电脑包缝机开创者与领导者
THE CREATOR AND LEADER OF HIGH-END COMPUTERIZED OVERLOCK MACHINE

HK2900 系 COMPUTER BAR TACKING
列 BUTTONING MACHINE
电脑套结、钉扣机

使用说明书

INSTRUCTION MANUAL BOOK

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此说明书仅作参考。如有更改恕不另作通知。
This manual is only for reference.
IF there is any modification, we apologize for the changing hence caused.



通过 ISO9001:2008
质量管理体系认证

安全注意事项

1. 安全操作的标志及含义

本使用说明书及产品所使用的安全标志是为了让您正确安全的使用产品，防止您及其他人受到伤害。标志的图案和含义如下：

 危险	如果忽视此标记而进行错误的操作，会导致人员的重伤或死亡。
 注意	如果忽视此标记而进行错误的操作，会导致人员的受伤和设备的损坏。
	该符号表示“应注意事项”。三角中的图案表示必须要注意的内容。（例如左边的图案表示：“当心受伤”）
	该符号表示“禁止”
	该符号表示“必须”。圆圈中的图案表示必须要做的内容。（例如左边的图案表示“必须接地”）

2. 安全注意事项

 危险	
	打开控制箱时，先关闭电源开关并将电源插头从插座上拔下后，等待至少 5 分钟后，再打开控制箱盖。触摸带有高电压的区域会造成人员受伤。
 注意	
使用环境	
	应避免在强电气干扰源（如高频焊机）的附近使用本缝纫机。 强电气干扰源可能会影响缝纫机的正常操作。
	电源电压的波动应该在额定电压的±20%以内的环境下使用。 电压大幅度的波动会影响缝纫机的正常操作，需配备稳压器。
	环境温度应在 5℃~35℃ 的范围内使用。 低温或高温会影响缝纫机的正常操作。
	相对湿度应在 45%~85% 的范围内，并且设备内不会形成结露的环境下使用。 干燥、潮湿或结露的环境会影响缝纫机的正确操作。
	压缩空气的供气量应大于缝纫机所要求的总耗气量。压缩空气的供气量不足会导致缝纫机的动作不正常。
	万一发生雷电暴风雨时，关闭电源开关，并将电源插头从插座上拔下。雷电可能会影响缝纫机的正确操作。
安装	
	请让受过培训的技术人员来安装缝纫机。
	安装完成前，请不要连接电源。 如果误按启动开关，缝纫机动作会导致受伤。
	缝纫机头倒下或竖起时，请用双手操作。不要用力压缝纫机。 如缝纫机失去平衡，缝纫机滑落到地上会造成受伤或机器损坏。

	必须接地。 接驳地线不牢固，是造成触电或误动作的原因。
	所有电缆应固定在离活动部件至少 25mm 以外处。另外，不要过度弯曲或用卡钉固定得过紧。会引起火灾或触电的危险。
	请在机头上安装安全罩壳。
缝纫	
	本缝纫机仅限于接受过安全操作培训的人员使用。
	本缝纫机不能用于除缝纫外的任何用途。
	使用缝纫机时必须戴上保护眼镜。 如果不戴保护眼镜，断针时机针折断部分可能会弹入眼睛造成伤害。
	发生下列情况时，请立即切断电源。否则误按下启动开关时，会导致受伤。 1.机针穿线时 2.更换机针时 3.缝纫机不使用或人离开缝纫机时
	缝纫过程中，不要触摸任何运动部件或将物件靠在运动部件上，因为这会导致人员受伤或缝纫机损坏。
	如果缝纫机操作中发生误动作，或听到异常的噪声或闻到异常的气味，应立即切断电源。然后请与购买商店或受过培训的技术人员联系。
	如果缝纫机出现故障，请与购买商店或受过培训的技术人员联系。
维护和检查	
	只有经过训练的技术人员才能进行缝纫机的维修、保养和检查。
	与电气有关的维修、保养和检查请及时与电控厂家的专业人员进行联系。
	发生下列情况时，请关闭电源并拔下电源插头。否则误按启动开关时，会导致受伤。 1. 检查、调整和维修 2. 更换弯针、切刀等易损零部件
	在检查、调整和修理任何使用气动设备之前，请先断开气源，并等压力表指针下降到“0”为止。
	在必须接上电源开关和气源开关进行调整时，务必十分小心遵守所有的安全注意事项。
	未经授权而对缝纫机进行改装而引起的缝纫机损坏不在保修范围内。

目 录

I . HK-2900SS 高速电子加固缝纫机的说明.....	5
[1] 规格	5
[2] 各部的名称	6
1. 主机的名称.....	6
2. 操作箱开关的名称和说明.....	7
3. 主轴马达的安装.....	8
4. 调试模式	9
[3] 安装	18
1. 电气箱的安装.....	18
2. 连结杆的安装方法.....	18
3. 机头部支杆的安装.....	18
4. 电源开关的安装.....	19
5. 缝纫机机头的安装.....	19
6. 废油槽和机头支撑橡胶的安装.....	20
7. 安全开关.....	20
8. 缝纫机的放倒方法.....	21
9. 操作盘的安装.....	21
10. 电缆线的链接.....	22
11. 马达护罩的安装.....	23
12. 电线的处理.....	23
13. 眼睛保护罩的安装.....	24
14. 线架的安装.....	24
[4] 缝纫机的准备.....	25
1. 加油方法.....	25
2. 机针的安装方法.....	25
3. 上线的穿线方法.....	26
4. 梭壳的取下插入.....	26
5. 旋梭的插入方法.....	27
6. 线张力的调整方法.....	27
7. 挑线弹簧的调节.....	27
[5] 缝纫机的操作（基础篇）	28
1. 项目数据的设定.....	28
2. 图案形状的确定.....	30
3. 缝制.....	30
4. 变更为其它花样.....	31
5. 绕线.....	31
6. 底线计数器.....	31
7. 暂停.....	32
8. 图案线张力的设定.....	33
[6] 缝纫机的操作（应用篇）	34
1. 使用花样键（      ）进行缝制	34
2. 使用组合功能的缝制	36

[7] 存储器开关的使用方法	39
1. 用户参数设置的具体操作	39
2. 用户参数设置举例	39
3. 用户参数设置表	42
[8] 服务参数设置	45
1. 服务参数的开启和变更	45
2. 服务参数列表	45
3. 恢复出厂默认设置	47
[9] 维修	49
1. 针杆高度	49
2. 机针与旋梭	49
3. 压脚的高度	50
4. 移动刀和固定刀	51
5. 挑线杆的调整	51
6. 废油的处理	52
7. 旋梭的加油量	52
8. 向指定部位补充润滑	53
9. 套结标准花样一览表	54
10. 缝制时的故障、原因和对策	58
II. HK2903SS-301 高速电子平缝钉扣缝纫机的说明	60
1. 规格	60
2. 安装和运转准备	60
3. 机针和机线	60
4. 钉扣功能设定	61
5. 钉扣标准花样一览表	61
6. 爪脚张开拨杆的调整	63
7. 钮扣爪脚上升量的调整	64
8. 压脚压力的调整	64
9. 钮扣挑起杆的安装（选购品）	65
10. 按钮扣尺寸分类的機種	65
III . 通过 U 盘升级花样	66
花样升级操作	66
IV. 附录 1	70
异常信息一览表	70
V. 机台图纸	75

I .HK2900SS 高速电子加固缝纫机的说明

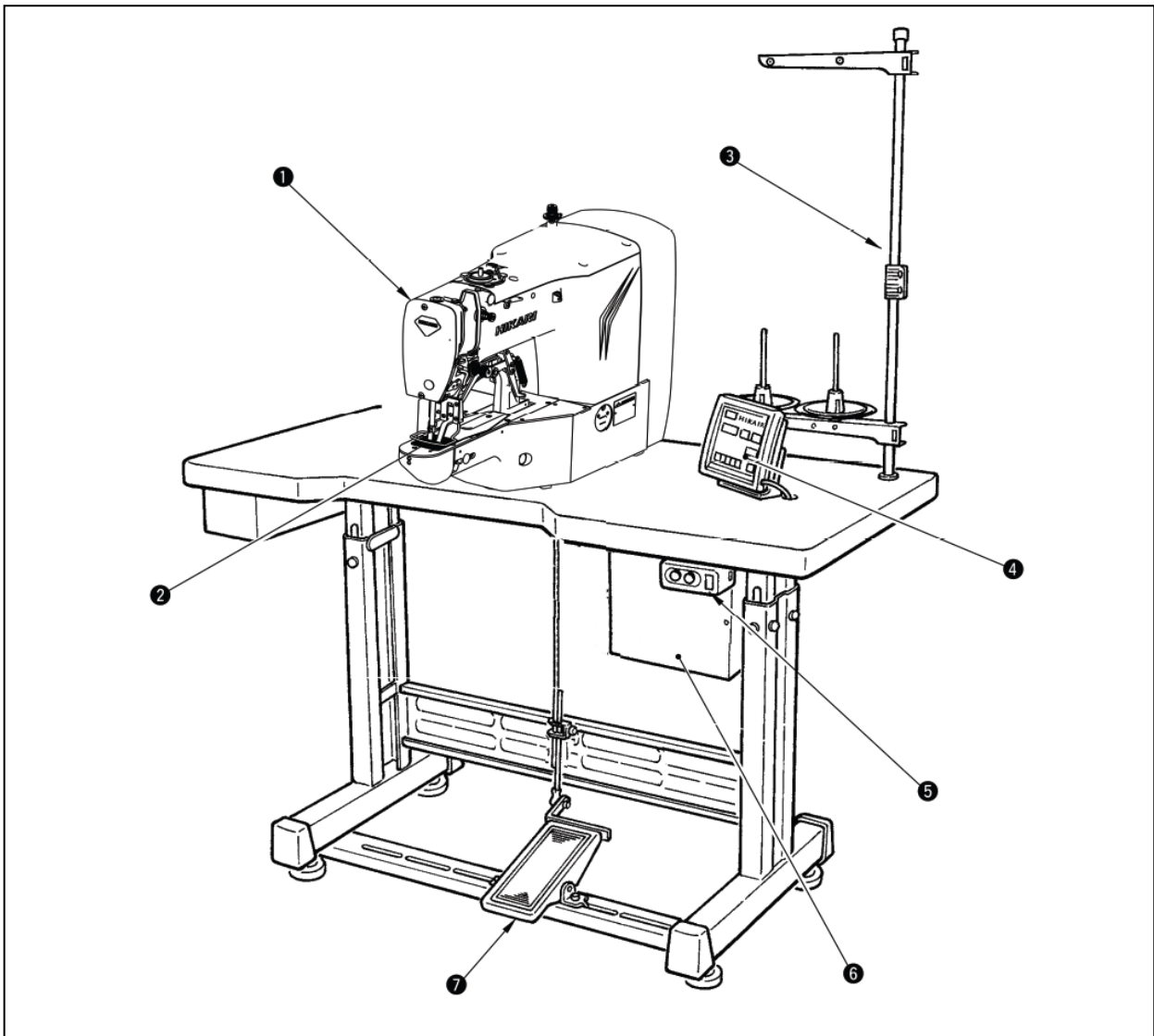
[1] 规格

No.	机 型 项 目	HK2900 系列
1	用途	套结、钉扣
2	缝制范围	X(左右) 方向 40mm × Y(前后) 方向 30mm
3	最高缝纫速度	最高 3000rpm 、钉扣 2700rpm
4	缝迹长度	0.1mm – 10.0mm (0.1mm 单位)
5	送布	间接送布(脉冲马达 2 轴驱动方式)
6	针杆行程	41.2mm
7	机针	DP × 5 #14 (DP×5 #11(F,M), (DP×17#21 厚料))
8	抬压脚方式	脉冲马达
9	压脚上升量	标准 14mm, 最大 17mm(反转抬针时)
10	标准花样数	50 个
11	拨线方式	脉冲马达抬压脚连动
12	面线张力	夹线器
13	旋梭	半旋转标准旋梭或半旋转倍旋梭
14	加油方式	旋转部: 微量加油
15	机油	缝纫机油
16	润滑脂	缝纫机用润滑脂
17	数据记忆	Flash Memory
18	放大缩小功能	X 方向、Y 方向各自独立缩放 20%~200% (1%单位)
19	放大缩小方式	线迹长度增减方式
20	缝制速度限制	400-3000rpm(100rpm 单位)
21	花样选择功能	花样号码指定方式(1-200)
22	底线记数	上转/下转方式(0 – 9999)
23	机械马达	500W 小型 AC 伺服马达(直接驱动方式)
24	外形尺寸	263mm×153mm×212mm
25	控制箱重量	约为 10 Kg
26	消耗电力	600W
27	使用温度范围	5℃ - 35℃
28	使用湿度范围	35% - 85% (无结露)
29	电源电压	单相 AC 220V ± 10%; 50-60Hz

最高缝制速度，请根据缝制条件降低速度使用。

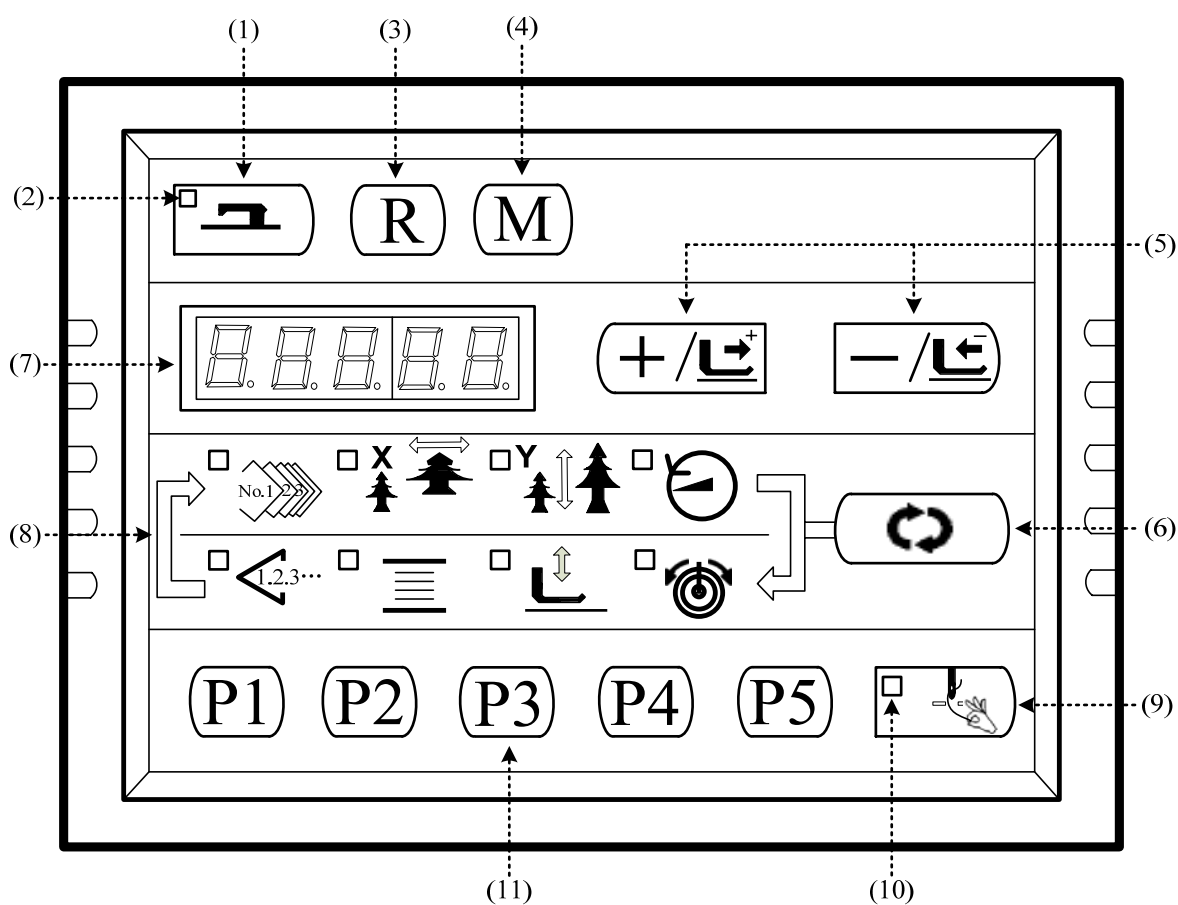
[2] 各部的名称

1.主机的名称



- ① 缝纫机机头
- ② 布压脚
- ③ 线架装置
- ④ 操作盘
- ⑤ 电源开关
- ⑥ 控制箱
- ⑦ 踏板开关

2.操作箱开关的名称和说明



(1) 准备键

控制面板的设定编程状态和缝纫机实际动作的缝制状态的变换键。

(2) 缝制 LED

设定编程状态时为灭灯，缝制状态时为亮灯。通过准备键来切换。

(3) 复位键

解除异常、将设定值返回到初期值时使用。

(4) 方式键

设置参数或存储花样的开关键。

(5) +/前进传送键和-/后退传送键

适用于花样号、扩大缩小率的变更、前进/后退送布。

(6) 选择键

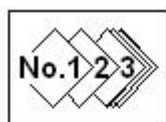
选择设定的项目。被选择项目的项目选择 LED 和设定值被显示。

(7) 数据显示 LED

显示花样号、扩大缩小率等被选择项目的设定值。

(8) 项目选择 LED

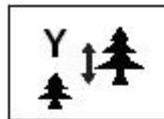
被选择的项目的 LED 亮灯。



图案No.



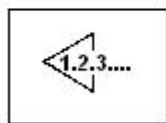
X扩大缩小率



Y扩大缩小率



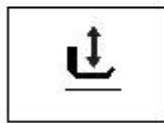
最高速度限制



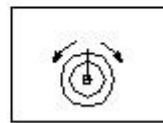
缝制计数器



卷线



压脚下降



线张力

(9) 抓线 ON/OFF 键

可以选择抓线功能的有效/无效。有效时，抓线显示 LED 亮灯。

(10) 抓线显示 LED

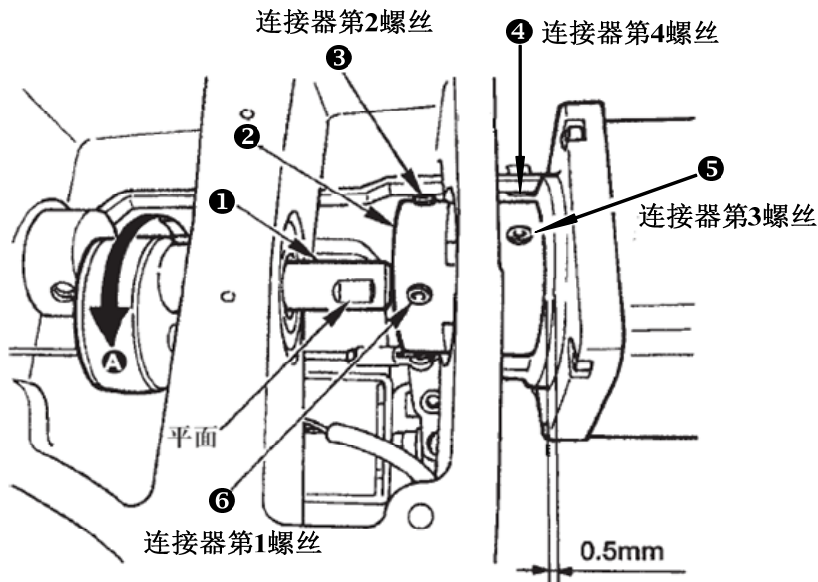
LED 灯亮起时，进行抓线动作。

(11) P 花样设置键

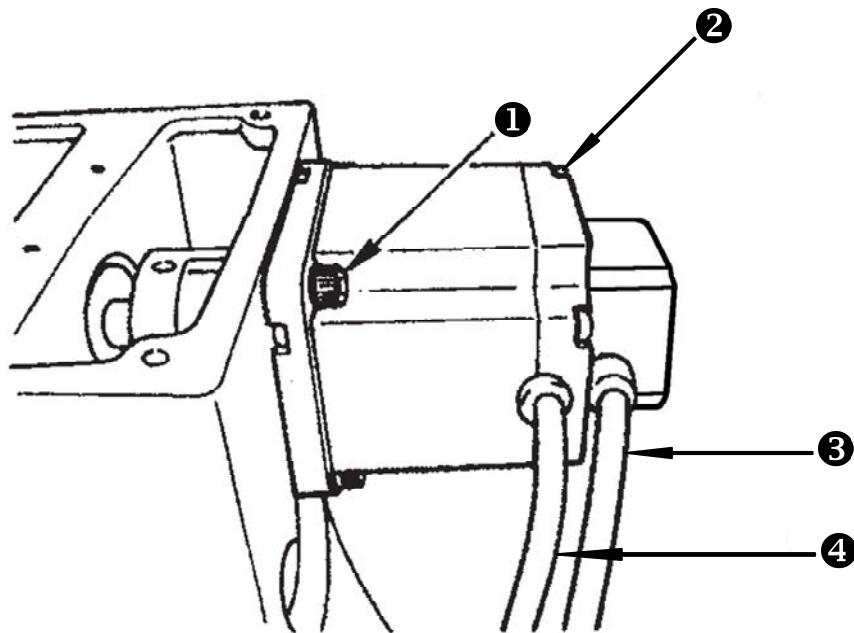
设置 P 花样并将其存储，存储后的 P 花样通过按此键就可立即进行缝制。

3. 主轴马达的安装

主轴马达通过连接器②连接到缝纫机的上轴①上，马达连接器由 4 个螺丝分别固定到缝纫机上轴及马达主轴上。首先，将连接器第 1 螺丝⑥垂直于缝纫机上轴平面拧紧，然后拧紧连接器第 2 螺丝③；连接器第 3 螺丝⑤垂直于马达主轴平面拧紧，然后拧紧连接器第 4 螺丝④，这样完成了主轴马达与缝纫机上轴的连接。安装图示如下：



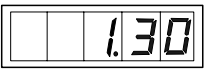
主轴马达的外部线缆朝向（从缝纫机后部向前部看去，电机线缆朝向观察者的左手边），安装位置如下图所示：



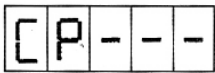
- ❶为主轴马达安装固定螺丝，共有 4 个；❷为主轴马达后壳固定螺丝，共 4 个；
❸为主轴马达编码器信号线；❹为主轴马达电源线。

4. 调试模式

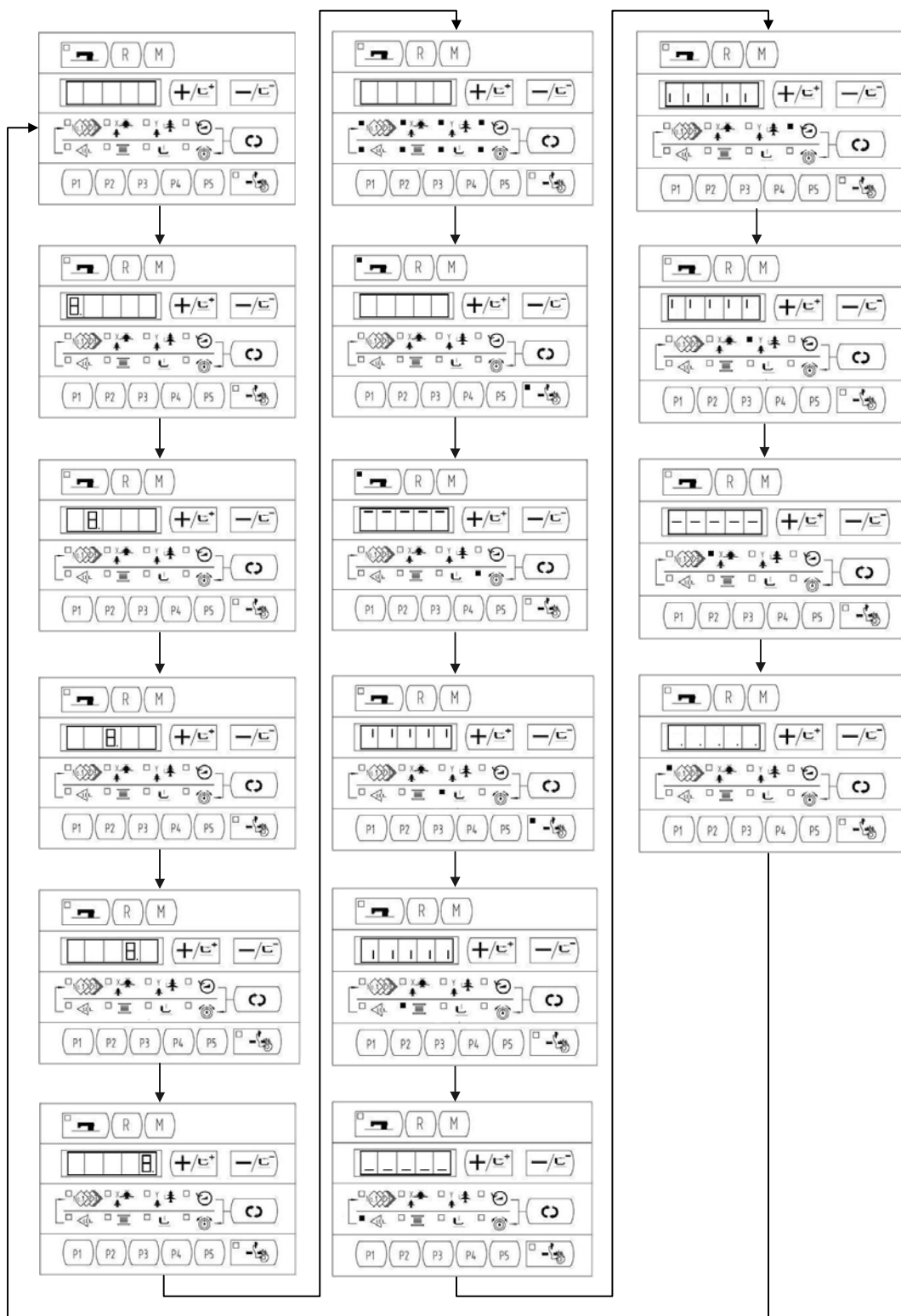
通过启动该模式，可进行保养检查操作。

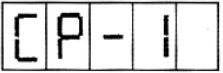
- 1) 在缝制灯熄灭的状态下，按 **(M)** 键，显示 ，然后同时 **(P1)** **(P3)** **(P5)** 按下键，听到蜂鸣器响声后，在记忆开关的客户等级设定模式下可以进入调试模式。

(注意) 不同时按 **(P1)** **(P3)** **(P5)** 的话，就不能进入调试模式。

- 2) 按一次  键进入调试模式，屏幕显示 “CP---” 如右图所示：  ；

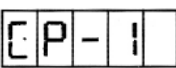
- 3) 按  键，开始进行显示输出测试。显示输出测试将循环检测每个 LED 显示模块及 LED 指示灯的亮灭状态，具体流程如下图所示：



4) 再次按下  键，结束显示输出测试，屏幕显示“CP-1”，如右图所示：。

注：只有在显示输出测试结束之后才能进行其他功能的测试选择。

5) 按 、 键，可以变更功能测试程序号，每个序号代表的功能如下表所示：

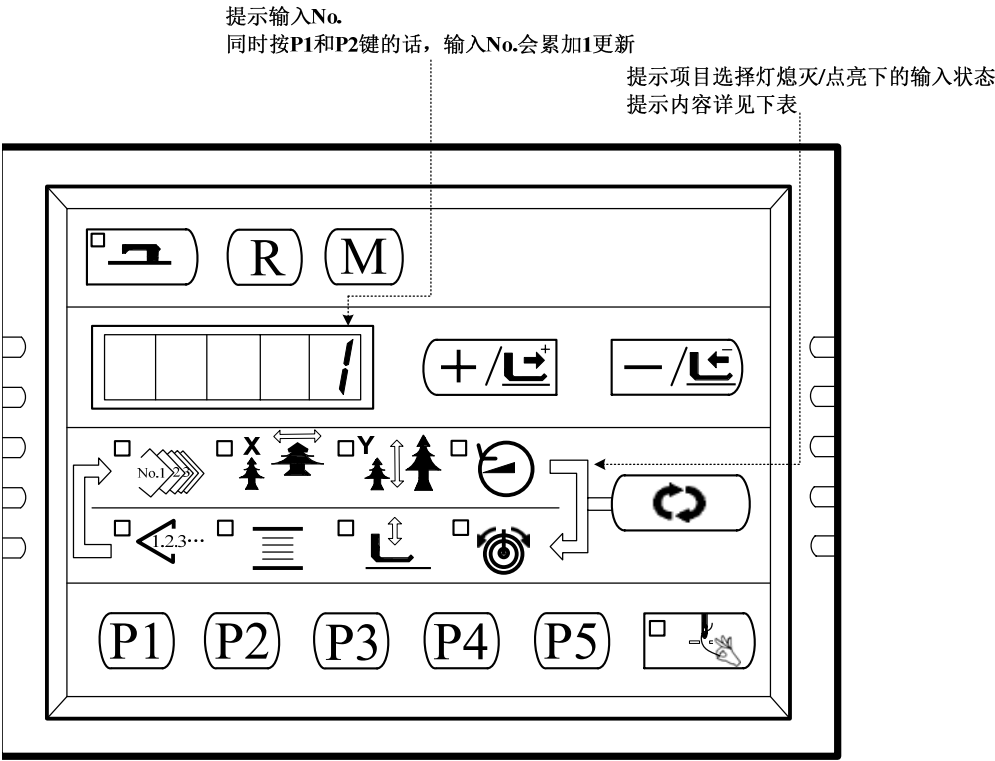
功能测试序号	功能	内容
	输入信号检验	以灯亮提示开关，传感器输入的状态。

	XY 马达/原点传感器检验	显示 X/Y 马达寸动操作，原点检索操作以及 X/Y 原点传感器的状态
	连续运转	在设定连续运转条件后，移向连续运转模式。
	主马达旋转数检验	设定旋转数、机器启动、显示实测旋转数。
	_____	_____
	压脚、切线马达/原点传感器检验	显示压脚、切线马达寸动操作，原点检索操作，以及压脚原点/压脚传感器的状态。
	抓线马达/原点传感器检验	显示抓线马达的寸动操作，原点检索操作，以及抓线原点/抓线传感器的状态。
	线张力电磁铁检测	检测线张力电磁铁是否可以正常吸合，夹线动作是否正常。
	步进闭环误差检测	检测并显示步进闭环电机动作误差

- 6) 按住 键，进入功能测试。
- 7) 各功能测试如果按 键的话，就会终止测试，返回到 5) 的状态； 但是，如果使用过连续模式 1 次的话，就不能解除了，只有关闭电源才能结束。

1. CP-1（输入信号检验）

能够检验操作控制盘键、踏板开关、各种传感器等的输入状态。在屏幕显示“CP-1”时，按 键，进入 CP-1，屏幕显示“1”，即第 1 项测试内容。



每个输入 No.的显示内容

输入 No.	花样 NO. 灯	X 扩大灯	Y 扩大灯	速度灯	计数灯	卷线灯	压脚下降灯	线张力灯
1	/	/	 键	 键	 键	 键	 键	 键
2	/	/		 键	 键	 键	 键	 键
3	/	/	/	/	/	/	/	/
4	踏板 0 档	踏板 1 档	踏板 2 档	/	/	/	/	/
5	压脚马达 原点传感器	Y 马达原点 传感器	X 马达原点 传感器	抓线马达 原点传感器	切线传感 器	抓线传感 器	/	/
6	主轴角度显示							
7	主轴马达 Z 相	/	/	/	/	/	/	/
8	/	/	/	/	/	机头翻起 开关	/	/

2.CP-2（检验 X、Y 马达/原点传感器）

显示 XY 马达的寸动操作，原点检索操作。

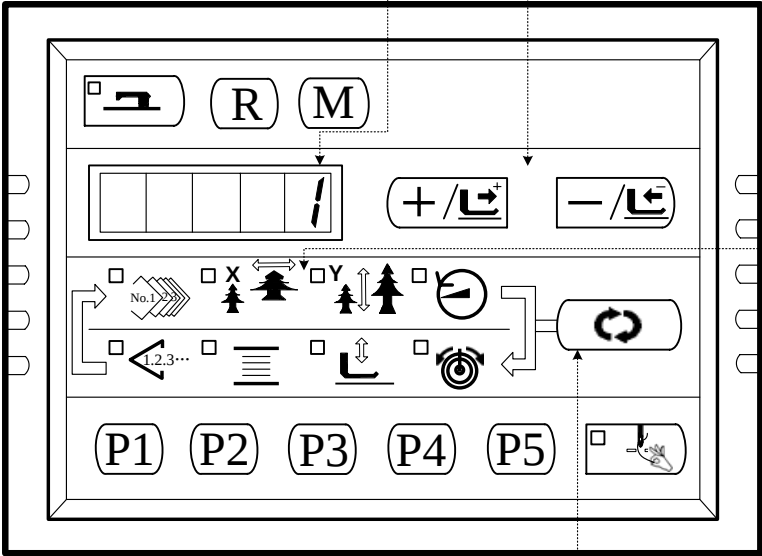
1. 准备

首先按  键，进入 CP-2，屏幕显示“1”，再按  键进行切线、压脚马达的原点检索，压脚下降，缝制灯亮起。(也可不按  键直接进行步骤 2 的操作)

2. 操作

提示X/Y原点传感器的状态：“0”或“1”

按 、 键，可以使被选择的X/Y 马达在+/-方向以0.1mm为单位进行寸动



按选择键，可以切换X原点传感器或Y原点传感器的选择状态

3. X,Y 原点微调功能

(1)、新原点设定：首先按  键，进入 CP-2，屏幕显示“1”，再按  键，踩踏板进行原点检索，压脚下降，缝制灯亮起。在缝制灯亮起的情况下，按 、 键可以使被选择的 X\Y 马达在+/-方向以 0.1MM 为单位寸动，新原点完成设定后按  退出，完成新原点的设置。

(2)、原点回复功能：首先按  键，进入 CP-2，屏幕显示“0”或“1”，再按  键进行原点检索，压脚下降，缝制灯亮起。踩脚踏板到第二档，此动作进行两次（第一次为找新设定的原点，第二次为回复到系统原点）。完成原点回复，按 M 键退出。

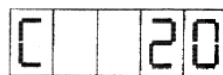
3. CP -3（连续运转）

当屏幕显示“CP-3”时，按  键，进入连续运转模式。在设定了连续运转条件后，启动连续运转模式；如果要解除连续运转模式请关闭电源。

1. 间隔时间的设定

按 、 键，设定两次运转的间隔时间。

从 1800ms 至 9900ms 可以 100ms 为单位进行设定。（默认值 2000ms ）设定后，按  键，保存设定值。

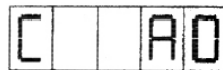


2. 缝制结束有无原点检索的设定。

按 、 键，设定缝制结束时有无原点检索。

A0: 无效(默认值)

A1: 有效（每次缝制结束后进行原点检索）



设定完成后，按  键，进入普通缝制模式。

3. 连续操作

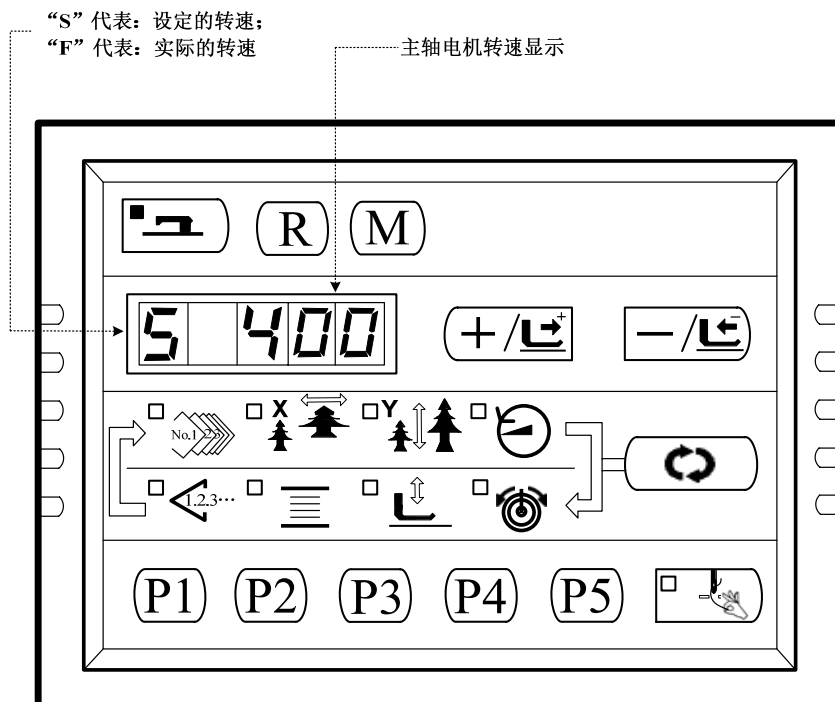
在普通缝制模式下，用户可以设定花样号码、X、Y 缩放率、最高转速等条件然后开始缝制。缝制结束之后，如果在第 2 步操作中设定有原点检索的话，则开始进行 X/Y 压脚、切线/抓线的各个马达的原点检索；如果在第 1 步操作中设定的休止时间后，就会自动再次开始进行缝制；如果要中止连续缝制，请在缝纫停止时，按  键停止。

4. CP -4（检验主马达转速）

设定机器的转速，在设定的转速下仅驱动机器的主马达，显示实测的转速。

1. 准备

首先按  键，进入 CP-4，屏幕显示“S 400”；然后按  键，进行抓线和压脚、切线马达的原点检索，缝制灯亮。

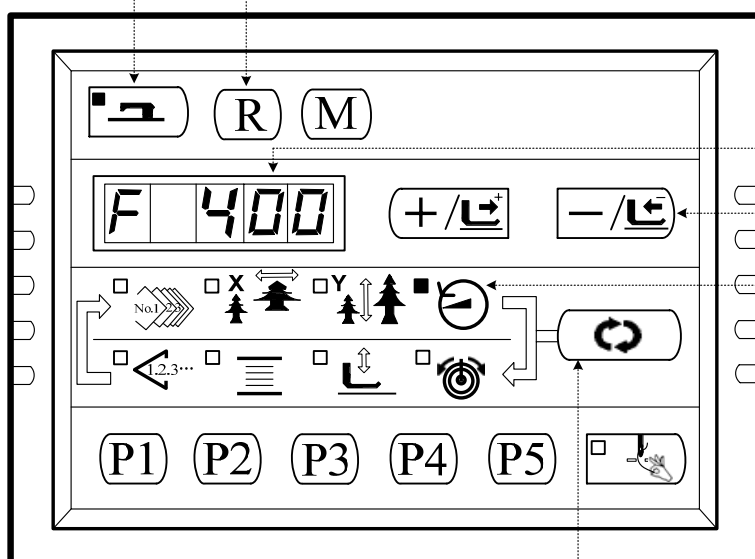


2. 操作

按 **+/−**、**−/−** 键，可以变更设定的主轴转速，然后按 **□** 键，机器以设定的转速开始运转。此时，按 **↻** 键，可以切换设定转速显示和实际转速显示。如需再次变更设定转速，再次按 **□** 键，使用 **+/−**、**−/−** 键，设定转速值，然后按 **□** 键，机器以新设定的转速运转。如需停止运转，按 **(R)** 键。如需推出该模式，请按 **(M)** 键。

按下 **□** 键，在设定的转速下让机器开始旋转；如果变更转速的话，按下 **□** 键，可以使旋转变速。

按 **(R)** 键的话，机器停止运转。



提示设定转速或者实测转速
按 **↻** 键可进行切换

按 **+/−**、**−/−** 可设定
400 ~ 3000rpm 之间的转速

转速灯显示转速：
设定转速时灯熄灭；实测转速时灯亮起；
按 **↻** 可切换显示设定的转速或者实测的转速

按 **↻** 键，可切换设定的转速或者实测的转速

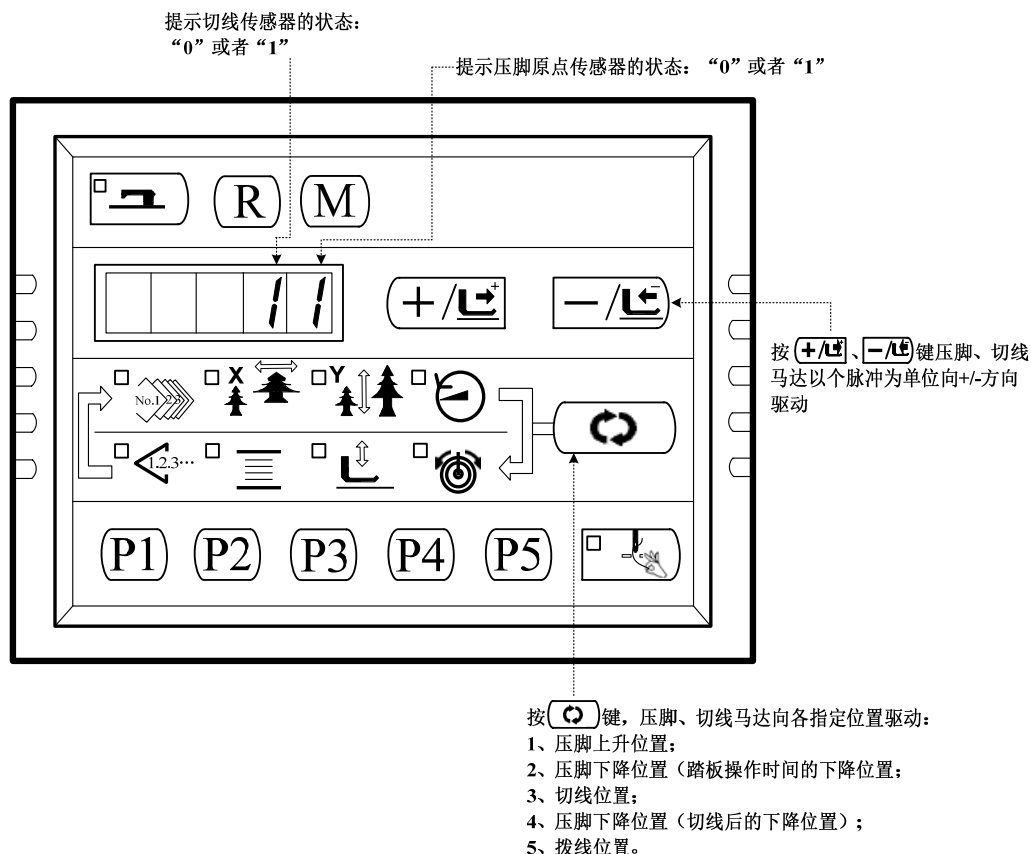
5. CP-6（检验压脚、切线马达/原点传感器）

显示压脚、切线马达的寸动操作，原点检索操作。

1. 准备

首先按  键，进入 CP-6，然后按  键进行抓线的原点检索，缝制灯亮。

2. 操作



按  键，机器上相关执行部件可以按上图所示 1~5 步，循环动作。如需推出该模式，请按  键退出。

3. 压脚原点微调功能

（1）、新原点设定：首先按  键，进入 CP-6，屏幕显示两位传感器信号数字，再按  键压脚电机进行原点检索（含原点微调量），缝制灯亮起。在缝制灯亮起的情况下，按 、 键可以使压脚电机以最小单位单位寸动，新原点完成设定后再按一次  键保存微调值，按  退出，完成新原点的设置。

（2）、检测原点微调位置和原点回复功能：在按照（1）中描述设置好新原点位置后，退出到显示“CP-6”界面，再按  键进入 CP-6，按  键压脚电机将按照新设置的原点位置进行原点检索，以检验设置的新原点位置是否正确。如欲清除原点微调量，可以在缝制灯亮起的情况下踩踏板到 2 档两次清除原点微调量并进行原点检索，此时压脚电机回到初始原点位置（不喊原点微调量）。

（3）、在设置新原点位置后压脚电机各位置检测：在进入 CP-6 模式后，按  键压脚电机进行原点检索（含原点微调量），缝制灯亮起。此时不要踩踏板到 2 档（以为这样操作会清除原点微调量），而

是按使压脚电机进行原点检索，同时抓线 LED 灯点亮。此时再连续按键，可以使压脚电机在几个工作位置间进行切换。

6. CP -7（检验抓线马达/原点传感器）

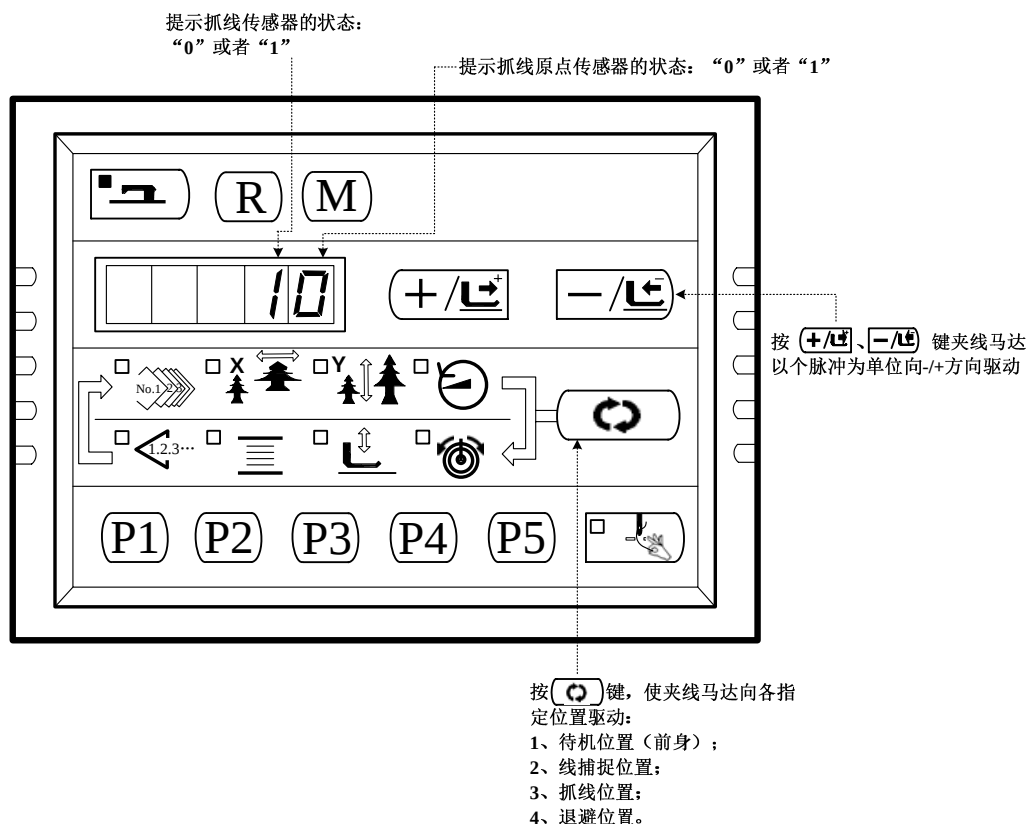
显示抓线马达的寸动操作，原点检索操作以及抓线马达原点传感器和抓线传感器的状态。

1. 准备

首先按键，进入 CP-7；然后按键，缝制灯亮起，踩踏板，进行原点检索后，屏幕显示“10”。

2. 操作

按、键，抓线器可以以脉冲为单位进行寸动。按键，抓线器向后驱动；按键，抓线器向前驱动。



按键，机器可以按上图所示 1~4 的步骤循环运作。如需退出该模式，请按。

7. CP -8（夹线电磁铁检测）

该模式用于检测夹线电磁铁的动作是否正常。在屏幕显示“CP-8”时按键进入该模式，屏幕显示“CLAMP”，按或键可以使电磁铁吸合，随后很快断电，观察夹线器可以看到夹线动作，并能听到“咔嗒”的声音，表示电磁铁工作正常。

8. CP-9（步进闭环误差检测）

该模式用于驱动闭环步进电机执行指定动作，并显示出相应动作的位置误差值，此项功能可以检测闭环步进驱动、电机以及编码器是否工作正常。在屏幕显示“CP-9”时按  键进入该模式。此时 X 缩放率 LED 灯点亮，屏幕显示“0”。

通过按  点亮不同的 LED 灯切换当前选定的电机，X 缩放率 LED 灯表示 X 电机，Y 缩放率 LED 灯表示 Y 电机，压脚下降 LED 灯表示压脚电机。

选定需要测试的电机后，先按  键进行原点检索，缝制灯亮，然后设置电机动作：

对于 XY 电机：按  或  键设置动作步数（针距），1 表示 0.1mm，例如想要测试 X 电机 2.0mm 针距的动作，在 X 缩放率 LED 灯点亮的情况下，将屏幕显示设置为“P 20”，P 表示设置的动作位置(position)，然后踩踏板到 2 档，绣框移动 2.0mm，再次踩踏板到 2 档，绣框反方向移动 2.0mm，如此反复执行上述动作。如欲显示上一次动作的误差，可以按 P1 键，屏幕显示变为“d 0”，数字 0 表示误差为 0，字母 d 表示当前误差(deviation)。通过 P1 键可以切换显示动作位置和当前误差。注意，在显示误差的时候，是无法通过按  或  键改变动作位置的。另外，在选定电机并进行原点检索后（缝制灯亮），如果又按了  切换电机，缝制灯会熄灭，需要重新按  键进行原点检索，再执行后续操作。

对于压脚电机：在压脚下降 LED 灯点亮的情况下，按  键进行原点检索，屏幕显示“P 1”，压脚电机处于抬起位置。然后按  键可以将压脚电机在“降下（位置 P 2）”、“分线（位置 P 3）”、“抬起（位置 P 1）”这 3 个位置循环切换。然后才踏板到 2 档，可以让压脚电机反复执行当前位置的后续动作。如，在抬起位置“P 1”，踩踏板到 2 档，压脚降下，再次踩踏板到 2 档，压脚抬起，如此反复。压脚位置和测试动作的关系如下：

P 1 位置踩踏板到 2 档：反复执行降下、抬起动作；

P 2 位置踩踏板到 2 档：反复执行分线、返回动作；

P 3 位置踩踏板到 2 档：反复执行缝纫结束剪线——拨线——抬压脚、返回动作；

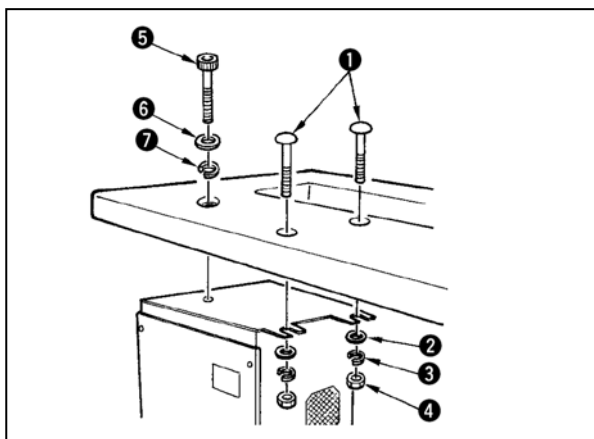
如果要显示压脚电机动作误差，也是通过按 P1 键切换，显示屏变为“d 0”，数字值表示上一次动作的位置误差。

注意：在踩踏板到 2 档执行反复动作时，如果将压脚电机停留在 3 个固定位置的动作完成一侧，则无法通过按  键切换电机位置，需要先踩踏板到 2 档将电机返回当前初始位置，再切换下一个测试位置。

如需退出该模式，请按  键退出。

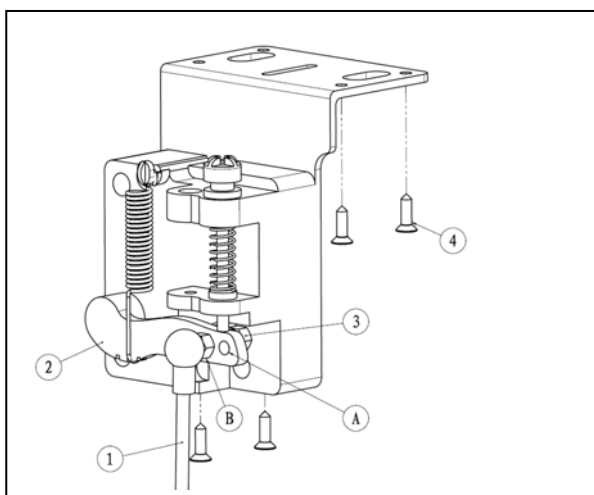
[3] 安装

1. 电气箱的安装



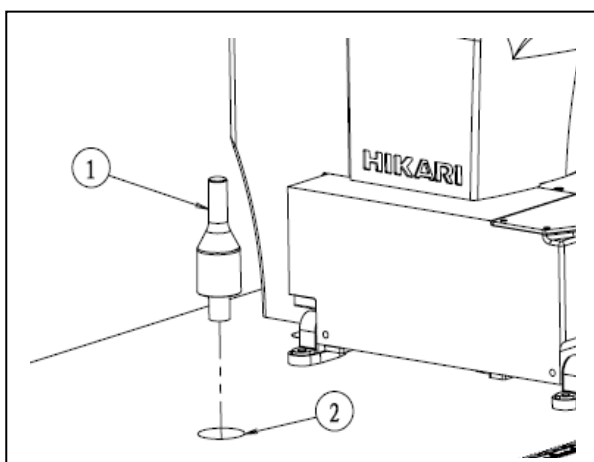
缝纫机机台上附属的圆头螺栓①平垫片②弹簧垫片③螺母④按照图示的位置安装好，再把螺栓⑤弹簧垫⑥平垫片⑦按照图示的位置安装好。

2. 控速器的安装方法



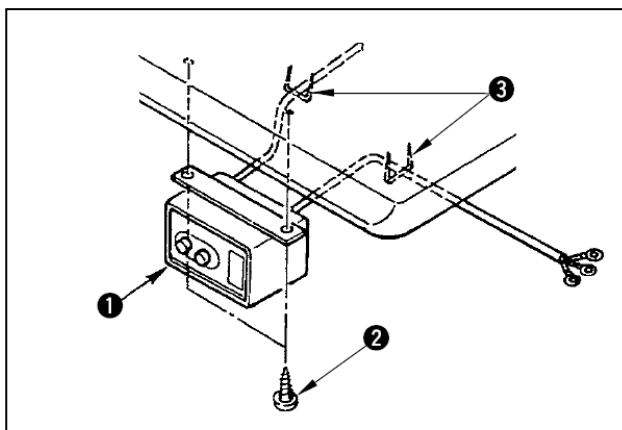
- 1) 把连接杆①用螺母③固定到踏板拉杆②的安装孔 B 里。
- 2) 把连接杆①安装到安装孔 A 之后，踏板的踩踏行程变大。
- 3) 把控速器用 4 个自攻螺钉④锁紧在台板合适的位置。

3. 机头部支杆的安装



把机头部支杆①插到机台孔②里。

4.电源开关的安装



(1) 电源开关的安装

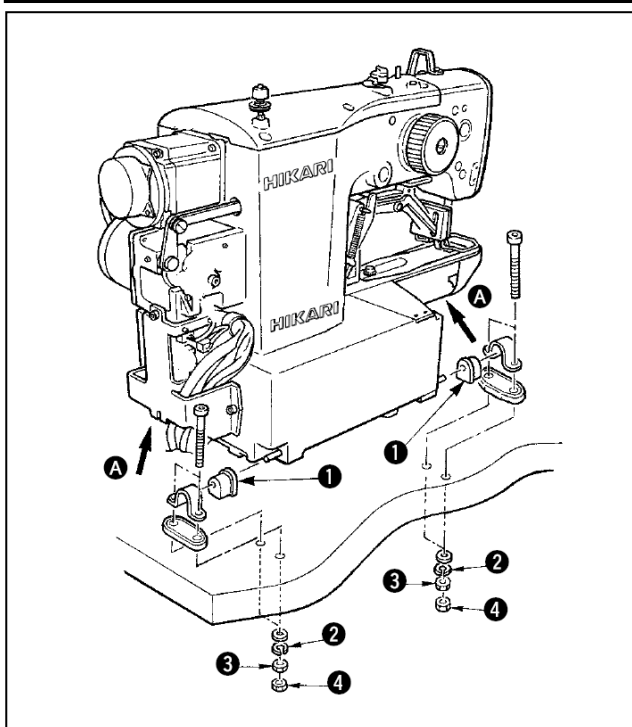
请把电源开关①用木螺钉②固定到机台下面。请根据使用状态，用附属的卡扣③固定好电缆线。

5.缝纫机机头的安装



注意

搬运缝纫机时，请一定2人以上进行搬运。



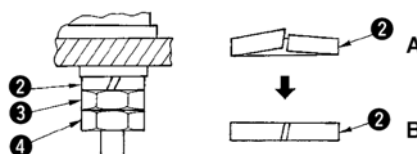
- 1) 把胶垫①插到机轴上，固定缝纫机主体。
- 2) 拧紧固定铰链橡胶①的螺母③时，请拧紧螺母③让弹簧垫②成为图中B所示的那样，然后用螺母④进行固定。



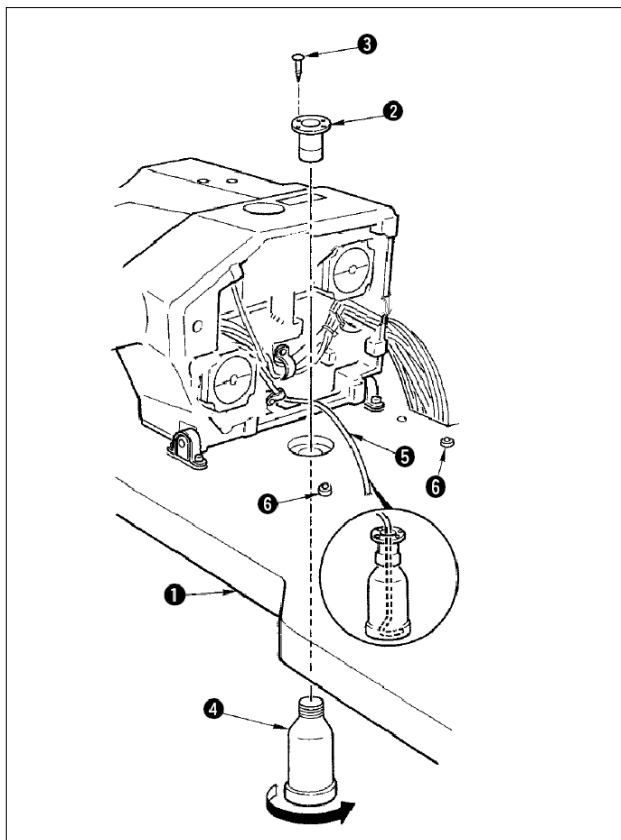
铰链橡胶①拧得过紧的话，就会妨碍其功能的正常发挥，请注意。



搬运缝纫机时，请手拿A部。



6. 废油槽和机头支撑橡胶的安装

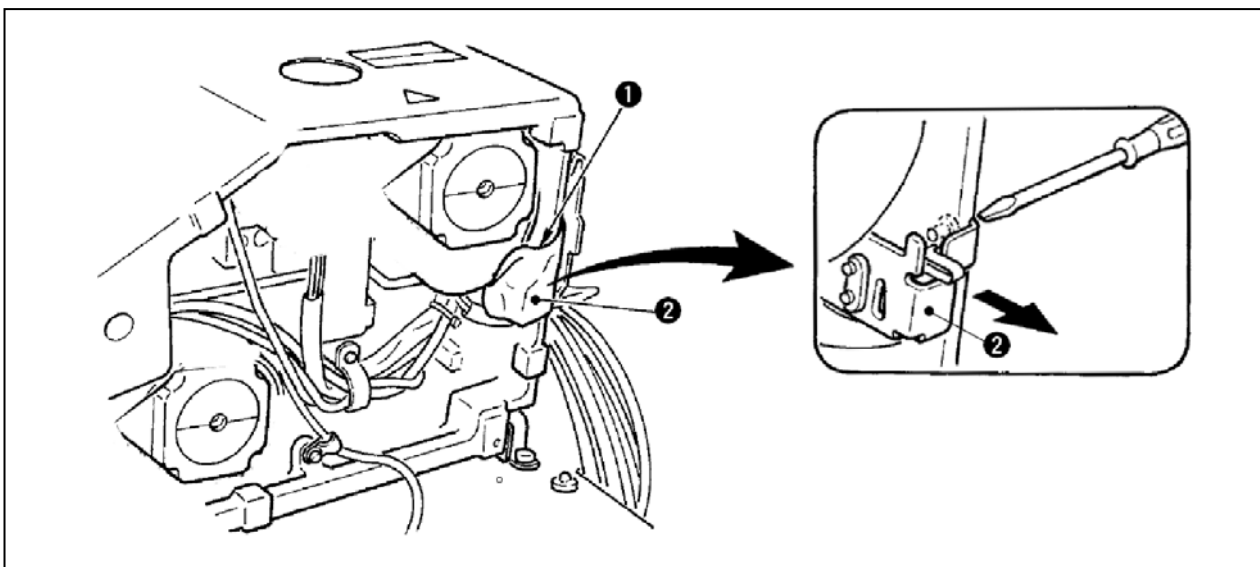


- 1) 用固定螺丝③（4 个）把废油槽②固定到机台①的安装孔上。
- 2) 把废油瓶④拧进废油槽②。
- 3) 把缝纫机废油管⑤插到废油瓶②里，
- 4) 把机头支撑橡胶⑥插进机台①。



1. 放倒缝纫机机头后，废油管⑤应该不从废油瓶④脱落，牢牢地插到最里面
2. 请卸下固定废油管⑤的胶带。

7. 安全开关



请取下固定安全开关②的拨杆部的胶带①



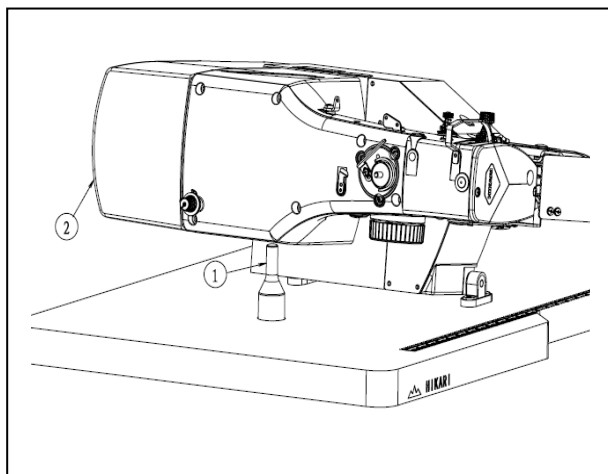
1. 不取下胶带 ① 使用的话，放倒缝纫机的状态下缝纫机也会转动，非常危险。
2. 安装后，缝纫机动作时如果发生异常 302，请用螺丝刀拧松安全开关安装螺丝，在缝纫机的下方调整安全开关 ② 的位置。

8. 缝纫机的放倒方法



注意

放倒缝纫机和抬起缝纫机时，请注意不要让缝纫机夹住手指。同时，为了防止突然的启动发生意外事故，请把电源关掉之后再进行操作。

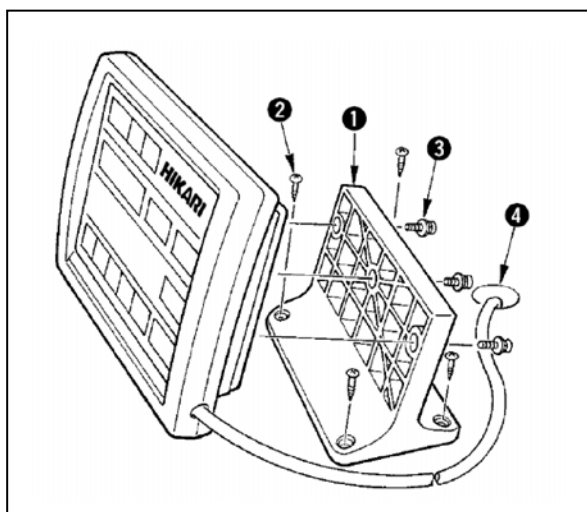


放倒缝纫机时，请轻轻地放，把缝纫机放在机头支杆①上。

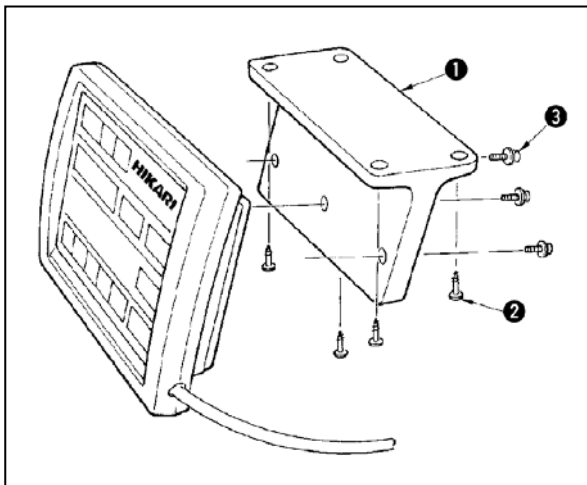


1. 放倒缝纫机前，请先确认机台上是否安装有机头支杆①
2. 抬起缝纫机时，请不要搬马达外罩②来抬起缝纫机，以免防止马达外罩②损坏。
3. 为了防止机器翻倒，请一定在平坦的地方放倒缝纫机。

9. 操作盘的安装



用木螺钉②将操作盘安装板①固定到机台上，把电缆线穿过机台孔④。
用附属的螺钉③把操作盘固定到操作盘安装板①上。请把电缆线用附属的卡扣固定到机台背面。



在机台下面安装操作盘时请参照左图进行安装

10.电缆线的链接

外部线缆插头上有对应的编号，请仔细查看后对应接插。示意图 5、6。

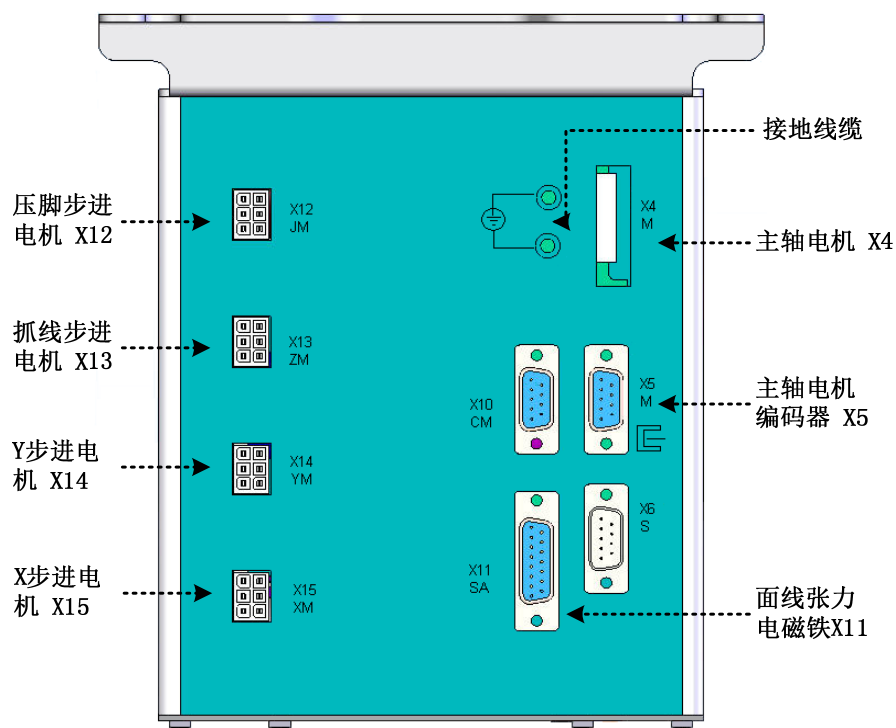


图 5

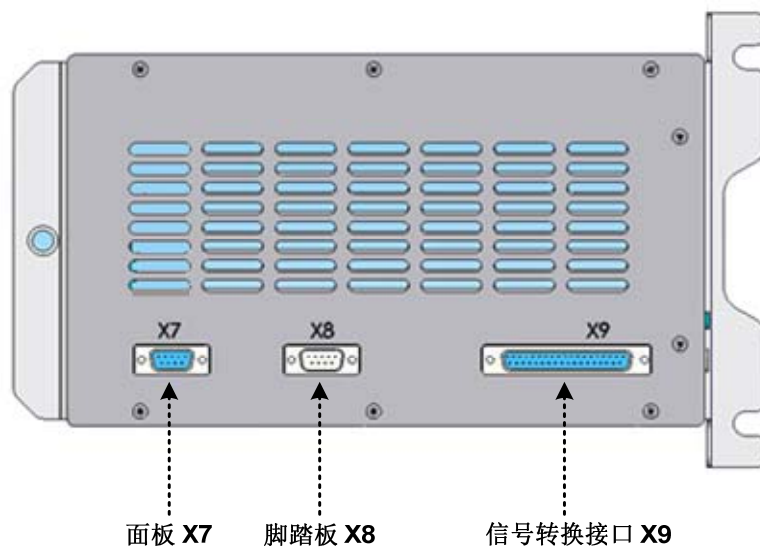
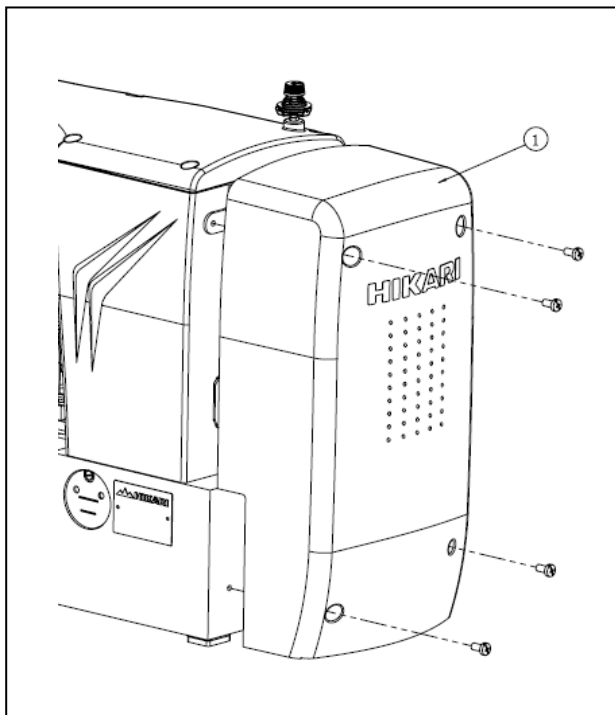


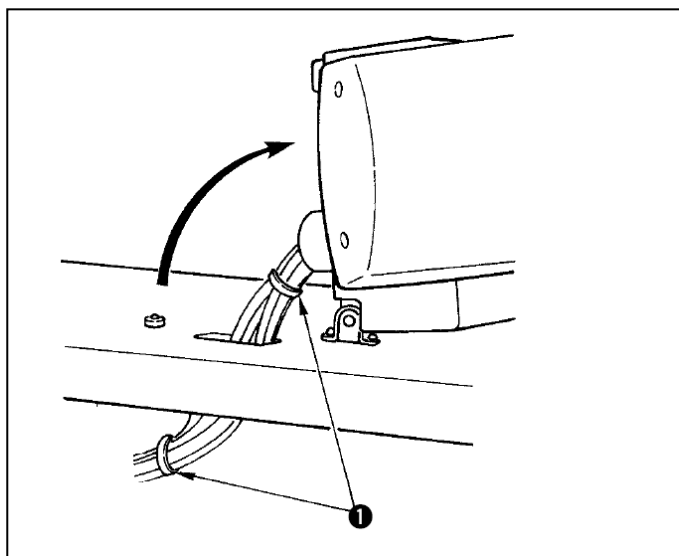
图 6

11. 马达护罩的安装



把马达护罩①用附属的螺丝安装到缝纫机主体上。

12. 电线的处理



在放倒缝纫机的状态，连接电线，如图所示用线束夹①捆紧。

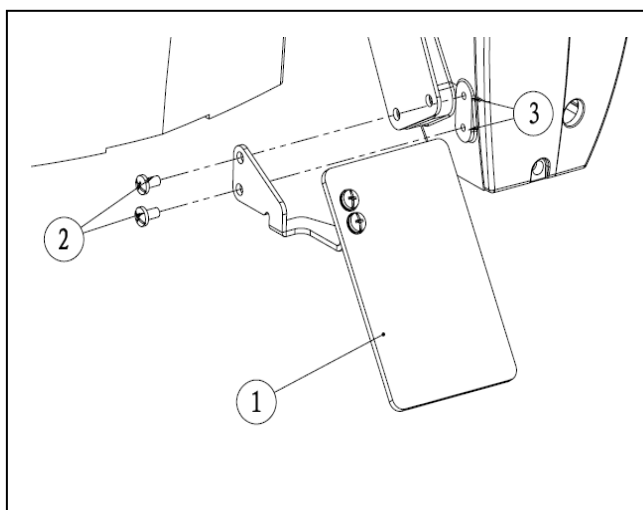


放倒缝纫机时，请确认机头支杆安装在机台上。

13.眼睛保护罩的安装

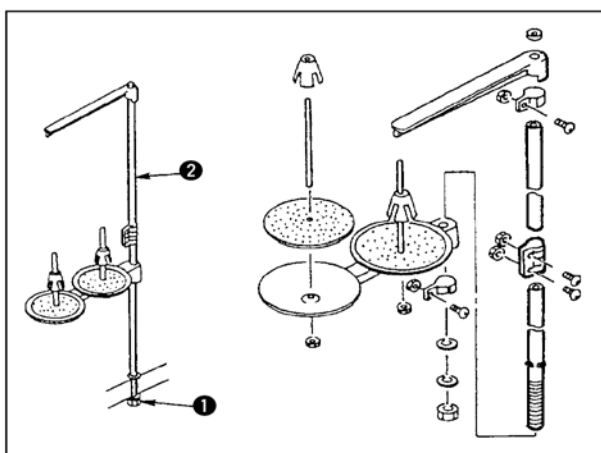


为了保护断针飞起弄伤眼睛，请一定安装起来。



请一定安装眼睛保护罩①用螺丝②安装到安装部位③之后再使用缝纫机。

14.线架的安装



- 1) 如图所示那样把线架安装到机台孔上。
- 2) 用固定螺母①固定线架。
- 3) 顶线配线时，请把电源线从线架杆②中穿过。

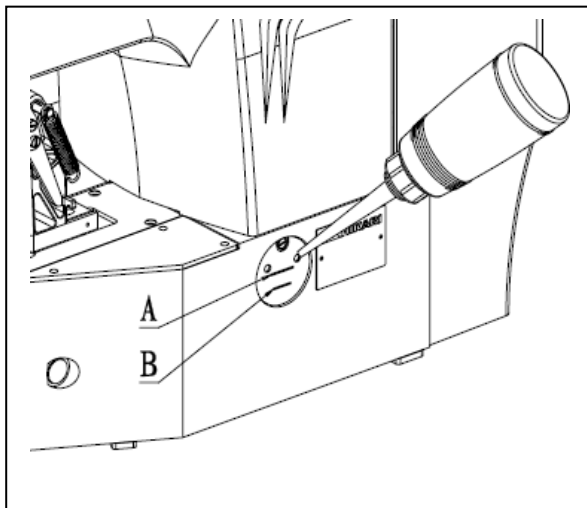
[4] 缝纫机的准备

1.加油方法



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。



请确认机头在下线 B 和上线 A 之间，如果机油过多少，请用附属的加油器进行加油。

*加油的油槽仅是向旋梭加油的，使用低转速时，如果旋梭的油量过多，可以把油量调小。（请参照[7]维修 8.旋梭的加油量。）



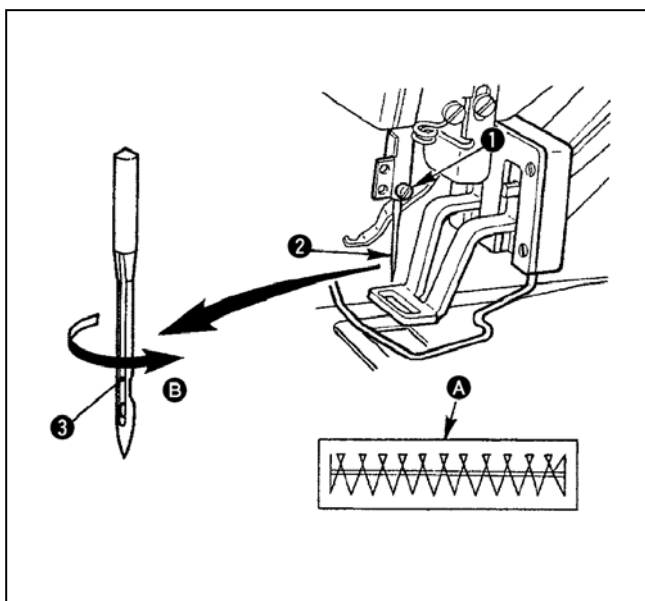
1. 请注意不要向油槽和下列注意 2 的旋梭以外的部位加油。否则会发生零件故障。
2. 初次使用缝纫机或较长时间没有使用缝纫机时，请向旋梭加少量的机油后再使用缝纫机。（请参照[7]维修 2. 机针与旋梭

2.机针的安装方法



注意

为了防止突然的启动造成人身事故，请关掉电源后再进行操作。



安装机针时，请拧松固定螺丝①，把机针②的长沟③朝向面前，插进针杆的深处，然后拧紧固定螺丝①。



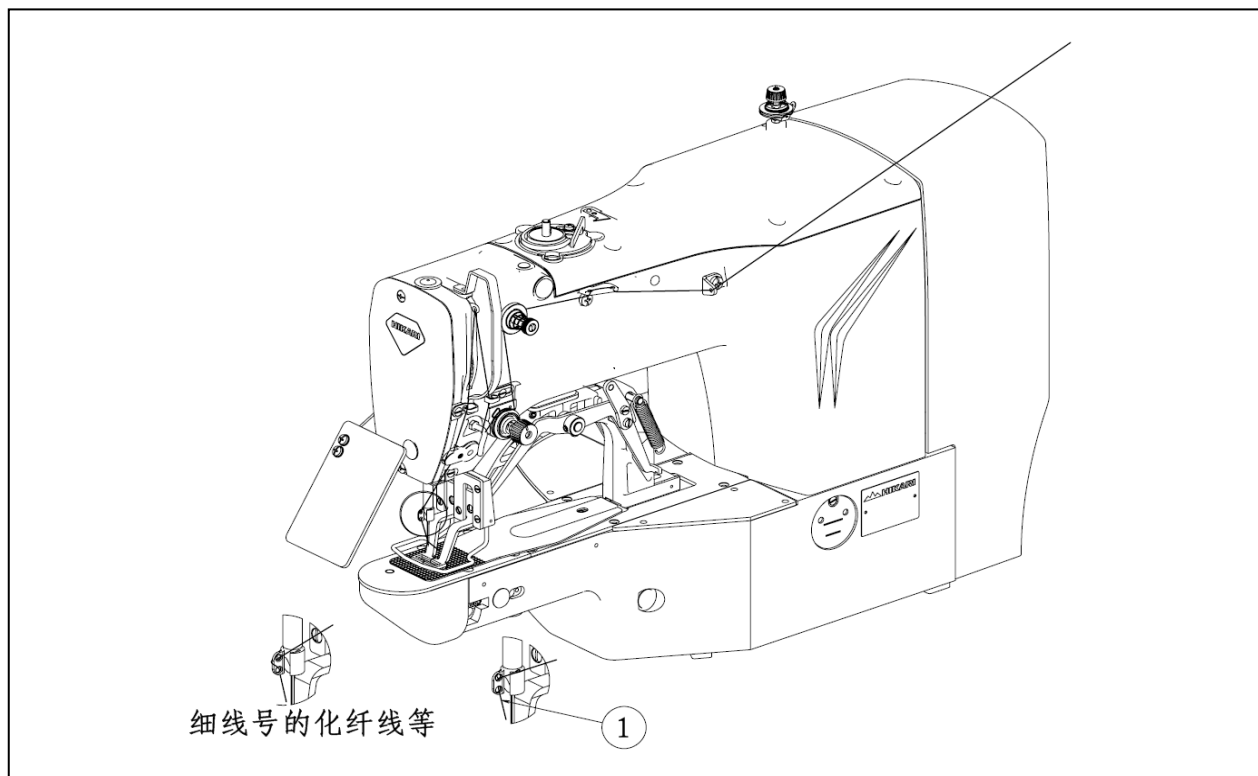
缝迹如 A 时，请把机针向 B 方向稍稍移动然后安装起来。

3.上线的穿线方法



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。



细线号的化纤线等

1

穿过机针的线应留出 4cm 左右。



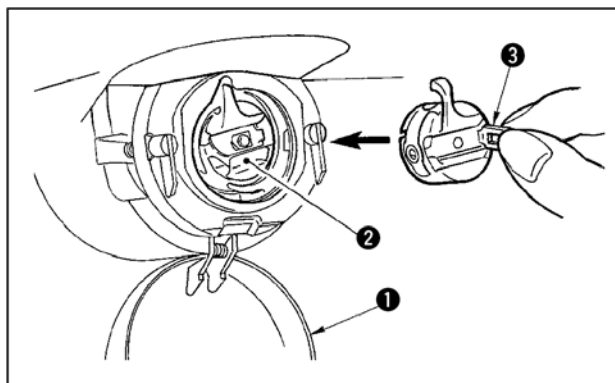
1. 使用硅油时，请把线穿过润滑导线器 **①**。（选购品）
2. 粗线时，请把机线只穿过针杆导线器 **②** 1 个孔。

4.梭壳的取下插入



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。



- 1) 打开旋梭外罩**①**。
- 2) 拨起旋梭壳**②**的抓脚**③**，取出梭壳。
- 3) 插入时，请把梭壳深深插入旋梭轴，并关闭抓脚。



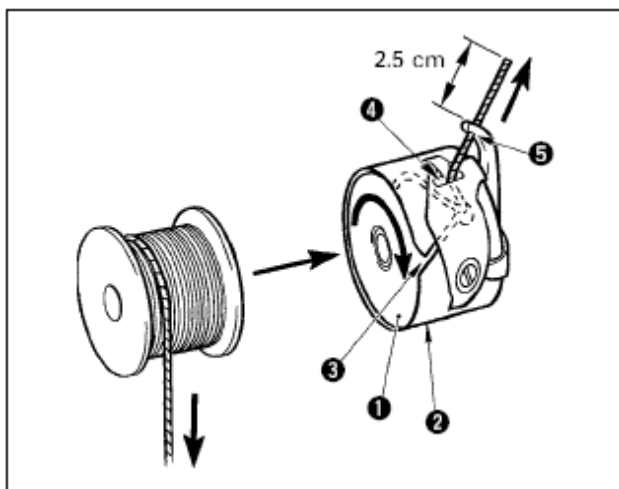
如果没有插到底，缝制途中梭壳 **②** 就有可能脱落。

5. 旋梭的插入方法



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。

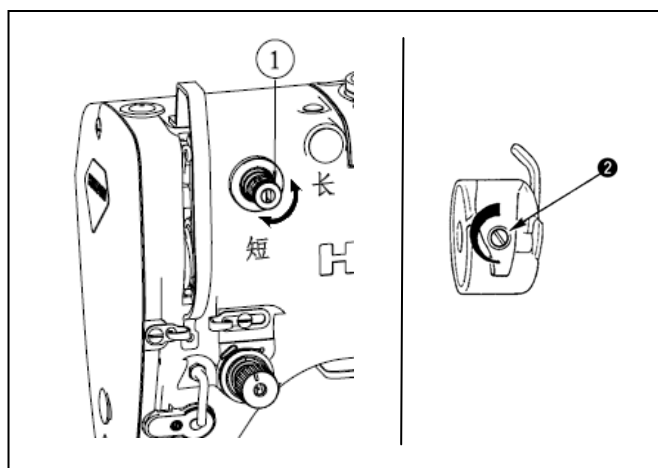


- 1) 把旋梭①按图示的方向插入梭壳②。
- 2) 把线穿过梭壳②的穿线口③，然后拉线，把线从线张力弹簧下面的穿线孔口④拉出来。
- 3) 把线从角部的线孔⑤穿出，从线孔约拉出2.5cm。



旋梭的旋转方向相反的话，底线的拉出就不稳定。

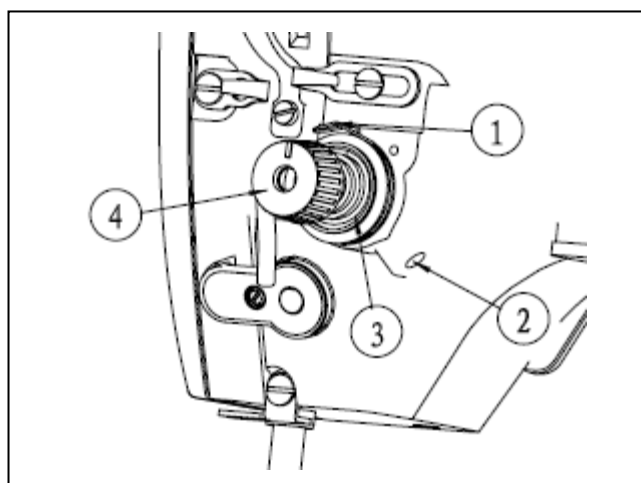
6. 线张力的调整方法



把第一线张力旋钮①向右转动，切线后针尖上的残线长度变短，向左转动后变长。
请尽量在不脱线的情况下弄短残线。

在操作盘上调整上线张力，用②调整底线张力。

7. 挑线弹簧的调节



挑线弹簧①的标准移动量为 8~10mm，开始挑线时的强度为 0.1~0.3N。

1) 移动量的调节

拧松固定螺钉②，转动线张力结合体③。
向右转动之后，动作量变大，拉线量变多。

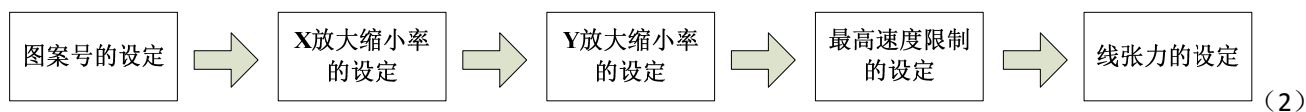
2) 强度的调节

改变挑线弹簧的强度时，请在螺丝②拧紧的状态下，用手转动④调节，向右转动之后，挑线弹簧的强度变强，向左转动之后，强度变弱。

[5] 缝纫机的操作（基础篇）

1.项目数据的设定

- 请按如下的顺序设定各项目。

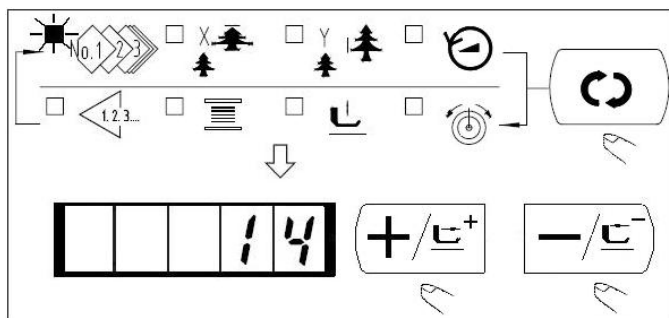


(2)

(1) 打开电源开关

项目选择的花样号码亮灯，数据显示部分显示出花样号码。

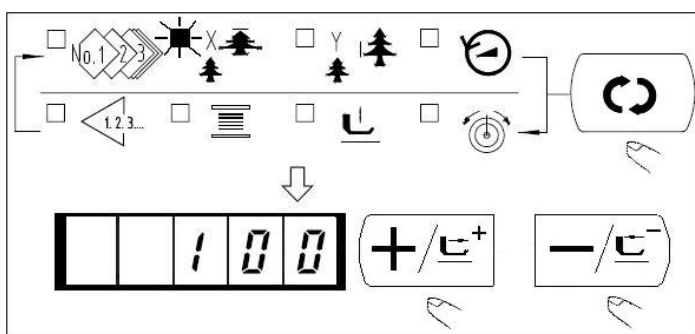
(2) 花样号码的设定



(1) 按 键，进行花样号码选择设定。

(2) 按 键、 键，画面上显示出 14。
(设定为 14 号花样)

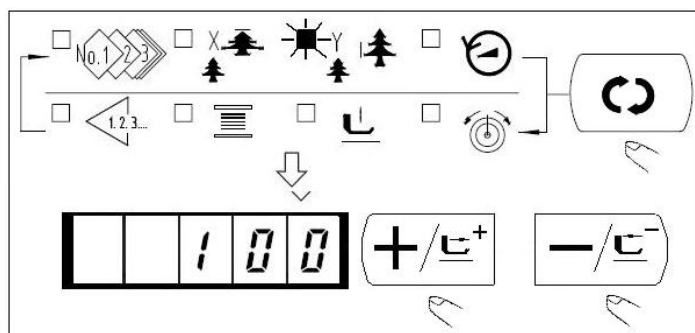
(3) X 放大缩小率的设定



(1) 按 键，进行 X 放大缩小率的设定。

(2) 按 键、 键，让缝纫机显示出 100。
(把 X 放大缩小率设定为 100%)

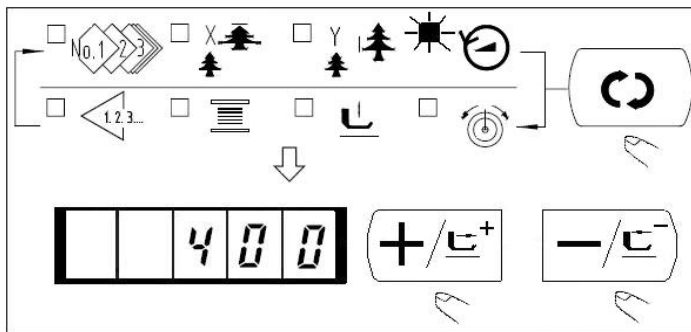
(4) Y 放大缩小率的设定



(1) 按 键，进行 Y 放大缩小率的设定。

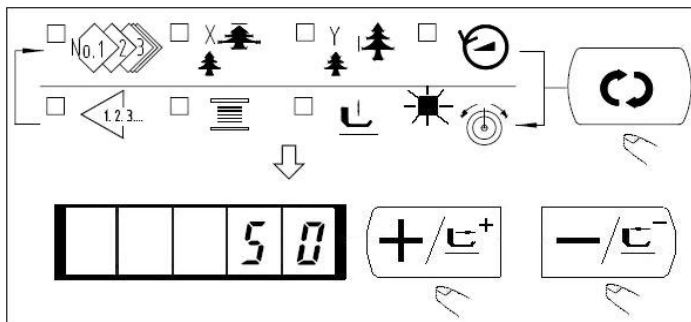
(2) 按 键、 键，让缝纫机显示出 100。
(把 Y 放大缩小率设定为 100%)

(5) 最高转速限制的设定



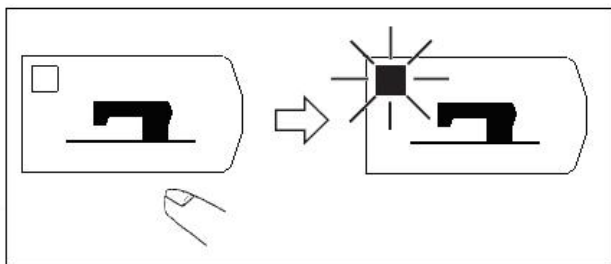
- (1) 按 键，进行转速的设定。
- (2) 按 键、 键，让缝纫机显示出 400。（设定为 400rpm）
- (3) 按 R 键恢复系统默认值，即最高转速。

(6) 线张力的设定



- (1) 按 键，进行线张力的设定。
- (2) 按 键、 键，让缝纫机显示出 50。
(可以在 0~200 的范围内进行设定)

(7) 设定结束



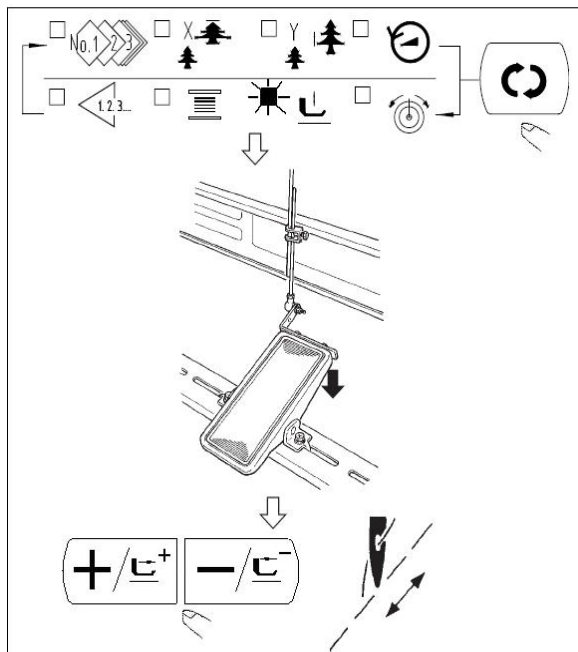
- (1) 按 键。
- (2) 压脚移动上升后，缝制 LED 亮灯，成为可以缝制的状态。
- (3) 如果再次按下 键，缝制 LED 灯熄灭，可重新设定各数据项目。

- 按下 键后，花样号、XY 放大缩小率等设定值被记忆。
- 按下 键后，可以重新确认各设定项目，但是缝制 LED 亮灯的状态不能变更。
- 按下 键后，缝制 LED 灭灯，各项目的设定值可以变更。
- 线张力在缝制 LED 亮灯时也可以变更，踩下踏板时可以记忆。
- 当花样号为 0（出厂设置）时，按下 键后，会显示错误 E-10，此时，按下复位键后请重新确定花样号。
- 不按 键，关掉电源后，花样号、XY 放大缩小率、最高转速、线张力的设定值均不能被记忆。

2. 图案形状的确 定

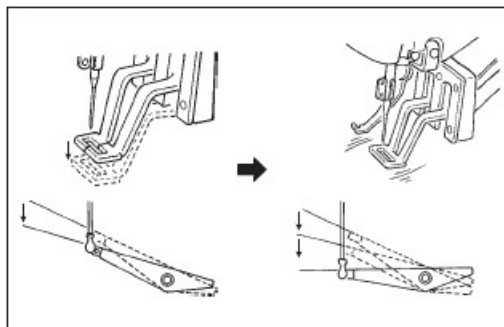
选择花样后，请一定确认花样的形状。

万一花样远离压脚或者超出压脚范围，在缝制途中就会碰到压脚，弄断机针。



1. 按 键，缝制 LED 灯亮起。
2. 用 键选择压脚下降 ，屏幕显示 ；踩踏板让压脚下降，屏幕显示 。
3. 在压脚下降后的状态，按 键
4. 用 键、 键确认形状；确认缝制的花样在压脚允许的范围内。
5. 按 键让压脚上升。
6. 用 键，解除 选定（选定除 外的其他数据项目）后，按 键，结束试缝，缝制 LED 灯熄灭。

3. 缝制



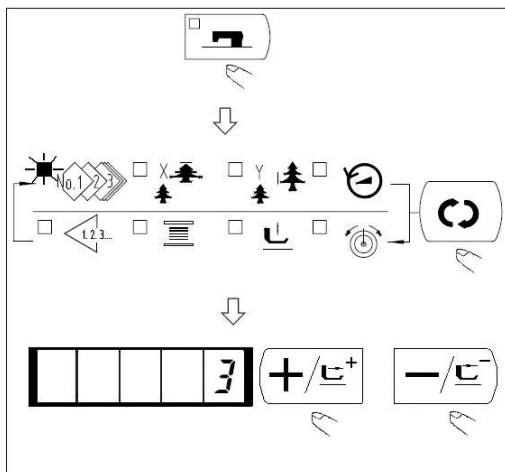
缝制：

1. 把缝制品放到压脚部。
2. 踩踏板开关至第一级，，压脚下降；松开踏板后，压脚上升。
3. 踩踏板开关至第二级之后开始缝制。
4. 缝制结束后，压脚上升返回到起始缝的位置。

注意 1： 将踩踏板开关至第一级，压脚下降，按 键、 键可以改变花样的缝制位置；然后将踏板开关位置踩至第二级，缝纫从选定的位置开始。在缝制过程中，如出现断线等现象时，排除故障后，可以使用此方法进行补缝。

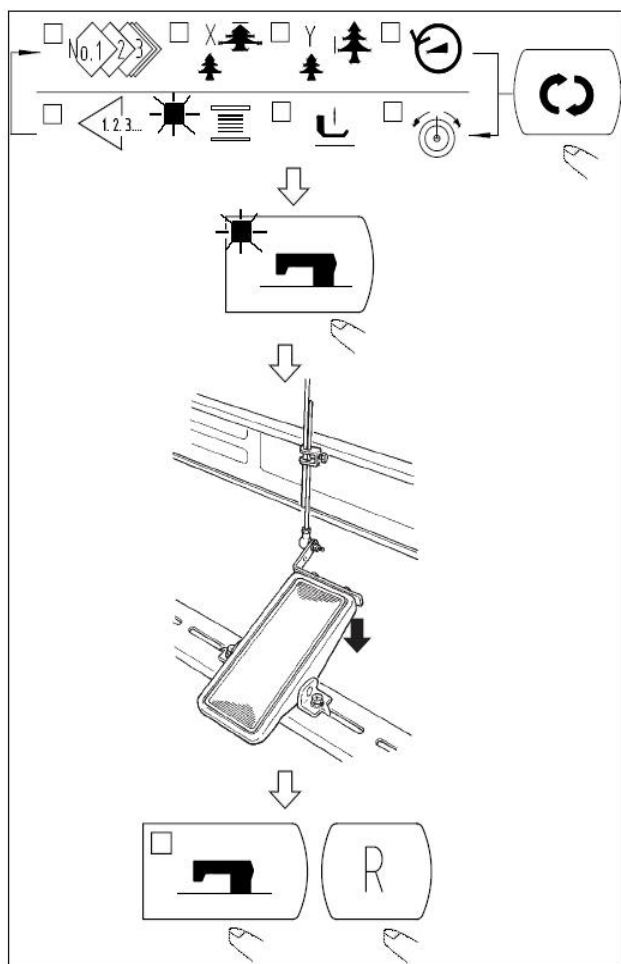
注意 2： 不要将注意 1 中的做法用作花样试缝操作，以免万一误将踏板开关踩至第二级，引起机器启动而发生危险。花样的试缝操作必须严格按照【2.4.2 花样形状的确定（试缝）】一节中的步骤进行操作。

4. 变更为其它花样



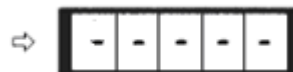
1. 按  键，缝制 LED 灯灭。
2. 按  键，选择花样号设定项目。
3. 用  键、 键设定花样号。
4. 同样地设定 XY 放大缩小率、转速等。
5. 按  键之后，缝制 LED 灯亮起，成为可以缝制的状态。

5. 绕线



刚打开电源后，绕线不动作。请设定 1 次花样号后，按  键让缝制 LED 灯亮起之后再进行如下操作：

1. 再按  键，缝制 LED 灯熄灭。
2. 按  键，选择绕线  屏幕显示：



（如果缝制 LED 灯亮起时不能选择）

3. 按  键，压脚下降，缝制 LED 灯亮起。
4. 踩踏板开关后，缝纫机开始转动。
5. 踩踏板开关之后，或者按  键之后缝纫机停止转动。
6. 按  键之后，缝制 LED 灯熄灭，压脚上升，退出绕线模式， 键变为有效。

6. 底线计数器

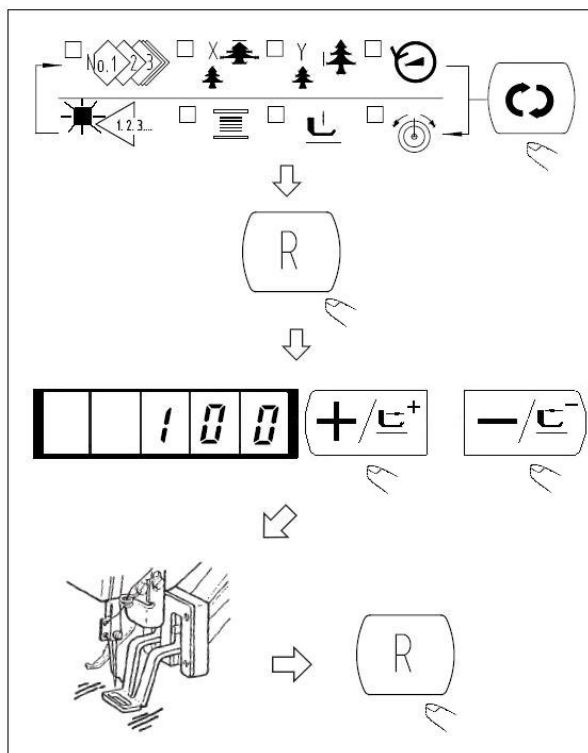
计数器的设定在出厂状态时设定为生产计数器（加算方式）。而作为底线计数器（减算方式）时，必把 No.18 号参数的值设置为 1。

计数器设定为生产计数器（加计数）时：按 +\ - 按键可进行计时器中缝制数量的设置，按 R 键可将

计数器中的缝制数量清除。

计数器设定为底线计数器（减计数）时：在设置成底线计数器（减计数）后，不能直接进行缝制数量的修改，必须先按 R 键后再按 +\ - 按键方可进行缝制数量的设置。

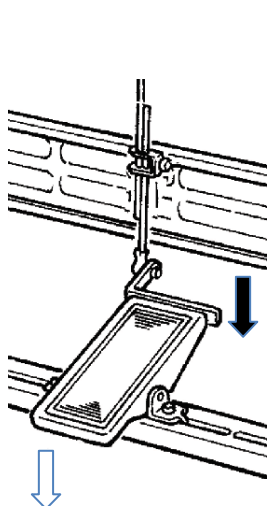
注意：计数器为生产计数器（加计数）时，缝制的数量达到 9999 后如再次进行缝制，计数器则会重新从 0 开始计数；计数器为底线计数器（减计数）时，当缝制的数量为 0 后面板自动显示为“0”，同时数码管闪烁，按 R 键恢复到设定值后才能继续进行缝制。



- 1) 按 键，设定为计数器显示 1.2.3....。
- 2) 然后按 键。
- 3) 然后，按 键、 键，设定一个旋梭可以缝制的次数。
- 4) 缝制后，每逢一次计数器减一。
- 5) 缝制完设定数后，蜂鸣器鸣响，同时显示屏闪烁提示计数器已归零。
- 6) 更换底线，按 键，计数器值返回到设定值。
- 7) 反复 4) ~6) 的步骤。

7. 暂停

1、踏板急停功能：新型脚踏板分为三档，1 档压脚下降；2 档正常缝制；3 档为急停档。



- 1) 按下准备键后向前 踩脚踏板，压脚下降；
- 2) 再次向前 踩脚踏板便开始缝制；
- 3) 在缝制过程中，如果需要急停，您可以向后 踩一下脚踏板，机器进入急停，如果您要接着急停前面的花样继续缝制，只需向后 再踩一下脚踏板即可。

2、面板急停

把 31 号参数设定为 1 之后， 键可以作为暂停键来使用。

1) 按 **(R)** 键，缝纫机停止转动，显示错误号 50。



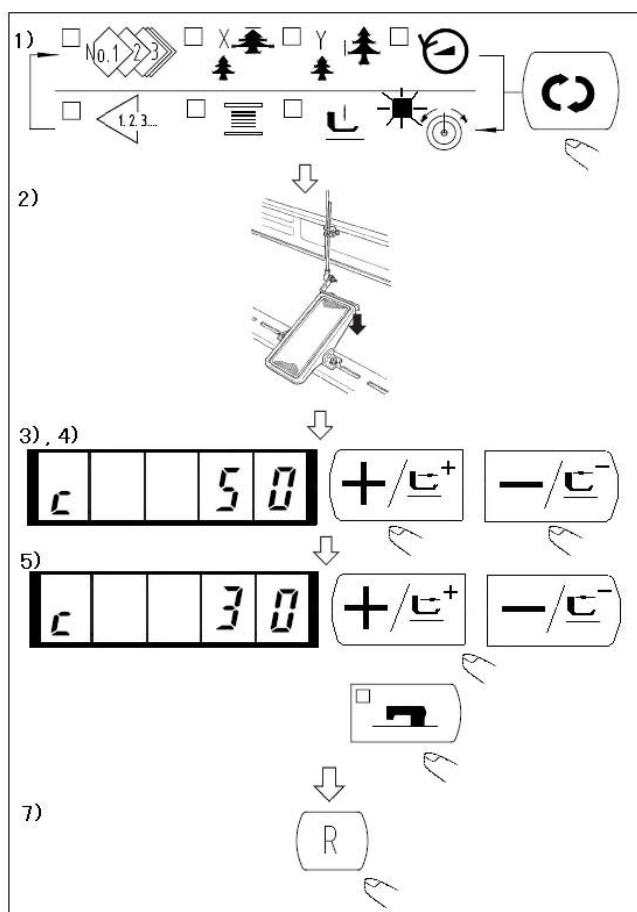
2) 停止后的操作有以下 2 种：

① 按 **(R)** 键，进行切线之后，用 **(+/-)** 键、**(-/-)** 键调整位置，按开始开关再次开始缝制。

② 按 **(R)** 键，进行了切线之后，再次按 **(R)** 键返回到原点。

8. 图案线张力的设定

花样开始的 6 针和从下线曲折变换的部分以及缝制结束的加固部分的上线张力可以分别进行设定。



1) 缝制 LED 亮灯时，按 **(R)** 键，

进行线张力 **(c)** 设定。

2) 踩脚踏板至第一级，压脚下降。
(如果把脚踏板踩到最后，缝纫机会开始缝制。)

3) 用 **(+/-)** 键、**(-/-)** 键移动送布。

4) 在可以设定张力的位置，c 被显示出来。

5) 一边按 **(c)** 键，一边用 **(+/-)** 键、**(-/-)** 键设定张力。

6) 反复 3、4、5 设定张力。

7) 设定结束之后，按 **(R)** 键，压脚移动到原点然后上升。

[6] 缝纫机的操作（应用篇）

1. 使用花样键（ ）进行缝制

把已经存储的花样（1~200）可以登记到 P1~P50 上。变更放大缩小率、最高转速限制、线张力、缝制位置就可以登记，用花样的滚动窗口选择同样可以登记花样，可以一次地叫出 P1~P25。

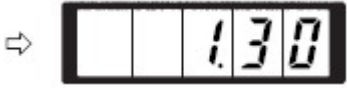
• 当选择了 P6~P25 时，用下表所示的      键的组合（同时按）进行缝制。

P-No.	选择键	P-No.	选择键	P-No.	选择键	P-No.	选择键
P1	P1	P8	P1+P4	P15	P4 +P5	P22	P2+P3+P4
P2	P2	P9	P1+P5	P16	P1+P2+P3	P23	P2+P3+P5
P3	P3	P10	P2+P3	P17	P1+P2+P4	P24	P2+P4+P5
P4	P4	P11	P2+P4	P18	P1+P2+P5	P25	P3+P4+P5
P5	P5	P12	P2+P5	P19	P1+P3+P4		
P6	P1+P2	P13	P3+P4	P20	P1+P3+P5		
P7	P1+P3	P14	P3+P5	P21	P1+P4+P5		

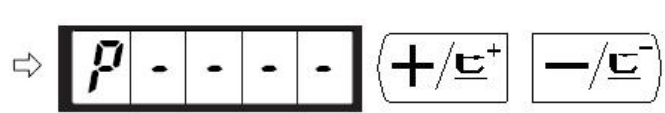
（1）花样键上的登记

例：把花样 No.3、X 放大缩小 50%、Y 放大缩小 80%、最高速度限制 2000rpm、线张力 50、花样位置右移 0.5mm、前移 1mm 的设定到 P2。

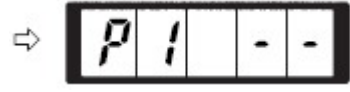
1) 打开电源，按  键（缝制 LED 应该灭灯）。进入方式设定（存储器开关设定）。



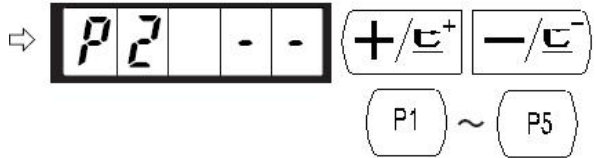
2) 用  键、 键显示出花样存储模式。

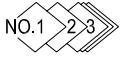


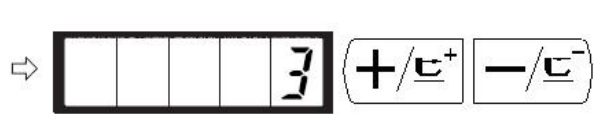
3) 按  键，缝制 LED 灯亮起，进入花样存储方式。



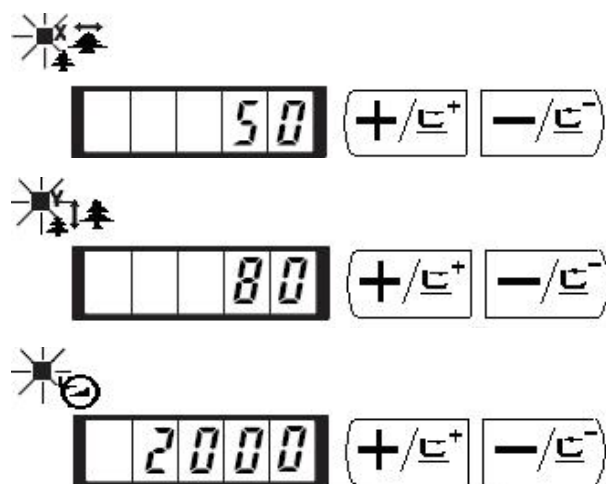
4) 按  键。（选择存储的 P-No.）
用 + 键、- 键也可以选择。



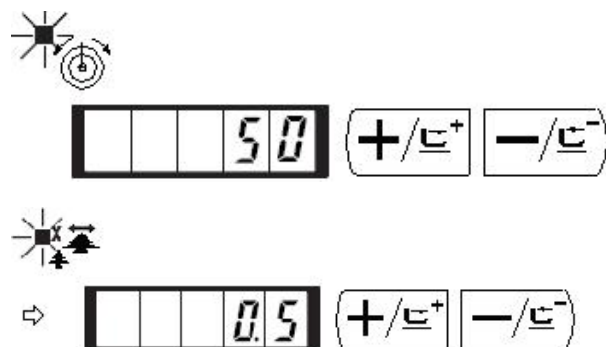
5) 用  键，显示花样号 。
用  键、 键设定花样号码。



6) 按  键，用  键、 键设定为 X 放大缩小率  “50”%、Y 放大缩小率  “80”%、最高速度限制  “2000”rpm、线张力  “50”。



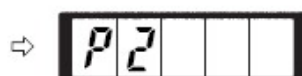
7) 按  键后，变为 X 放大缩小率  显示为 0.0。X 方向的移动量可以以 0.1mm 为单位进行设定。用  键、 键设定 0.5。按 Reset 键时，所有参数均恢复原始设置。



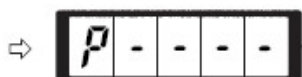
8) 按  键后，变为 Y 放大缩小率  显示为 0.0。Y 方向的移动量可以以 0.1mm 为单位进行设定。用  键、 键设定 1.0。按 Reset 键时，所有参数均恢复原始设置。



9) 按  键后，设定结束。



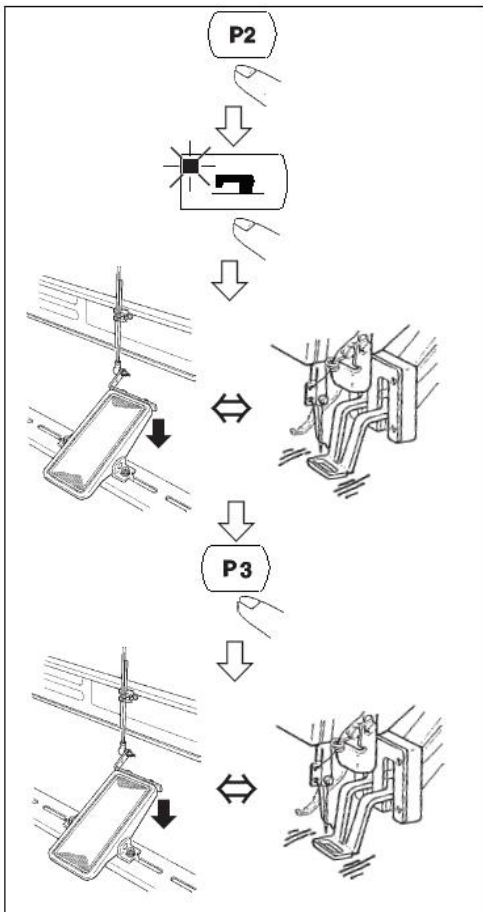
10) 按  键，结束花样存储方式。



11) 按  键，结束方式设定，返回通常方式。

(2) 缝制操作

操作例：以存储的 P2 内容进行缝制，然后缝制 P3 的内容。



1. 打开电源。
2. 按 **P2** 键。
3. 按  键，缝制 LED 亮灯后，压脚移动上升。
4. 确认花样形状。
5. 如果花样形状正确，则可以缝制。
6. 缝制结束后，按 **P3** 键，压脚下降，检索原点，移动到缝制起始点，然后压脚上升。
(P 键在缝制 LED 亮灯时，也可以按键变换花样。)
7. 进行 4、5 项操作。

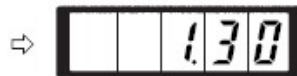
2. 使用组合功能的缝制

按顺序排列已经存储的花样存储 (P1~P50)，存储到 C1~C20，每次缝制之后按顺序变换缝制花样。1 个组合号码最多可以存储 30 个花样。

(1) 组合花样的存储

例：按 P1、P2、P3 的顺序组合进行存储。

- 1) 打开电源，按 **M** 键 (缝制 LED 应该灭灯)。进入方式设定 (存储器参数设定)。



- 2) 用 **+/-** 键、**-/-** 键显示组合模式。



- 3) 按  键，缝制 LED 亮灯，进入组合花样设定方式。用 **+/-** 键、**-/-** 键可以选择 C1~C20。



4) 按  键，然后按  键。P1 被设定

到 C1 的第 1 个花样。用  键、 键

键选择 P1~P50。

按 Reset 键的话，可以重新使用  键、

 键选择 P1~P50 花样。

5) 按  键，然后按  键。P2 被设定

到 C1 的第 2 个花样。用  键、 键

键选择 P1~P50。按 Reset 键可重新选择。

6) 按  键，然后按  键。P3 被设定

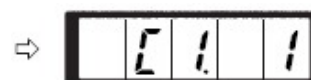
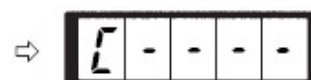
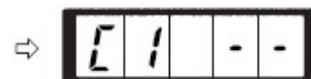
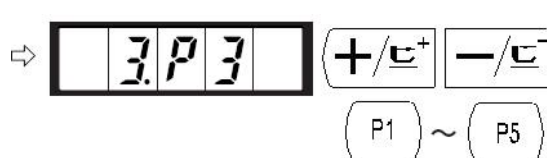
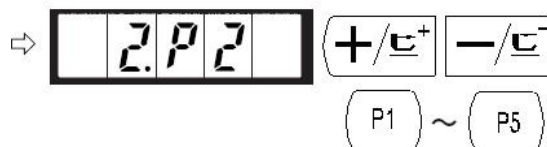
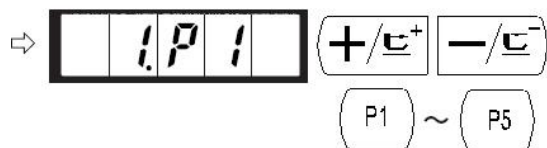
到 C1 的第 3 个花样。用  键、

 键选择 P1~P50。

7) 按  键结束存储。

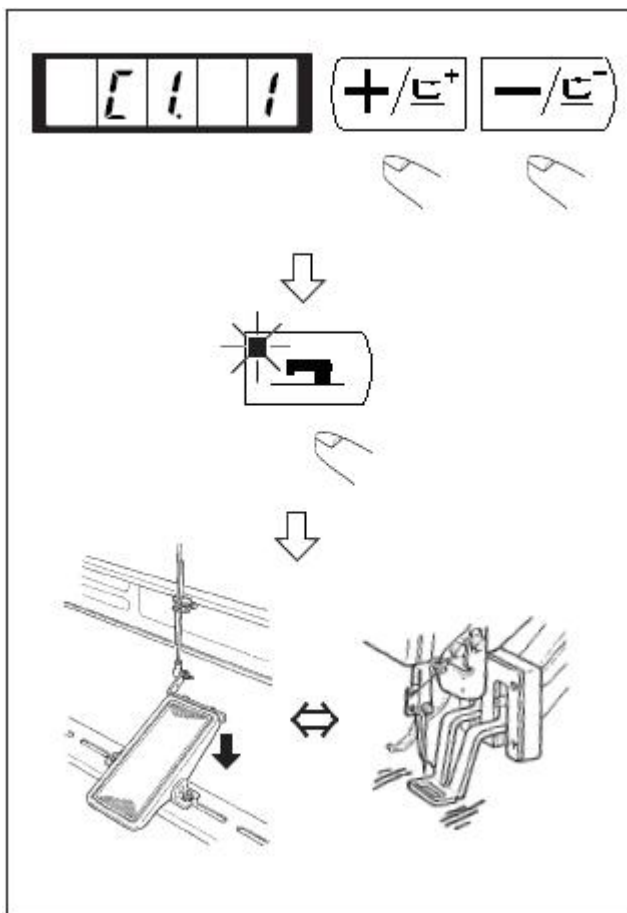
8) 按  键结束组合花样存储模式。

9) 按  键结束方式设定，返回通常方式。



(2) 缝制操作

操作例：以存储的 C1 内容进行缝制。



- 1) 打开电源。
 - 2) 用 **+/C+** 键、**-/C-** 键把花样号设定为 C1.1。
 - 3) 按 **LED** 键，缝制 LED 亮灯，然后压脚移动上升。
 - 4) 如果花样形状良好，则可以缝制。
 - 5) 按照每次缝制组合的顺序进行缝制，最后一个花样缝制结束后，返回第一个花样，反复进行缝制。
- ✧ 缝制后，如果想返回前面的图案或跳到下一图案时，可以在缝制 LED 亮灯的状态按 **+/C+** 键、**-/C-** 键，图案显示变化，压脚移动到缝制起始点。
 - ✧ • 存储 C1~C20 后，若改变 P1~P50 的话，存储在 C1~C20 中的 P1~P50 的内容也改变。
 - ✧ 每种花样都应该确认花样形状。

[7] 存储器开关的使用方法

1. 用户参数设置的具体操作

- 1) 缝制 LED 灭灯的状态下, 按  键之后, 进入用户参数设置模式。

(按  键之后, 显式的 1.30 表示第一号参数的最高速度限制为 3000rpm。)



- 2) 参数号码可以用  键、 键进行变更。



- 3) 按  键, 调整想变更的参数号码, 缝制 LED 亮灯。

- 4) 用  键、 键变更参数对应值。



- 5) 按  键, 可以返回出厂设置。

- 6) 再次按  键, 存储变更内容, 缝制 LED 灭灯, 返回参数号码选择状态。

- 7) 再次按  键, 结束参数设定方式, 返回通常状态。

2. 用户参数设置举例

1. 缝制速度上限的设定

设定例: 把缝制速度的上限设定到 1800rpm。

- 1) 在缝制 LED 灭灯的状态按  键, 显示为参数号 1 的内容。缝纫机的最高速度显示用参数号 1 设定。



- 2) 在显示参数号 1 的状态下, 按  键, 缝制 LED 亮起。参数号 1 的内容被显示。



3) 用  键、 键设定为“1800”。
  

4) 按  键存储，缝制 LED 灯灭。

5) 按  键，返回通常状态。

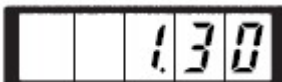
(2) 缝制开始软启动速度的设定

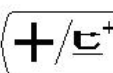
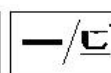
缝制开始的第 1 针～第 5 针的速度可以以 100rpm 为单位进行设定。可以设定为有抓线和无抓线。
 有抓线时

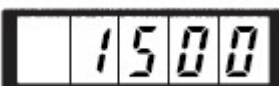
	出厂设置 (rpm)	设定范围
第 1 针	1500	400～1500
第 2 针	3000	400～3000
第 3 针	3000	400～3000
第 4 针	3000	400～3000
第 5 针	3000	400～3000

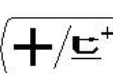
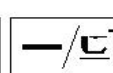
有抓线时，变更为第 1 针 1500→1000rpm、第 2 针 3000→2000rpm。

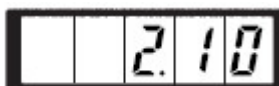
设定举例：

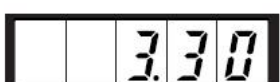
1) 缝制 LED 灭灯的状态下，按  键。


2) 用  键、 键选择参数号 2，这里设定第 1 针的缝纫机速度。
  

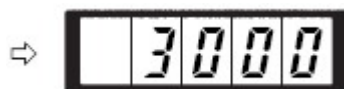
3) 按  键，缝制 LED 亮灯，第 1 针的设定值被显示出来。


4) 用  键、 键设定其值为“1000”。
  
 按  键则返回出厂设置。按  键后，当前的操作全被取消，返回 2) 的状态。


5) 按  键，缝制 LED 灯灭，第 1 针的设定值被存储。


6) 用  键、 键选定参数号 3，这里设定第 2 针的缝纫机速度。
  

7) 按  键，缝制 LED 亮灯，第 2 针的设定值被显示出来。

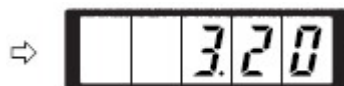


8) 用  键、 键设定其值为“2000”。



按  键则返回出厂设置。按  键后，当前的操作全被取消，返回 6) 的状态。

9) 按  键，缝制 LED 灯灭，第 2 针的设定值被存储。

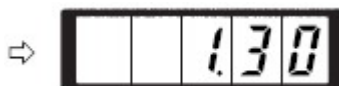


10) 按  键，结束参数设定方式，返回通常状态。

(3) 花样号读取设定

设定为不要的花样不能读出，防止错误的花样调出。另外，可调出可以使用的需要花样。
设定例：把 2 号花样和 3 号花样设定为不能读出。

1) 在缝制 LED 灭灯的状态下，按  键。



2) 用  键、 键显示出参数号 201。



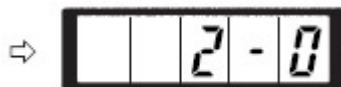
3) 按  键，缝制 LED 亮灯，图案 No.1 的设定值被显示出来。设定值 1：可以读出，0：不能读出。



4) 用  键、 键设定为花样 No.2。



5) 按  键，把设定值设定为 0。



6) 用  键、 键设定为 No.3。



7) 按  键，把设定值设定为 0。



8) 按  键，存储设定值，缝制 LED 灭灯。

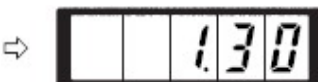


9) 按  键，结束参数设定方式，返回通常状态。

(4) 计数器动作的设定

设定例：把生产计数器（加算方式）变更为底线计数器（减算方式）。

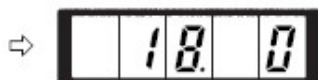
1) 在缝制 LED 灭灯的状态下，按  键。



2) 用  键、 键显示出参数号 18。



3) 按  键，缝制 LED 亮灯，计数器动作的设定值被显示出来。



4) 按  键把设定值设定为 1。



设定值 0：生产计数器，1：底线计数器。

5) 按  键，存储设定值，缝制 LED 灭灯。

6) 按  键，结束参数设定方式，返回通常状态。

3. 用户参数设置表

参数号	功能	调整范围	初值	备注
1.30	缝制的最高速度。 (可以以 1000rpm 为单位设定)	400~3000	3000	
2.15	第 1 针的缝制速度。(抓线) (可以以 100rpm 为单位设定)	400~1500	1500	
3.30	第 2 针的缝制速度。(抓线) (可以以 100rpm 为单位设定)	400~3000	3000	
4.30	第 3 针的缝制速度。(抓线) (可以以 100rpm 为单位设定)	400~3000	3000	
5.30	第 4 针的缝制速度。(抓线) (可以以 100rpm 为单位设定)	400~3000	3000	
6.30	第 5 针的缝制速度。(抓线)	400~3000	3000	

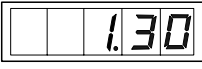
参数号	功能	调整范围	初值	备注
	(可以以 100rpm 为单位设定)			
7.--	第 1 针的线张力 (抓线)	0~200	200	
8.--	切线时的线张力	0~200	0	
9.--	切线时的线张力变换同步时间	-6~4	0	
10.4	第 1 针的缝制速度。(不抓线) (可以以 100rpm 为单位设定)	400~1500	400	
11.9	第 2 针的缝制速度。(不抓线) (可以以 100rpm 为单位设定)	400~3000	900	
12.30	第 3 针的缝制速度。(不抓线) (可以以 100rpm 为单位设定)	400~3000	3000	
13.30	第 4 针的缝制速度。(不抓线) (可以以 100rpm 为单位设定)	400~3000	3000	
14.30	第 5 针的缝制速度。(不抓线) (可以以 100rpm 为单位设定)	400~3000	3000	
15.--	第 1 针的线张力 (不抓线)	0~200	0	
16.--	缝制开始的线张力 (不抓线) 变换同步时间。	-5~2	0	
17.0	XY 扩大缩小率, 最高转速限制的显示, 以及变更可否。	0: 可变更 1: 不可变更	0	
18.0	计数器动作	0: 生产计数器 (加算) 1: 底线计数器 (减算)	0	
31.0	可以用操作键盘 (清除键) 停止缝纫机动作	0: 无效 1: 操作盘复位键	0	
32.1	可以禁止蜂鸣音响	0: 不响蜂鸣音 1: 操作盘操作音	1	
33.2	设定抓线开放的针数	1~7 针	2	
34.--	可以推迟抓线的同步时间	-10~0	0	一方向变慢
35.0	可以禁止上线抓线控制	0: 通常 1: 禁止	0	
36.--	选择送布动作的同步时间 紧线不好时设定为一方向	-8~16	12	向一侧移动过多的话, 有断针的危险。缝制厚料时请加以注意
37.0	缝制结束后的压脚状态	0: 压脚直接抬起 1: 踩踏板抬压脚	0	
39.0	可以设定每次缝制结束后均检索原点 (除循环缝制以外)	0: 不检索原点 1: 检索原点	0	有关该参数, 详见【3.3 恢复出厂默认设置】
40.0	可以设定循环缝制时的原点检索	0: 不检索原点 1: 每 1 图案结束	0	
42.0	设定针杆停止位置	0: 上位置	0	上死点停止

参数号	功能	调整范围	初值	备注
		1: 上死点		时为上位置， 停车后反转 停止
46.0	可以禁止切线	0: 通常 1: 禁止切线	0	
49.16	可以设定卷线速度	800~2000	1600	
201.--	设定是否可以读出图案数据	0: 不能读出 1: 可以读出	机型不 同则设 定不同	可以分别设 定花样图案 打开与否
P----	进行图案登记			
C----	进行循环缝制登记			

[8]服务参数设置

服务参数有别于普通参数，一般禁止用户自行更改，这些参数提供给专业技术人员，供其调试时使用。

1. 服务参数的开启和变更

在缝制灯熄灭的状态下，按  键，显示 ，然后同    时按键，听到蜂鸣器响声后，就能对服务参数进行启动与变更。

服务参数的修改与普通参数相同，具体操作方法可参考【2.6 用户参数设置】一节。

2 服务参数列表

参数号	定义	调整范围	初值	备注
21.--	标准踏板、踏脚开关位置	50-500	70	增加设定值的话，踏板的踩踏量会增多
22.--	标准踏板、高低段行程开关位置	50-500	120	增加设定值的话，踏板的踩踏量会增多
23.--	标准踏板、启动开关位置	50-500	185	增加设定值的话，踏板的踩踏量会增多
24.0	脚踏板类型	0 或 1	0	0 单踏板；1 双踏板
27.--	踩踏板时压脚下降速度	100-4000pps	4000	
28.--	踩踏板时压脚上升速度	100-4000pps	1500	设定上升过度的话会引起操作不良
29.--	缝制结束时切线压脚上升速度	100-4000pps	3000	设定上升过度的话会引起操作不良
38.0	压脚不上升时，只通过启动开关可进行缝制	0: 普通 1: 禁止抬压脚	0	
43.1	切线时的机器旋转数选择	0: 400rpm 1: 800rpm	1	动刀分线时的旋转数；切线是在机器停止运转后进行的
44.1	切线时在易于切线的方向选择有无送布的操作	0: 无送布 1: 有送布	1	
45.16	切线时进行送布的针孔导向直径（可设定以0.2mm为单位）	16~40 (1.6mm~4.0mm)	16	
50.5	剪线角度	0~9	5	345° ~15°
52.--	电磁铁拨线器拨线时间	10-500ms	50	仅在选择电磁铁拨线器时才有效
53.--	电磁铁拨线器返回时间	10-500ms	100	仅在选择电磁铁拨线器时才有效
54.0	钉扣起针送料延迟	-20~20	0	负方向提前，正方向延后
55.0	钉扣禁止起缝加固设置	0: 起缝加固 1: 起缝不加固	0	仅当 241 号参数设置为 7 的时候生效。
56.--	+X 方向（右侧）的移动限定范围	-20~20mm	20	在出厂状态下不考虑压脚的形状
57.--	-X 方向（左侧）的移动限定范围	-20~20mm	-20	在出厂状态下不考虑压脚的形状

参数号	定义	调整范围	初值	备注
58.--	+Y 方向（后面）的移动限定范围	-20~10mm	10	在出厂状态下不考虑压脚的形状
59.--	-Y 方向（前面）的移动限定范围	-20~10mm	-20	在出厂状态下不考虑压脚的形状
62.0	花样升级	0: 普通模式 1: 花样升级模式	0	有关花样升级详见【5 通过 U 盘升级花样】一章
64.0	电子拨线	0 或 1	0	0: 压脚联动拨线 1: 电磁铁拨线
65.--	主控制板程序版本显示	X-XXX	-	厂家代码-版本号
66.--	操作面板程序版本显示	X-XXX	-	厂家代码-版本号
67.--	默认参数调用	0 或 1	1	有关该参数，详见【3.3 恢复出厂默认设置】
68.--	主轴停车补偿	-10~+10	0	
120.--	加润滑油报警针数	3000~12000	12000	单位：万针
121.0	计数器锁定设置	0: 可清零可加减; 1: 可清零不可加减; 2: 不可清零可加减; 3: 不可清零不可加减	0	需要输入解锁密码才能显示并更改此参数
122.1	脚踏板灵敏度设置	0: 普通模式 1: 灵敏模式	1	
123.0	剪刀位置传感器开启	0: 开启 1: 关闭	0	当出现 E307 错误时可以关闭
124.0	步进控制方式设置	0: DSP1 闭环 DSP2 闭环 1: DSP1 开环 DSP2 闭环 2: DSP1 闭环 DSP2 开环 3: DSP1 开环 DSP2 开环	0	需重启生效
123.0	剪刀位置传感器开启	0 开启，1 关闭	0	当出现 E307 错误时可以关闭
125.--	步进驱动软件版本	1-XXX 表示 DSP1， 2-XXX 表示 DSP2	按+/-键切换 DSP	
133.--	电子拨线延时调整	×10mS 可调，0~12	0mS	仅对使用拨线电磁铁的机型生效
134.0	缝制结束剪线动作角度	0 停车后剪线，1 分线后立即剪线	10	
136.0	收线电磁铁吸合持续时间	-1: 500mS 0: 1000mS	0	

参数号	定义	调整范围	初值	备注
		1: 1500mS		
138.0	线张力控制方式	0 类重机夹线方式; 1 支线方式	0	需重启生效
144.0	分线时间微调	-6~10	0	
146.--	压脚电机全流	0~15	14	需重启生效
147.--	压脚电机半流	0~15	5	需重启生效
150.0	机头翻起安全开关可以 无效	0: 普通 1: 机头翻起安全形 状无效	0	
160.0	脚踏板反踩急停功能使 能	0: 无效 1: 有效	0	
241.0	功能选择	0: 套结（加固） 7: 钉扣	0	

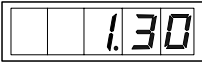
注：以上参数只供维修人员使用，用户不能轻易改动。

3. 恢复出厂默认设置

当用户无意中修改了某些出厂时设置好的参数或者电控系统出现故障时，可以尝试使用“恢复出厂默认设置”功能，进行系统恢复。

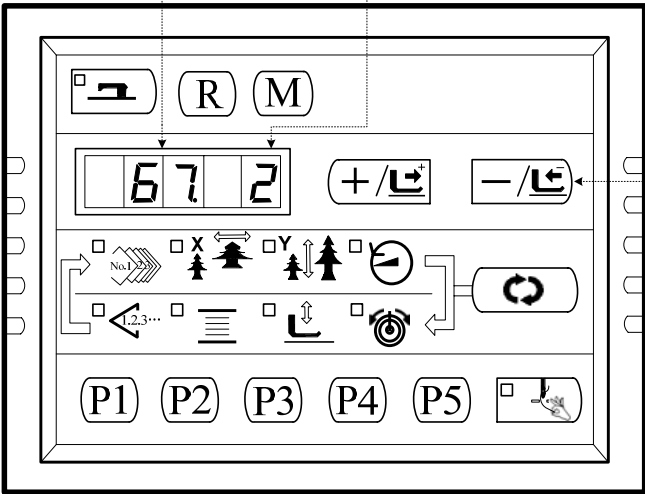
注意：恢复出厂默认设置，用户以前设定的数据参数将会被覆盖，使用此功能时，请慎重考虑，如不清楚，应及时联系厂家技术人员，在其指导下进行操作。

具体操作步骤如下：

- 1、在缝制灯熄灭的状态下，按  键，显示 ，然后同时按键，听到蜂鸣器响声后，即开启了服务参数变更；
- 2、按 、 键，选择 67 号参数：

服务参数列表中的“67”号
参数：恢复出厂默认设置

提示恢复的软件版本号：0；1；2；……



当缝制灯亮起时，按 、 键
可以变更软件版本号

- 3、按  键，缝制灯亮起，然后按 、 键，可以选择要恢复成的软件版本号：

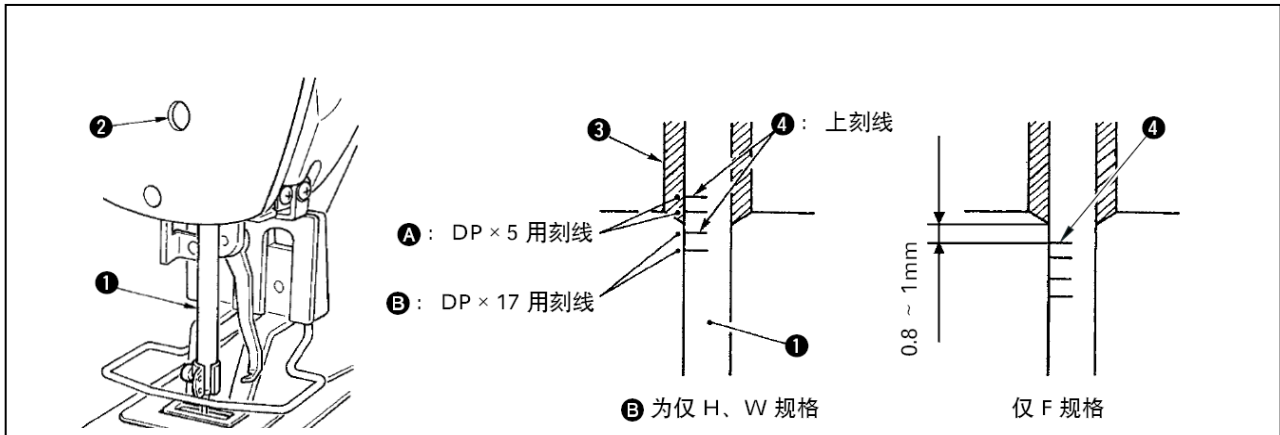
[9]维修

1.针杆高度



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。



把针杆①设到最下点，拧松针杆紧固螺丝②，把针杆上刻线④和针杆下挡块③的下端调节成一致。

仅 F 规格，请调整到针杆上刻线④中心下降 0.8mm—1mm 的位置。

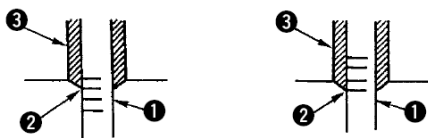


调节后请一定确认不要有松动。

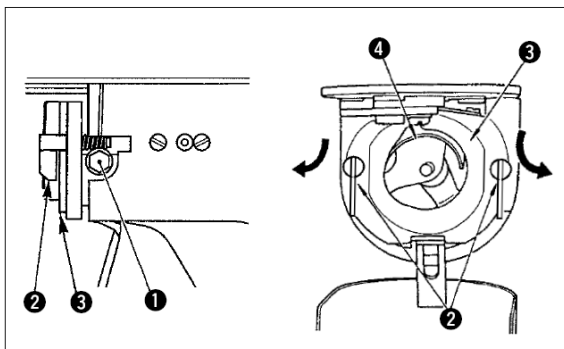
※有的缝制条件发生跳针时，请从针杆上刻线④往下调节 0.5mm—1mm。

2.机针与旋梭

机针和刻线的关系



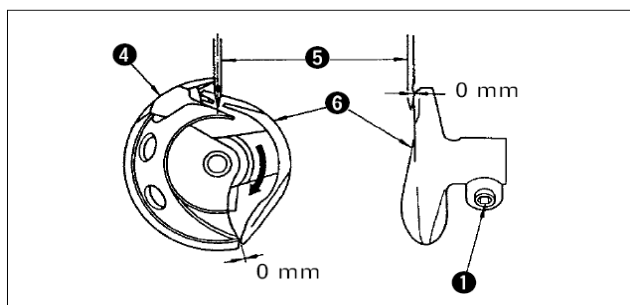
- 1) 用手转动皮带轮，针杆①上升时，把下刻线②对准针杆下挡块前端。



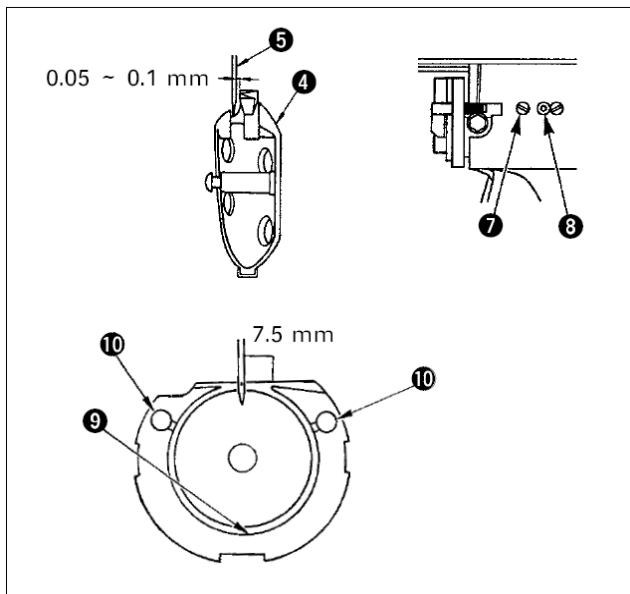
- 2) 拧松驱动器固定螺丝①，左右打开中旋梭压片②，卸下中旋梭压脚③。



此时请注意不要脱落中旋梭④。



- 3) 为了让中旋梭④的梭尖与针⑤的中心一致，同时防止驱动器⑥在前端面与机针相碰，弄弯机针，请把驱动器前端面与机针的间隙调整为 0mm，然后把驱动器固定螺丝①拧紧。



- 4) 拧松大旋梭固定⑦，左右转动大旋梭调节轴⑧，调节大旋梭的前后位置，把机针⑤和中旋梭④的梭尖的间隙调整为 0.05—0.1mm。
- 5) 调节完大旋梭的前位置后，机针和大旋梭的间隙应为 7.5mm，然后拧紧大旋梭固定螺丝⑦。



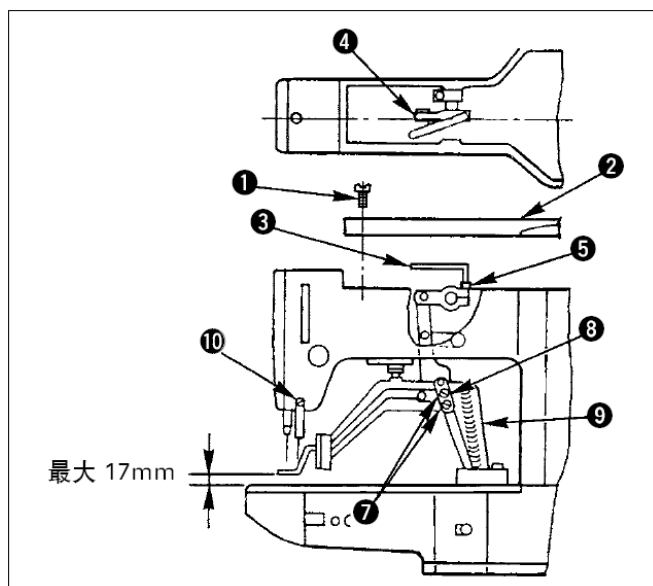
较长时间没有使用缝纫机或清扫过旋梭周围之后等时，请往轨道部⑨和油芯⑩加少量的机油后再使用。

3.压脚的高度



注意

为了防止意外的起动造成人身事故，请关掉电源后再进行操作。



- 1) 在停止状态，卸下 6 根机架外罩固定螺丝①，然后卸下机架外罩②。
- 2) 把 L 形扳手插入中央的紧固筒的六角孔螺栓⑤，把它拧松。
- 3) 把 L 形扳手③向下压布压脚升高，向上抬布压脚降低。
- 4) 调整后，把六角孔螺栓⑤确实拧紧。
- 5) 左右压脚不一致时，拧松固定螺丝⑦，调节布压脚拨杆挡板⑧调整高度。



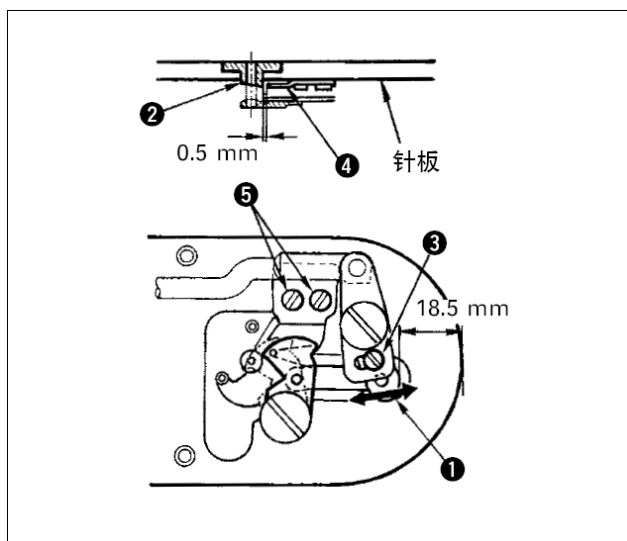
此时，请不要让步压脚拨杆挡板⑧与送布台⑨相碰，如果和挑线杆相碰，请用挑线杆安装台固定螺丝⑩调节挑线杆高度。

4.移动刀和固定刀



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。



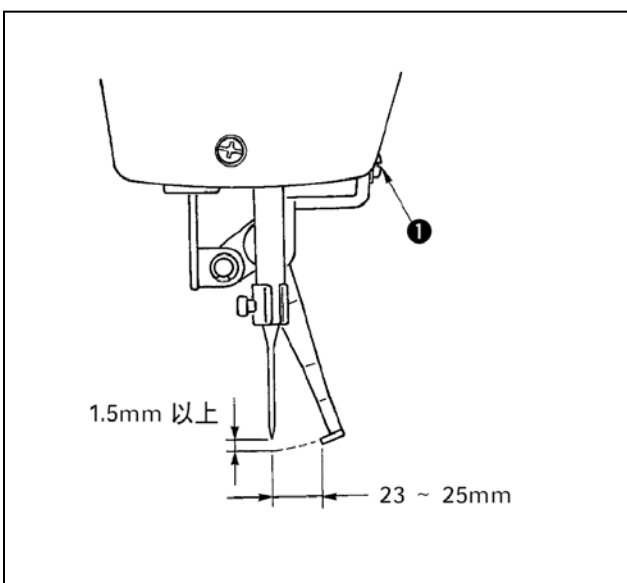
- 1) 拧松调节螺丝③，向箭头方向移动活动刀，把从针板前端到切线小拨杆①前端的距离调整为 18.5mm。
- 2) 拧松固定螺丝⑤，移动固定刀，把针孔导线器②和固定刀④之间的间隙调整为 0.5mm。

5.挑线杆的调整



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。

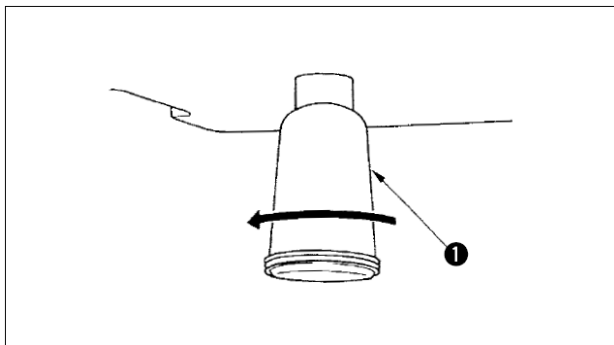


- 1) 拧松螺丝①把挑线杆和机针的间隙调整为 1.5 以上。

此时的挑线杆和机针的距离大约为 23~25mm,通过较宽的调整,在压脚下降时可以防止压到缝纫机线。特别是使用细线时，请调宽到 23mm 左右。

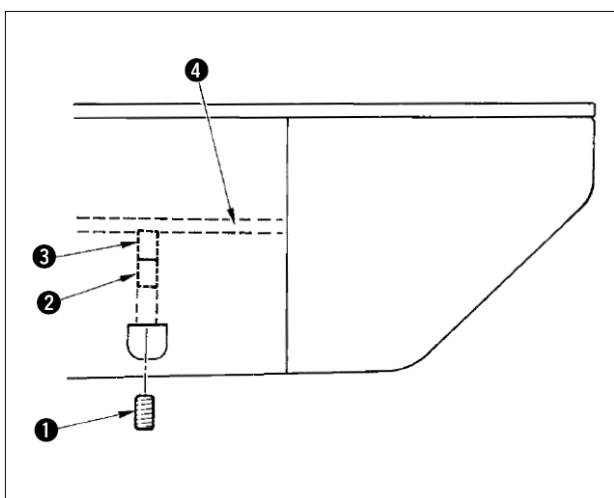
★机针为缝制结束停止的位置。

6.废油的处理



积油杯①里积满了油之后，请卸下机油杯①排放出废油。

7.旋梭的加油量



- 1) 拧松固定螺丝①，卸下固定螺丝①。
- 2) 拧紧调整螺丝②之后，加油管左④的油量被弄小。
- 3) 调整后，拧紧固定螺丝①固定好。



- 1.在标准出货状态，轻轻拧紧③，回转 4 圈的位置。
- 2.弄小油量时，不要一次拧紧，拧紧③回转 2 圈，待半日左右观看一下，拧得过紧的话会磨损旋梭。

8. 向指定部位补充润滑

使用缝纫机行进了一定的缝制次数之后，打开电源时操作盘上会显示出异常代码 No.E220。这是通知需要向指定部位补充润滑脂，此时请一定补充下列的润滑脂，叫出存储器开关 No.245，用复位键复位到「0」。显示出异常 No.E220 显示后，按复位键可以解除异常，但是再次打开电源后会再次显示出 No.E220。而且，异常 No.E220 显示，继续缝制一定期间后会显示出异常 No.E221，按复位键后即不能解除异常，同时缝纫机变成不能动作。

因此，显示出异常 No.E221 之后，请一定向下列部位补充润滑脂，然后启动存储器开关 No.245，用复位键复位到「0」。

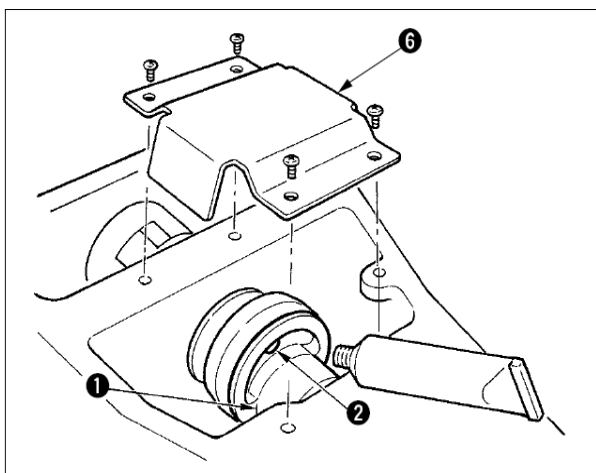


1. 补充润滑剂之后，如果不把存储器开关 No.245 变更为「0」，异常 No.E220 或 No.E221 会被再次显示。
2. 下列指定部位补充润滑脂时，请使用附属的润滑脂软管（货号 40013640）。如果补充了制定以外的润滑脂的话，有可能造成零部件损坏。



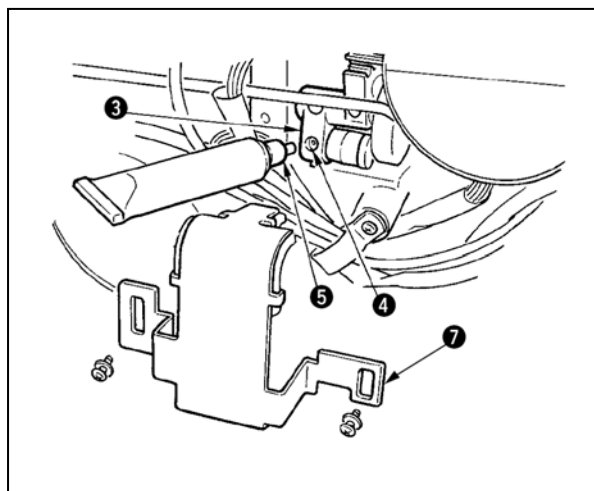
为了防止突然的起动造成人身事故，请关掉电源后再进行操作。

(1) 向偏心凸轮部加润滑脂



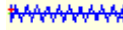
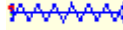
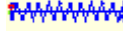
- 1) 打开上面护罩，卸下润滑脂护罩⑥。
- 2) 卸下偏心凸轮①侧面的橡胶盖②，然后补充润滑脂。

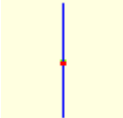
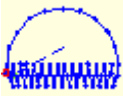
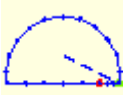
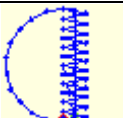
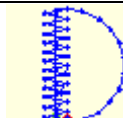
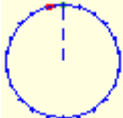
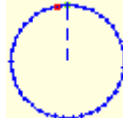
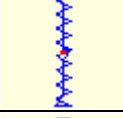
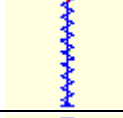
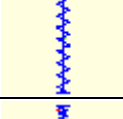
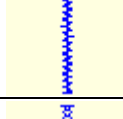
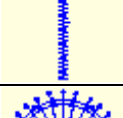
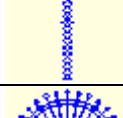
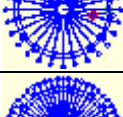
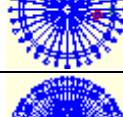
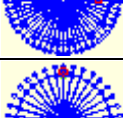
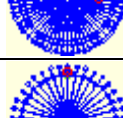
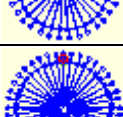
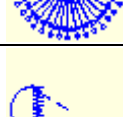
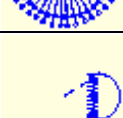
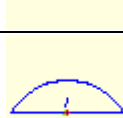
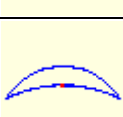
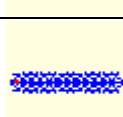
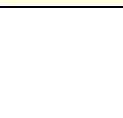
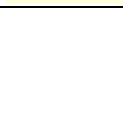
(2) 向大摆动销部加润滑脂

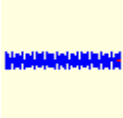
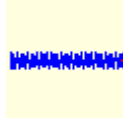
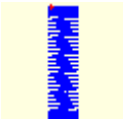
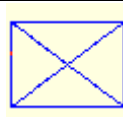
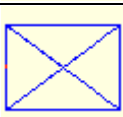
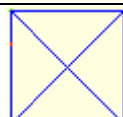
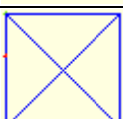
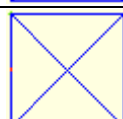
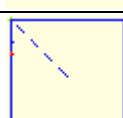
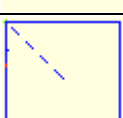
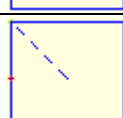
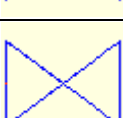
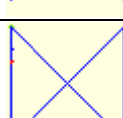
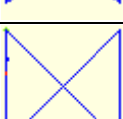
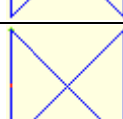
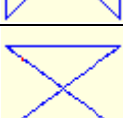
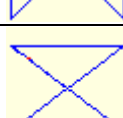
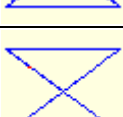
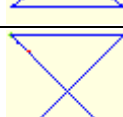
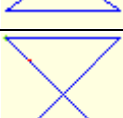
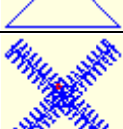
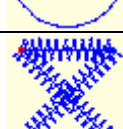


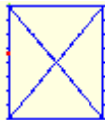
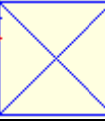
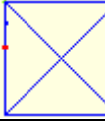
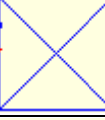
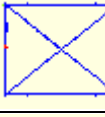
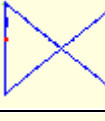
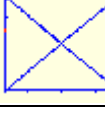
- 1) 放倒缝纫机，卸下润滑脂护罩⑦。
- 2) 卸下大摆动齿轮③的固定螺丝④，把安装的附属接头⑤的润滑脂软管拧到螺丝孔，然后补充润滑脂。
- 3) 补充了润滑脂之后，请把卸下的固定螺丝④拧紧固定。

9.套接标准花样一览表

NO.	缝纫图案	针数	长×宽 (mm)	NO.	缝纫图案	针数	长×宽 (mm)
1		41	16.1×2	2		41	10.2×2
3		41	16×2.4	4		41	24×3
5		27	10.1×2	6		27	16×2.4
7		35	10.1×2	8		35	16×2.4
9		55	24×3	10		63	24×3
11		20	6.1×2.4	12		27	6.2×2.4
13		35	6.1×2.4	14		14	8×2
15		20	8×2	16		27	8×2
17		20	10×0	18		27	10×0
19		27	25.2×0	20		35	24.8×0
21		40	25.2×0	22		43	35×0
23		27	4×20	24		35	4×20
25		41	4×20	26		55	4×20
27		17	0×20	28		20	0×10

NO.	缝纫图案	针数	长×宽 (mm)	NO.	缝纫图案	针数	长×宽 (mm)
29		20	0×20	30		27	0×20
31		51	10.1×7	32		62	12.1×7
33		23	10.2×6	34		30	12×6
35		47	7×10	36		47	7×10
37		89	24×3	38		27	8×2
39		25	11.8×12	40		45	12×12
41		28	2.4×20	42		38	2.4×25
43		38	2.4×25	44		57	2.4×30
45		75	2.4×30	46		41	2.4×30
47		89	8×8	48		98	8×8
49		147	8×8	50		163	8×8
51		110	7.9×7.9	52		120	7.9×7.9
53		130	7.9×7.9	54		51	12.4×10. 2
55		50	12.4×10. 2	56		52	21×6
57		57	21×6	58		102	19×3

NO.	缝纫图案	针数	长×宽 (mm)	NO.	缝纫图案	针数	长×宽 (mm)
59		115	40×5	60		115	40×5
61		308	6×25	62		257	6×20
63		108	40×30	64		80	40×30
65		64	40×30	66		96	30×30
67		76	30×30	68		60	30×30
69		52	40×30	70		40	40×30
71		32	40×30	72		44	30×30
73		36	30×30	74		28	30×30
75		60	40×30	76		48	40×30
77		36	40×30	78		56	30×30
79		44	30×30	80		36	30×30
81		67	40×30	82		51	40×30
83		39	40×30	84		55	30×30
85		35	30×30	86		42	30×30
87		145	16.2×16. 2	88		153	12×12.4

NO.	缝纫图案	针数	长×宽 (mm)	NO.	缝纫图案	针数	长×宽 (mm)
89		74	20×24	90		54	20×24
91		65	20×20	92		49	20×20
93		39	20×20	94		63	25×20
95		51	25×20	96		45	25×20
97		42	25×20	98		33	25×20
99		27	25×20	100		88	30×25

10.缝制时的故障、原因和对策

现象	原因	对策	页
1.始缝时脱线。	① 始缝时跳针。 ② 切线后上线长度短。 ③ 底线过短。 ④ 第1针的上线张力高。 ⑤ 抓线不稳定（布料容易伸长、线不滑、线粗等） ⑥ 第1针的间距小。	○ 机针和旋梭的间隙调整为0.05-0.1mm。 ○ 设定始缝时软启动。 ○ 调节第2线张力器的浮线量。 ○ 把挑线弹簧弄强或把第一线张力盘的张力减弱。 ○ 减弱底线张力。 ○ 弄大针孔导向器和固定刀的间隙。 ○ 降低第1针的张力。 ○ 降低缝制开始第1针的转速。（600~1000rpm左右） ○ 抓线针数增加3~4针。 ○ 增长第1针的间隙。 ○ 下降第1针的上线张力。	33 38 16 15 34
2.老断线。 化纤线拉断	① 旋梭、驱动器上有伤。 ② 针孔导向器上有伤。 ③ 机针碰布压脚。 ④ 线头进入大旋梭的沟里。 ⑤ 上线张力过强。 ⑥ 挑线弹簧过强。 ⑦ 化纤线摩热而断。	○ 卸下用细磨时或锉刀磨平。 ○ 用锉刀磨，或换新。 ○ 调节布压脚的位置。 ○ 卸下中旋梭，清除线头。 ○ 减弱上线张力。 ○ 减弱挑线弹簧。 ○ 使用硅油。	33 15 16 14
3.常断线。	① 针弯了。 ② 针碰布压脚。 ③ 针过粗。 ④ 驱动器把针弄得过弯。 ⑤ 在缝制开始时压脚压住缝纫机线（机针弯曲）。	○ 更换机针。 ○ 调节布压脚。 ○ 根据缝制物选用适当的机针。 ○ 调整针和旋梭的位置。 ○ 弄宽机针和挑线杆的距离。（23~25mm）	13 33 33 35
4.线切不断。	① 固定刀不锋利。 ② 针孔导向器和固定刀高低差小。 ③ 动刀位置不好。 ④ 最终针跳线。 ⑤ 底线张力低。	○ 更换固定刀。 ○ 把固定刀再弄弯一些。 ○ 调整动刀位置。 ○ 调整针和旋梭的同步。 ○ 提高底线张力。	34 33
5.常跳线。	① 针和旋梭调整不好。 ② 针和中旋梭的间隙过大。 ③ 针弯了。 ④ 驱动器把针弄得过弯。	○ 调整针和旋梭的位置。 ○ 调整针和旋梭的位置。 ○ 更换机针。 ○ 调整驱动器的位置。	33 33 13 33

现象	原因	对策	页
6.上线从布的里侧露出来。	① 上线紧线不好。 ② 线张力盘浮起机构不动作。 ③ 切线后的上线过长。 ④ 针数少。 ⑤ 缝制长度短时（缝制背面上线头露出。） ⑥ 针数少。	○ 加强上线张力。 ○ 确认缝制中第 2 线张力盘是否浮起。 ○ 加强第 1 线张力。 ○ 把抓线装置设定为 OFF。 ○ 把抓线装置设定为 OFF。 ○ 使用暗缝式下板。	15 15
7.切线时断线。	① 动刀位置不正确。	○ 调节动刀位置。	34
8.上线缠结在抓线装置上。	① 缝制开始的上线长。	○ 拧紧第 1 线张力器，把机线长度调整为 33~36mm。	
9.机线长度不一致。	① 挑线弹簧的张力低。	○ 提高挑线弹簧的张力。	
10.机线长度不能弄短。	① 挑线弹簧的张力低。 ② 挑线弹簧张力过强。 ③ 因为挑线弹簧的张力过低，所以动作不稳定。	○ 增强第 1 线张力器的张力。 ○ 降低挑线弹簧的张力。 ○ 增强挑线弹簧的张力，行程也变长。	
11.缝制开始第 2 针的底线结线部露出表面。	① 梭芯的空转大。 ② 底线张力低。 ③ 第 1 针的上线张力过强。	○ 调整活动刀位置。 ○ 增强底线张力。 ○ 下降第 1 针的上线张力。 ○ 把抓线装置设定为 OFF。	

II .HK2903SS 高速电子平缝钉扣缝纫机的说明

1.规格

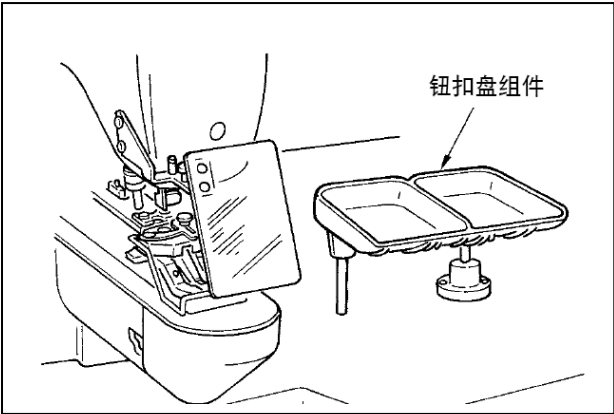
这里只记述与 HK2900SS 不同部位的说明内容。

- 1) 转速.....最高 2700rpm
- 2) 使用机针.....DP×17#14
- 3) 压脚提升方式.....伺服马达
- 4) 压脚上升量.....最大 13mm
- 5) 记忆数据数量.....50 种
- 6) 拨线方式..... 伺服马达压脚提升连动

2.安装和运转准备

**危险**

搬运缝纫机时，一定要 2 人以上来搬运。



- 1) 机头、电气箱的安装与 HK2900SS 相同，请参考 HK2900SS 使用说明书。
- 2) 附属品安装在纽扣盘架上，请安装到容易作业的位置。
- 3) 操作方法与 HK2900SS 相同。



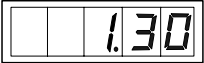
运转前请转动手轮确认机针是否与纽扣相碰。

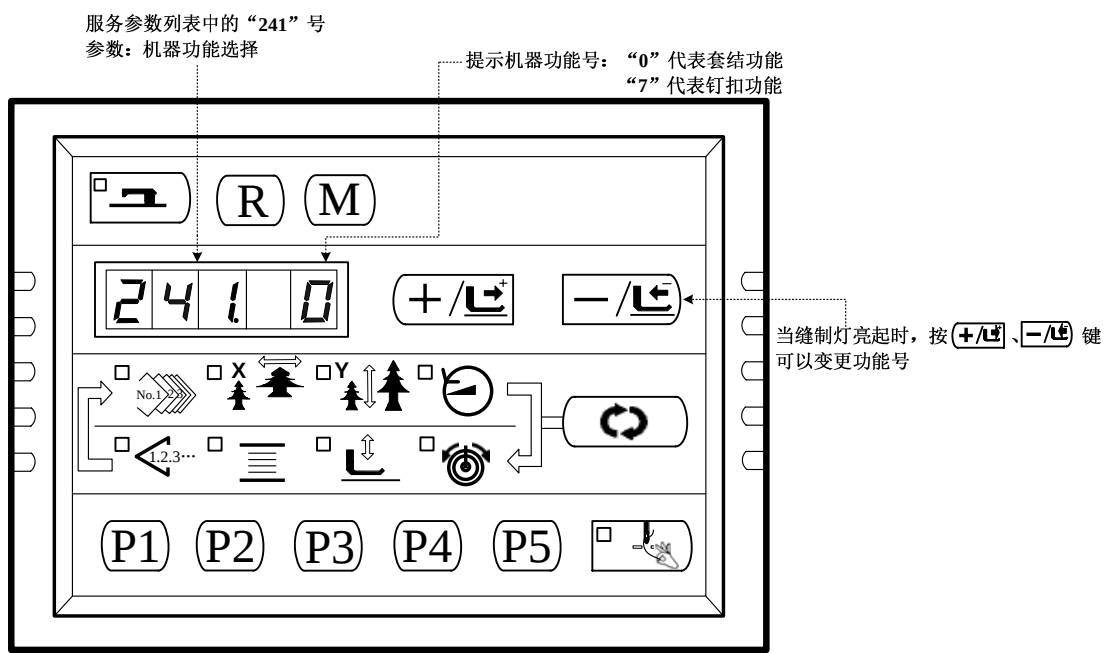
3.机针和机线

机针	上线	底线
DP×17#14	#60	#80
	#60	#60
	#50	#60
	#40	#60

机针和机线，因缝制条件不同而不同，使用时请参考左表选择，最好使用棉线，聚脂短纤维线。

4.钉扣功能设定

- 1、在缝制灯熄灭的状态下，按  键，显示 ，然后    同时按键，听到蜂鸣器响声后，即开启了服务参数变更；
- 2、按 、 键，选择 241 号参数：



- 3、按  键，缝制灯亮起，然后按 、 键，将功能号变更为“7”；再次按  键确认功能号，缝制灯灭。
- 4、按  键，退出服务参数设置模式，返回到普通缝制模式；断电并再次上电后，机器功能变更为钉扣功能。

5. 钉扣标准花样一览表

图案号	缝制图案	缝线(根)	标准缝制长度X(mm)	标准缝制长度Y(mm)	图案号	缝制图案	缝线(根)	标准缝制长度X(mm)	标准缝制长度Y(mm)
1・34		6-6	3.4	3.4	18・44		6	3.4	0
2・35		8-8			19・45		8		
3		10-10			20		10		
4		12-12			21		12		
5・36		6-6			22		16		
6・37		8-8			23・46		6	0	3.4

图案号	缝制图案	缝线(根)	标准缝制长度X(mm)	标准缝制长度Y(mm)	图案号	缝制图案	缝线(根)	标准缝制长度X(mm)	标准缝制长度Y(mm)
7		10-10			24		10		
8		12-12			25		12		
9 • 38		6-6			26 • 47		6-6	3.4	3.4
10 • 39		8-8			27		10-10		
11		10-10			28 • 48		6-6		
12 • 40		6-6			29		10-10		
13 • 41		8-8			30 • 49		5-5-5	3.0	2.5
14		10-10			31		8-8-8		
15 • 42		6-6			32 • 50		5-5-5		
16 • 43		8-8			33		8-8-8		
17		10-10							

(2) 关于缝制图案的选定和缝制宽度

- 缝制图案的选定方法与 HK2900SS 相同。
- 缝制图案号的标准缝纫宽与使用钮扣的钮孔不合时，请利用扩大、缩小功能进行调整。扩大、缩小方法与 HK2900SS 相同。
- 变更了缝制图案号和缝纫宽度之后，请一定确认落针位置。确认方法请参考 HK2900SS 使用说明书图案形状的确。

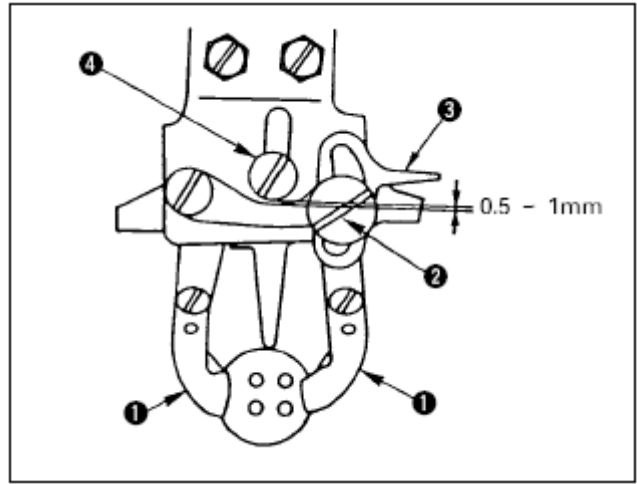
◎根据缝制宽度调整 X、Y 扩大、缩小率一览表

X Δ Y (mm)	2.4	2.6	2.8	3	3.2	3.4	3.6	4	4.3	4.5	4.7	5.2	5.6	6	6.2	6.4	
%	71	76	82	88	94	100	106	118	126	132	138	153	165	176	182	188	

6.爪脚张开拨杆的调整


注意

为了防止突然的起动造成人身事故，请关掉电源，确认马达完全停止后再进行操作。



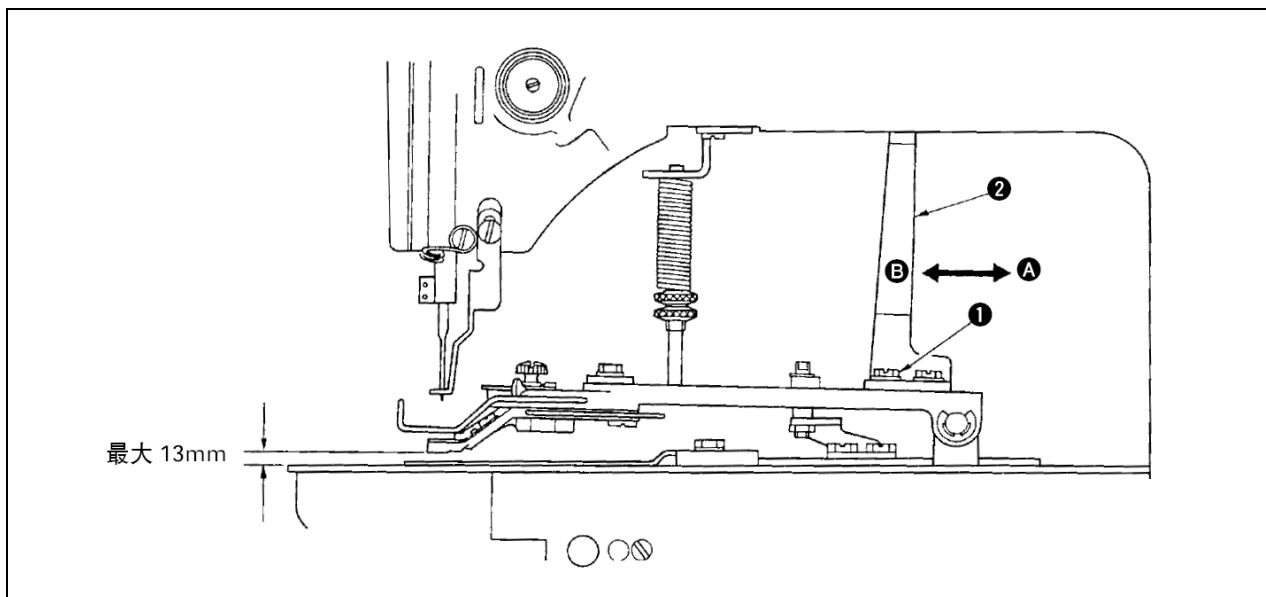
在让停止位置的爪脚①上升的状态，拧松打开爪脚拨杆固定螺丝②，让钮扣设定到爪脚②，把爪脚打开拨杆③和塔形螺丝④之间的间隙为0.5—1mm，然后拧紧打开爪脚拨杆固定螺丝②。

7. 钮扣爪脚上升量的调整



注意

为了防止突然的起动造成人身事故，请关掉电源，确认马达完全停止后再进行操作。



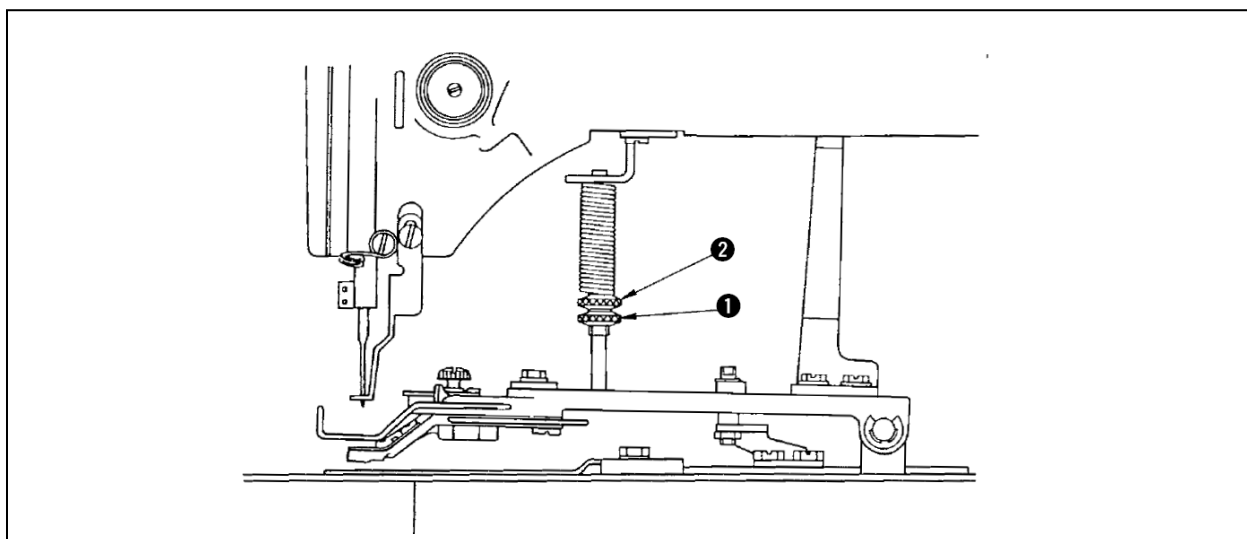
把压脚提升动作板②向 A 方向移动后，提升量变低，向 B 方向移动后，则变高，后把固定螺丝确实拧紧固定。请拧松 2 个固定螺丝①，前后调整压脚提升动作板②进行整。

8. 压脚压力的调整



注意

为了防止突然的起动造成人身事故，请关掉电源，确认马达完全停止后再进行操作。



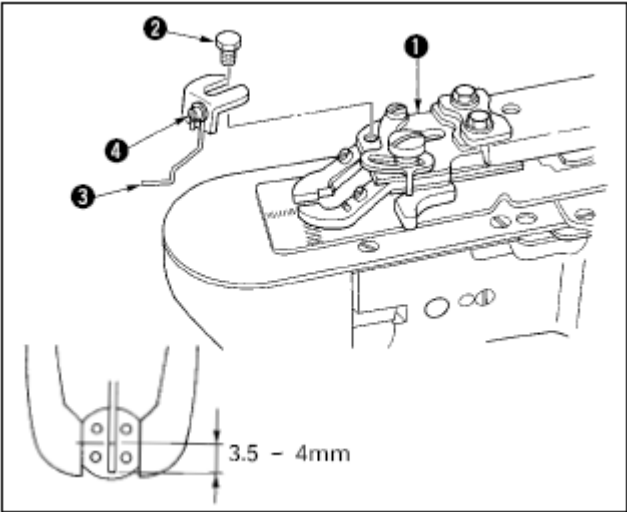
拧松调整螺丝①，转动调节螺丝②，使布料运转中尽量不要偏斜。

9.钮扣挑起杆的安装（选购品）



注意

为了防止突然的起动造成人身事故，请关掉电源，确认马达完全停止后再进行操作。



- 1) 用六脚螺丝②把钮扣挑起杆③安装到爪脚安装台①上。
- 2) 把挑起杆移动到钮扣中心位置，让钮扣中心到挑起杆前端的距离为 3.5—4mm。
- 3) 请拧松螺丝④，上下移动挑线杆，调节挑线量。

10.按钮扣尺寸分类的机种

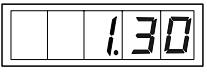
机种名称			HK2903-301		HK2903-302	
钮扣尺寸分类			小钮扣用		中钮扣用	
可以缝制的钮扣外径（mm）			Φ 10~Φ 20		Φ 10~Φ 20	
缝制尺寸（mm）	纵		0~3.5		0~4.5	
	横		0~3.5		0~4.5	
钮扣爪脚	厚度（mm）		2.2（2.7）		2.7（2.2）	
			*		*	
	货号	右	MAZ155070B0	B	MAZ156070B0	C
			（MAZ156070B0）	C	（MAZ155070B0）	B
		左	MAZ155080B0	B	MAZ156080B0	C
			（MAZ156080B0）	C	（MAZ155080B0）	B
针孔导板			MAZ15501000		MAZ15601000	
布压脚底板			MAZ15502000		MAZ15601000	

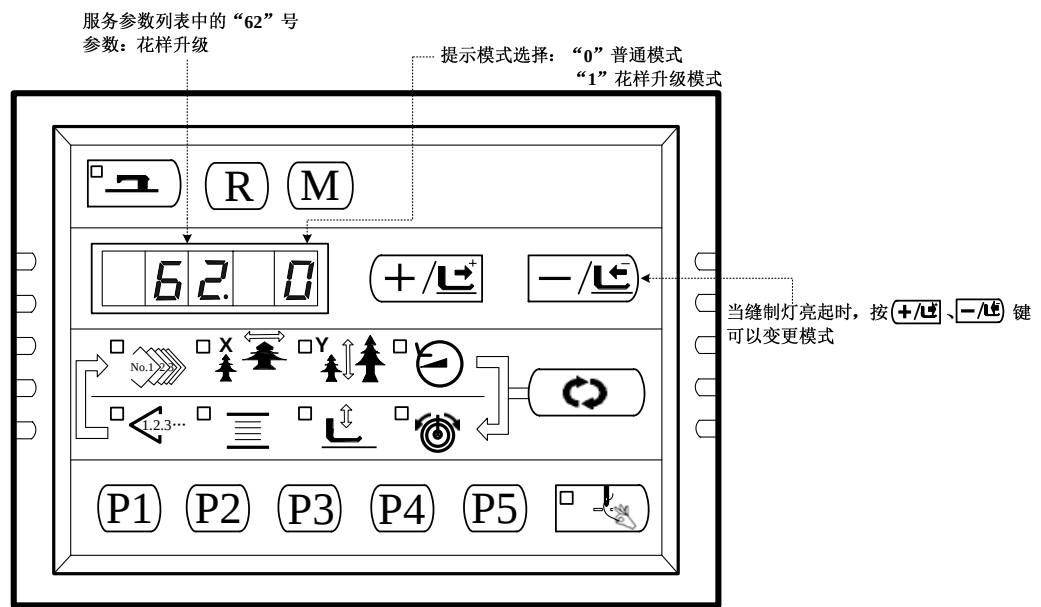
()为特别订制品。

※刻印

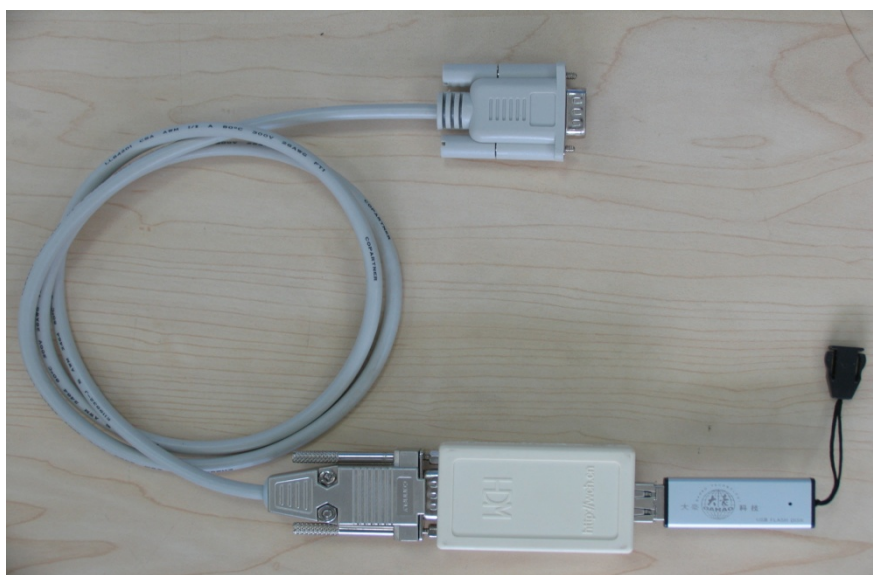
III 通过 U 盘升级花样

花样升级操作

- 1、在缝制灯熄灭的状态下，按 **(M)** 键，显示 ，然后 **(P1)** **(P3)** **(P5)** 同时按键，听到蜂鸣器响声后，即开启了服务参数变更；
- 2、按 **(+/E+)**、**(-/E-)** 键，选择 62 号参数：



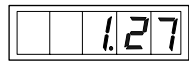
- 3、按  键，缝制灯亮起，然后按 **(+/E+)**、**(-/E-)** 键，将功能号变更为“1”；再次按  键确认功能号，缝制灯灭。
- 4、请您注意以下操作中的区别：
 - i. 当您使用的是老式 USB 升级模块的话，即面板上不带有 USB 插口的情况，请按照下面的方法进行升级：
 1. 关闭电源；拔下电脑控制器 X7 接口上的操作面板插头；将花样升级器的插头插入 X7 接口。
花样升级器如下图所示：



1. 将用户花样文件命名为“DH”，文件类型为.bin，并保存在 U 盘根目录下的 DH 文件夹

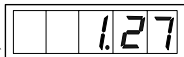
中，然后将 U 盘插入花样升级器的 USB 接口；打开电源，系统自动将用户所需的花样升级到电脑控制器的内存中，花样号从 101 到 200，同时将用户原有的 101 到 200 号花样数据备份到 DH 文件夹下名为 DHBAK.bin 的文件中（若 101 到 200 号花样没有数据，则备份文件的内容为空）。在升级过程中，控制箱前侧的红灯会不停闪烁，表示正在升级，此时请勿拔插升级器，花样升级完毕后，电脑控制器的蜂鸣器会鸣响一声，用以提示升级成功。

2. 关闭电源。拔下花样升级器，重新插上操作面板。打开电源，按  键，显示

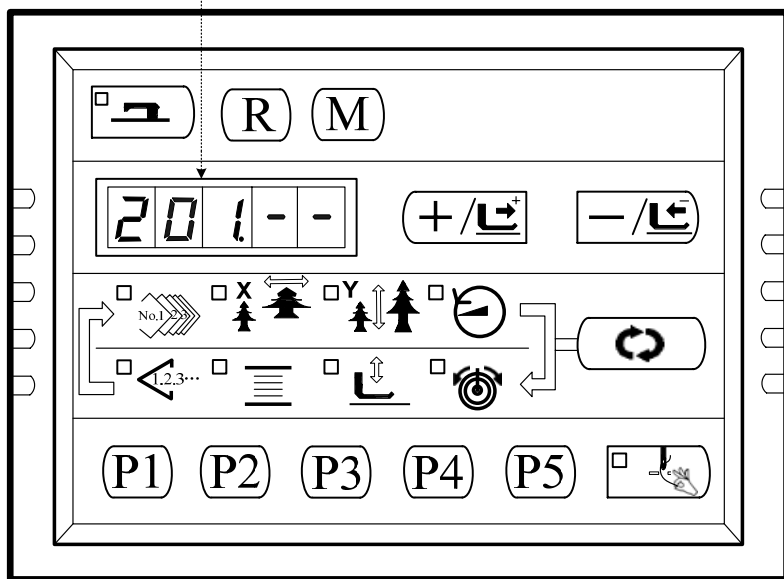


，然后按 、 键，选择参数号为“201”的用户参数。

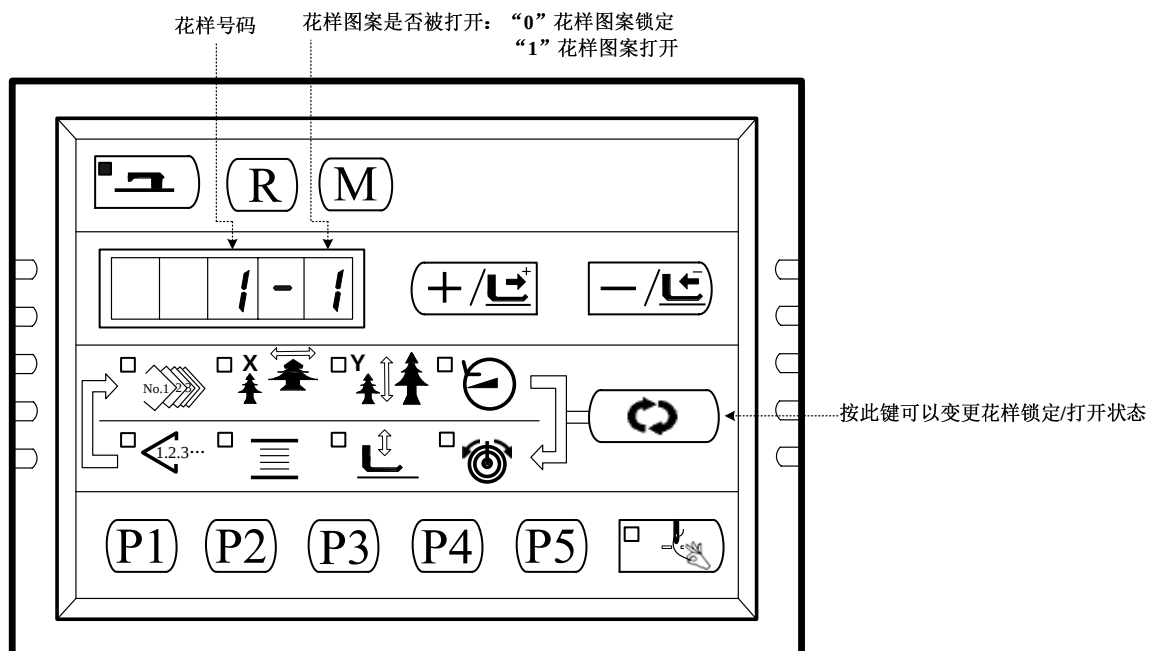
ii. 当您使用的电脑面板上右侧配有 USB 插口时，即说明您使用的是新式带 USB 功能的面板，请您按以下操作进行升级：

1. 如果您使用的是新式带 USB 功能的面板，则无需升级模块，亦无需关闭电源。
2. 只需将用户花样文件命名为“DH”，文件类型为.bin，并保存在 U 盘根目录下您所创建的 DH 文件夹中，然后将 U 盘插入到操作面板的 USB 接口；
3. 在您进行“5.1 中 3”的操作后，面板将自动跳变到“usb--”，并进行花样升级，当您听到电脑控制器的蜂鸣器鸣响一声后，则升级成功，同时会将客户曾升级过花样备份到 U 盘的 DH 文件夹下名为 DHBAK.bin 的文件中，无需操作面板会自动跳转到花样号选择界面。
4. 按  键，显示 ，然后按 、 键，选择参数号为“201”的用户参数。

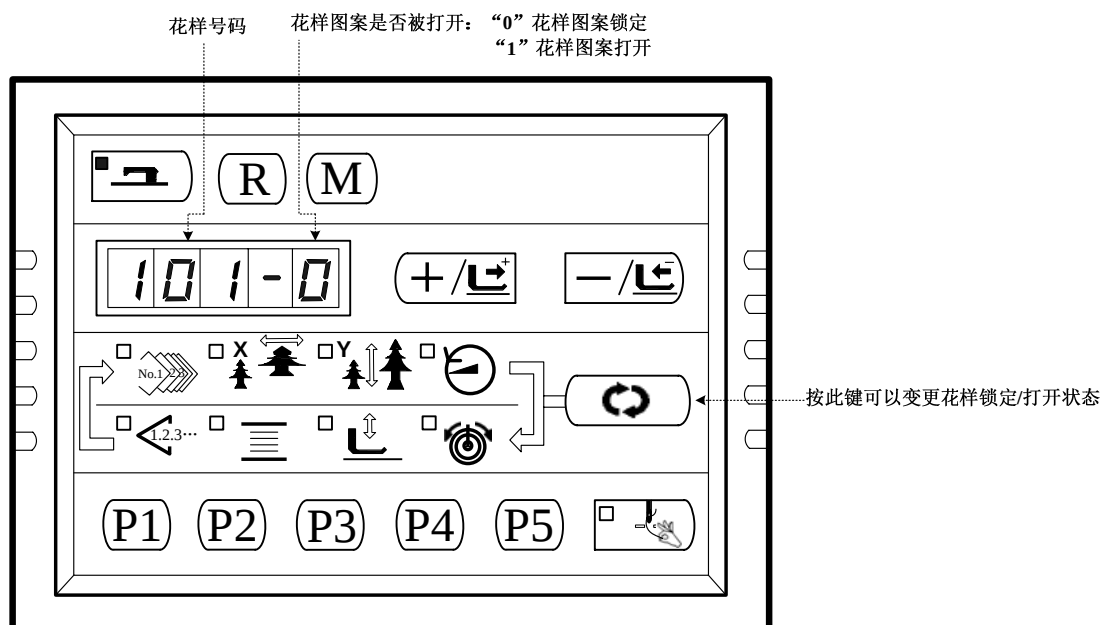
用户参数列表中的“201”号参数：
设定是否可以读出图案数据



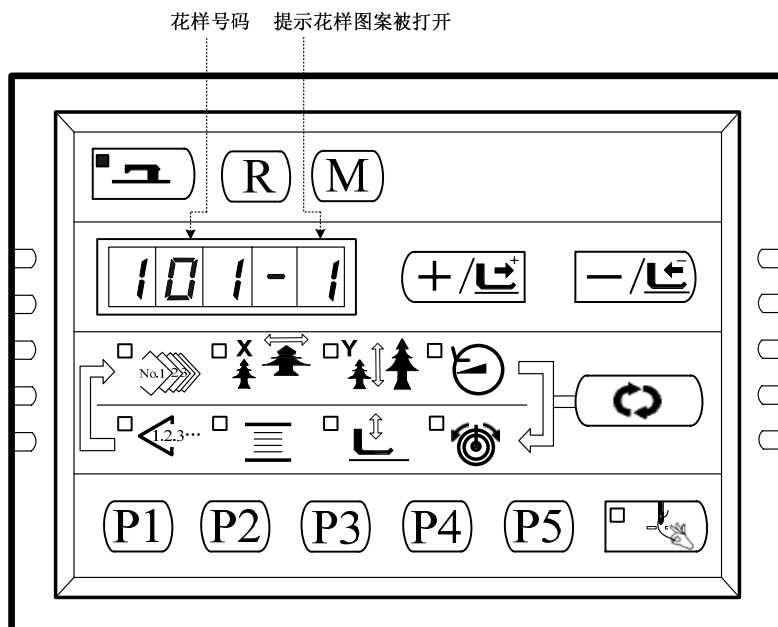
5. 按  键，缝制灯亮起，进入花样开关模式，屏幕显示“1-1”：



6、按 、 键，选择你想变更的花样号码（例如 101 号花样）：



7、按 键，显示由“101-0”变更为“101-1”，即 101 号花样图案被开打：



- 8、按 键，缝制灯熄灭，保存设置的参数，并退回到步骤 6 的界面；用户可以反复操作步骤 6-10，将所需的全部花样打开或者锁定。
- 9、按 键，退回到正常缝制模式。
- 10、用 键选中花样号码图标（参照【2.4.1 项目数据的设定】），然后按 、 键，可以检索到解除锁定的 101 号花样图案，并开始缝制作业。

IV附录 1

异常信息一览表

显示	异常名称	异常内容	原因及解除方法
E 7	机器锁定	因为发生了某些故障，缝纫机主轴不能转动。	发送主轴运转命令后，主轴电机无反映。查看主轴电机驱动电路六路 PWM 波形是否正常，编码器反馈信号是否正常，也可能是机械卡死所造成。
E 10	图案 NO. 异常	被准备的图案 NO. 没有登记到 ROM 里，或是被设定为不能读出。图案 NO. 为 0。	按复位开关，确认图案 NO.。确认存储器开关 NO. 201 的内容。
E 30	针杆上位置异常	针杆不在上位置。	主轴停车位置错误，可能是主轴驱动的原因，也可能是人为转动所致。转动手轮，把针杆返回到上位置。
E 40	超过缝制区域	超过缝制区域。	按复位开关，确认图案和 X、Y 放大率。 触发条件：软件花样计算报错。
E 43	扩大异常	针迹不大于 10mm	按复位开关，确认图案和 X、Y 放大率。
E 45	图案数据异常	这是不能对应的图案数据	关闭电源，确认数据 ROM。
E 50	暂停	缝纫机运转中按了复位开关，暂停。	按复位开关切线后，再次开始或返回原点。
E 221	补充润滑油告警异常	机器运转到了向指定位置补充润滑油的时期，所以缝纫机停止了。	重新上电，进入参数 245，按复位键清零后，重现上电。
E 302	机头翻倒异常	机头翻倒检测开关被设定为 ON。	在放倒机头的状态不能运转。请返回到正常的位置。技术人员可直接用短路块将 SC202B 上的 2P 蓝色插头短路。
E 303	24V 电源异常	24V 电压过低。	关闭电源，稍待一些时间后再次打开电源。
E 305	压脚位置异常	压脚不在正确位置。	关闭电源开关，确认机头信号电路板上的 CZ025 是否松动脱落。若未松动，检查该路光藕。
E 306	抓线位置异常	抓线装置不在正确位置。	关闭电源开关，确认机头信号电路板上的 CZ026 是否松动脱落。若未松动，检查该路光藕。
E 307	切线切刀位置异常	切线刀不在正确位置。	关闭电源开关，确认机头信号电路板上的 CZ024 是否松动脱落。若未松动，检查该路光藕。
E680	步进闭环 DSP1(X25/X27)通信错误	步进对接收到的指令进行校验未通过。	查看 SPI 通信线缆连接是否正确、牢固。

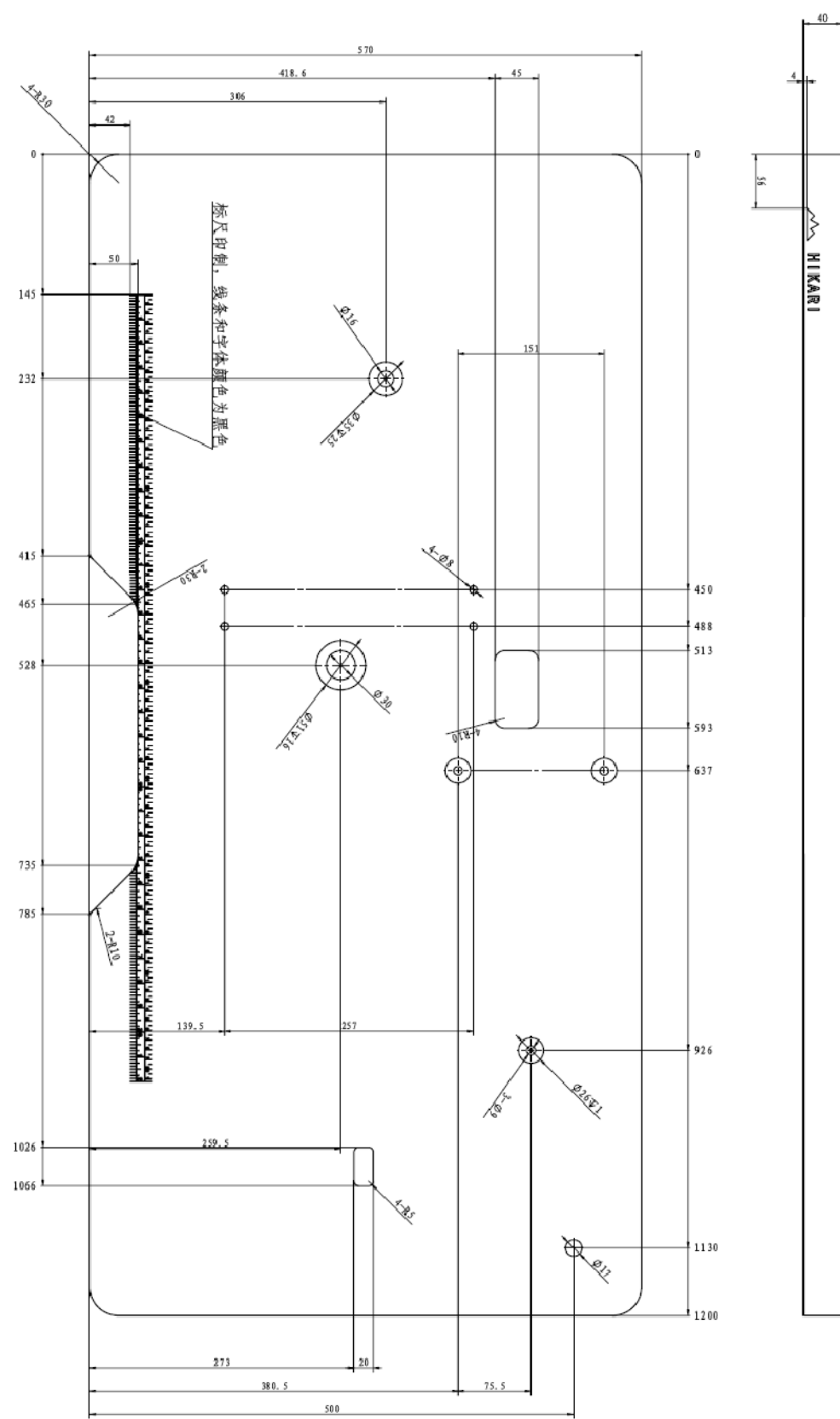
显示	异常名称	异常内容	原因及解除方法
E681	步进闭环 DSP1 第一路(X27)过流	硬件检测到有大电流出现。	首先检查电机是否正常，可测量电阻、电感值是否在正常范围内。如果电机正常，则需确认步进板硬件是否正常。
E682	步进闭环 DSP1 第一路(X27)超差	检测到的编码器反馈位置与程序中的指令位置不符。	将步进电机改成开环模式运行，如果可以正常动作，则电机正常。如果电机不能正常动作，则需要排查步进板驱动部分及电机本体。做完上述工作后，排查编码器部分，看编码器线缆是否插错，是否插牢，是否有编码器信号线损坏以及步进板信号反馈部分及编码器本体是否正常。
E683	步进闭环 DSP1 第一路(X27)超速	通过编码器反馈信号检测到电机转速异常时报此错误。	检查方法同检查超差错误。
E685	步进闭环 DSP1 第二路(X25)过流	硬件检测到有大电流出现。	首先检查电机是否正常，可测量电阻、电感值是否在正常范围内。如果电机正常，则需确认步进板硬件是否正常。
E686	步进闭环 DSP1 第二路(X25)超差	检测到的编码器反馈位置与程序中的指令位置不符。	将步进电机改成开环模式运行，如果可以正常动作，则电机正常。如果电机不能正常动作，则需要排查步进板驱动部分及电机本体。做完上述工作后，排查编码器部分，看编码器线缆是否插错，是否插牢，是否有编码器信号线损坏以及步进板信号反馈部分及编码器本体是否正常。
E687	步进闭环 DSP1 第二路(X25)超速	通过编码器反馈信号检测到电机转速异常时报此错误。	检查方法同检查超差错误。
E690	步进闭环 DSP2(X21/X23)通信错误	步进对接收到的指令进行校验未通过。	查看 SPI 通信线缆连接是否正确、牢固。
E691	步进闭环 DSP2 第一路(X23)过流	硬件检测到有大电流出现。	首先检查电机是否正常，可测量电阻、电感值是否在正常范围内。如果电机正常，则需确认步进板硬件是否正常。

显示	异常名称	异常内容	原因及解除方法
E692	步进闭环 DSP2 第一路(X23)超差	检测到的编码器反馈位置与程序中的指令位置不符。	将步进电机改成开环模式运行，如果可以正常动作，则电机正常。如果电机不能正常动作，则需要排查步进板驱动部分及电机本体。做完上述工作后，排查编码器部分，看编码器线缆是否插错，是否插牢，是否有编码器信号线损坏以及步进板信号反馈部分及编码器本体是否正常。
E693	步进闭环 DSP2 第一路(X23)超速	通过编码器反馈信号检测到电机转速异常时报此错误。	检查方法同检查超差错误。
E695	步进闭环 DSP2 第二路(X21)过流	硬件检测到有大电流出现。	首先检查电机是否正常，可测量电阻、电感值是否在正常范围内。如果电机正常，则需确认步进板硬件是否正常。
E696	步进闭环 DSP2 第二路(X21)超差	检测到的编码器反馈位置与程序中的指令位置不符。	将步进电机改成开环模式运行，如果可以正常动作，则电机正常。如果电机不能正常动作，则需要排查步进板驱动部分及电机本体。做完上述工作后，排查编码器部分，看编码器线缆是否插错，是否插牢，是否有编码器信号线损坏以及步进板信号反馈部分及编码器本体是否正常。
E697	步进闭环 DSP2 第二路(X21)超速	通过编码器反馈信号检测到电机转速异常时报此错误。	检查方法同检查超差错误。
E 730	编码器未接	不能检测 ADTC 信号。	关闭电源开关，确认 X5 插头是否插紧。
E 731	主板与步进通讯异常	通讯冲突。	关闭电源开关，排除故障。检查编码器信号是否正常。
E 733	主轴过流	马达停转。	在机械不卡的情况下，检查主轴编码器是否连接良好。
E 735	停车电流异常	主轴停车过程中出现过流。	关闭电源，稍待一些时间后再次打开电源。更换主轴电机确认电机是否损坏；如果问题不能解决，请更换主板。
E 736	主板 IPM 瞬时过流	主板 IPM 驱动模块短时间内电流过大。	关闭电源，稍待一些时间后再次打开电源。更换主轴电机确认电机是否损坏；如果问题不能解决，请更换主板。
E 737	主板 IPM 多次过流	主板 IPM 驱动模块在上电后累计多次出现过流。	关闭电源，稍待一些时间后再次打开电源。更换主轴电机确认电机是否损坏；如果问题不能解决，请更换主板。

显示	异常名称	异常内容	原因及解除方法
E 738	主板 IPM 工况恶劣	主板 IPM 驱动模块出现过流次数过多。	关闭电源，稍待一些时间后再次打开电源。更换主轴电机确认电机是否损坏；如果问题不能解决，请更换主板。
E 739	主轴电机过载	主轴电机负载过大，功率超过电机承受范围。	关闭电源，稍待一些时间后再次打开电源。更换主轴电机确认电机是否损坏；如果问题不能解决，请更换主板。
E 740	主轴电机转速异常	主轴电机转速超出正常范围。	关闭电源，稍待一些时间后再次打开电源。更换主轴电机确认电机是否损坏；如果问题不能解决，请更换主板。
E 811	电压过高异常	电源电压超过规定值。	检测到 AC_OVDT 信号为高，确认电源电压及相关电路。
E 813	电压过低异常	电源电压不足。	采样 UZKIN 模拟量过低，确认电源电压及相关电路。
E 901	主轴驱动器不良	主轴驱动器检测出异常。	关闭电源，稍待一些时间后再次打开电源。
E 903	步进驱动异常	步进驱动板过流。	关闭电源，稍待一些时间后再次打开电源。
E 904	24V 电源异常	24V 过流。	关闭电源，稍待一些时间后再次打开电源。
E 906	主轴失控	主轴电机失去控制。	关闭电源，稍待一些时间后再次打开电源。
E 907	X 原点检索异常	X 原点传感器不变化。	关闭电源开关，确认机头信号电路板 CZ021、控制箱 X9 是否松动、脱落。
E 908	Y 原点检索异常	Y 原点传感器不变化。	关闭电源开关，确认机头信号电路板 CZ022、控制箱 X9 是否松动、脱落。
E 910	压脚原点检索异常	压脚原点传感器不变化。	关闭电源开关，确认机头信号电路板 CZ025、控制箱 X9 是否松动、脱落。
E 911	X 向步进电机忙碌中	X 电机在动作中主控再次发送动作命令。	关闭电源，稍待一些时间后再次打开电源。如果问题不能解决，请更换步进板。
E 912	Y 向步进电机忙碌中	Y 电机在动作中主控再次发送动作命令。	关闭电源，稍待一些时间后再次打开电源。如果问题不能解决，请更换步进板。
E 913	抓线原点检索异常	抓线原点传感器不变化。	关闭电源开关，确认机头信号电路板 CZ026、控制箱 X9 是否松动、脱落。
E 914	传送不良异常	送布和主轴不同步。	关闭电源，稍待一些时间后再次打开电源。送不角度错误。
E 915	主电路板-操作面板通信异常	主电路板与操作面板不能通信或通讯错误。	关闭电源，稍待一些时间后再次打开电源。检查通讯线缆及主板与操作面板是否有故障。

显示	异常名称	异常内容	原因及解除方法
E 916	主电路板-步进电路板通信异常	主电路板与步进电路板不能通信或通讯错误。	关闭电源，稍待一些时间后再次打开电源。检查通讯线缆及主板与驱动板是否有故障。
E 918	压脚步进电机忙碌中	压脚电机在动作中主控再次发送动作命令。	关闭电源，稍待一些时间后再次打开电源。如果问题不能解决，请更换步进板。
E 919	步进驱动类型错误	步进板软件不是套结机类型驱动。	更换套结机使用的步进板或更新步进办程序。
E 920	步进软件版本错误	步进板软件版本错误。	更换套结机使用的步进板或更新步进办程序。
E 921	X 向步进动作步数校验异常	完成一次缝纫后主控检测到步进板在 X 方向接收的命令与主控发送的命令步数不符。	关闭电源，稍待一些时间后再次打开电源。如果问题不能解决，请更换步进板。
E 922	Y 向步进动作步数校验异常	完成一次缝纫后主控检测到步进板在 X 方向接收的命令与主控发送的命令步数不符。	关闭电源，稍待一些时间后再次打开电源。如果问题不能解决，请更换步进板。

机台台板



Safety precautions

1. Safety operation indications:

This instruction manual book and the safety indications of products are help to you to use the products in the right way, ensure safe operation

 DANGER	If ignore this symbol and make the mistake operation, will almost certainly cause death or sever injury.
 CAUTION	If ignore this symbol and make the mistake operation, will make human injury and physical damage to equipment.
	This symbol indicates” matters need attention”. The picture inside the triangle indicates the content need attention,(for example, the symbol at left means beware of injury.
	This symbol indicates “prohibit”.
	This symbol indicates something must do. The picture inside the circle give the details. (For example, the symbol at left means “you must make the ground connection”.

2. safety precautions

 DANGER	
	Wait at least 5 minutes after turning off the power switch and disconnecting the power cord from the wall outlet before opening the face plate of the control box. Touching areas where high voltages are present can result in severe injury.
 caution	
Environmental requirements	
	Use the sewing machine in an area which is free from sources of strong electrical noise such as high-frequency welders.
	Any fluctuations in the power supply voltage should be within $\pm 20\%$ of the rated voltage for the machine. Voltage fluctuations which are greater than this may cause problems with correct operation. it need to equip with voltage stabilizer
	The ambient temperature should be within the range of 5℃~to 35℃ Temperatures which are lower or higher than this may cause problems
	The relative humidity should be within the range of 45% to 85% during use, and no dew formation should occur in any devices.Excessively dry or humid environments and dew formation may cause problems

	The supply of compressed gas shall be over the consumption required by the sewing machine. The insufficient supply of compressed gas will lead to the abnormal action of sewing machine.
	In the event of an thunderstorms raining day ,turn off the power and disconnect the power cord from the wall outlet .lighting may cause problems
Installation	
	Machine installation should only be carried out by a qualified technician.
	Do not connect the power cord until installation is complete, If mistake start the switch, could result in injury.
	Hold the machine head with both hands when tilting it back or returning it to its original position, do not push the sewing machine;If the sewing machine lose the balance, machine will fall down on the ground make the injury and cause the damage of the machines;
	Be sure to connect the ground. Lose ground connection is the reason of the electric shock and the mistake operation
	All cords should be secured at least 25mm away from any moving parts. Furthermore, do not excessively bend the cords or secure them too firmly with staples, otherwise there is the danger that fire or electric shocks could occur.
	Install the safety covers to the machine head and motor.
Sewing	
	This sewing machine should only be used by operators who have received the necessary training in safe use beforehand.
	The sewing machine should not be used for any applications other than sewing.
	Be sure to wear protective goggles when using the machine. If goggles are not worn, there is the danger that if a needle breaks, parts of the broken needle may enter your eyes and injury may result.
	Turn off the power switch at following times, otherwise the machine May operate if the foot switch is depressed by mistake, which could result in injury. 1. When thread the needle 2.when replacing the needle and bobbin 3. When not using the machine and when leaving the machine unattended.
	Do not touch any of the moving parts or press any objects against the machine while sewing, as this ma result in personal injury or damage to the machine.
	If an error occurs in machine operation, or if abnormal noises or smells are noticed, immediately turn off the power switch. Then contact your nearest brother dealer or a qualified technician.
	If the machine develops a problem, contact your nearest dealer or a qualified technician.

Maintenance and inspection	
	Maintenance and inspection of the sewing machine should only be carried out by a qualified technician.
	Ask your dealer or a qualified electrician to carry out any maintenance and inspection of the electrical system.
	Turn off the power switch and disconnect the power cord from the wall outlet at the following times, otherwise the machine may operate if the foot switch is depressed by mistake which could result in injury. 1.When carrying out inspection ,adjustment and maintenance 2.When replacing consumable parts such as the rotary hook
	Before carrying out inspection, adjustment and maintenance, please turn off air source until the pointer of gas pressure meter drop to "0"position.
	If the power switch needs to be left on when carrying out some adjustment, be extremely careful to observe all safety precautions
	All problems in machine operations which result from unauthorized to the machine will not be covered by the warranty.

CONTENTS

I . EXPLANATION OF HK-2900SS, COMPUTER-CONTROLLED HIGH-SPEED

BAR-TACKING MACHINE.....	1
[1]SPECIFICATIONS	1
[2]CONFIGUREATION	2
1. Names of main unit	3
2. Names and explanation of switches on the operation panel	4
3. Main shaft motor installation.....	5
4. Adjusting mode	6
[3]INSTALLATION	16
1. Installation of electrical box.....	16
2. Installation of Connecting rod.....	16
3. Installation of head support rod.....	17
4. Installation of the power switch	18
5. Installation of the sewing machine head.....	19
6 installation of oil groove and the head support rubber	20
7. Safety switch	20
8. Tilting the sewing machine head	21
9. Installation of operation panel.....	21
10. Connecting the cables	22
11. Installation of motor protection cove.....	23
12. Installation of cables.....	23
13. Installation of eye protection cover.....	24
14. Installation of thread stand.....	24
[4]PREPARATION OF SEWING MACHINE.....	24
1. Lubrication	24
2. Installation of needle.....	25
3. Threading the machine head.....	26
4. Installing and removing the bobbin case.....	26
5. Installing the bobbin.....	27
6. Adjusting the thread tension.....	28
7. Adjusting the thread take-up spring.....	29
[5]OPERATION OF THE SEWING MACHINE (BASIC)].....	30
1. Setting the item data.....	30
2. Sewing pattern confirmation.....	32
3. Sewing.....	32
4. Changing the pattern.....	33
5. Winding a bobbin.....	33
6. Lower thread counter.....	33
7. Temporary stop.....	34
8. Setting the pattern thread tension	35
[6] OPERATION OF THE SEWING MACHINE (application).....	36

1. sewing with the pattern keys	P1 P2 P3 P4 P5	36
2. Sewing with the combination function		38
[7] HOW TO USE THE MEMORY SWITCH		39
1. Specific operation of user parameter setting		40
2. Illustrating user parameter setting		41
3. User parameter setting list		42
[8] Setting service parameter		46
1. Opening and changing service parameter		46
2. Service parameter list		46
3. Default		48
[9] MAINTENANCE		57
1. Height of the needle bar		57
2. Needle and rotary book		57
3. Height of the presser foot lifter		58
4. Moving knife and fixed knife		59
5. Adjustment of the thread take-up bar		59
6. Draining waste oil		60
7. Oil supplied to the rotary book		60
8. Put grease to some point places		61
9. Table of the standard patterns		65
10. Troubles and corrective measures (sewing conditions)		68
II .EXPLANATION, HK2903 , HIGH -SPEED electronical LOCKSTITCH Buttoning SEWING MACHINE		70
1. Specification		70
2. Installation of the sewing machine and preparation of the operation		70
3. Needle and thread		70
4. Setting button sewing function		71
5. Table of button sewing standard pattern		71
6. Adjusting the button clamp jaw lever		73
7. Adjusting the lifting amount of the button clamp		74
8. Adjustment of the pressure of the work clamp unit		74
9. Installing the save button bar (option part)		75
10. Model classification according to the button size		77
III .Update pattern though pen drive		78
Operation of updating pattern		78
IV .Attachment1		78
Error message list		78
V .DRAWING OF THE TABLE		82

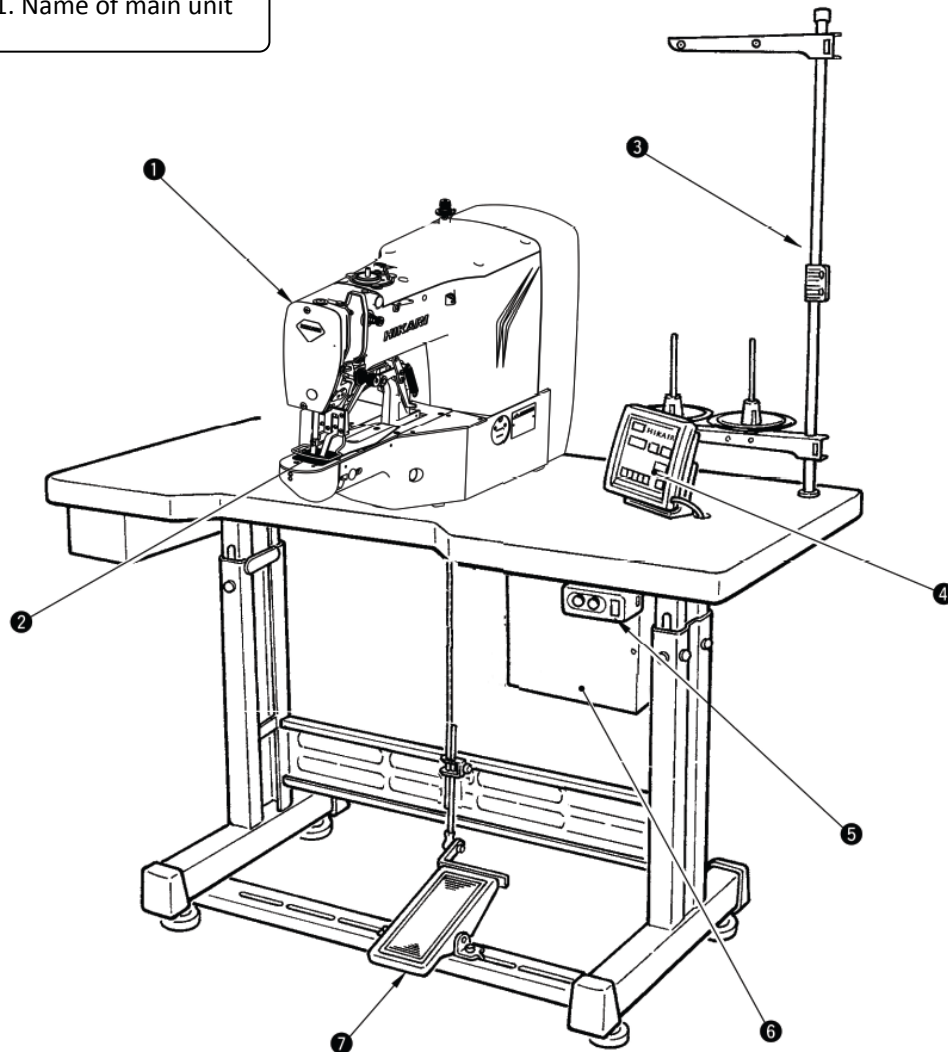
[1] SPECIFICATION

No.		HK2900 Series
1	Application	Bar tacking、sewing button
2	Sewing area	X (lateral) direction 40 mm Y (longitudinal) direction 30 mm
3	Maximum sewing speed	3000rpm. max, buttoning 2700rpm
4	Stitch length	0.1 to 10.0 mm (adjustable in 0.1 mm step)
5	Feed motion	Intermittent feed (2-shaft drive by stepping motor)
	Needle bar stroke	41.2mm
7	needle	DP ×5 #14 (DP×5 #11(F,M), (DP×17#2 heavy fabric))
8	Presser foot lifter	Pulse motor
9	Height of Presser foot	14mm standard, 17mm max.(when reverse and lift the needle)
10	Standard pattern no.	fifty
11	Wiper mode	To work together with Work Clamp Foot driven by Stepping Motor
12	Upper thread tension	Thread clamp
13	Rotary hook	Shuttle hook or shuttle hook 2
14	Lubricating mode	Revolving part: micro-lubrication
15	Engine oil	Sewing engine oil
16	grease	Grease for sewing machine
17	Data memory	Flash Memory
18	Enlarging / Reducing facility	20% to 200% (1% step) in X direction and Y direction respectively)
19	Enlarging / Reducing method	Pattern enlargement / reduction can be done by increasing/decreasing the stitch length
20	Sewing speed	400-3000rpm(100rpm unit)
21	Pattern selection	Specific mode of pattern no.(1-200)
22	Lower thread counter	Up /down type(0 – 9999)
23	Mechanical motor	500W small AC servo motor(direct-drive)
24	Overall dimensions	263mm×153mm×212mm
25	Control box weight	approx.10 Kg
26	Power Consumption	600W
27	Temperature	5℃ - 35℃
28	Humidity	35% - 85% (non-condensing)
29	Power supply voltage	Single phase AC 220V ± 10%; 50-60Hz

Reduce the max. sewing speed in accordance with the sewing conditions.

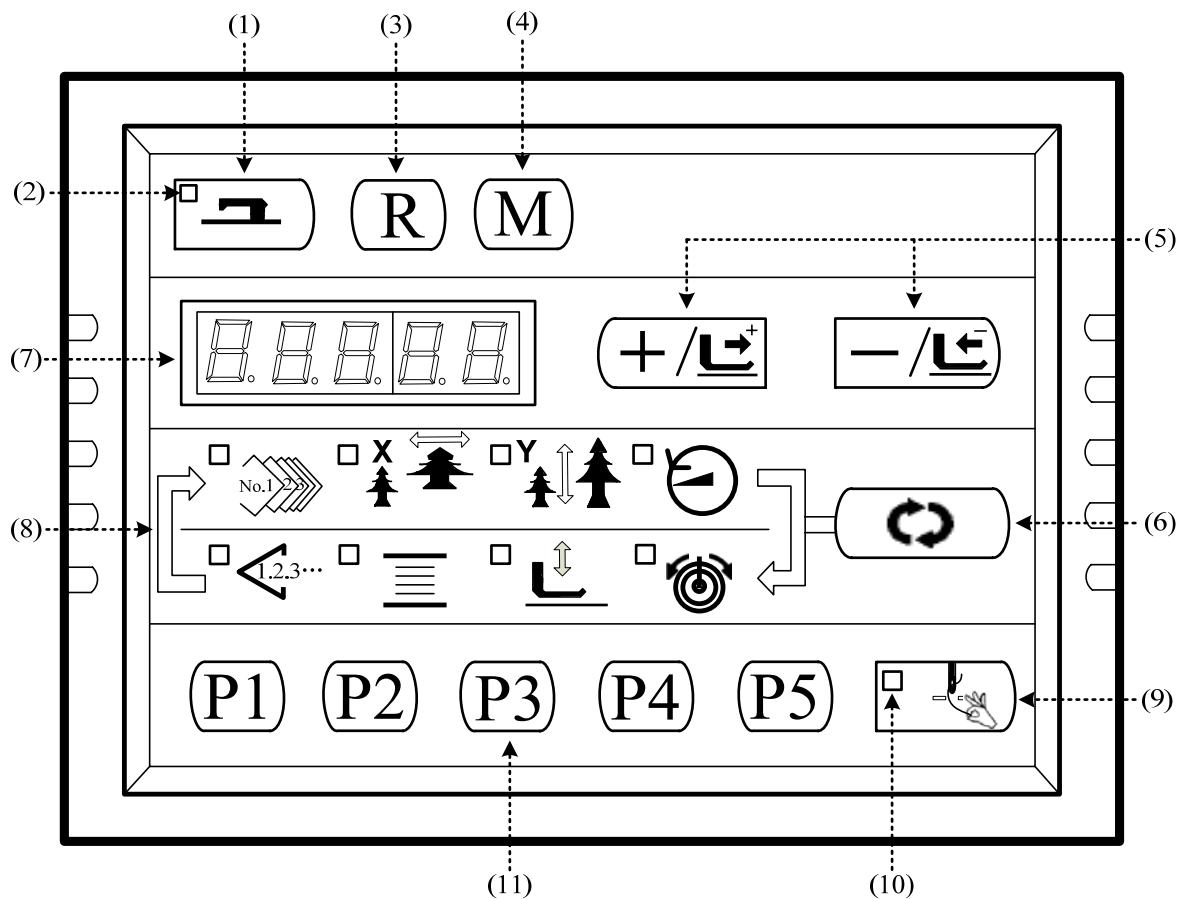
[2] CONFIGURATION

1. Name of main unit



- ① Machine head
- ② Work clamp feet
- ③ Thread stand
- ④ Operation panel
- ⑤ Power switch
- ⑥ Control box
- ⑦ Pedal switch

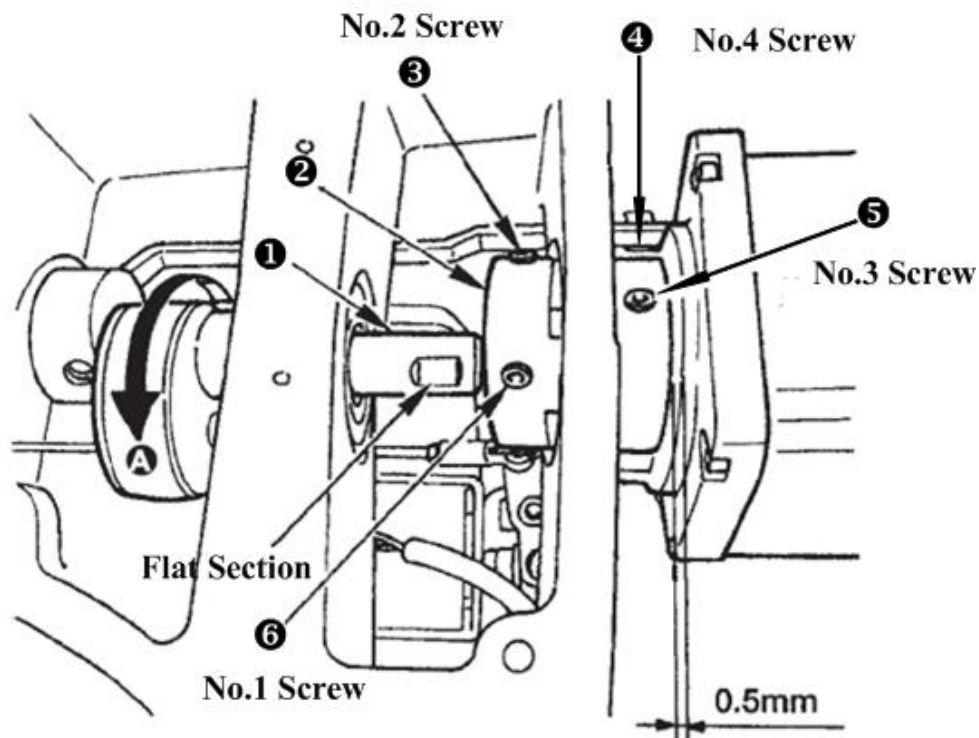
2. Names and explanation of switches on the operation panel



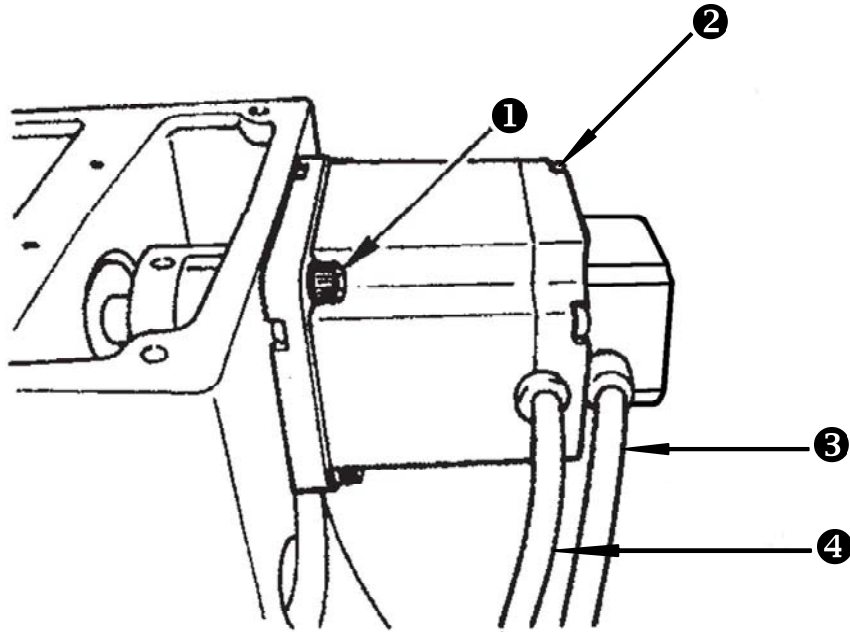
- (1) READY KEY This key changes over the setting state from the panel to the sewing state where the sewing machine actually operates.
- (2) sewing LED The LED lights up under sewing state. The LED light lights off under set data state, change -over by
- (3) REST KEY Press this key when releasing error, traveling the feed mechanism to its initial position, Counter resetting, etc.
- (4) Mode key this key . used for setting parameter and storing pattern.
- (5) +/- forward transfer key and -/backward transfer key . The key is used for changing pattern number, Expanding/decreasing rate and feed forward/backword.
- (6) Selection key his key is used to select the data No, select LED and value of selected item are displayed.
- (7) DATA indication LED Display the the item value of pattern no, expanding/decreasing rate etc.
- (8) Item selection LED the item selected LED lights up.

3. Installing the Main Shaft Motor

Assemble the main Shaft motor to the main shaft **①** through the coupling **②**. And you need 4 screws to fix the coupling to the main shaft and the main motor. Fix the coupling with No.1 Screw **⑥** and make sure that it is vertical towards the Flat Section, and then screw No.2 screw **③**. Fix the coupling to the main motor with No.3 screw **⑤**, and make sure it is vertical to the flat section of the main motor. Then screw the No.4 screw **④** to finish the assembling task. The following diagram shows you the details:



This following diagram shows you the position of the main motor (look from back, and the line is on your left-hand side):



- ① Screws for fixing the main motor, totally 4; ② Screws for fixing the back of the motor, totally 2
③ Sensor Cable; ④ Power cord.

4. Test2.3 Test Mode

This mode is set to facilitate the electrical check for maintenance work.

- 1) Press **M** key, while the Sewing LED is not illuminated, and then the Panel display

			1.30
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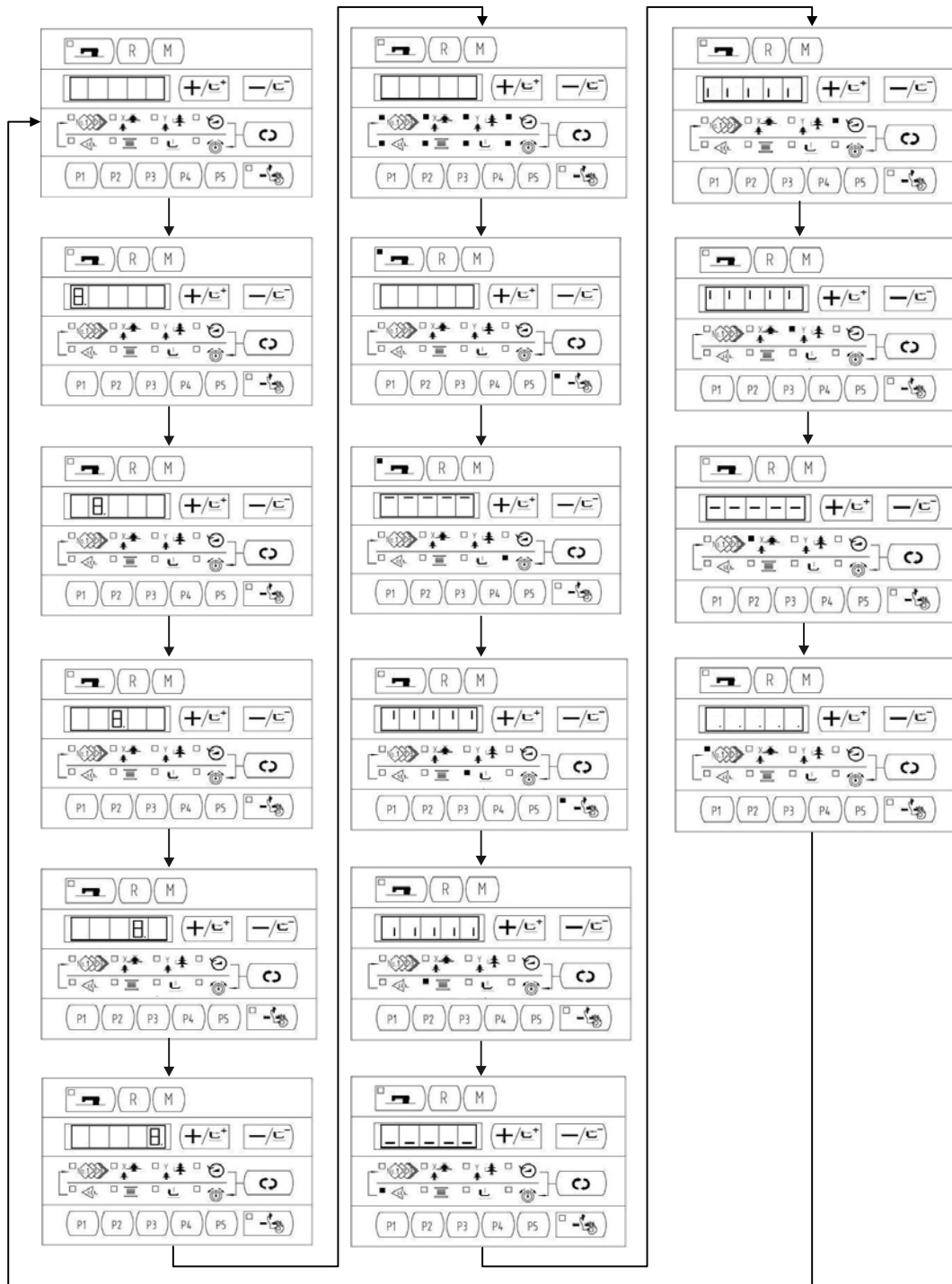
. Press **P1** **P3** **P5** simultaneously, you would hear the ring of the buzzer, and then you are able to enter the test mode.

Note: If you failed to press **P1** **P3** **P5** simultaneously, then you cannot enter the test mode.

- 2) Press **—/E** key to enter the test mode, and the screen displays “CP---”, as shown following:

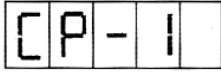
C	P	-	-	-
---	---	---	---	---

3) Press  key to start the Display Test. It automatically examine every 8-bit segment LED Display Module and the LED light illuminated or not, in a cycle process. The process is shown following:



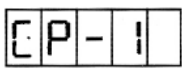
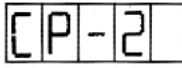
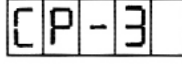
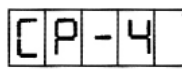
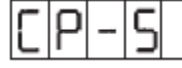
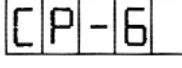
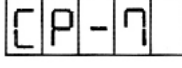
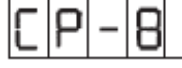
4) Press  key again to end the Display Mode and the screen displays “CP-1”, as shown

following:



Note: You are not allowed to conduct other tests before the Display Mode Test.

5) Press 、 key to change the Indication NO. For details, please refer to the list below:

Indication No.	function	Description
	Input signal check	State of the switch and the sensor will be indicated by 9 LEDs.
	X/Y motor and Original Retrieval check	To indicate the X/Y motor step motion and original adjustment.
	Continuous operation	Initial setting of the operation conditions will be performed, and the mode will move to the continuous aging mode.
	Number of revolutions of main shaft check	Output of the specified number of revolutions will be made and the actual number of revolutions will be indicated.
	_____	_____
	Presser and Trimming Original Retrieval check	Indicate the presser/trimming motor to move step by step; indicate original retrieval and the state of presser/trimming sensor.
	Thread Clamp and Original check	Indicate the thread clamp motor to move step by step; indicate original retrieval and the state of thread clamp/origin sensor.
	Test Thread tension Solenoid	Test whether the thread tension solenoid can act normally and check the action of the thread tension.

6) Press  key to check the function test.

7) Press  to end up the test and return back to Step 5), however, if “CP-3” is selected, it is impossible to return to other test modes. Turn Off the power and turn On the power again in accordance with the starting way of the test mode.

2.3.1 CP-1 (Input Signal Check)

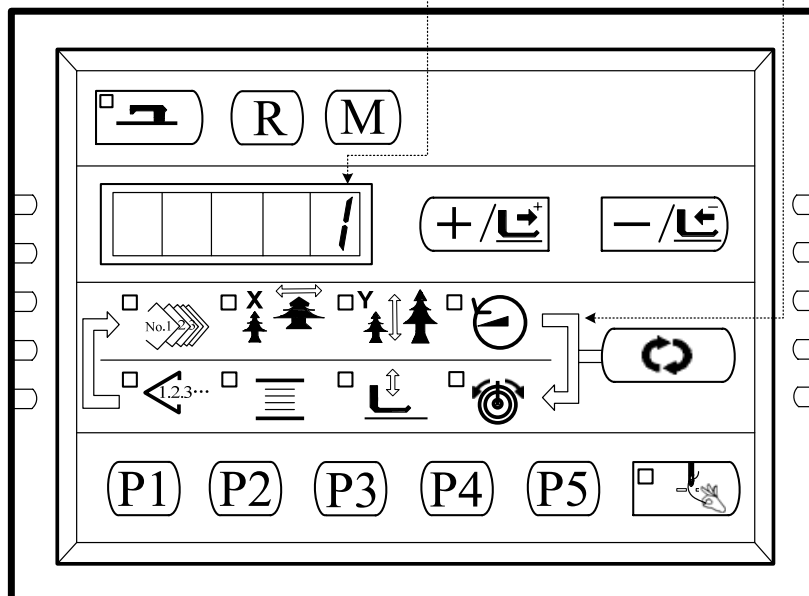
Status of input of switches and sensors is indicated on the 8 LEDs.

The table below is the list of LED indication, and you can understand to which LED each switch or

each sensor is assigned. When “CP-1” is indicated on the screen, press  key to enter into the mode and then number “1” is indicated.

Indicated No.
Press P1 and P2 simultaneously and the No.
will automatically add by 1

Indicate the status of item selection by
LED ON/OFF. Refer to the table list.



Indication of No.

Input No.	Pattern NO. LED	X Scale Rate LED	Y Scale Rate LED	Max. Speed LED	Sewing Counter LED	Bobbin Winder LED	Work Clamp foot lowering LED	Thread Tension LED
1	/	/						
2	/	/						
3	/	/	/	/	/	/	/	/
4	0 step of pedal	1 step of pedal	2 step of pedal	/	/	/	/	/
5	Presser solenoid sensor	Y origin sensor	X origin sensor	Thread Clamp origin sensor	Trimming sensor	Thread Clamp Sensor	/	/
6	Main shaft angle indication							
7	Z phrase of Main motor	/	/	/	/	/	/	/
8	/	/	/	/	/	Safety Switch	/	/

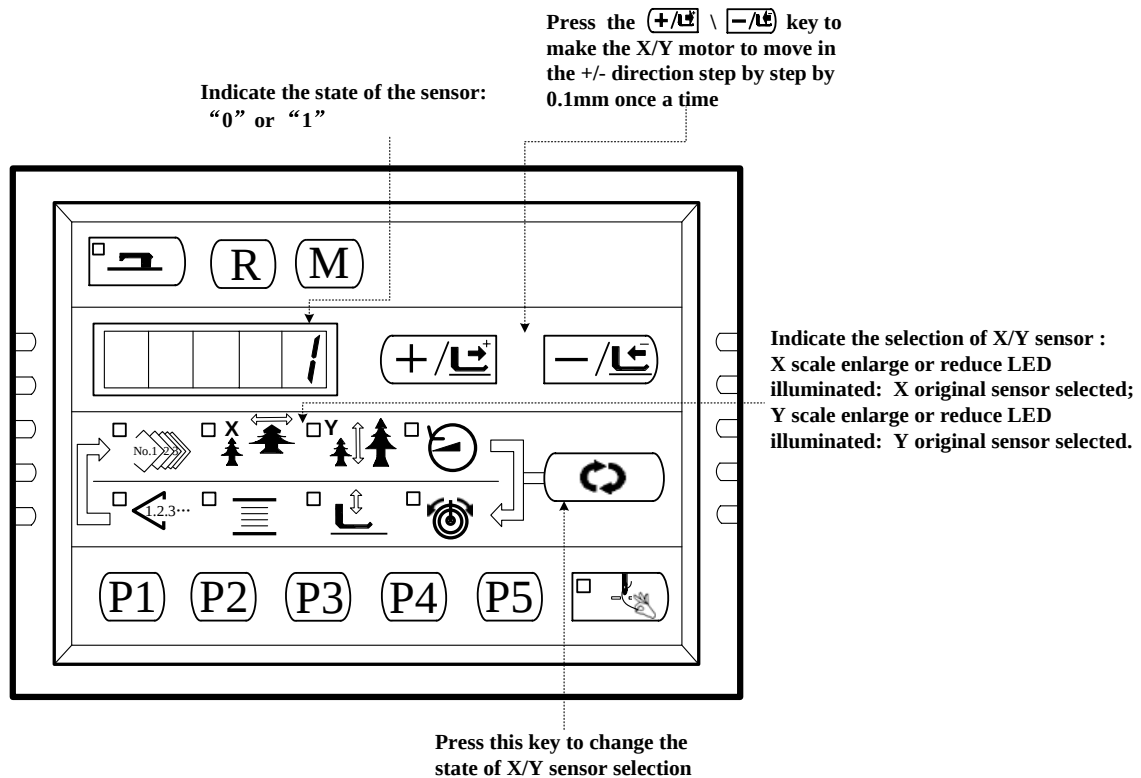
2.3.2 CP-2 (check the X.Y Motor/Origin Retrieval)

For origin adjustment, sensor adjustment of X/Y motor. The state of origin sensor and X/Y motor sensor will be indicated.

1. Prepare

Press  key to enter CP-2, "1" is displayed, and then press  to start origin retrieval. Meanwhile, the presser goes down, and the Sewing LED is illuminated. (The operation of pressing  is not necessary; you could skip it to continue Step2 operation)

2. Operation



3. Manual X/Y Origin Adjustment

- (1) Set new origin: At first, press to have access to status of CP-2, the screen will display "0" or "1" at this moment. Press again. Then step the pedal to search the origin, lower the presser and activate the Sewing LED. When the Sewing LED is on, user can press $\left[\frac{+}{\text{L}} \right]$ or $\left[\frac{-}{\text{L}} \right]$ to move the X/Y motor in +/- direction at 0.1mm as each step. After setting the new origin, user can press to quit.
- (2) Return to Origin: At first, press to have access to status of CP-2, the screen will display "0" or "1" at this moment. Press again to search origin, lower presser and activate the sewing LED. When user steps the pedal to level 2, this operation will be performed twice (The first time is to find the newly set origin, the second time tis to retreat to the system origin.). When finishing the operation for Returning to Origin, user can press M to quit.

2.3.3 CP-3 (Continuous Operation)

When "CP-3" is indicated on the screen, press  key to enter the continuous operation mode. Perform the initial setting of the operation conditions, and move to the continuous operation mode.

1) Pause time setting

Press the ,  key to set the time of pause.

Setting range: 1800 ms to 9999 ms (in a unit of 100 ms) (the default value is 2000ms)

Update the time of pause by pressing down the  key, and the setting moves to the automatic origin retrieval setting.

C 20

2) Origin retrieval setting

Press the ,  key to set.

A0: Ineffective ;

A1: Every time .

C A0

Press the  key to finish setting and move to Pattern No. setting.

3) Continuous Operation

In the Ordinary Sewing Mode, you can change the Pattern No., X./Y scale Enlarge/Reduce setting, the Max speed and so on. The continuous operation can be stopped at the time of

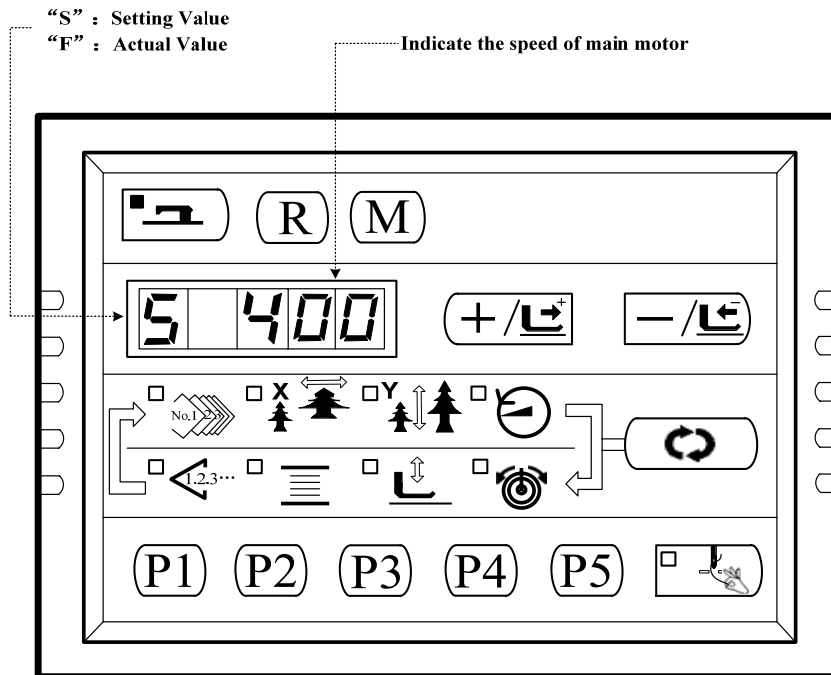
pause by depressing the  key.

2.3.4 CP-4 (Revolution Movement)

Output of the specified number of revolution is made and the actual number of revolutions is indicated.

1) Prepare

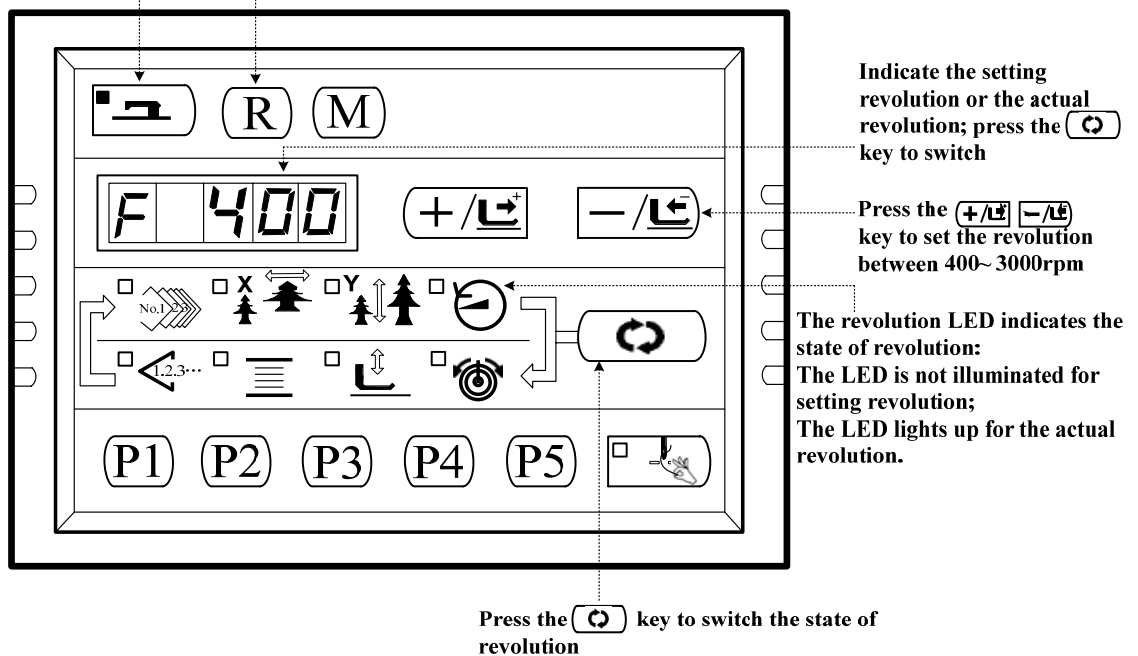
Press  key to enter CP-4, and "S400" is displayed. Press the  key for origin retrieval and the Sewing LED lights up.



2) Operation

Press the key to start the movement at the setting revolution; depress it again if you want to change the value of the revolution

Press the key to stop the movement.



2.3.5 CP-6 (Presser and Trimming Motor / Origin Sensor Check)

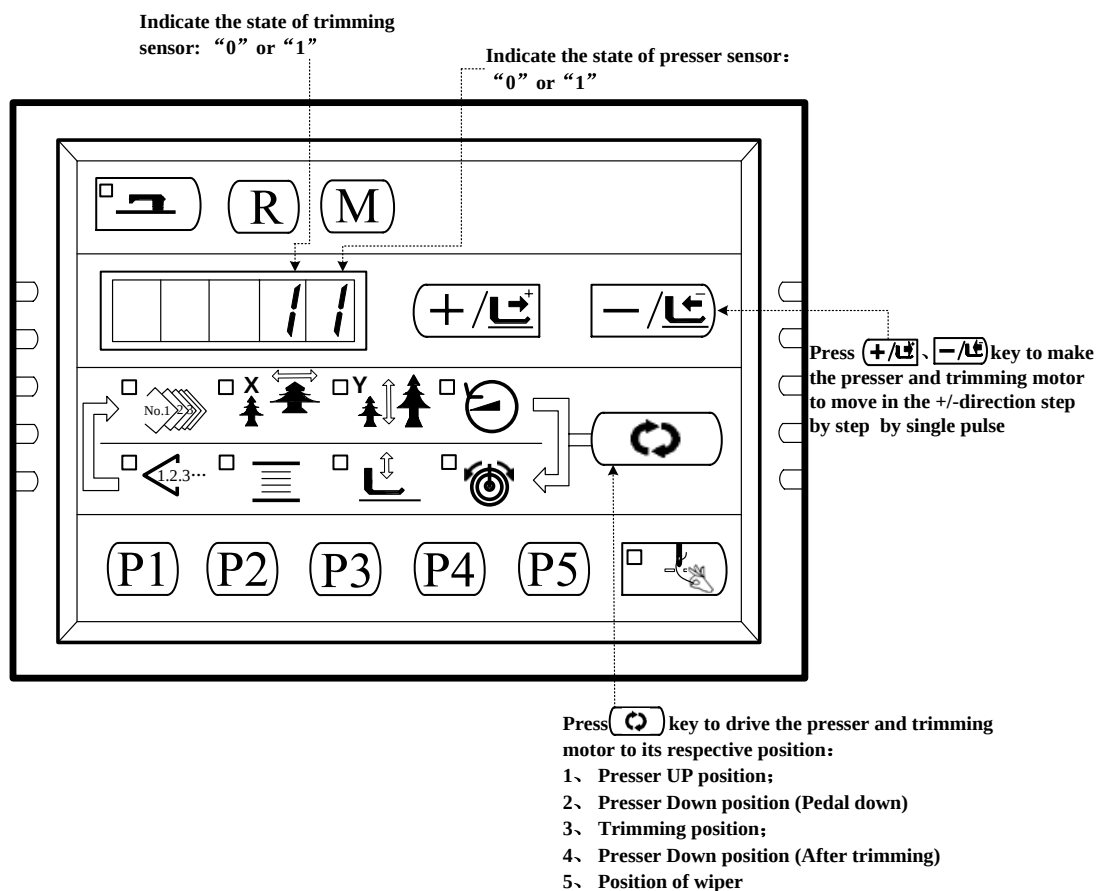
Indicate the presser and trimming motor to move step by step, origin retrieval and the state of origin sensor and thread trimming sensor.

1) Prepare

Press  key to enter CP-4, and then press  key for origin retrieval and the Sewing LED lights up.

2) Operation

Press  for 6 to 8 times, if the screen indication changes from “01” to “10”, the trimming sensor works well; if not, please make proper adjustment.



Press  key to perform the functions above in a cycle. And press  key to exit this

mode.

2.3.6 CP-7 (Thread Clamp Motor / Origin Sensor Check)

Indicate the thread clamp motor to move step by step, origin retrieval and the state of origin sensor and thread clamp sensor.

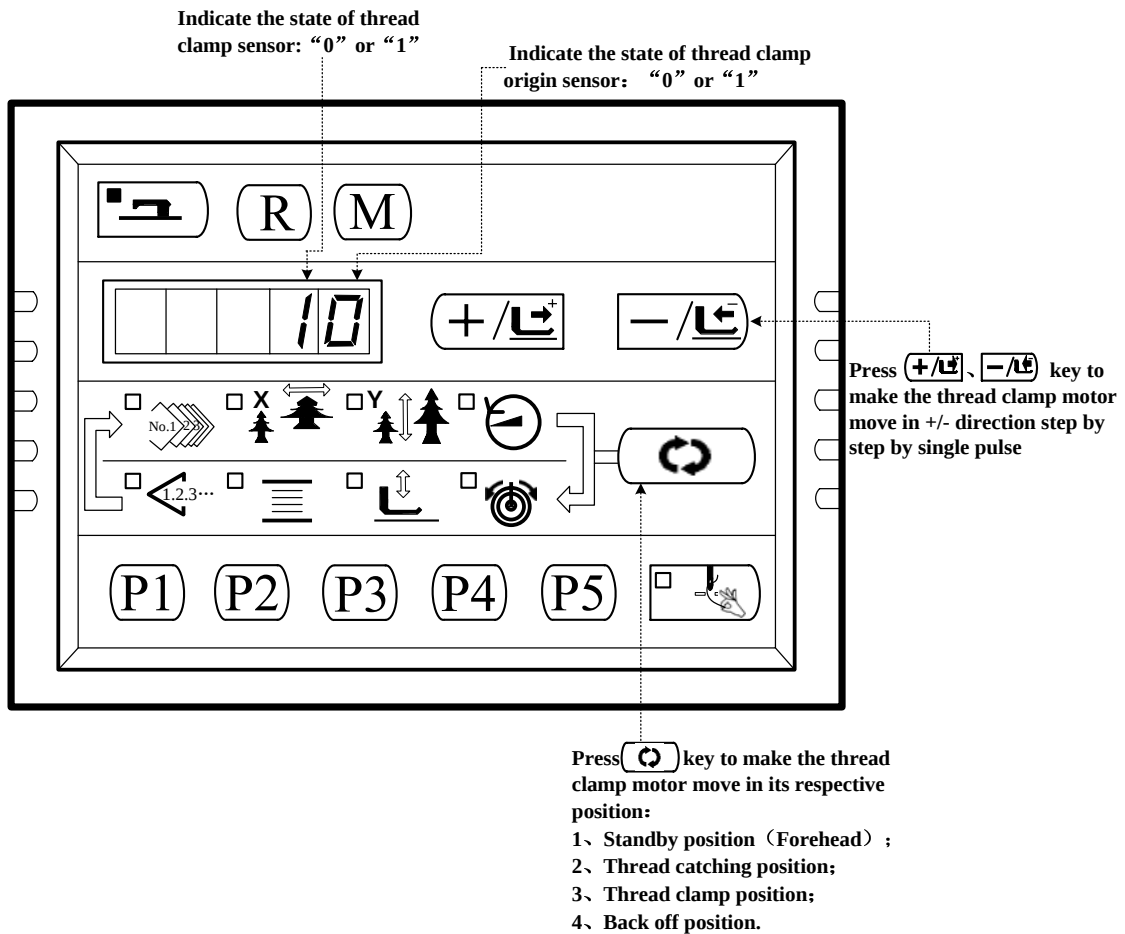
1) Prepare

Press  key to enter CP-7, then press  key for origin retrieval and the Sewing LED lights up. Press the pedal switch to perform the origin retrieval and “10” is indicated on the screen.

2) Operation

Press 、 key to make the thread clamp motor move step by step by single pulse.

Press  key to move the thread clamp backward; press  key to move the thread clamp forward.



Press  key to perform the functions above in a cycle. And press  key to exit this mode.

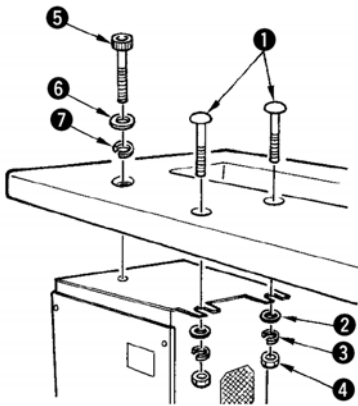
2.3.6 CP-8 (Test Thread tension Solenoid)

This mode is to test the action of the thread tension solenoid. When the screen displays "CP-8"

user can press  to have access to this mode. At this moment, the screen will display the "CLAMP". Press  or  to have the solenoid close, then the power is off in a short while. By checking the thread-holder, user can see the action of thread tension and hear the voice of "Clamp", which means the solenoid works normally.

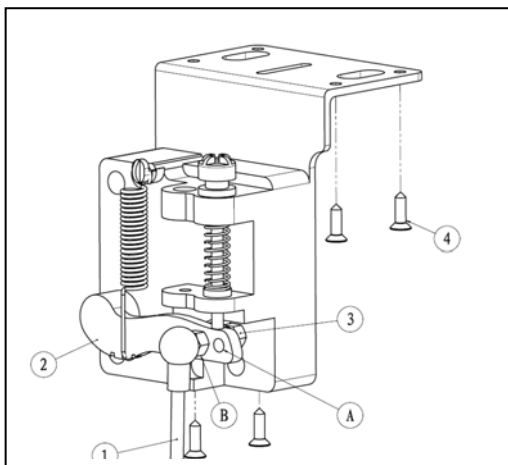
3. INSTALLATION

3-1 Installing the electrical box



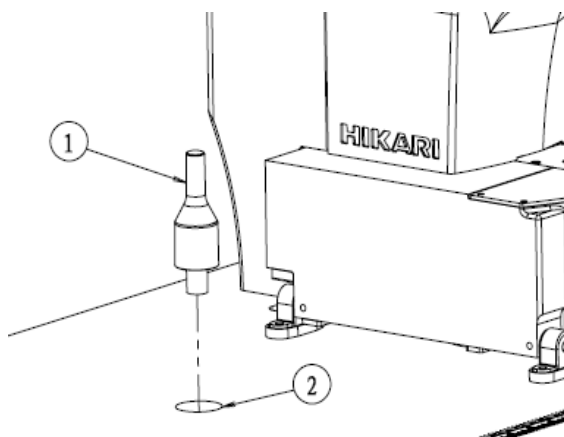
Install the electrical box on the underside of the table at the location illustrated using round-head bolt ❶, plain washer ❷, spring washer ❸ and nut ❹ supplied with the machine, and using bolt having hexagonal indentation on the head ❺, spring washer ❻ and plain washer ❼ supplied with the machine.

3-2. Attaching the speed controller



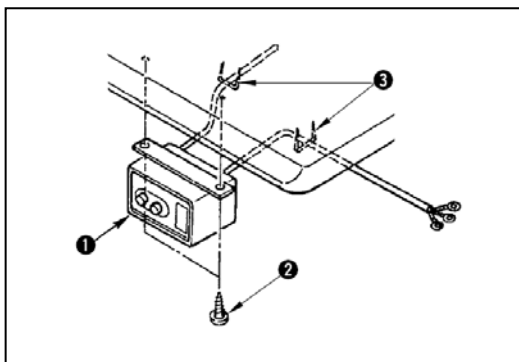
- 1) Fix connecting rod ❶ to installing hole B of pedal lever ❷ with nut ❸.
- 2) when connecting rod ❶ is installed in installing hole A, the depressing stroke of the pedal is increased.
- 3) install the controller in right place of the table using 4 tapping screw.

3. Installing the head support rod



Drive head support rod ① in hole ② in the machine table.

4. Installing and connecting the power switch

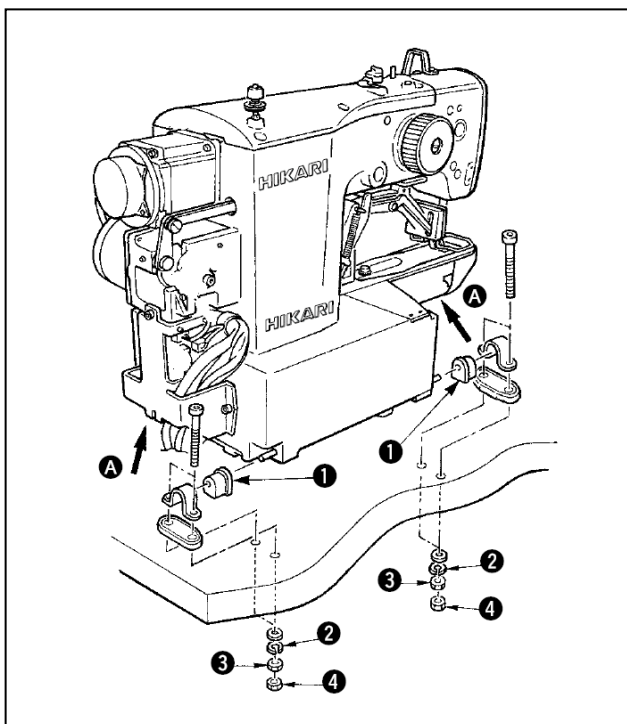


(1) Installing the power switch

Fix power switch ① under the machine table with wood screws ②. Fix the cable with staples ③ supplied with the machine as accessories in accordance with the forms of use.

5. Installation of the sewing machine head

WARNING: To prevent possible accidents caused by the full of the sewing machine, perform the work by two persons or more when the machine is moved.

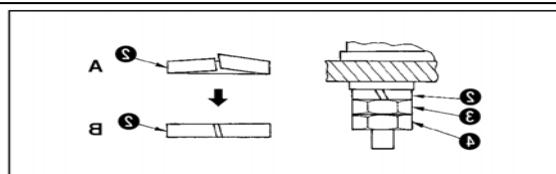


1) Fit hinge rubber cushion **1** over the hinge shaft.

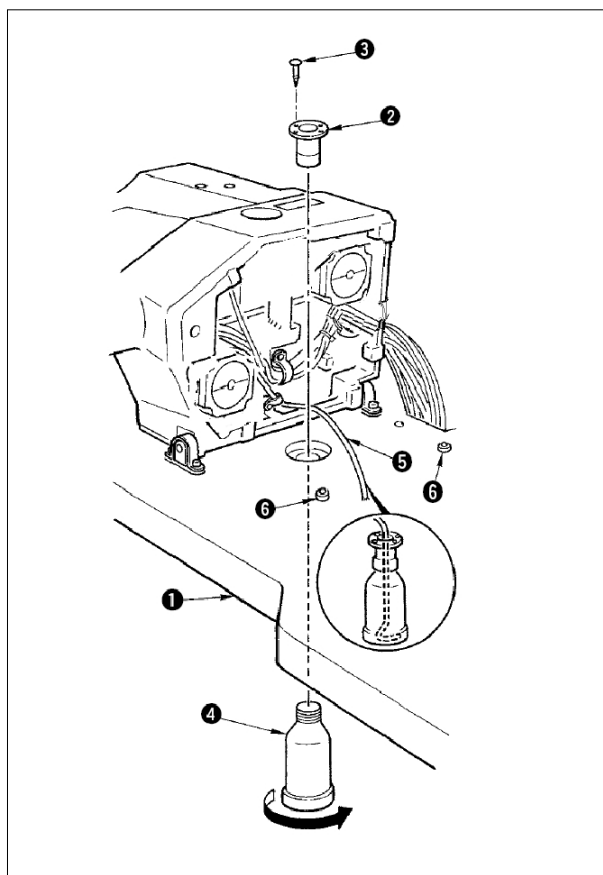
2) Tighten nut **5** until spring washer **4** is brought to the state as illustrated in Fig.B and fix the spring washer on hinge rubber **7** with nut **6**.

Be aware that the hinge rubber fails to function properly if nuts **5** and **6** are excessively tightened.

When carrying the sewing machine, hold sections A.



6. Installing the drain receiver and the head support rubber

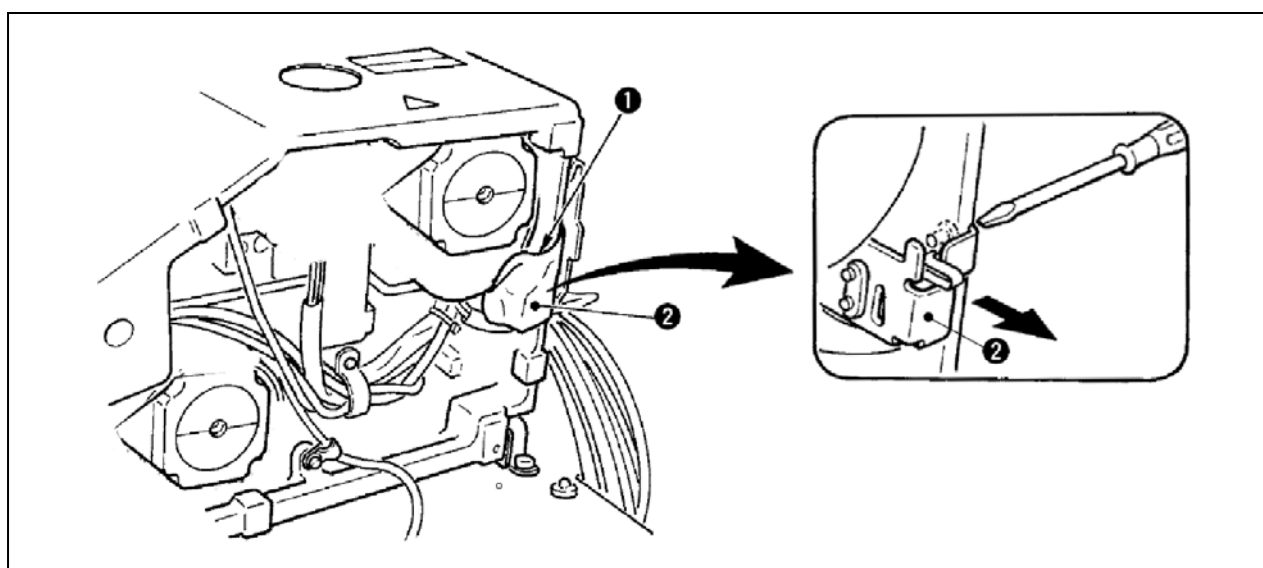


- 1) Fix drain receiver **2** in the installing hole of table **1** with two setscrews **3**.
- 2) Screw poly-oiler **4** in waste oil reservoir **2**.
- 3) Insert sewing-machine waste oil pipe **5** into poly-oiler **4**.
- 4) Insert head support rubber **6** into table **1**.

1. Insert drain pipe **5 until it will go no further so that it does not come off drain bin **4** when tilting the machine head.**

2. Remove the tape fixing drain pipe **5.**

7. Safety switch

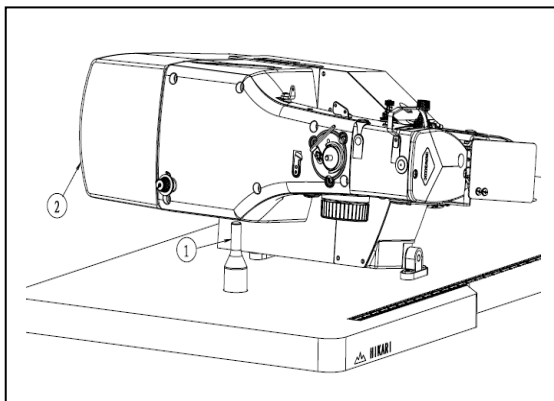


Remove tape ❶ fixing the lever section of safety switch ❷ .

1. When using the safety switch without removing tape ❶ , it is very dangerous since the sewing machine works even in the state that it is tilted.
2. In case error 302 occurs when the sewing machine works after setup, loosen the safety switch ❷ fitting screw with a screwdriver, and lower the switch to the downside of the sewing machine.

8. Tilting the sewing machine head

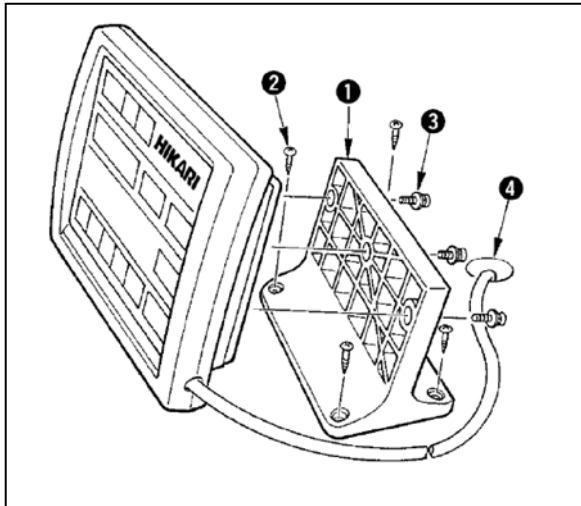
Tilt/raise the sewing machine head with both hands taking care not to allow your fingers to be caught in the head. Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



When tilting the sewing machine head, tilt the head gently until it comes in contact with head support rod ❶ .

1. before tilting the sewing machine head, make sure that head support rod ❶ is Attached to the machine table.
2. When raising the sewing machine head, do not raise it while holding motor cover ❷ . It will be the cause of breakage of motor cover ❷ .
3. Be sure to tilt the sewing machine head on a flat place to prevent it from falling.

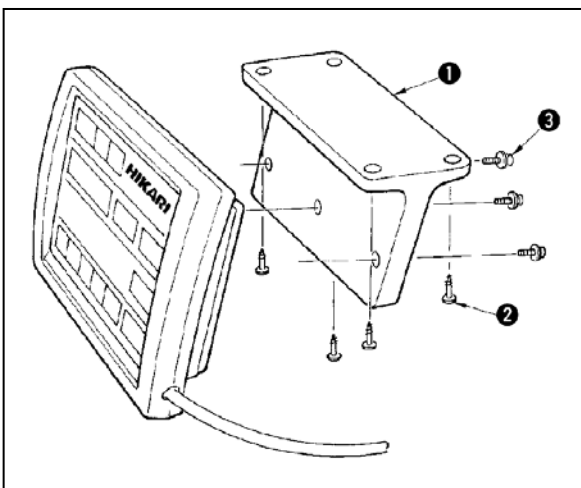
9. Installing the operation panel



Fix operation panel installing plate **1** on the machine table with wood screws **2** and pass the cable through hole **4** in the machine table.

Fix the operation panel on panel installing plate **1** with screws **3** supplied as accessories.

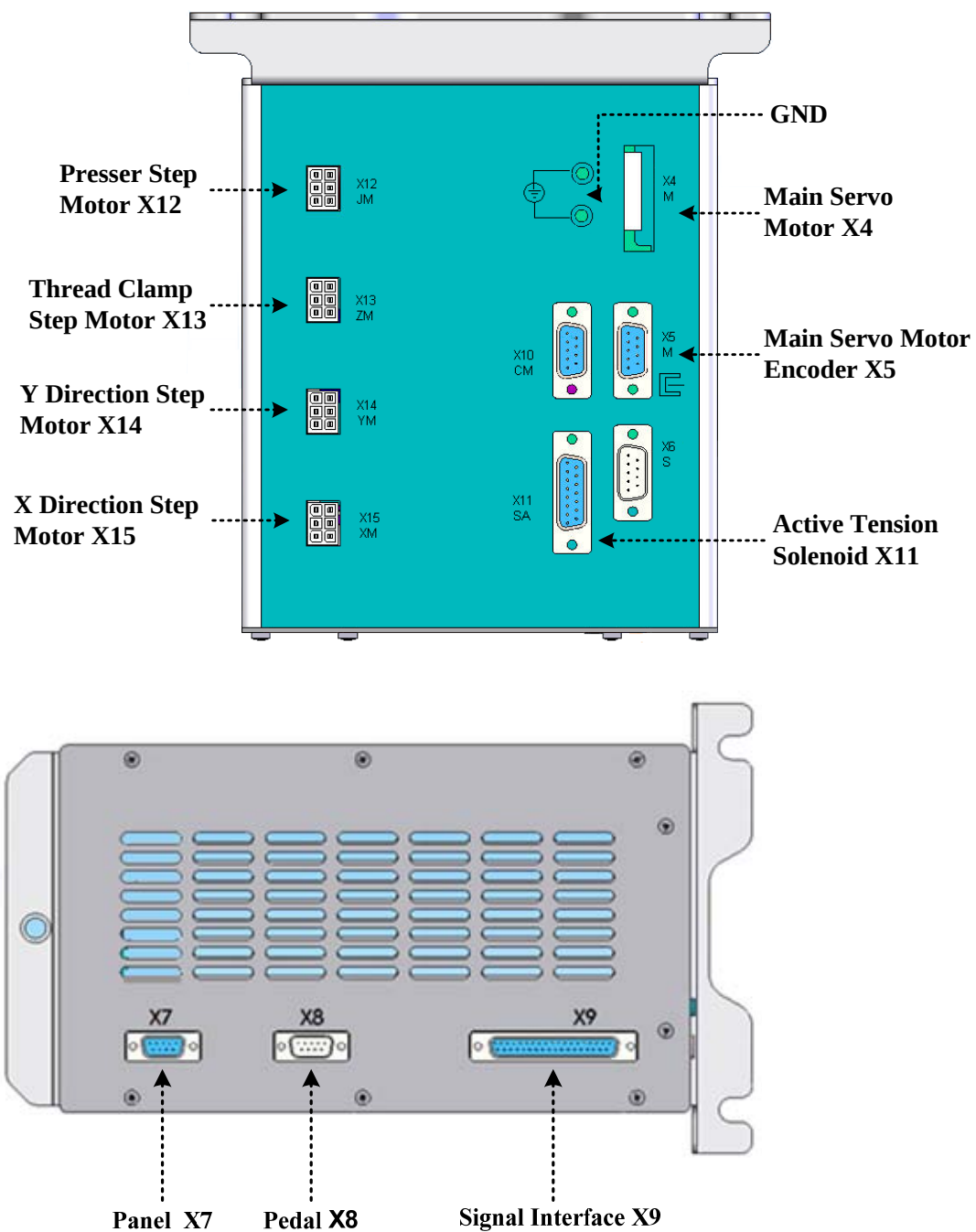
Fix the cable on the bottom surface of the table with the staples supplied with the machine as accessories.



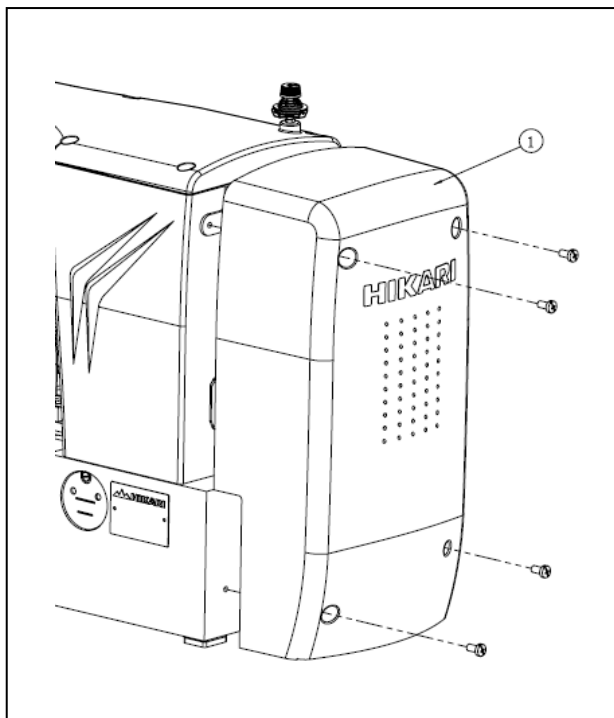
Refer to the figure on the left side when installing the panel under the table.

10. Connecting the cord

Please check the corresponding symbol on both the external cable and control box. Follow the symbol to make the connection.

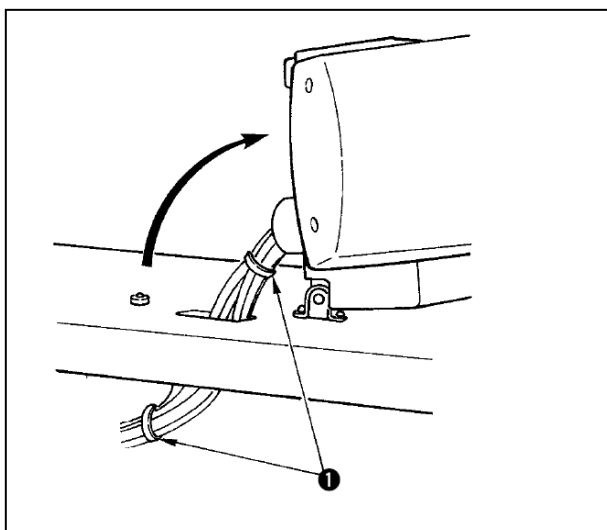


11. Installing the motor cover



Fix the motor cover on the sewing machine body with screws supplied as accessories.

12. Handling the cords



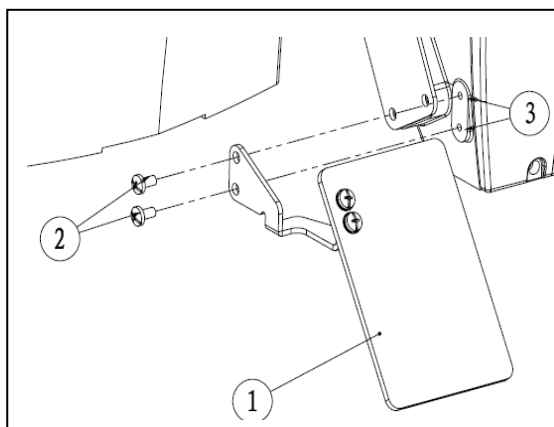
1) In the state that the sewing machine is tilted, connect the cords, and bundle them with clip band **1** as shown in the figure.

When you tilt the sewing machine, make sure that the sewing machine head support bar is placed on the table.

13. Installing the eye protection cover

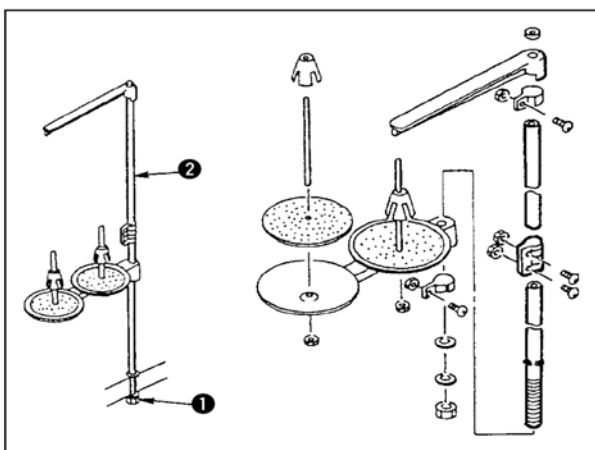
WARNING:

Be sure to attach this cover to protect the eyes from the disperse of needle breakage.



Be sure to use eye protection cover ❶ after installing it on installing section ❸ with screws ❷ .

14. Installing the thread stand



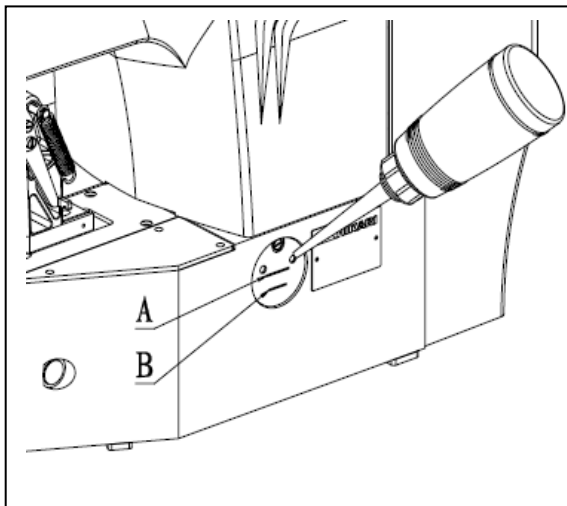
- 1) Assemble the thread stand unit, and insert it in the hole in the machine table.
- 2) Tighten locknut ❶ to fix the thread stand.
- 3) For ceiling wiring, pass the power cord through spool rest rod ❷ .

[4] PREPARATION BEFORE SEWING

1.Lubrication

WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



Check that the place between lower line **B** and upper line **A** is filled with oil. Fill there with oil using the oiler supplied with the machine as accessories when oil is short.

* The oil tank which is filled with oil is only for lubricating to the hook portion. It is possible to reduce the oil amount when the number of rotation used is low and the oil amount in the hook portion is excessive. (Refer to "7-8. Amount of oil supplied to the hook")

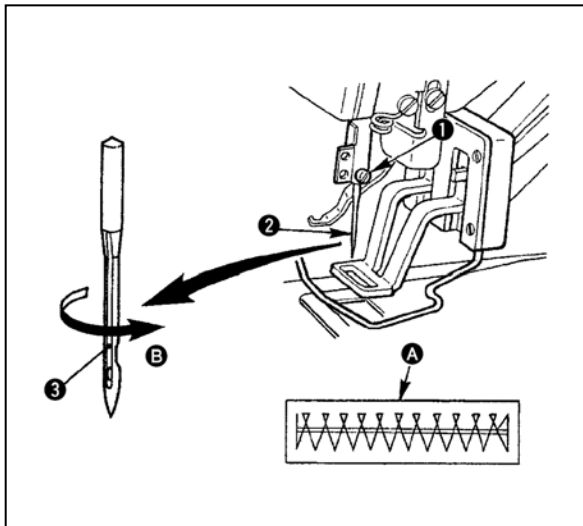
1. Do not lubricate to the places other than the oil tank and the hook of Caution2 below. Trouble of components will be caused.

2. When using the sewing machine for the first time or after an extended period of disuse, use the machine after lubricating a small amount of oil to the hook portion. (Refer to "I.7-2. Adjusting the needle-to-shuttle relation".)

2. Attaching the needle

WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine



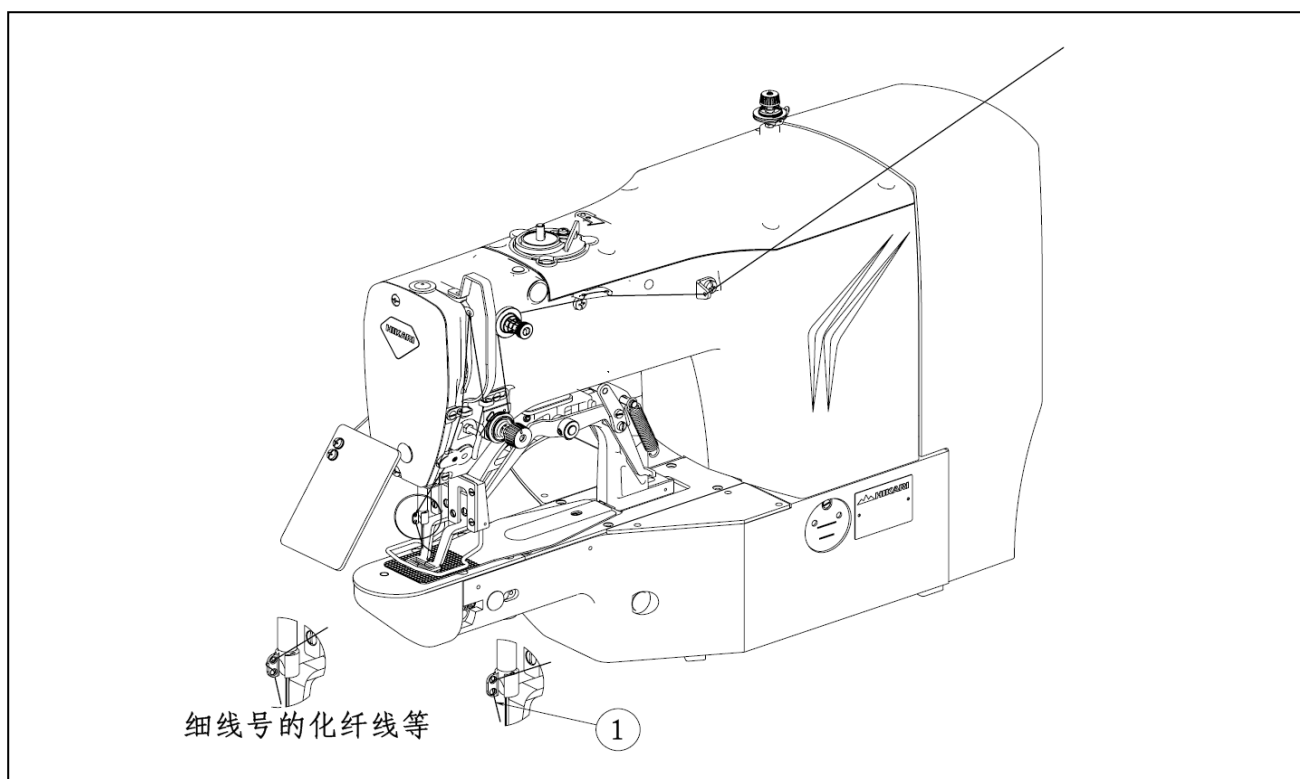
Loosen setscrew ❶ and hold needle ❷ with the long groove ❸ facing toward you. Then fully insert it into the hole in the needle bar, and tighten setscrew ❶ .

If the stitches are made as shown in A, attach the needle facing to the direction B to a small extent.

3. Threading the machine head

WARNING:

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



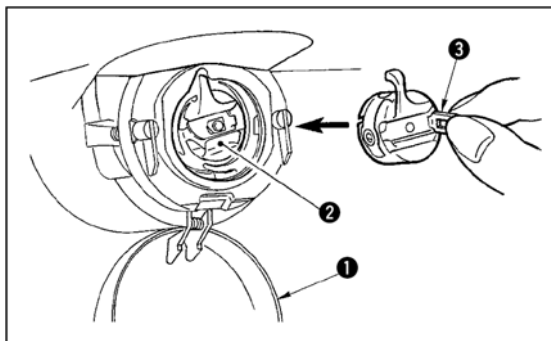
Pull out the thread by approximately 40mm from the needle after threading through the needle.

1. When the silicon oil is used, thread through thread guide for silicon ① (Optional).
2. For thick thread, pass the thread through one hole only of needle bar thread guide ② .

4. Installing and removing the bobbin case

WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine



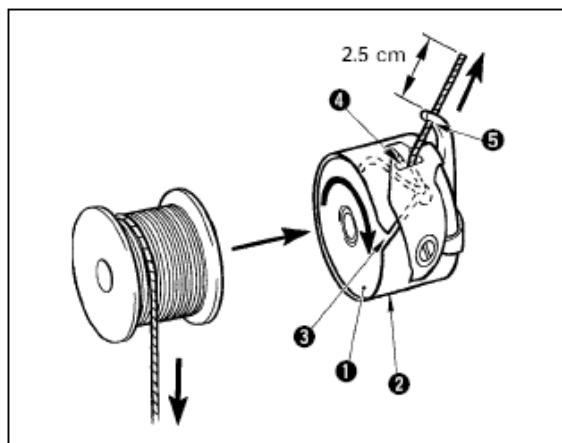
- 1) Open hook cover **①** .
- 2) Raise latch **③** of bobbin case **②** , and remove the bobbin case.
- 3) When installing the bobbin case, fully insert it into the shuttle shaft, and close the latch.

If it is not fully inserted, bobbin case **② may slip off during sewing.**

5.Installing the bobbin

WARNING :

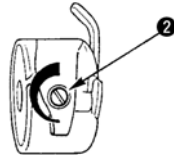
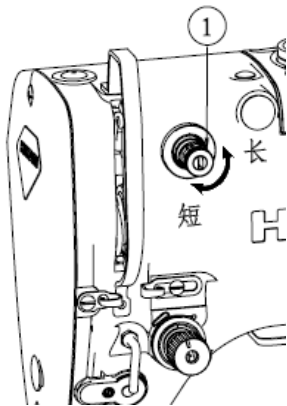
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



- 1) Set the bobbin **①** into bobbin case **②** in the direction shown in the figure.
- 2) Pass the thread through thread slit **③** of bobbin case **②** , and pull the thread as it is. By so doing, the thread will pass under the tension spring and be pulled out from thread hole **④** .
- 3) Pass the thread through thread hole **⑤** of the horn section, and pull out the thread by 25mm from the thread hole.

If the bobbin is installed in the bobbin case orienting the reverse direction, the bobbin thread pulling out will result in an inconsistent state.

6.Adjusting the thread tension

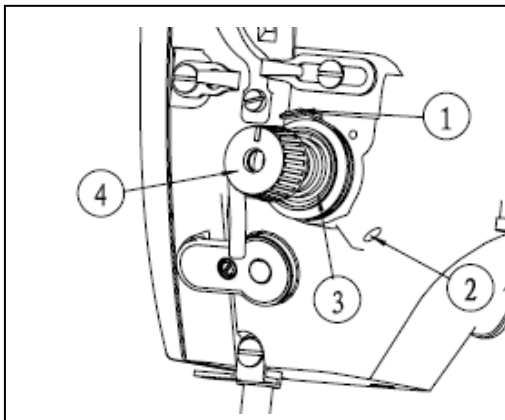


If thread tension controller No. 1 **①** is turned clockwise, the length of remaining thread on the needle after thread trimming will be shorter. If it is turned counterclockwise, the length will be longer.

Shorten the length to an extent that the thread is not slipped off.

Adjust needle thread tension from the operation panel and bobbin thread tension with **②**.

7. Adjusting the thread take-up spring



The standard stroke of thread take-up spring **①** is 8 to 10 mm, and the pressure at the start is 0.1 to 0.3N.

1) Adjusting the stroke

Loosen setscrew **②**, and turn thread tension asm. **③**.

Turning it clockwise will increase the moving amount and the thread drawing amount will increase.

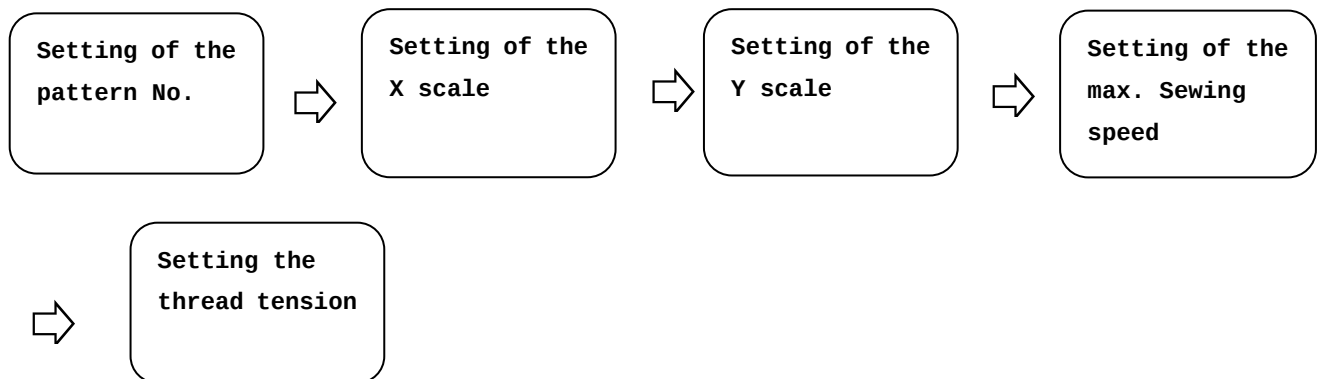
2) Adjusting the pressure

To change the pressure of the thread take-up spring, insert a thin screwdriver into the slot of thread tension post **④** while screw **②** is tightened, and turn it. Turning it clockwise will increase the pressure of the thread take-up spring. Turning it counterclockwise will decrease the pressure.

[5] OPERATION OF THE SEWING MACHINE (BASIC)

1. Item data setting

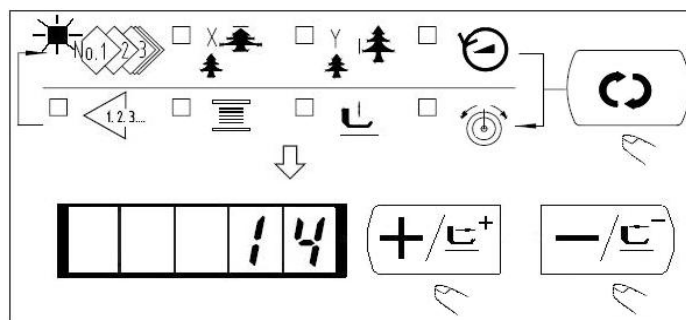
Set each item following the procedure described below.



(1) Turn ON the power switch.

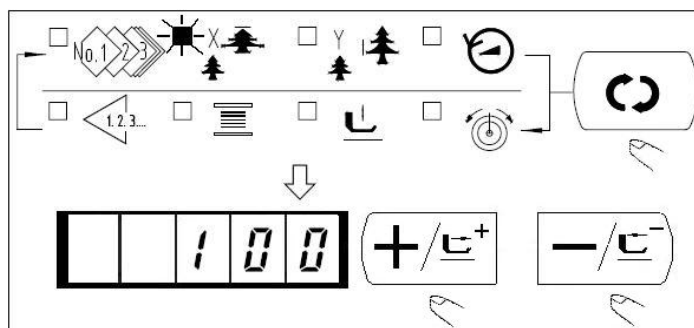
Pattern No. of the item selection lights up, and the pattern No. is indicated on the data display.

(2) Setting of the pattern No.



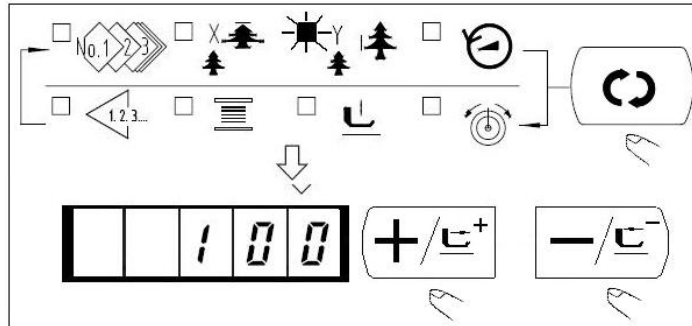
- 1) Press the key to indicate the item "Pattern NO" .
- 2) Press the or key to indicate " 14 "on the display. (Pattern No. is set to 14.)

(3) Setting of the X scale



- 1) Press the key  to indicate the item "X Scale"
- 2) Press the  or  key to indicate "100". (Set X scale to 100%.)

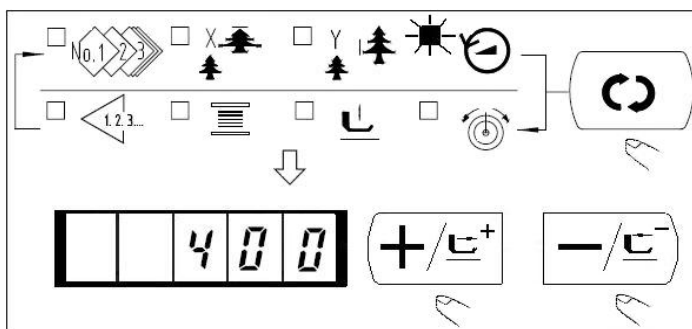
(4) Setting of the Y scale



1) Press the key  to indicate the item "Y Scale"

2) Press the  or  key to indicate "100".

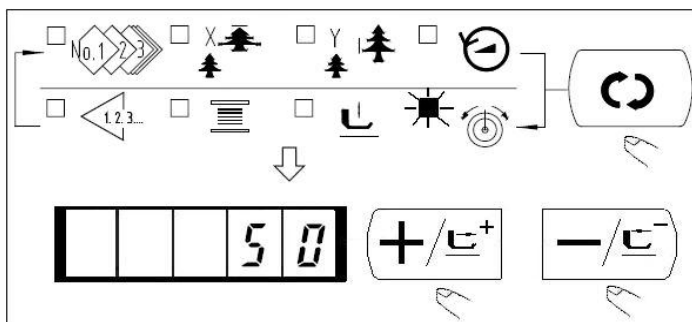
(5) Setting of the max. sewing speed limitation



1) Press the key  to indicate the item "Speed"

2) Press or key  to  indicate "400". (Setting of 400 sti/min)

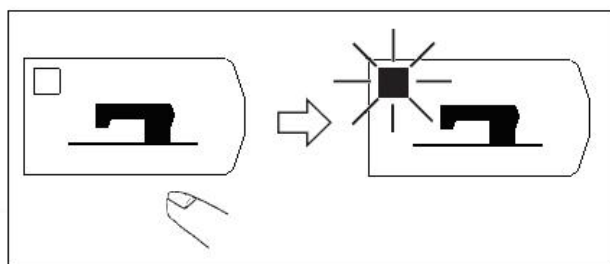
(6) Setting the thread tension



1) Press key  to indicate the item "THREAD TENSION".

2) Press  or  key to indicate "50". (0 to 200 can be set.)

(7) Finish of setting



1) Press the key .

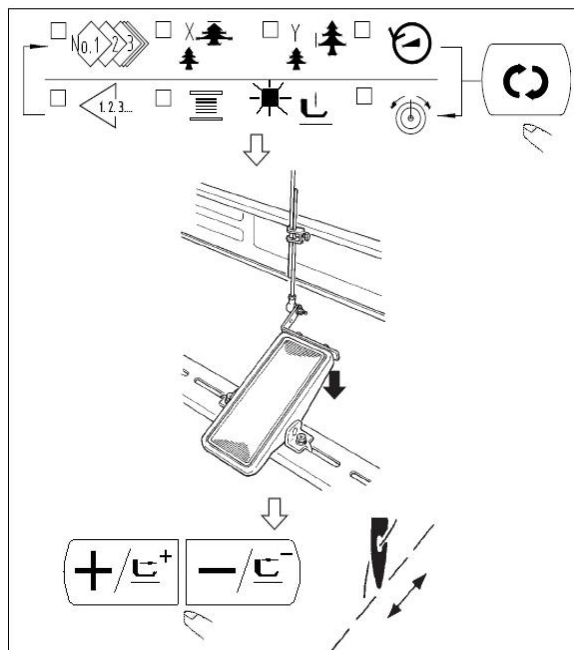
2) After the work clamp feet have moved and gone up, the sewing LED lights up, and the sewing is ready.

- * When key  is pressed, the set values of pattern No., X/Y scale, etc. are memorized.
- * If  key is pressed, you can make sure of the respective setting items again. However, the items can not be changed in the state that the SEWING LED is lit up.
- * When  key is pressed, the READY LED goes off. Set values of the respective items can be changed.
- * Thread tension can be changed even when the sewing LED lights up. Thread tension can be memorized with the start switch as well.
- * Use the machine after confirming the pattern No. When  key is pressed while pattern No. is indicated "0" (state at the time of delivery), error display E-10 appears. At this time, re-set the pattern No.
- * When turning OFF the power without pressing key, the set values of pattern No., X/Y scale, number of max. Rotation, and thread tension are not memorized.

2. Checking the contour of a sewing pattern

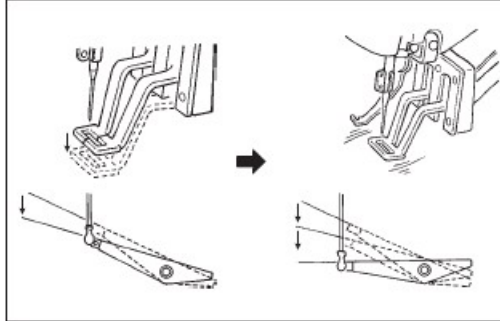
Make sure without fail of the contour of the sewing pattern after selection of the sewing pattern.

If the sewing pattern extends outside the work clamp feet, the needle will interfere with the work clamp feet during sewing, causing dangerous troubles including needle breakage.



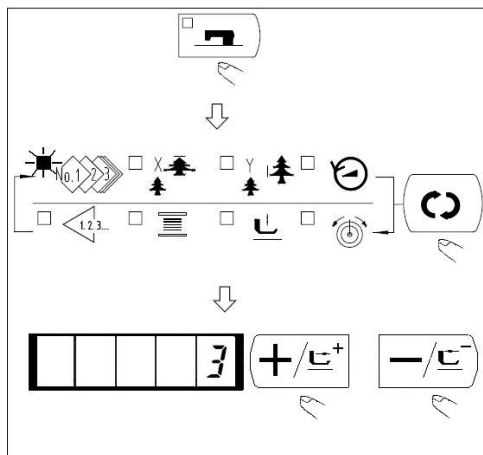
- 1) Press  key to make the READY LED light up.
- 2) Select  the work clamp foot lowering with  key.
- 4) Press  key in the state that the work clamp feet are lowered.
- 5) Confirm the contour of the pattern with key  or  key.
- 6) The work clamp feet will go up when  key is pressed.

3. Sewing



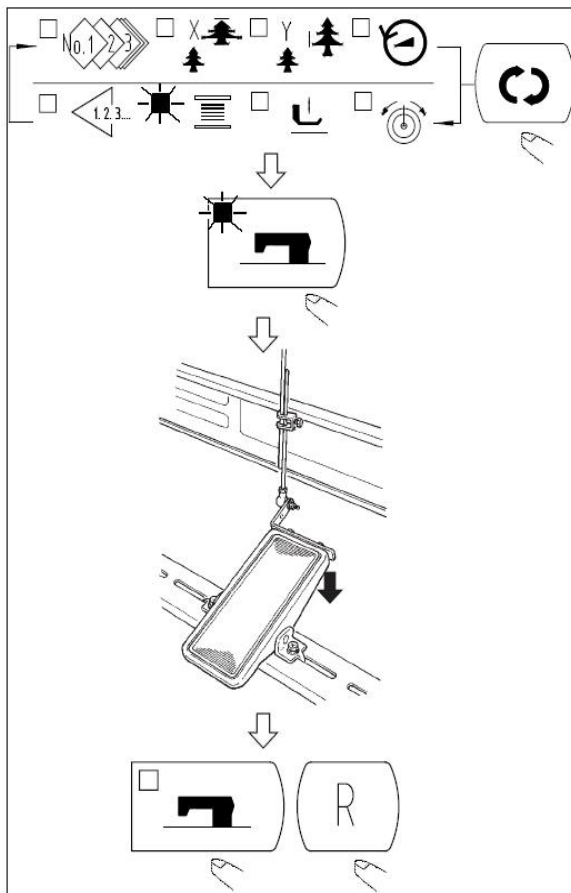
- 1) Set a workpiece on the work clamp foot section.
- 2) Depress the pedal switch to the first step, and the work clamp feet will come down. If you detach your foot from the pedal switch, the work clamp feet will go up.
- 3) Depress the pedal switch to the second step after descending the work clamp feet at the first step, and the sewing machine will start sewing.
- 4) After the sewing machine completes sewing, the work clamp feet will go up, and return to the sewing start position.

4. Change to the other sewing pattern



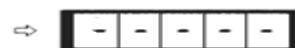
- 1) Make the Sewing LED go off with  key.
- 2) Press  key and select the item of pattern No .
- 3) Set the pattern No. with  key or  key
- 4) Similarly, setting of X/Y scale, speed, etc. is performed.
- 5) When  key is pressed, the Sewing LED lights up and the sewing machine is in the sewing ready state.

5. Winding a bobbin



Bobbin winder does not work immediately after turning ON the power. Perform the bobbin winding after setting pattern No. or the like once, pressing the  key, and making the sewing LED light up.

1. Press  key to make the SEWING LED go off.
2. Select the bobbin winder  with  key.



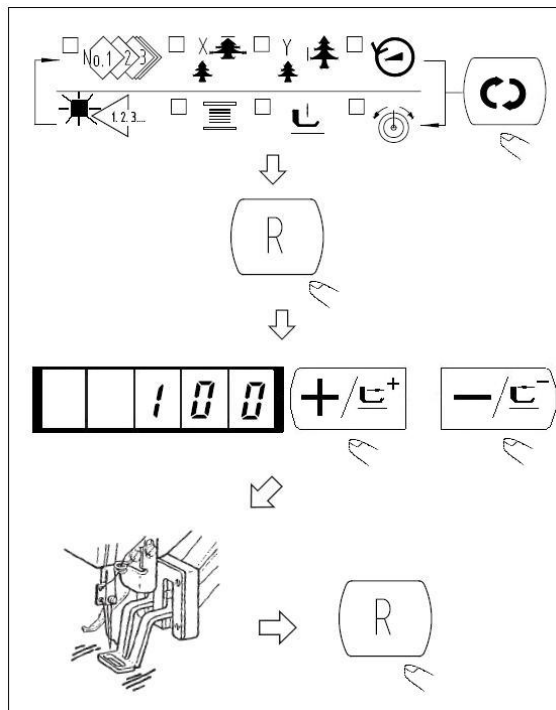
(Selection cannot be performed when the Sewing LED is lit up.)

3. Press  key. The work clamp feet come down and the Sewing LED lights up.
4. When the pedal switch is depressed, the sewing machine rotates.
5. When the pedal is depressed again, or  key is pressed, the sewing machine stops.
6. When  key is pressed, the Sewing LED goes off, the work clamp feet go up and  key becomes effective.

6. bobbin thread counter

The counter at the time of delivery is set to the production counter (adding method).

If it is used as the bobbin thread counter, it is necessary to change over memory switch No. 18 to No.1.



- 1) Press key to indicate the Counter .
- 2) Then press the key.
- 3) Then press the or key, and set the specified number of times that can be sewn with a bobbin.
- 4) Every time the sewing machine finishes a sewing cycle, counting-down is made by one.
- 5) When the sewing machine finishes the specified number of times, the sewing machine does not start even if depressing the pedal.
- 6) Replace the bobbin with a new one, and press the key. The value of the counter returns to the set value.

7. temporary stop

When memory switch No. 31 is set to "1", key can be used as the temporary stop key.

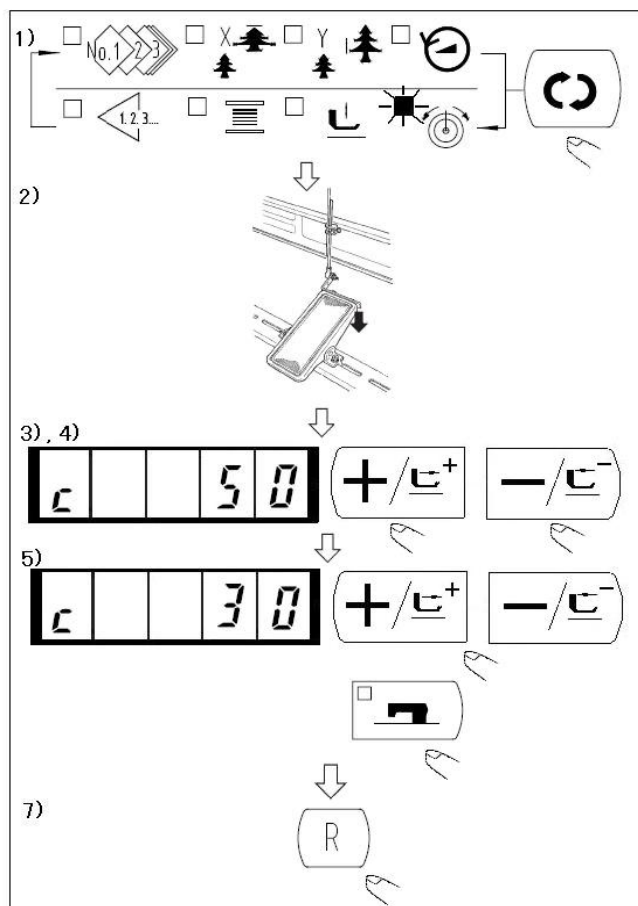
- 1) Sewing machine stops by means of key. Error 50 is indicated.

2) There are two operations after the release as below.

- ① Press key to perform thread trimming, perform positioning with or key, and restart by means of the start switch.
- ③ Press key to perform thread trimming, and press again key to return to the origin.

8. Setting the pattern thread tension

Needle thread tension for 6 stitches at the sewing start, the portion which is changed over from basting stitch to zigzag stitch, and the portion of tie stitch at the sewing end can be individually set.



1) While the sewing LED lights up, press key to indicate the needle thread tension .

2) Lower the presser with the foot pedal.(When the foot pedal is depressed until it will go no further, the sewing machine starts.)

3) Move the feed with , key. .

4) “c” is indicated at the position where the tension setting is possible.

5) Pressing key, set the tension with or key.

6) Repeat steps 3), 4) and 5) to set the tension.

7) When setting is completed, press key.The presser moves to the origin and goes up.

[6] OPERATION OF THE SEWING MACHINE (ADVANCED)

1. Performing sewing using the pattern keys ()

Patterns (No.1 to 200) which have been already registered can be registered to P1 to P50. It is possible to change and register the scale, max. speed limitation, thread tension and sewing position. Same as the patterns (No.1 to 200), P1 to P50 are used by the selection by scrolling the pattern Nos. The pattern calling from P1 to P25 can be made by one-touch as well.

* When selecting P6 to P25, perform the selection by combination (simultaneous pressing) of ,

keys as shown in the table below.

P-No.	Selection key	P-No.	Selection key	P-No.	Selection key	P-No.	Selection key
P1	P1	P8	P1+P4	P15	P4 +P5	P22	P2+P3+P4
P2	P2	P9	P1+P5	P16	P1+P2+P3	P23	P2+P3+P5
P3	P3	P10	P2+P3	P17	P1+P2+P4	P24	P2+P4+P5

P4	P4	P11	P2+P4	P18	P1+P2+P5	P25	P3+P4+P5
P5	P5	P12	P2+P5	P19	P1+P3+P4		
P6	P1+P2	P13	P3+P4	P20	P1+P3+P5		
P7	P1+P3	P14	P3+P5	P21	P1+P4+P5		

(1) Register to the pattern key

Setting example : Register following setting to the P2., Pattern No. 3, X scale rate : 50%, Y Scale rate : 80%, Max. speed limitation : 2,000 sti/min, Thread tension : "50", Pattern position : 0.5mm to the right and 1 mm to the front.

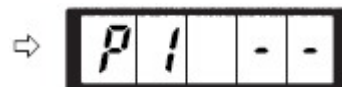
1) Turn ON the power switch and press  key to enter mode setting (memory switch setting). (Sewing LED should be put out.)



2) Indicate the pattern register mode with  or  key.

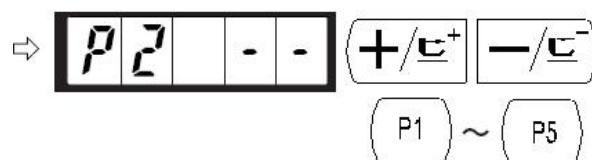


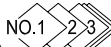
3) Press  key. Enter the pattern register mode.



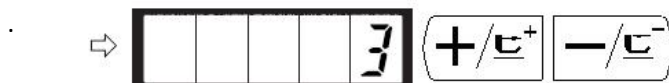
4) Press  key. (Select P-No. to be registered.)

Selection can be performed with  or  key.



5) Press  key to indicate the Pattern No. .

Set the Pattern No. to "3" with  or  key.



6) Press  key and set as follows with

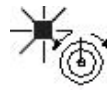
 or  key. X Scale rate  e : "50"%,



Y Scale rate  : "80"% , Max. speed

limitation  : "2000" sti/min, Thread

tension  : "50".



7) Press  key and "X Scale rate  "

Indication becomes 0.0. Traveling amount in X direction can be set in 0.1 mm unit.

Set 0.5 with  or  key.

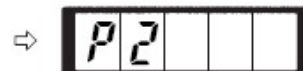


8) Press  key and "Y Scale rate  " indication

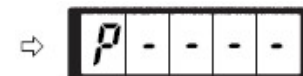
becomes 0.0. Traveling amount in Y direction can be set in 0.1 mm unit. Set -1.0

with  or  key.

9) Press  key to finalize the setting.



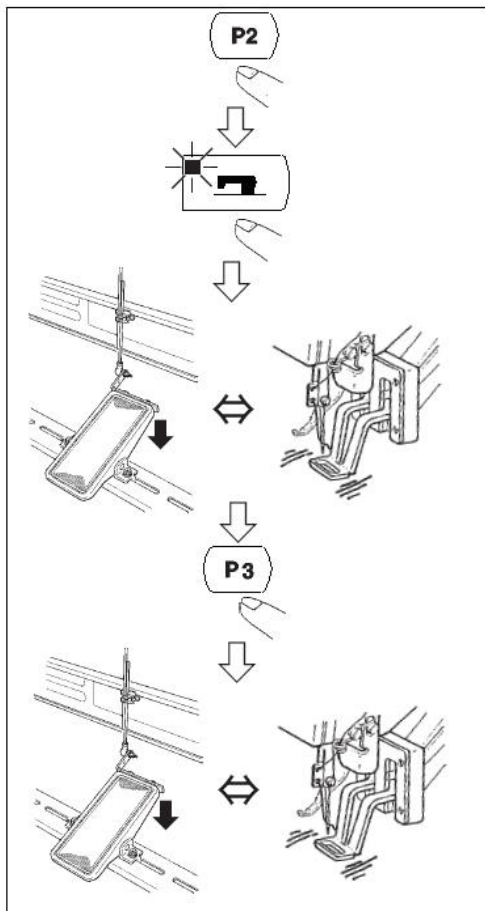
10) Press  key. Pattern register mode is finalized.



11) Press  key. Mode setting is finalized and the mode returns to the normal mode.

(2) Sewing operation

Operation example : After performing sewing with the contents of the registered P2, perform sewing with the contents of P3.



1) Turn ON the power switch.

2) Press the  key.

3) Press the  key, and when the sewing LED lights up, the work clamp foot goes up after it has moved.

4) Check the contour of the sewing pattern.

5) If the contour of the sewing pattern is acceptable, the sewing can be made.

6) Press  key after completion of sewing and the presser comes down. The presser moves to the sewing start point after origin retrieval and goes up. (The P keys can operate the pattern change by one-touch even when the sewing LED is lighting up.)

7) Perform the above items 4) and 5).

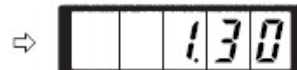
2. Performing sewing using the combination function

By arranging in the order of use of the pattern register (P1 to P50) which have been already registered and registering in C1 to C20, the sewing pattern will change in the order every time the sewing machine finishes the sewing. Every one combination No. can be registered up to the m(1)

Register of the combination

Setting example : Combine in the order of P1, P2 and P3, and register them in the C1.maximum 30 patterns.

1) Turn ON the power switch and press  key to enter the mode setting (memory switch setting).
(Sewing LED should be put out.)



2) Indicate the combination mode with  or  key.

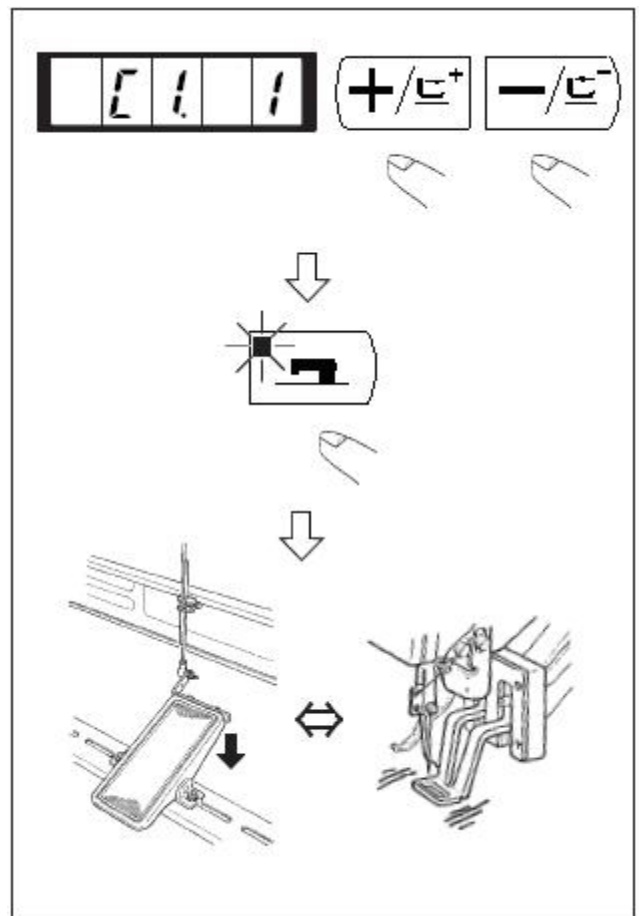


3) Press key. Sewing LED lights up to enter the combination mode.

C1 to C20 can be selected with or key.



- 1) turn on the machine.
 - 2) press $\boxed{+/C^+}$ 、 $\boxed{-/C^-}$,set the parameter number as C1.1。
 - 3) Press $\boxed{\text{LED}}$,the LED light is on, the presser foot lift up.
 - 4) If the pattern is good, then can sew.
 - 5) Sew as the pattern combination order, when the last pattern is finished, back to the first to continue.
- ✧ After sewing ,if want to back to the front pattern or skip to the next, press $\boxed{+/C^+}$ and $\boxed{-/C^-}$ when LED light is on ,the pattern changes, and presser foot move to the initial position.
 - ✧ After saving C1~C20, the P1~P50 contents will change if the P1 ~P50 is changed
 - ✧ Each pattern should confirm pattern shape.



[7] Memory switches

1 User parameter settings

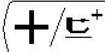
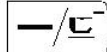
- 1) Press $\boxed{M}$ when LED light is off, enter into user parameter setting mode.

Press $\boxed{M}$,displayed 1.30 means the top speed of parameter 1 is 3000rpm

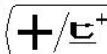
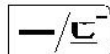


2) Change parameter number by

pressing  

⇒   

3) 。 Press  ,adjust parameter number when LED is on

4) press  、  to change parameter data. ⇒   

5) Press  ,back to factory settings.

6) Press  again, save the changed content, LED is off, back to parameter number choosing mode.

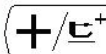
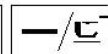
7) Press  again, end the parameter setting mode, go back to usual mode.

2 example for user parameter settings

1. set top sewing speed

For example: set the top sewing speed as 1800rpm

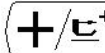
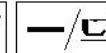
1) Press  when LED is off, the display shows the content of parameter 1, the top sewing speed display is set by parameter 1.

⇒   

2) Press  in parameter 1, the LED light is on,the content of parameter 1 is displayed.

⇒ 

3) press  、  to set it as 1800.

⇒   

4) Press  to save it, the LED is off.

5) Press , back to usual status.

(2) Soft start settings

The first to fifth stitch speed can be set by 100rpm, can be set with thread clip or without thread clip.

With thread clip

	Factory settings (rpm)	Setting range
First stitch	1500	400~1500
Second stitch	3000	400~3000
Third stitch	3000	400~3000
Forth stitch	3000	400~3000
Fifth stitch	3000	400~3000

With thread clip, factory settings for first stitch is 1000rpm, second 2000rpm

For example:

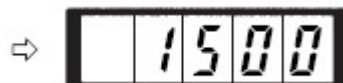
1) Press  when the LED light is off.



2) Press  and  to choose parameter 2, set the first stitch speed.



3) Press , the LED light is on, the data of first stitch is displayed.

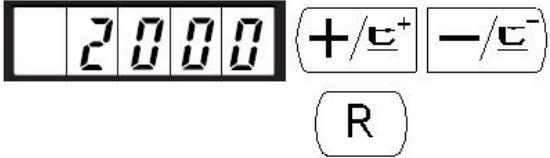
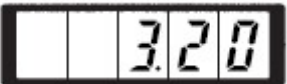


4) Press  and  to set it as 1000.



Press  to factory settings, press , The previous operation is erased, back to state 2).

5) Press , The LED light is off, the setting of the first stitch is saved.

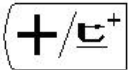
- ⇒ 
- 6) Press 、 to choose parameter 3, set the sewing speed of the second stitch.
- ⇒ 
- 7) Press , the LED is on, the value of the 2nd stitch is displayed
- ⇒ 
- 8) Press 、 to set it to 2000, press 
and back to factory settings。 Press ,
cancel the operation and back to state 6)
- ⇒ 
- 9) Press , the LED light is off, the data of the second stitch is saved。
- ⇒ 
- 10) Press , end the parameter setting state, back to usual state.

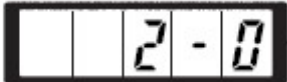
(3) Pattern number read settings

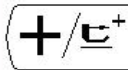
The unavailable pattern cannot be read, in case wrong pattern is read, the available pattern can be read.

For example: set pattern 2 and pattern 3 as cannot be read.

- 1) When the light is off, Press .
- ⇒ 
- 2) Press 、, display number 201。
- ⇒ 
- 3) Press , the LED light is on, the data of Pattern No.1 is displayed。 Setting data 1: can be read, 0: cannot be read。
- ⇒ 

4) Press 、 to set it as pattern No.2.    

5) Press , set the data as 0.  

6) Press 、 set it as pattern No.3.    

7) Press , set the data to 0.  

8) Press , save the data, The LED is off.  

9) Press , finish parameter setting mode, back to usual mode.

(4) Counter action settings

Setting example: Change production counter (addition mode) to bobbin thread counter (subtraction mode)

1) Press , when LED light is off.  

2) press 、 to display parameter 18.    

3) Press , the setting value is displayed when LED light is on.  

4) Press  to set the set value to 1.
Set value 0: production counter, 1: bobbin thread counter



5) Press , save the set value, the LED light is off.

6) Press , finish the parameter setting mode, back to usual mode.

3 User parameter setting list

Parameter	Function	Setting range	Initial value	Remark
1.30	Max sewing speed (setting with the unit of 100 rpm)	400~3000	3000	
2.15	sewing speed for the first stitch (with needle thread clamp) (setting with the unit of 100 rpm)	400~1500	1500	
3.30	Sewing speed for the second stitch (with needle thread clamp) (setting with the unit of 100 rpm)	400~3000	3000	
4.30	Sewing speed for the third stitch (with needle thread clamp) (setting with the unit of 100 rpm)	400~3000	3000	
5.30	Sewing speed for the 4 th stitch (with needle thread clamp) (setting with the unit of 100 rpm)	400~3000	3000	
6.30	Sewing speed for the 5 th stitch (with needle thread clamp) (setting with the unit of 100 rpm)	400~3000	3000	
7.--	Thread tension for the first stitch (with needle thread clamp)	0~200	200	
8.--	Thread tension at the time of thread trimming	0~200	0	

Parameter	Function	Setting range	Initial value	Remark
9.--	Changeover timing of thread tension at the time of thread trimming	—6~4	0	
10. 4	Sewing speed for the first stitch (without needle thread clamp) (setting with unit of 100rpm)	400~1500	400	
11. 9	Sewing speed for the second stitch (without needle thread clamp) (setting with the unit of 100rpm)	400~3000	900	
12.30	Sewing speed for the third stitch (without needle thread clamp) (setting with the unit of 100rpm)	400~3000	3000	
13.30	Sewing speed for the 4th stitch (without needle thread clamp) (setting with the unit of 100rpm)	400~3000	3000	
14.30	Sewing speed for the 5th stitch (without needle thread clamp) (setting possible in the unit of 100rpm)	400~3000	3000	
15.--	Thread tension for the first stitch (without needle thread clamp)	0~200	0	
16.--	Changeover timing of thread tension at the sewing start (with needle thread clamp)	—5~2	0	
17. 0	Display of pattern No. XY enlargement/reduction scale rate, and max.speed limits; change enabled/disabled	0: operative 1: inoperative	0	
18. 0	Counter operation	0: production counter (addition) 1: bobbin thread counter (subtraction)	0	
31. 0	Stop sewing machine operation	0: disabled	0	

Parameter	Function	Setting range	Initial value	Remark
	with panel reset key	1: panel reset key		
32. 1	Buzzer sound can be prohibited	0: no buzzer sound 1: panel operation sound	1	
33. 2	No. of stitches for needle thread clamp release	1~7 stitches	2	
34.--	Clamping timing of needle thread clamp	-10~0	0	— direction slower
35. 0	Needle thread clamp control disabled	0: normal 1: disabled	0	
36.--	Selection of feed operation timing. Set in negative direction when the tightness of stitches is adverse.	-8~16	12	If set at extreme negative, there is a danger of needle breakage. Significant when handling heavy materials.
37. 0	State of work clamp foot after completion of sewing can be selected.	0: clamp foot goes up directly 1: clamp foot goes up by pedal operation	0	
39. 0	Each time sewing is finished, origin retrieval is possible.(except for the cycle sewing)	0: no origin retrieval 1: origin retrieval enabled	0	about the parameter, as shown in the (3.3 restore to the factory default settings)
40. 0	Origin retrieval setting is possible after cycle sewing.	0: No origin retrieval 1: origin retrieval after the end of one pattern	0	

Parameter	Function	Setting range	Initial value	Remark
42.0	Needle bar stop position is set.	0: up position 1: upper dead point	0	Needle bar rotates the reverse direction after the up position stop and stops when upper dead point stop is set.
46.0	Thread trimming can be disabled at the end of sewing	0: Normal 1: thread trimming disabled	0	
49.16	Bobbin winding speed can be set	800~2000	1600	
201.--	Set whether or not the calling of the pattern data is operative	0: calling inoperative 1: calling operative	Setting depends on the model used	Patterns can be individually set
P----	Pattern registration is carried out			
C----	Cycle sewing registration is carried out			

[8] Service parameter settings

Service parameter is different with normal parameter, it is forbidden for users to change usually, needs o supply to the technicians when they adjust the machine.

1. Start and change service parameters

Press **M**, display  when LED light is off, then press **P1** **P3** **P5** at the same time, when buzzer sound, can start and change service parameter.

Service parameter change is same as normal parameter, for details please refer to (2.6 user parameter settings)

2 service parameters list

Parameter	Function	Setting range	Initial Value	remarks
21.--	Standard pedal, clamp switch position	50-500	70	When the setting value is increased, the amount of pedal tread becomes larger.
22.--	Standard pedal, 2-step stroke switch position	50-500	120	When the setting value is increased, the amount of pedal tread becomes larger.
23.--	Standard pedal, start switch position	50-500	185	When the setting value is increased, the amount of pedal tread becomes larger.
24.0	Pedal type	0 or 1	0	0 single pedal; 1 double pedal
27.--	Clamp lowering speed during pedal operation	100-4000pps	4000	
28.--	Clamp rising speed during pedal operation	100-4000pps	1500	Too much rise in the setting level may result in malfunction.
29.--	Thread trimmer clamp rising speed at the end of sewing	100-4000pps	3000	Too much rise in the setting level may result in malfunction.
38. 0	Sewing is possible only with the start switch, without raising the work clamp foot.	0: normal 1: work clamp foot rise disabled	0	
43. 1	Selection of sewing machine rpm during thread trimming	0: 400rpm 1: 800rpm	1	This is the sewing machine rpm of the thread spreading by moving knife, when the sewing machine has stopped, thread trimmer is function.
44. 1	Selection of whether the thread is moved in	0: feeding disabled 1: feeding enabled	1	

Parameter	Function	Setting range	Initial Value	remarks
	the direction of easy trimming			
45.16	needle hole guide diameter when feeding is moved for thread cutting (setting possible in the unit of 0.2mm)	16~40 (1.6mm~4.0mm)	16	
50.5	Trimming angel	0~9	5	345°~15°
52.--	Magnet wipe-out time	10-500ms	50	Effective only if the magnet wiper has been selected
53.--	Magnet wipe-in time	10-500ms	100	Effective only if the magnet wiper has been selected
54.0	Button sewing start feeding delayed	-20~20	0	Negative direction ahead of time, positive direction delayed
55.0	The stitch at the start of sewing of the pattern for button sewing can be prohibited.	0: the stitching effective 1: the stitching ineffective	0	Effective only when parameter 241 set to 7.
56.--	Moving limit range in +X direction(right side)	-20~20mm	20	In the state of shipment, no clamp configuration is considered.
57.--	moving limit range in -X direction (left side)	-20~20mm	-20	In the state of shipment, no clamp configuration is considered.
58.--	Moving limit range in +Y direction(back side)	-20~10mm	10	In the state of shipment, no clamp configuration is considered.
59.--	moving limit range in -Y direction (front side)	-20~10mm	-20	In the state of shipment, no clamp configuration is considered.
62.0	Pattern upgrade	0: normal 1: pattern upgrade mode	0	Details refer to (5. Upgrade patterns through USB drive)
64.0	Electronic wiper	0 or 1	0	0: wiper with clamp foot moving

Parameter	Function	Setting range	Initial Value	remarks
				1: electronic wiper
65.--	control box version display	X-XXX	-	Factory code-version number
66.--	Panel version display	X-XXX	-	Factory code-version number
67.--	Default parameters call	0 or 1	1	Details refer to (3.3 restore to factory settings)
68.--	compensation when main shaft stops	-10~+10	0	
120.--	warning stitches when need to add oil	3000~12000	12000	unit: ten thousand stitches
121.0	counter lock settings	0: zero clearing and add-subtract available; 1: Zero clearing available, add-subtract unavailable. 2: Zero clearing unavailable, add-subtract available. 3: zero clearing or add-subtract unavailable	0	need to input unlock code to display this parameter
122.1	pedal sensitivity setting	0: normal mode 1: sensitive mode	1	
123.0	cutter position sensor on/off	0: on 1: off	0	when E307 is displayed ,turn it off.
124.0	step control mode setting	0: DSP1 closed loop DSP2 closed loop 1: DSP1 closed loop DSP2 closed loop 2: DSP1 closed loop DSP2 open loop	0	Need to restart to take effect

Parameter	Function	Setting range	Initial Value	remarks
		3: DSP1 open loop DSP2 open loop		
125.--	Step drive software version	1-XXX means DSP1, 2-XXX means DSP2	Press +/- to change DSP	
133.--	wiper timing adjust	×10mS is adjustable, 0~12	0mS	only effective for machine with wiper electromagnet
134.0	cutting motion angle when sewing end	0 stop then cutting, 1 cutting as soon as thread spreading	10	
136.0	Take-up electromagnet actuation duration	-1: 500mS 0: 1000mS 1: 1500mS	0	
138.0	thread tension control mode	0 Juki type clamp mode; 1 thread holding mode	0	Need to restart to take effect
144.0	thread spreading timing adjust	-6~10	0	
146.--	clamp foot motor full flow	0~15	14	Need to restart to take effect
147.--	clamp foot motor half flow	0~15	5	Need to restart to take effect
150.0	safety switch invalid when machine head turn over	0: normal 1: invalid	0	
160.0	pedal reverse tread to stop machine	0: invalid 1: valid	0	
241.0	Function choosing	0: bar tacking (reinforce) 7: button sewing	0	

Remarks: The above parameters are only for technicians to use, users are not allowed to change.

3.Restore to factory default settings

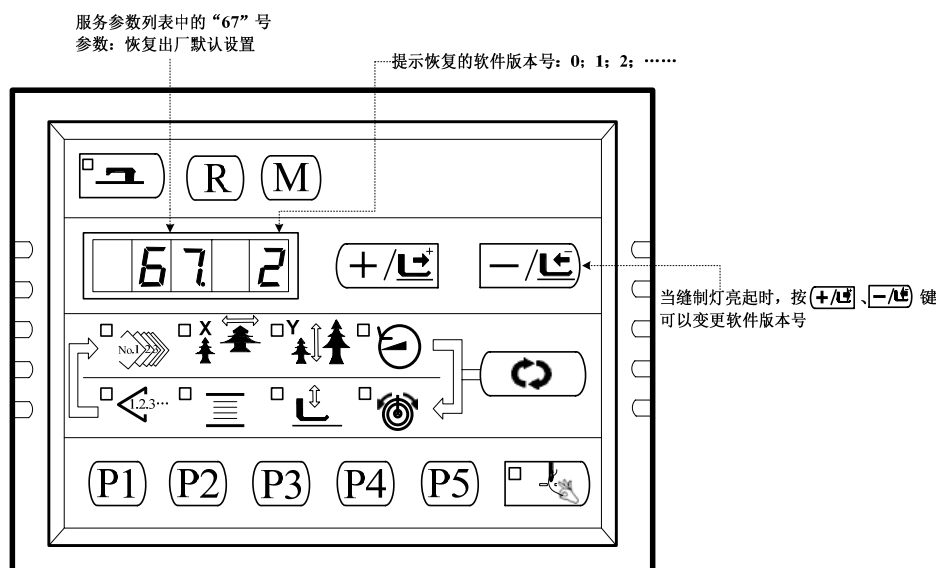
When users change some parameters which already are set before delivery by accident or when the control system break down, may use “restore to factory default settings” function, to recover the system.

Attention: if restore to factory default settings, all the data set by users will be covered, carefully consider when use this function, if not clear, should contact technicians from the manufacturer, operate as their instruction.

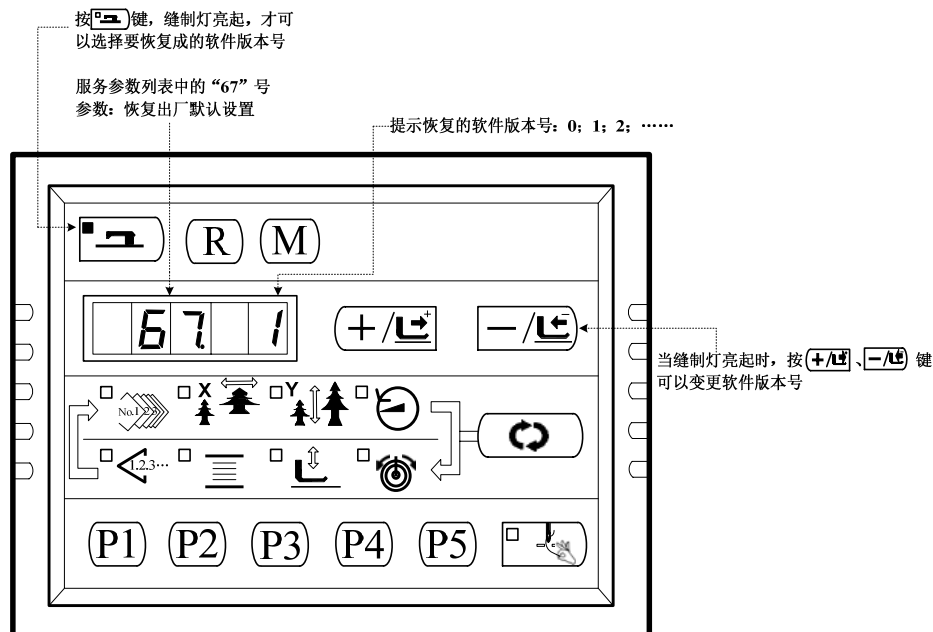
Specific steps are as follows:

- 1、 When LED light is off, press , display , then press simultaneously, after hearing the buzzer sound, that means the service parameter change starts;

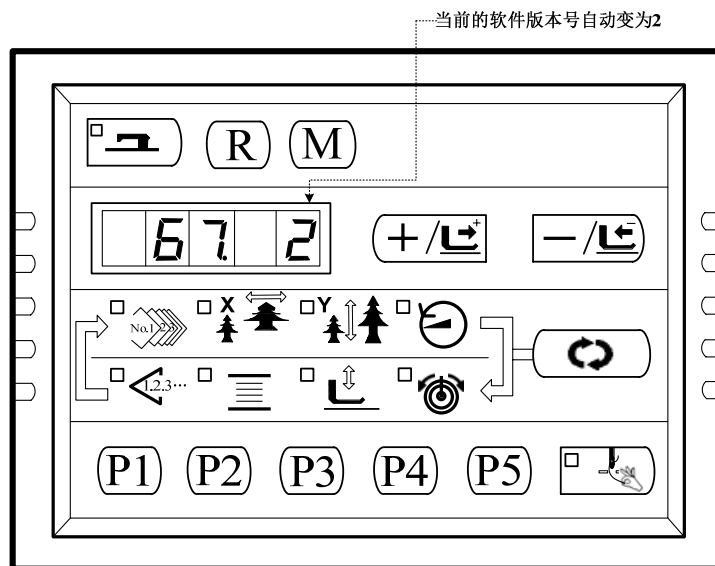
- 2、 Press ,  to choose parameter 67:



- 3、 press , the LED light is on , then press , , to choose software version number you need;



- 4、For example, the current version number is 2, you may choose recover to 0 or 1 (smaller than current version number) , and then press to confirm the number you need, then the sewing LED light is off;
- 1、 Press , exit the service parameter setting mode and return to normal sewing mode;
- 2、 And then turn off the power, about 1 minute later turning on the power to the system, the control panel digital display as "EEP -" After about 20 seconds, the control panel returns to normal display (note that this is a normal phenomenon, the system take some time to complete factory software recovery).
- 3、 After the recovery is complete, the system will automatically set the current software version to the highest version number, for example, the system default version are 0 and 1 , after the recovery the version number is 2 automatically.



Note: The power is turned on again to power the system, during system recovery process, if power failure, the recovery process will be forced to interrupt, will not be completed to restore the factory default settings, return to the previous software state before recovery.

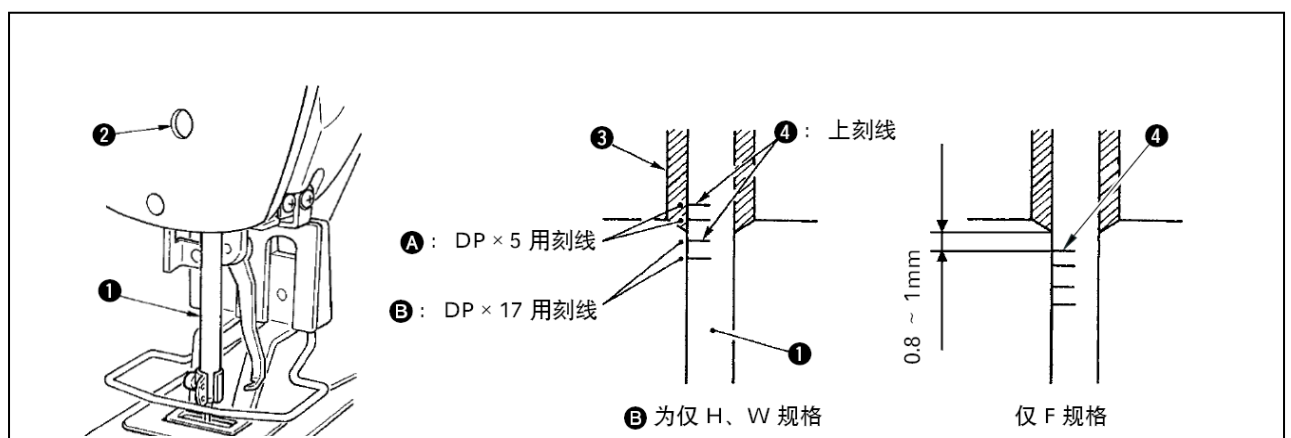
[9] Maintenance

1. Needle bar height



注意

为了防止突然的起动造成人身事故，请关掉电源后再进行操作。



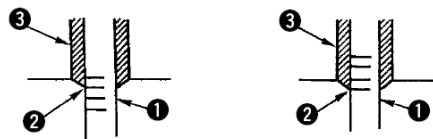
set the needle bar ① to the lowest point, unscrew needle bar fastening screws ②, make the engraved lines ④ and the underside of needle bar stopper ③ at the same lever.

Only F specification, adjust the needle bar engraved lines ④ 0.8mm-1mm lower to the center position.

※when skip stitch occurs in some sewing condition, please adjust the needle bar engraved lines ④ 0.5mm-1mm lower.

2. Needle and rotary hook

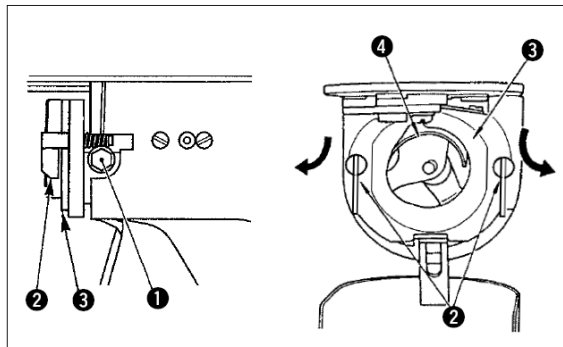
机针和刻线的关系



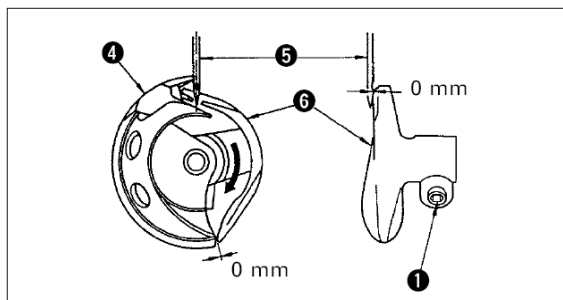
1) Turn the pulley by hand, when the needle bar ① rise, make under engraved lines ② aligned the front side of needle bar under stopper .

2) Loosen drive screws ①, open the tablet ②, remove the hook presser ③.

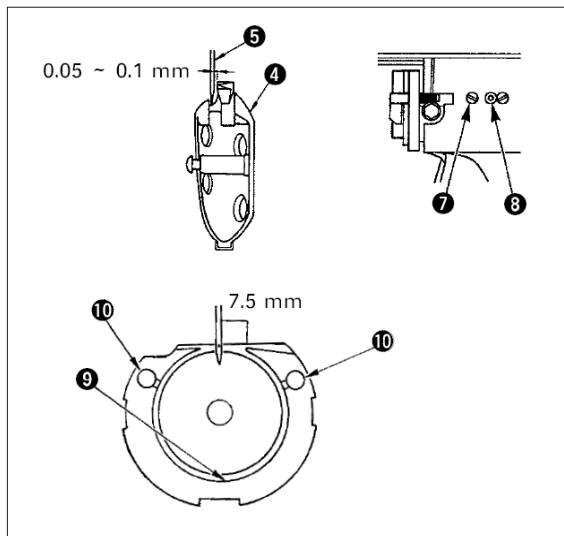
be careful not to fall off the hook ④.



3) In order to allow the hook ④ point and the center of the needle ⑤ consistent, while preventing the front end of drive ⑥ collide needle to curve it, make sure there is no gap between them, and then tighten drive screws ①.

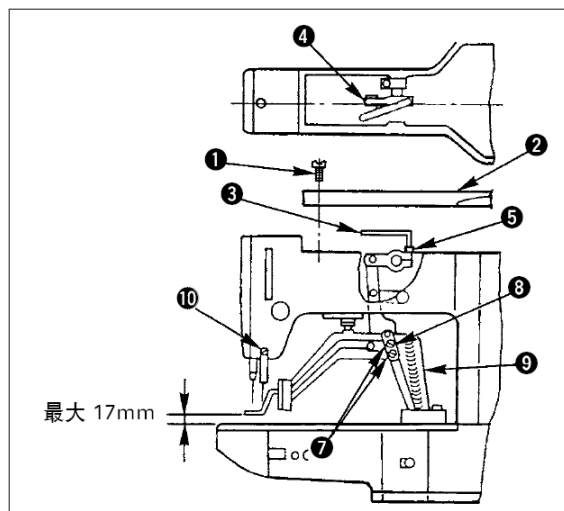


4) Loosen the big hook ⑦, turning hook adjustment shaft ⑧ left and right, adjusting the front and back position of the big hook, the gap between the needle ⑤ and the hook ④ tip is adjusted to 0.05-0.1mm.
5) After adjusting the position of the big hook, the gap between the needle and the hook should be 7.5mm, and then tighten the big hook screw ⑦.



when no t use sewing machine for a long time or after clean the rotary hook around, please add some oil into the track⑨ and oil core⑩ and then operate the machine

3. Clamp foot height

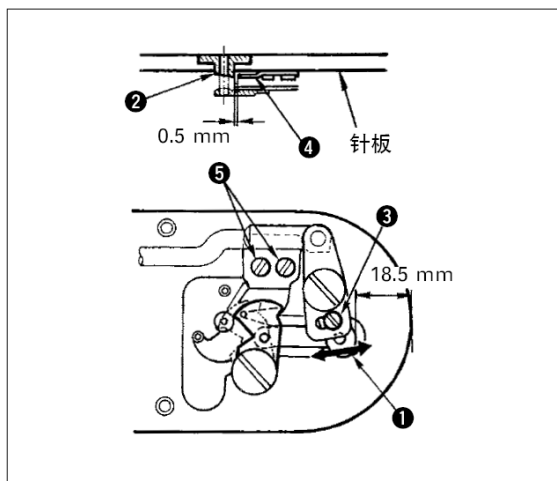


- 1) in stop state, remove the six cover screws ①, then remove the cover ②.
- 2) Use L-shaped wrench ③ to loosen bolt ⑤.
- 3) down the L-shaped wrench ③ to rise cloth presser foot, up to reduce it.
- 4) After the adjustment, tighten the bolt ⑤ indeed.
- 5) When the left and right presser feet are inconsistent, loosen the screws ⑦, adjust the presser foot lever baffle ⑧ to adjust the height.

At this point, do not let the presser foot lever baffle ⑧ collide with the feed base⑨, and if collide with the take-up lever, use take-up lever fixed screws ⑩ to adjust the height .

4.MOVING KNIFE AND FIXED KNIFE

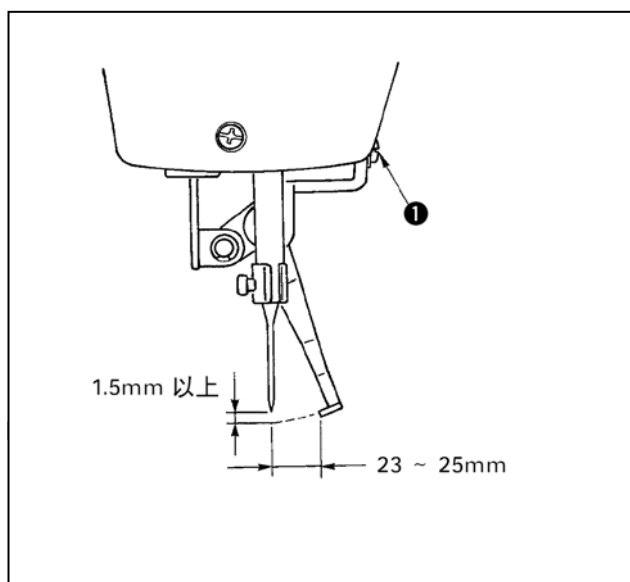
Caution in order to prevent a human injury due to machine sudden movement, please operating machine after turning off power .



- 1) Unscrew adjust screw ③, remove moving knife to a arrow direction, to leave the gap between front-end of needle plate to front-end of small shifting lever ① to 18.5mm.
- 2) Unscrew set screw⑤, removing fixed knife leave the gap between needle hole guide line ② and fixing knife④ to 0.5mm.

5.Thread take-up bar adjustment

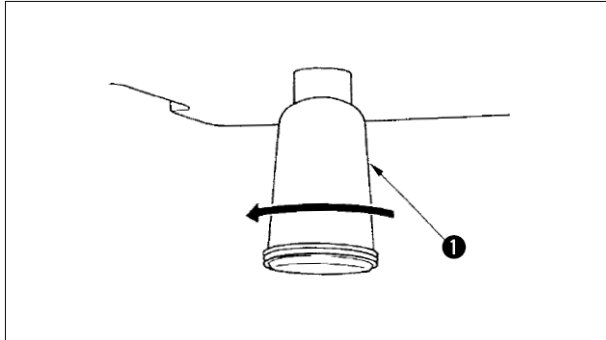
Caution in order to prevent a human injury due to machine sudden movement, please operation machine after turn Off power .



- 1) Unscrew bolt①to leave gap between thread take-up bar and machine needle above1.5mm.

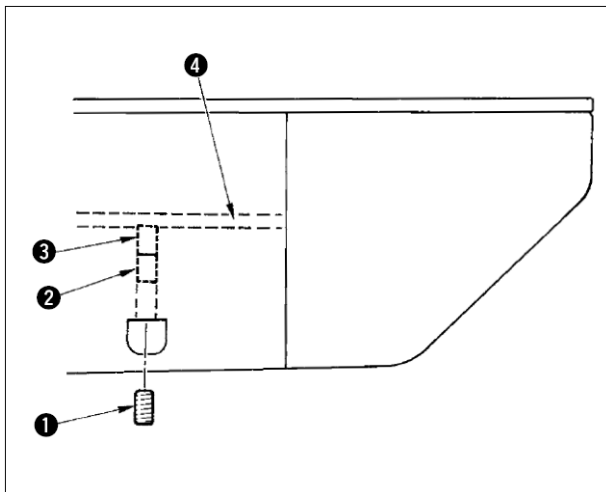
At this moment the gap between thread take-up bar and needle is about 23~25mm, through wide gap adjustment to prevent push down the sewing thread under presser food fall down. Especially when use thin thread ,please adjust to about 23mm.

★ It is the needle position when the sewing is finished



After oil cup①filled with oil, please remove oil cup ① and emission waste oil。

7. Shuttle fuel charge



- 1) Unscrew setscrew①, remove setscrew①。
- 2) After tightening up adjust screw②, to make small the amount of oil at left side of oil pipe④。



1. At standards shipping status, slightly tighten up③, rotate to 4 circle position。
2. when to make small the amount of oil ,please do not tighten once, tighten ③rotate 2 circle and to be observe half of a day, if too tight will wear shuttle。

8. Supplementary lubrication to the specified position

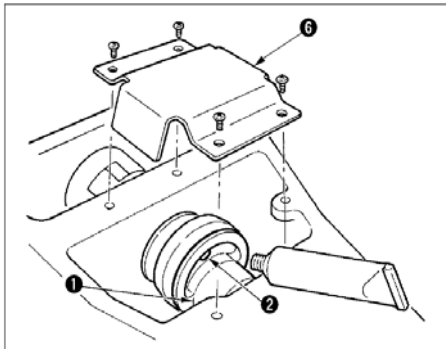
Panel display will show error code No.E220 after sewing for a certain time. This indicates supplementary lubrication to be added to the specified position and must be add grease, call out memory switch No.245, use reset button reset to 「0」。

After appear error code No.E220, if the sewing continues, the No.E220 appear again, and the error will not be solved by pressing the rest button, even the machine will not run. Therefore, after appear error code No.E221, please add grease to the following position and after that star-up memory switch No.245, use reset button to resetting 「0」。

- After adding grease, change No.245(memory switch) to 「0」, otherwise the error codeNo.E220 or No.E221will appear again.
- In supplementary lubrication process, please use attached grease hose (no 40013640). If added unspecified grease will cause damage to the parts.

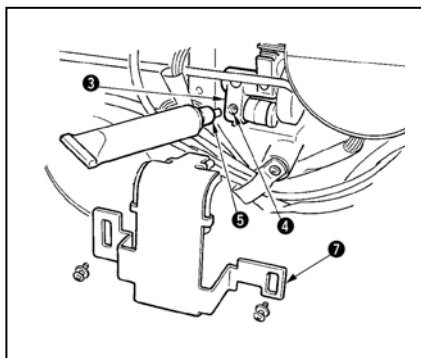
Caution in order to prevent a human injury due to machine sudden movement,please operation machine after turn Off power .

(1) Add grease to eccentric cam



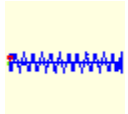
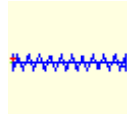
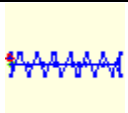
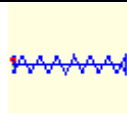
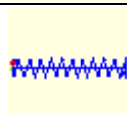
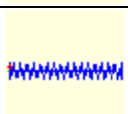
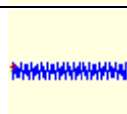
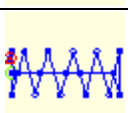
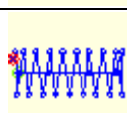
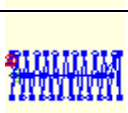
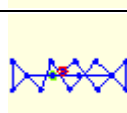
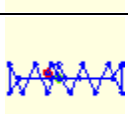
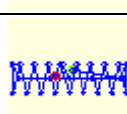
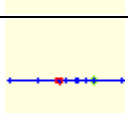
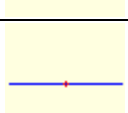
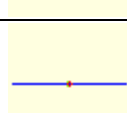
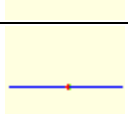
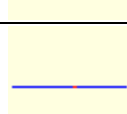
- 1) Open upper cover, remove grease cover⑥。
- 2) Remove eccentric cam①two side rubber cover ②, then add grease。

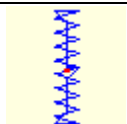
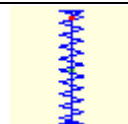
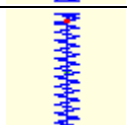
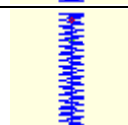
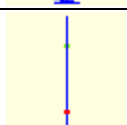
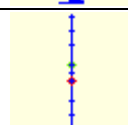
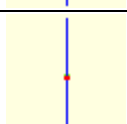
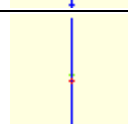
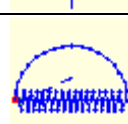
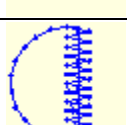
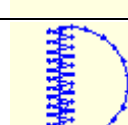
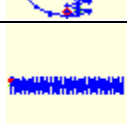
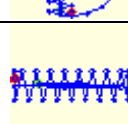
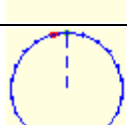
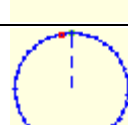
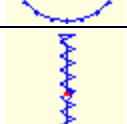
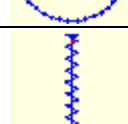
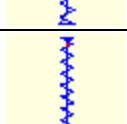
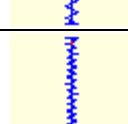
(2) Add grease to big swing pin

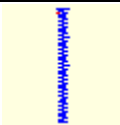
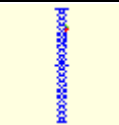
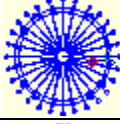
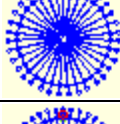
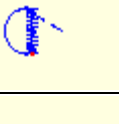
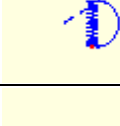
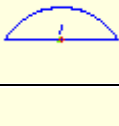
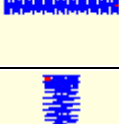
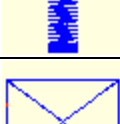
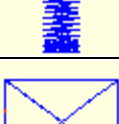
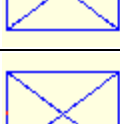
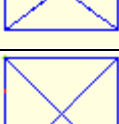
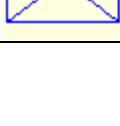
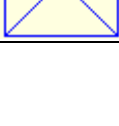


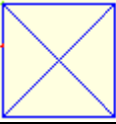
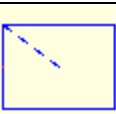
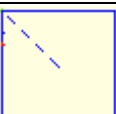
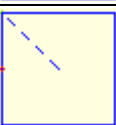
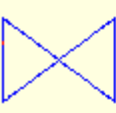
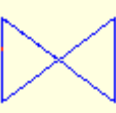
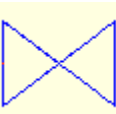
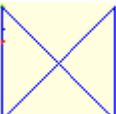
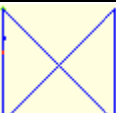
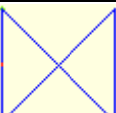
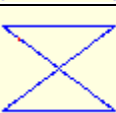
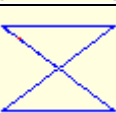
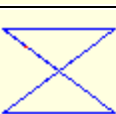
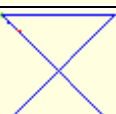
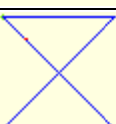
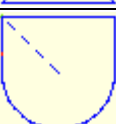
- 1) Put down machine, remove grease cover⑦。
- 2) Remove big swing clutch③setscrew④, insert install attach joint ⑤grease hose to the screw hole, then add grease 。
- 3) After add grease, please tighten up setscrew ④。

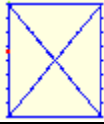
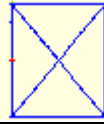
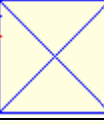
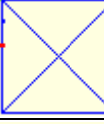
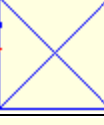
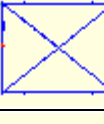
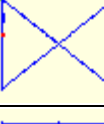
9.list of standards pattern

NO.	Sewing pattern	Stitch	length × width (mm)	NO.	Sewing pattern	stitch	Length × width (mm)
1		41	16.1×2	2		41	10.2×2
3		41	16×2.4	4		41	24×3
5		27	10.1×2	6		27	16×2.4
7		35	10.1×2	8		35	16×2.4
9		55	24×3	10		63	24×3
11		20	6.1×2.4	12		27	6.2×2.4
13		35	6.1×2.4	14		14	8×2
15		20	8×2	16		27	8×2
17		20	10×0	18		27	10×0
19		27	25.2×0	20		35	24.8×0
21		40	25.2×0	22		43	35×0

NO.	Sewing pattern	Stitch	length × width (mm)	NO.	Sewing pattern	stitch	Length × width (mm)
23		27	4×20	24		35	4×20
25		41	4×20	26		55	4×20
27		17	0×20	28		20	0×10
29		20	0×20	30		27	0×20
31		51	10.1×7	32		62	12.1×7
33		23	10.2×6	34		30	12×6
35		47	7×10	36		47	7×10
37		89	24×3	38		27	8×2
39		25	11.8×12	40		45	12×12
41		28	2.4×20	42		38	2.4×25
43		38	2.4×25	44		57	2.4×30

NO.	Sewing pattern	Stitch	length × width (mm)	NO.	Sewing pattern	stitch	Length × width (mm)
45		75	2.4×30	46		41	2.4×30
47		89	8×8	48		98	8×8
49		147	8×8	50		163	8×8
51		110	7.9×7.9	52		120	7.9×7.9
53		130	7.9×7.9	54		51	12.4×10.2
55		50	12.4×10.2	56		52	21×6
57		57	21×6	58		102	19×3
59		115	40×5	60		115	40×5
61		308	6×25	62		257	6×20
63		108	40×30	64		80	40×30
65		64	40×30	66		96	30×30

NO.	Sewing pattern	Stitch	length × width (mm)	NO.	Sewing pattern	stitch	Length × width (mm)
67		76	30×30	68		60	30×30
69		52	40×30	70		40	40×30
71		32	40×30	72		44	30×30
73		36	30×30	74		28	30×30
75		60	40×30	76		48	40×30
77		36	40×30	78		56	30×30
79		44	30×30	80		36	30×30
81		67	40×30	82		51	40×30
83		39	40×30	84		55	30×30
85		35	30×30	86		42	30×30
87		145	16.2×16 .2	88		153	12×12.4

NO.	Sewing pattern	Stitch	length × width (mm)	NO.	Sewing pattern	stitch	Length × width (mm)
89		74	20×24	90		54	20×24
91		65	20×20	92		49	20×20
93		39	20×20	94		63	25×20
95		51	25×20	96		45	25×20
97		42	25×20	98		33	25×20
99		27	25×20	100		88	30×25

10.Causes and countermeasure for the fault at sewing

Phenomenon	cause	Countermeasure	page
1.Thread dropped when sewing.	① needle skipped at begging running。 ② upper thread too short after trimming ③ bottom thread too short。 ④first stitch upper thread tension is too high。 ⑤ thread catch force instable (elastic fabric, coarse thread ,thick thread) ⑥ first stitch space is too short。	○ leave space between machine needle and hook to 0.05-0.1mm。 ○ set soft start at beginning running。 ○ adjust second thread tensioner tension。 ○ to make bigger bounce of thread take-up spring or put down first thread tensioner tension。 ○ put down bottom thread tension。 ○ increase space between needle hole and fixed knife。 ○ put down first stitch tension。 ○ slow down start running speed to about (600~1000rpm) ○ increase catch thread stitch to 3~4。 ○ increase first stitch space。 ○ put down first stitch upper thread tension。	33 38 16 15 34
2.Thread easy to broken even polyester thread	① Check damage of hook and drive。 ② Check damage of needle hole guide。 ③ Machine needle touch presser foot。 ④ Thread end enters to the groove of big hook。 ⑤ Upper thread tension too high。 ⑥ Too big bounce of thread take-up spring。	○ remove and made grinding。 ○ use file or replace。 ○ adjust presser foot position。 ○ remove middle hook make cleaning。 ○ take down upper thread tension。 ○ take down the thread take-up spring bounce。 ○ use silicon oil。	33 15 16 14

	⑦ Polyester thread broken by frictional heat.		
3.Thread easy breaks	① needle bended. ② needle touch presser foot. ③ needle too thick. ④ needle bended too much by the driver. ⑤ presser foot press sewing thread (needle bended).	○ replace needle. ○ adjust presser foot. ○ choose appropriate needle according sewing material. ○ adjust needle and hook position. ○ increase the place between needle and thread to (23~25mm) .	13 33 33 35
4.bad trimming.	① fixed knife not sharp. ② the high different between needle guide and fixed knife too small. ③ moving knife position not perfect. ④ needle skipped. ⑤ bottom thread tension too low.	○ replace knife. ○ make moving knife more bended. ○ adjust moving knife position. ○ adjust needle and hook synchronous. ○ take high bottom thread tension.	34 33
5.Thread easily jumps	① needle and hook setting is not good. ② the gap between needle and hook is too big. ③ needle bended. ④ needle too bended by driver.	○ adjust needle and hook position. ○ adjust needle and hook position, ○ replace needle. ○ adjust driver position.	33 33 13 33

phenomenon	causes	countermeasure	page
6.upper thread exposed from inside of fabric.	① Upper thread tension not good。 ② Lift structure of thread tension plate don't move。 ③ Upper thread too long after trimmer。 ④ Stitch is less。 ⑤ When sewing length is short (thrum is exposed at backside of fabric.) ⑥ Stitch is less。	○ take up upper thread tension。 ○ check second thread tension plate floating。 ○ take up first thread tension。 ○ take off catch thread device 。 ○ take off catch thread device。 ○ use blind stitch style。	15 15
7.thread broken at trimming.	① moving knife position is not correct.	○ adjust moving knife position。	34
8.upper thread tangled on thread clamp device.	① upper thread too long when start sewing.	○ tighten first thread tensioner, adjust thread length to 33~36mm。	
9.machine thread length is different.	① thread take-up spring bounce is too low.	○ take up bounce of thread take-up spring。	
10.can not take short the length of machine thread.	① thread take-up spring bounce is too low。 ② thread take-up spring bounce is too high。 ③ because thread take-up spring bounce is too low, the movement is instable。	○ take up first thread tensioner tension。 ○ take down thread take-up spring。 ○ take up thread take-up spring tension, stroke also change to long。	
11.secon stitch bottom thread knot appear to the face.	① bobbin idling is big。 ②bottom thread tension is low。 ③ first stitch upper thread tension is too high。	○ adjust moving knife position。 ○ take up bottom thread tension。 ○ take down first stitch upper thread tension。 ○ turn off thread catch device。	

II .HK2903SS high speed buttoning machine introduction

1. Specifications

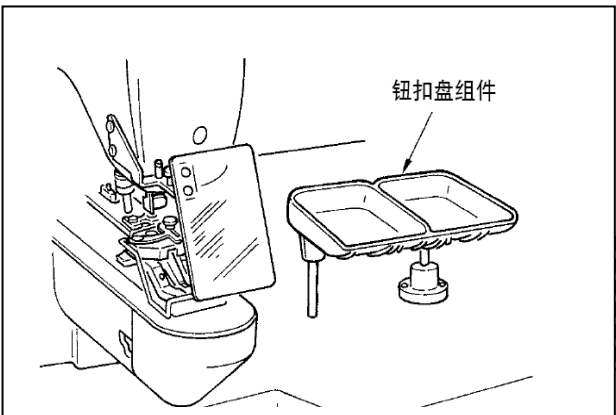
Here only describes the different content with HK2900SS。

- 1) Working speed.....maximum2700rpm
- 2) NeedleDP×17#14
- 3) Presser foot lifting.....servo motor
- 4) presser lifting height.....maximum13mm
- 5) Number of memory data50
- 6) Thread take-up way..... connect with presser lift movement

2. Installation and working preparation

3.

Caution there should be a 2 person when moving sewing machine .



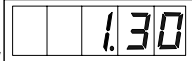
- 1) Install machine head and electric box is same withHK2900SS , please refer to HK2900SS instruction manual。
- 2) Install appendix on the plate, please install to the place easy for operation。

Before running ,moving hand wheel to check machine needle is touched with button。

Needle	Upper thread	Bottom thread
DP×17#14	#60	#80
	#60	#60
	#50	#60
	#40	#60

4.Buttoning function setting

- 1、 press **(M)** button when light is off, **(P1)** **(P3)** **(P5)**

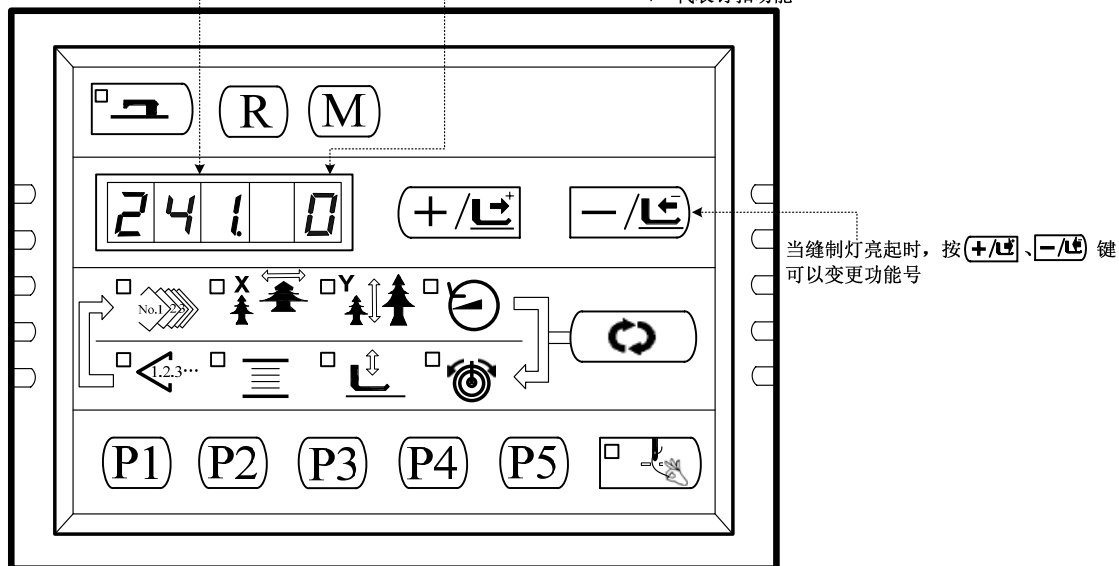
display , then press button simultaneously, after buzzer sound, to start

parameter change;

2、press 、 button, choose no241 parameter:

服务参数列表中的“241”号
参数：机器功能选择

提示机器功能号：“0”代表套结功能
“7”代表钉扣功能



3、press  button, after sewing lamp ON then press 、 button, function number change to “7”; repress  button to check function number, sewing lamp OFF。

4、press  button, exit from parameter set mode, back to normal sewing mode; restarts machine, machine function changed to buttoning function。

5. List for standards buttoning pattern

Patter n no	Sewin g patter n	threa d (piec e)	Standar ds Length X(mm)	Standar ds Length Y(mm)	Patter n no	Sewin g patter n	threa d (piec e)	Standar ds Length X(mm)	Standar ds Length Y(mm)
1 • 34		6-6	3.4	3.4	18 • 44		6	3.4	0

Patter n no	Sewin g patter n	threa d (piec e)	Standar ds Length X(mm)	Standar ds Length Y(mm)	Patter n no	Sewin g patter n	threa d (piec e)	Standar ds Length X(mm)	Standar ds Length Y(mm)
2 • 35		8-8			19 • 45		8		
3		10-10			20		10		
4		12-12			21		12		
5 • 36		6-6			22		16		
6 • 37		8-8			23 • 46		6	0	3.4
7		10-10			24		10		
8		12-12			25		12		
9 • 38		6-6			26 • 47		6-6	3.4	3.4
10 • 39		8-8			27		10-10		
11		10-10			28 • 48		6-6		

Patter n no	Sewin g patter n	threa d (piec e)	Standar ds Length X(mm)	Standar ds Length Y(mm)	Patter n no	Sewin g patter n	threa d (piec e)	Standar ds Length X(mm)	Standar ds Length Y(mm)
12 •40		6-6			29		10-10		
13 •41		8-8			30 •49		5-5-5	3.0	2.5
14		10-10			31		8-8-8		
15 •42		6-6			32 •50		5-5-5		
16 •43		8-8			33		8-8-8		
17		10-10							

(2) Option for sewing pattern and sewing width

- method for option of sewing pattern is same as HK2900SS.
- use enlarge and reduce function to adjust, when sewing pattern standards sewing width is inappropriate with button hole. Way enlarge and reduce is same as HK2900SS.
- after changed sewing pattern number, must be check needle down position. Check way please refer HK2900SS operating manual and confirm pattern shape.

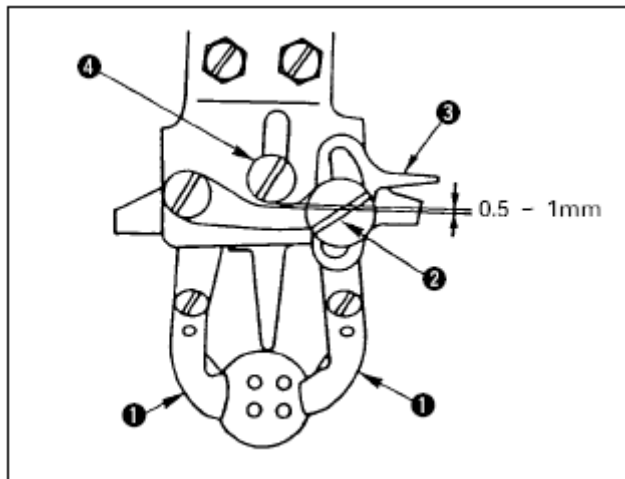
◎ adjust X、Y enlarge and reduce rate list according sewing width.

X・Y (mm)	2.4	2.6	2.8	3	3.2	3.4	3.6	4	4.3	4.5	4.7	5.2	5.6	6	6.2	6.4
%	71	76	82	88	94	100	106	118	126	132	138	153	165	176	182	188

6. Adjusting for claw feet open shift lever

I

Caution in order to prevent a human injury due to machine sudden movement, please operation work after power turn OFF.



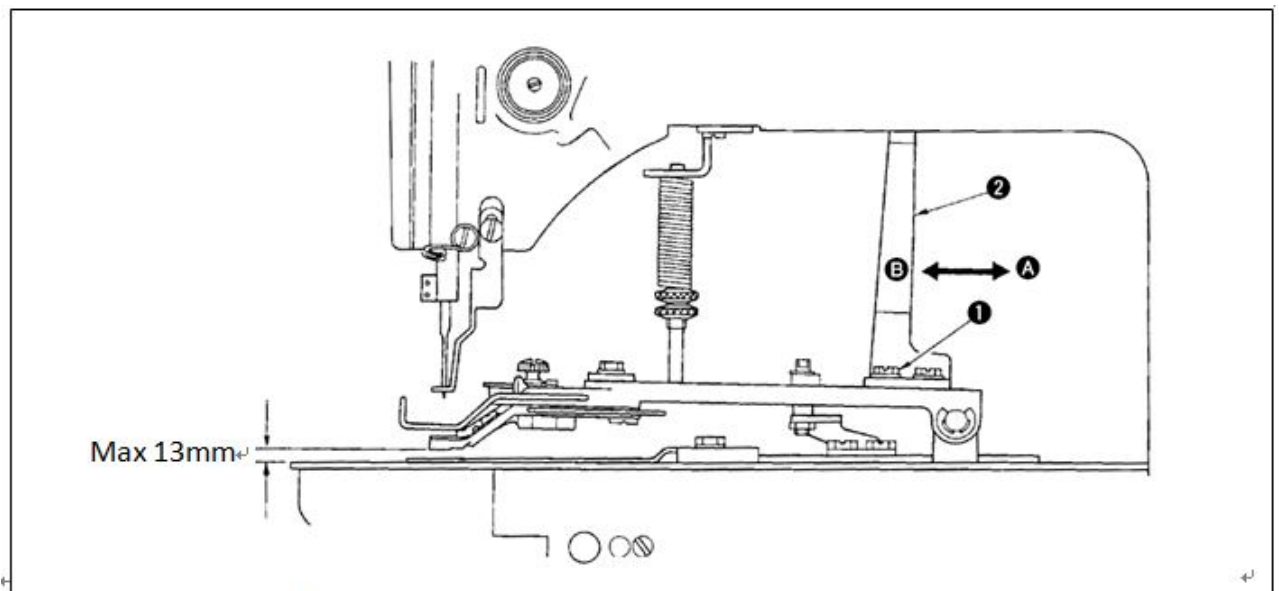
- 4) Install machine head and electric box is same with HK2900SS, please refer to HK2900SS instruction manual.
- 5) Install appendix on the plate, please install to the place easy for operation.

. Adjusting the height of button clamp



Caution

Before adjusting, please be sure the power is completely switched OFF



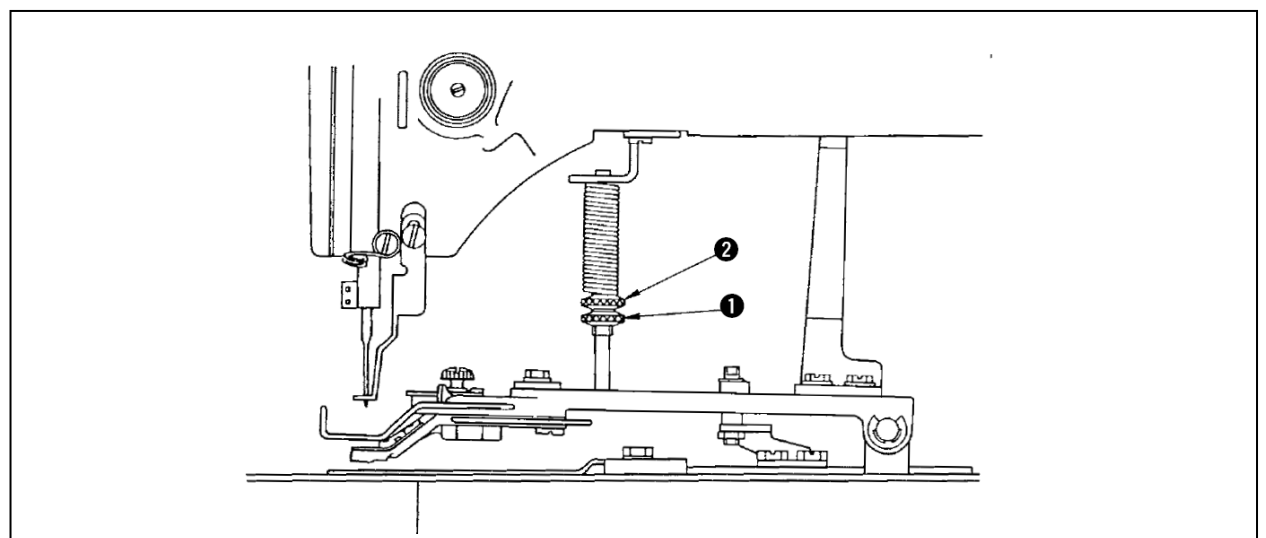
Loosen set screws ①, move the lifting actuating plate ② in direction A to lower the height of button clamp, to lift it up move it in direction B.

8. Adjusting the pressure of pressure foot



Caution

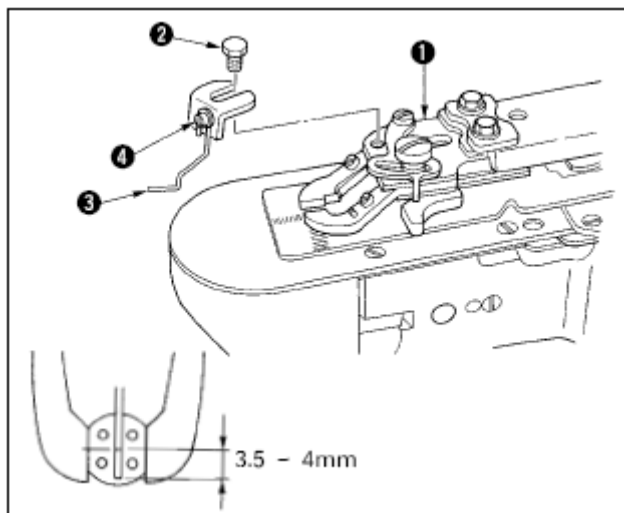
Before adjusting, please be sure the power is completely switched OFF



Loosen screw ①, adjust the screw ②, after adjusting , please be sure it won't be deviated while sewing.

9. Installing button rising bar (option parts)

 Caution	Before adjusting, please be sure the power is completely switched OFF
--	---



- 1) Setting the button rising bar③on the pick-up foot installing base① by using the set screw ② .
- 2) Move the button rising bar③ to the center of the button and make the clearance between the center of the button and the point of button rising bar is 3.5-4mm,as left figure shown.
- 3) Loosen the set screw④, adjusting the thread rising amount by upward and downward setting the button rising bar③

10.Machine model sorted button size

Machine model			LK-1903A-301		LK-1903A-302	
Button size			Suitable for small size		Suitable for Middle size	
diameter rang (mm)			Φ10~Φ20		Φ10~Φ20	
Size (mm)	Y		0~3.5		0~4.5	
	X		0~3.5		0~4.5	
Button	Thickness (mm)		2.2 (2.7)		2.7 (2.2)	
	Parts	right	MAZ155070B0		MAZ156070B0	
			(MAZ156070B0)		(MAZ155070B0)	

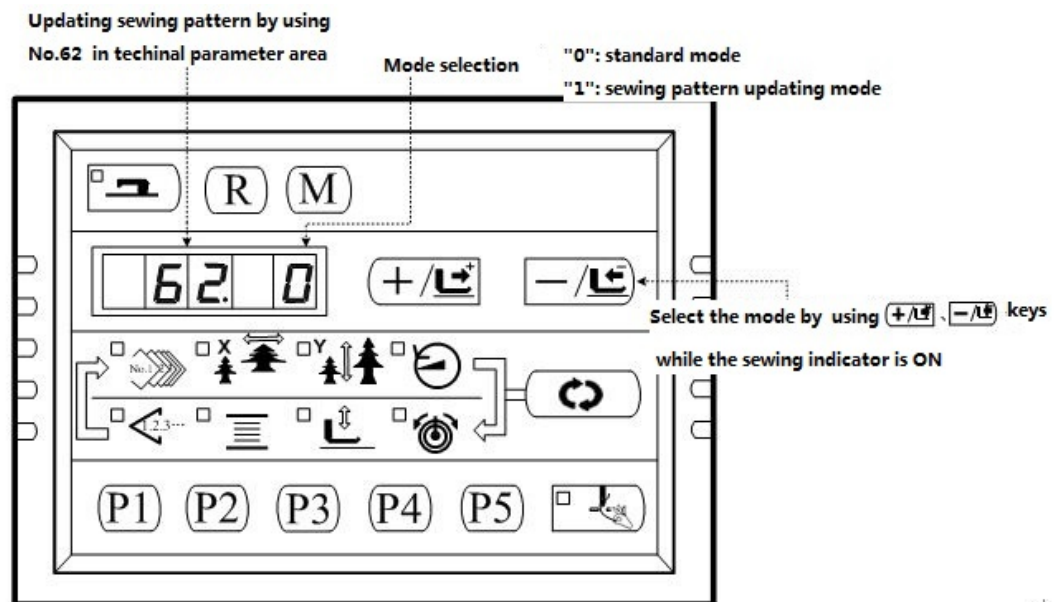
clamp	No.	left	MAZ155080B0	B	MAZ156080B0	C
			(MAZ156080B0)	C	(MAZ155080B0)	B
Needle hole plate			MAZ15501000		MAZ15601000	
Feed plate			MAZ15502000		MAZ15601000	

() special order parts。※ mark

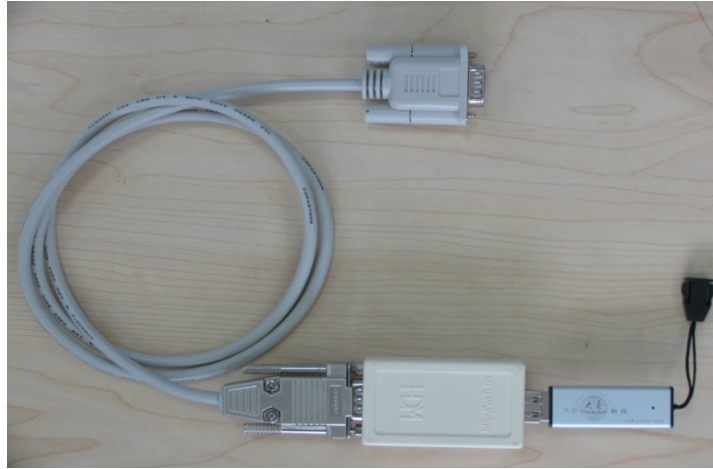
III Updating the sewing pattern through USB flash disk

Updating the sewing pattern

- 1、 While the sewing indicator is off, press  key, the  will show on the display , and then    presskeys at the same time, and you will be placed in technical parameter area after buzzing ,select No.62 by pressing 、  keys:

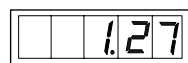


- 2、 The sewing indicator will be ON after pressing  key, later, press 、  keys to make the mode to "1"; press  key again to confirm it ,and the indicator will be OFF.
- 3、 Please be well noted the difference of below operation:
- i. If you use the previous version of controller which doesn't have the USB interface on the operation panel, you may follow the instructions as below for updating :
1. Turn off the power; take off the panel cable from the interface X7 on the controller and plug on the sewing pattern updating device instead, the sewing pattern updating device as below figure shown :



1. Name user's pattern as "DH", and use ".bin" as its filename extension, and save it to the folder named "DH" in the USB flash disk, connect the USB flash disk with the sewing pattern updating device; turn on the power, the pattern that users needed will automatically update into the controller memory and the patterns No. from 101 to 200, meanwhile, all user's patterns from 101 to 200 will back-up into the file named "DHBAK.bin" in the folder named DH (if pattern No. 101 to 200 don't have sewing data, the back-up file will be empty). While updating, the red indicator in front of the controller will constantly flash, please do not take off and put on the updating device, the buzzer will buzz once after it has been successfully updated.

2. Turn off the power. Take off the sewing pattern updating device, and plug on the panel again. turn on the power, press M key, show

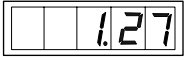


, press +/⌂、-/⌂ keys, select No. 201. .

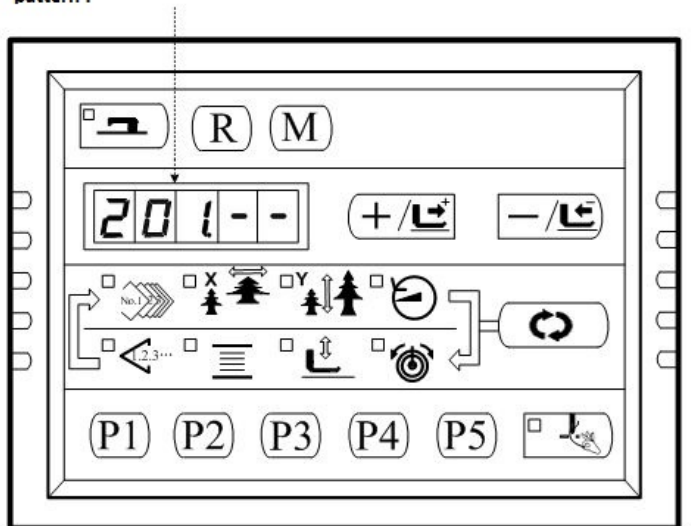
- ii. If the operation panel is equipped with USB interface (the new generation) you may follow the instructions for updating as below::

1. If the panel is equipped with the USB interface, there is no need the sewing pattern updating device and no need turn off the power also.
2. You just simply name the user pattern as "DH", and the filename extension as ".bin", and save it into the folder named "DH" in the USB flash disk, and connect it with the operation panel.
3. After the operation of step 3 in the instruction 5.1, the panel will automatically show with "USB --", and update the sewing pattern, it will be successfully updated after the buzzing from the panel, meanwhile, the patterns which updated by users will copy to the file named DHBAK.bin in the file named DH in

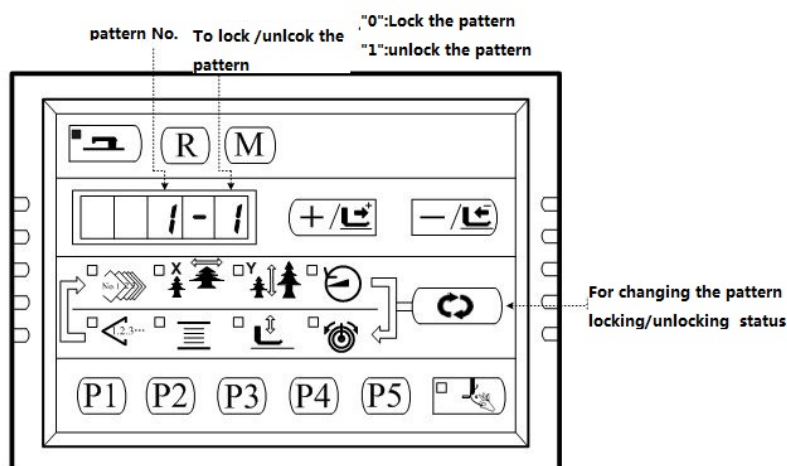
the USB flash disk, and the panel will automatically jump the pattern selection Mode with any operation.

4. press  key, show , and then press 、 keys, select the No."201".

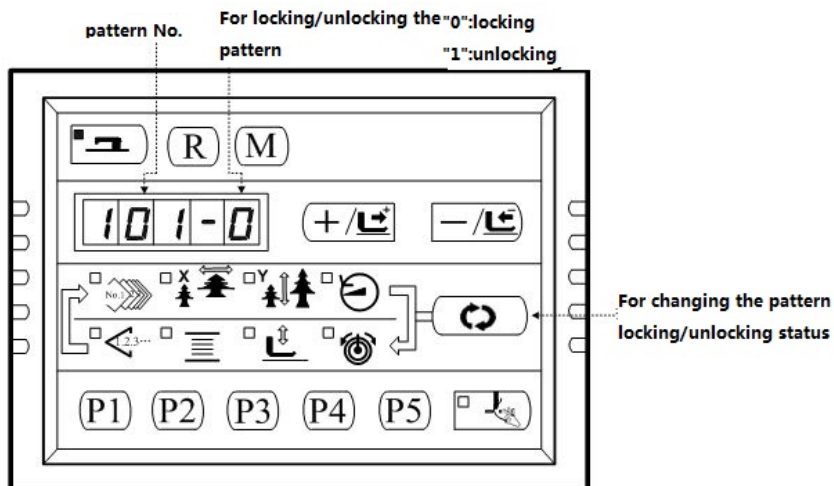
No.201 , lock/unlock to access the sewing pattern .



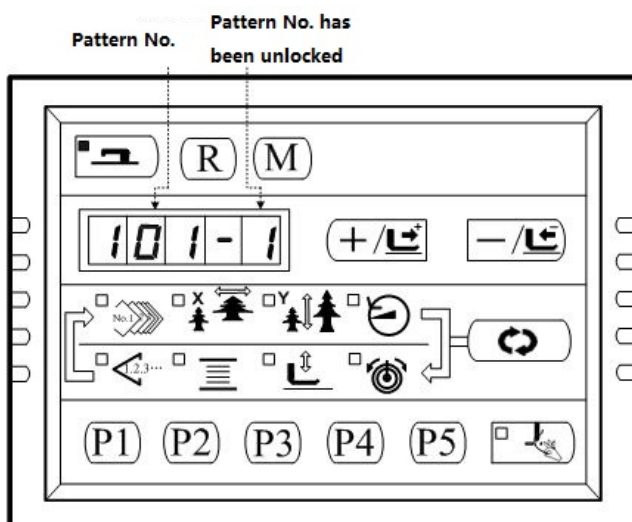
4. press  key, the sewing indicator light ON, and will be placed in pattern switch mode, and show"1-1":



5. press 、 keys, for changing the pattern No. you need (take No.101 for example):



6、press  key, showing "101-1" from "101-0", means the pattern No.101 is unlocking:



8、press  key, sewing indicator off, to save the setting, and back to the interface of steps 6;
you may lock/unlock the patterns you need by alternating step 6.

9、press  key, back to sewing mode .

10、press  key , to select the pattern No. (refer to **【2.4.1 data setting】**), and then press 、 keys, to choose the unlocked pattern No.101,and start sewing.

IV-appendix

Error information list

Error	Description	Reason	Solution
E 7	Machine is stuck	Main shaft is unable to work by some potential faults	The operating instruction sent by the CPU, but the main motor doesn't work. Please check if the PMW is correct from motor driving system; please check if the feedback signal is correct from encoder; please check if the mechanisms get any stuck.
E 10	Pattern No. is abnormal	The pattern ready to sewing hasn't been saved into the ROM or it's been locked, or the pattern No. is 0.	1. Press reset key, 2. Check the pattern No. 3. Check the value of parameter No.201.
E 30	Up stop position is abnormal	Main shaft stop at wrong position.	1. please check the motor driving system 2. please turn the needle bar to the correct position
E 40	Exceed the sewing area	The pattern size exceed the sewing area	1. Press reset key 2. Please check the X and Y size setting. Triggering condition: pattern computing error.
E 43	Expanding is abnormal	Stitch length is over 10 mm	1. Press reset key 2. Please check the X and Y size setting.
E 45	Pattern data is abnormal	Pattern doesn't exist	Turn off the power, and check the data ROM
E 50	Pause	The reset key has been pressed while sewing.	Press reset key, machine will restart again.
E 221	Grease time up	It's time to maintain the machine.	Restart the machine, and choose the Parameter No.245, reset its value, and restart the machine again.
E 302	Machine safety switch ON is detected	Machine safety switch is ON.	1.The machine won't work while it is leaning ,so please keep the machine in the original position , 2.Please ask the qualified technician to short-circuit the 2P terminal on SC202B .
E 303	24V power supply is abnormal	24V voltage is lower than the standard .	Turn off the power and wait for a while to try again.

Error	Description	Reason	Solution
E 305	Pressure foot position is abnormal	Pressure foot position is incorrect。	Turn off the power, to check if CZ025 is connected well or not on machine head PCB board。If it is well , please check related optcoupler
E 306	Wiper position is abnormal	Wiper position is incorrect。	Turn off the power to check if the cable has dropped from the terminal CZ026 on machine head signal PCB board ,if it is well, please check related opt coupler
E 307	Trimmer position is abnormal	Trimmer position is incorrect	Turn off the power to check if the terminal of CZ024 has dropped from the machine head signal PCB board, if it is well, please check the related opt coupler.
E680	Stepping closed –loop communication is abnormal DSP1(X25/X27)	Received instructions failed checking 。	Please check if the SPI communication cable is connected well or not.
E681	Stepping closed-loop DSP1 X27 is overload	Overcurrent is detected	Please check if the motor is in good condition through checking its resistance and inductance ,if it is well, please check the stepping driving board
E682	Stepping closed-loop DSP1X27 is out of track	The position detected by the encoder isn't accord with the one in the program	The stepper motor to open loop mode, if can be normal work, the motor is normal. If the machine can't normally work, you may need to troubleshoot step plate part and motor ontology. After finish the above, troubleshoot the encoder part, to see if the encoder cables plugged into the wrong, if stuck, is there any encoder signal damaged or step plate feedback signal damaged part or if encoder ontology is normal.
E683	X27 is over-speed	Over-speed is detected	Please refer to E682
E685	Stepping closed-loop DSP1 X25 is overload	Overcurrent is detected	Please check if the motor is in good condition through checking its resistance and inductance ,if it is well, please check the stepping driving board

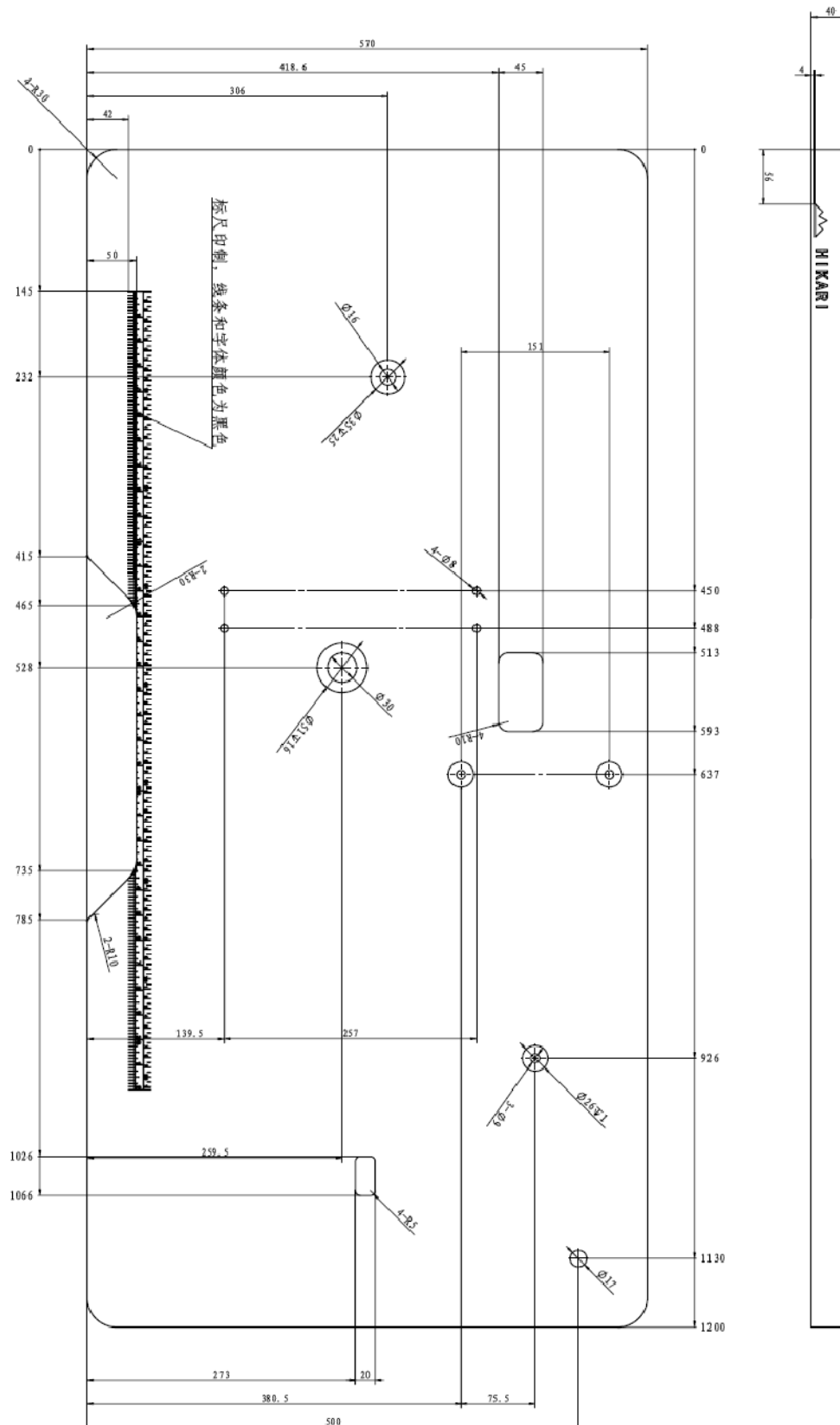
Error	Description	Reason	Solution
E686	Stepping closed-loop DSP1X25 is out of track	The position detected by the encoder isn't accord with the one in the program	The stepper motor to open loop mode, if can be normal work, the motor is normal. If the machine can't normally work, you may need to troubleshoot step plate part and motor ontology. After finish the above, troubleshoot the encoder part, to see if the encoder cables plugged into the wrong, if stuck, is there any encoder signal damaged or step plate feedback signal damaged part or if encoder ontology is normal.
E687	Stepping closed-loop DSP1X25 is over-speed	Over-speed is detected	Please refer to E686
E690	Stepping closed-loop communication is abnormal DSP2(X21/X23)	Received instructions failed checking .	Please check if the SPI communication cable is connected well or not.
E691	Stepping closed-loop DSP2X23 is overload	Overcurrent is detected	Please check if the motor is in good condition through checking its resistance and inductance ,if it is well, please check the stepping driving board
E692	Stepping closed-loop DSP2 first (X23) is overloaded	The position detected by feedback of encoder doesn't conform to instruction of the procedure.	The stepper motor to open loop mode, if can be normal work, the motor is normal. If the machine can't normally work, you may need to troubleshoot step plate part and motor ontology. After finish the above, troubleshoot the encoder part, to see if the encoder cables plugged into the wrong, if stuck, is there any encoder signal damaged or step plate feedback signal damaged part or if encoder ontology is normal.
E693	Stepping closed-loop DSP2 first (X23) over speed	The working rotate speed abnormal is detected through the feedback signal from the encoder	The same test method with above
E695	Stepping closed-loop DSP2 first (X21) over current	Hardware detect a large current	First check whether the motor is normal, can measure the resistance, inductance values if they are within the normal range. If the motor is normal, need to check if the stepping board hardware is normal.

Error	Description	Reason	Solution
E696	Stepping closed-loop DSP2 first (X21) out-of-tolerance	Detect that position indicated by the encoder does not conform to the instruction of the procedure	The stepper motor to open loop mode, if can be normal work, the motor is normal. If the machine can't normally work, you may need to troubleshoot step plate part and motor ontology. After finish the above, troubleshoot the encoder part, to see if the encoder cables plugged into the wrong, if stuck, is there any encoder signal damaged or step plate feedback signal damaged part or if encoder ontology is normal.
E697	Stepping closed-loop DSP2 first (X21) over speed	The working rotate speed abnormal is detected through the feedback signal from the encoder	Test method is the same as E696
E 730	The encoder disconnected	ADTC signal can not be detected.	Turn off the power, check X5 plug if loose
E 731	Main board and stepping communication abnormal	Communication conflict	Turn off power, troubleshoot faults. Check if the encoder signal is normal
E 733	principal axis over current	Motor stalling	In the case of no mechanical stuck, Check whether the main shaft encoder is connected well
E 735	stopping current abnormal	Over current appears during principal axis stopping	Turn off the power, wait for a while , turn on again. Change the principal axis motor and check if damaged; if unresolved, change the main board.
E 736	Main board IPM instantaneous over current	An over current in short time in the main board IPM drive current modules	Turn off power, wait for a while, turn on again. Change the principle axis motor and check if damaged; if unresolved, change the main board.
E 737	Main board IPM over current many times	Many times over current in the main board IPM drive current modules	Turn off power, wait for a while, turn on again. Change the principle axis motor and check if damaged; if unresolved, change the main board.
E 738	Main board IPM poor working conditions	Many times over current in the main board IPM drive current modules	Turn off power, wait for a while, turn on again. Change the principle axis motor and check if damaged; if unresolved, change the main board.
E 739	principal axis motor overloaded	principal axis motor overloaded , Power exceed motor under scope	Turn off power, wait for a while, turn on again. Change the principle axis motor and check if damaged; if unresolved, change the main board.

Error	Description	Reason	Solution
E 740	Principle axis motor rotate abnormal	Speed of principle axis motor exceed normal scope	Turn off power, wait for a while, turn on again. Change the principle axis motor and check if damaged; if unresolved, change the main board.
E 811	High voltage abnormal	The power supply voltage exceeds the specified value.	。 Detect a high signal of AC_OVDT, check power voltage and related circuits.
E 813	Voltage is extremely low	Power supply isn't adequate	Sampling UZKINanalog quantity is too low, please check power supply system。
E 901	Fault of main motor driver	Fault of main motor driver is detected	Turn off the power for a while and try turn on for trail again。
E 903	Stepping driving is abnormal	Stepping driving board is over current。	Turn off the power for a while and try turn on for trail again。
E 904	24V power system is abnormal	24V is overcurrent 。	Turn off the power for a while and try turn on for trail again。
E 906	Main motor is out of control	Fault of Main motor is out of control is detected	Turn off the power for a while and try turn on for trail again。
E 907	Xmotor home position searching is abnormal	transducer of X Motor home position does not alter	Turn off power, check if head signal circuit board CZ021, control box X9 is loose or fall off.
E 908	Ymotor home position searching is abnormal	Y motor home position do not alter	Turn off power, check if head signal circuit board CZ022, control box X9 is loose or fall off.
E 910	Pressure foot motor home position searching is abnormal	Pressure foot motor home position transducer do not alter	Turn off power, check if head signal circuit board CZ025, control box X9 is loose or fall off.
E 911	X motor is busy	X motor master in action, again send action command.	Turn off power, wait for a while, turn on again. if unresolved, change stepping plate.
E 912	Y motor is busy	Y motor master in action, again send action command.	Turn off power, wait for a while, turn on again. if unresolved, change stepping plate.
E 913	Thread grasp origin search error	Thread grasp origin sensor does not change	Turn off power, check if head signal circuit board CZ026, control box X9 is loose or fall off.
E 914	poor transmission	Feed and principle axis out-sync	Turn off power, wait for a while, turn on again. Feeding angle is wrong
E 915	Main circuit board-operate panel communication error	Communication between main circuit board and operate panel is unavailable.	Turn off power, wait for a while, turn on again. Check if there is some connection problem with cables, main board, and operate panel.

Error	Description	Reason	Solution
E 916	Main circuit board-stepping circuit board communication error	Communication between main circuit board and stepping circuit board is unavailable.	Turn off power, wait for a while, turn on again. Check if there is some connection problem with main board, drive board.
E 918	Presser foot stepping motor is busy	Presser foot stepping motor master in action, again send action command.	Turn off power, wait for a while, turn on again. if unresolved, change stepping plate
E 919	stepping drive type error	Stepping plate software is not for bar-tacking machine	Change the stepping plate used in bar-tacking machine or update the stepping procedure
E 920	Stepping software version error	Wrong Stepping software version	Change the stepping plate used in bar-tacking machine or update the stepping procedure
E 921	X-scale stepping movement step verification error	After one sewing, main control detect the order received by stepping plate in X-Scale does not conform to the one sent by main control.	Turn off power, wait for a while, turn on again. if unresolved, change stepping plate
E 922	Y-scale stepping movement step verification error	After one sewing, main control detect the order received by stepping plate in X-Scale does not conform to the one sent by main control.	Turn off power, wait for a while, turn on again. if unresolved, change stepping plate

Table diagram



HK2900 系列 COMPUTER BAR TACKING
BUTTONING MACHINE 电脑套结、钉扣机

零件手册
PARTS BOOK

上海富山精密机械科技有限公司
Hikari(shanghai)precise Machinery Science&technology Co.,Ltd

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此说明书仅作参考，如有更改恕不另作通知。

This manual is only for reference.
IF there is any modification , we apologize for the changing hence caused.



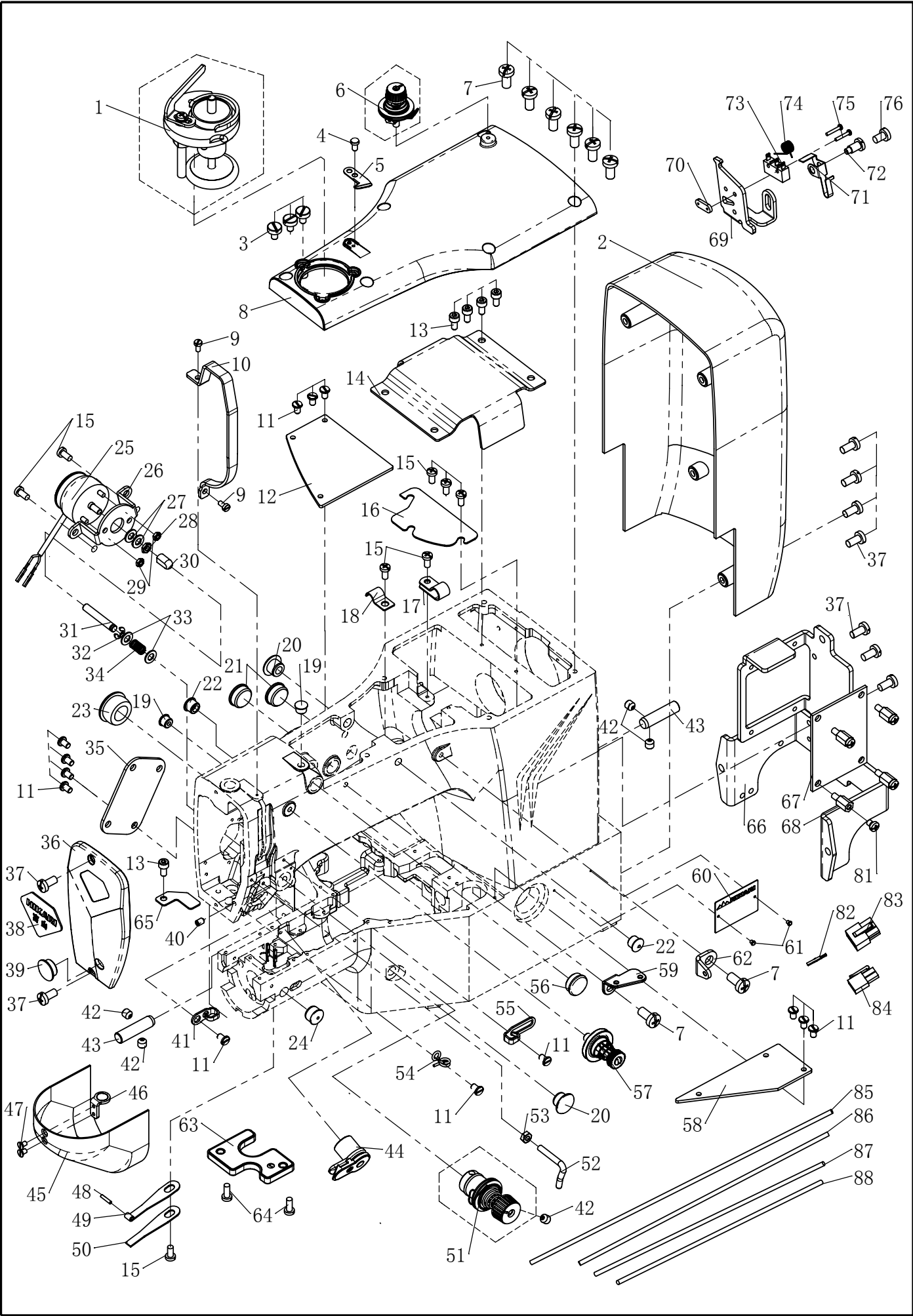
通过 ISO9001:2008
质量管理体系认证

目 录

CONTENTS

1. 机壳部件.....	1
FRAME ASSEMBLY	
2. 上轴部件.....	5
CRANKSHAFT MECHANISM	
3. 抬压脚部件.....	9
PRESSER FOOT MECHNISM	
4. 下轴部件.....	11
CRANKSHAFT MECHANISM	
5. 剪线部件.....	13
THREAD TRIMMER MECHANISM COMPONENTS	
6. 送料部件.....	15
FEED MECHANISM COMPONENTS	
7. 附件.....	17
ACCESSORIE PART COMPONENTS	
8. HK2903 专用件.....	19
EXCLUSIVE PARTS FOR HK2903	
9. HK2903 专用附件.....	23
EXCLUSIVE ACCESSORIE PARTS FOR HK2903	

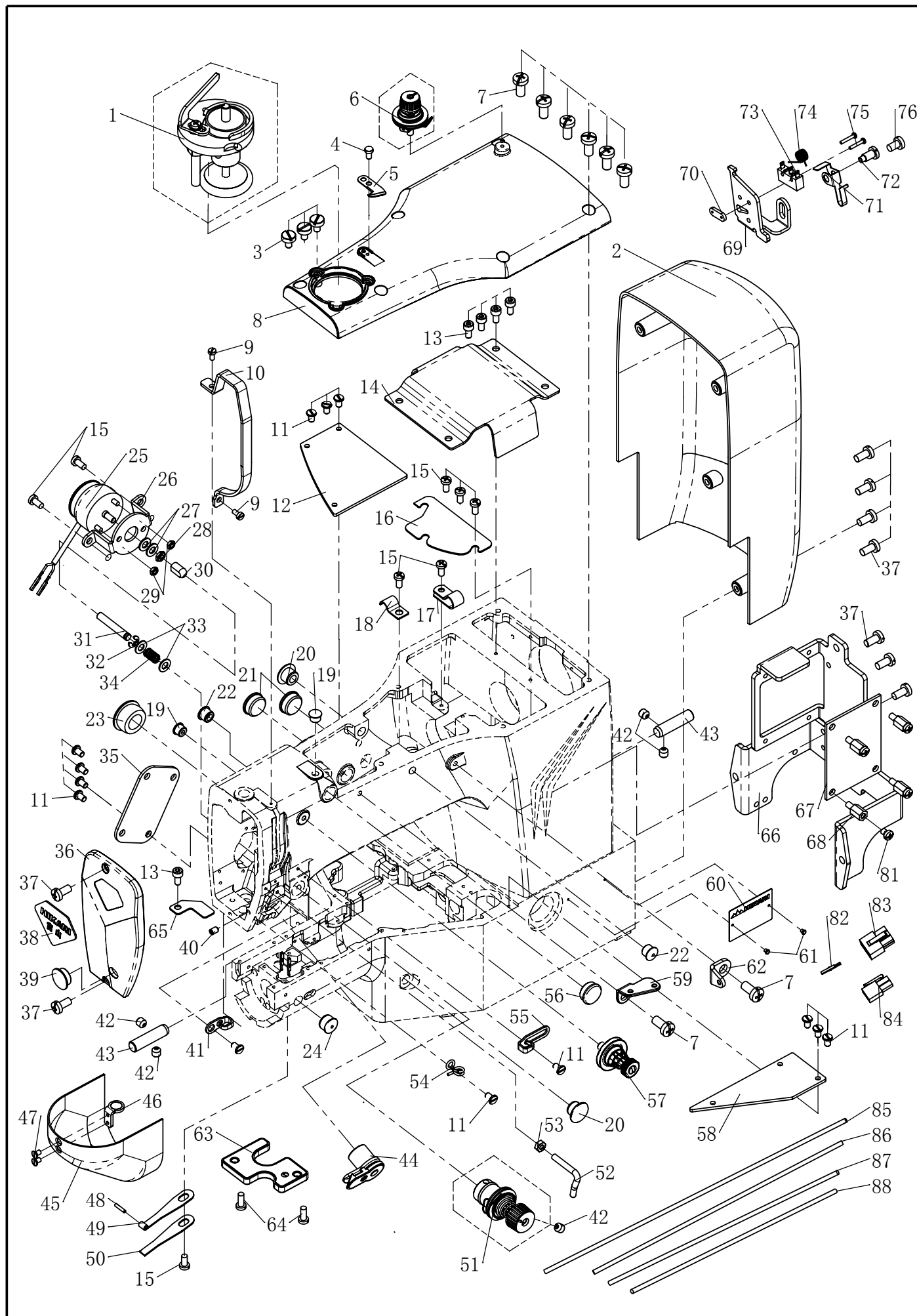
01. 机壳部件 FRAME ASSEMBLY



01. 机壳部件 FRAME ASSEMBLY

序号	图 号	名 称	NAME OF PARTS	数量
1	411.01-18-00	绕线器组件	BOBBIN WINDER UNIT	1
2	411.01-06	后罩壳	MOTOR COVER	1
3	02-612320721-1	开槽圆柱头螺钉	SCREW	3
4	02-509400721-1	螺钉SM9 / 64"×40-7	SCREW	1
5	102.09-34	切刀	KNIFE	1
6	102.09-36	夹线器组件	BOOBIN THREAD TENSION ASM.	1
7	01-406001223-1	十字一字槽螺钉 M6×12	SCREW M6 L=12	8
8	411.01-02	上盖	UPSIDE COVER	1
9	01-403000623-1	开槽圆柱头螺钉M3×6	SCREW	2
10	421.12-25	挑线杆护罩	BALANCE COVER	1
11	01-604000621-1	开槽薄帽螺钉M4×6	SCREW	13
12	411.01-08	左盖板	BED COVER LEFT	1
13	01-504000824-1	内六角圆柱头螺钉M4×8	SCREW M4 L=8	5
14	411.01-05	大连杆罩	CRANK_ROD_COVER	1
15	01-404000823-1	十字一字槽螺钉 M4×8	SCREW M4 L=8	8
16	411.01-07	遮尘板	CRANK ROD UNDER COVER	1
17	331.18-22	气路管夹(中)	CLAMP	1
18	113.01-07	电线固定夹	CORD HOLDER	1
19	22-07405009	橡胶塞	PLUG	2
20	22-10507016	橡胶塞	PLUG	2
21	22-15505017	橡胶塞	PLUG	2
22	22-08506511	橡胶塞	PLUG	2
23	22-20809024	橡胶塞	PLUG	1
24	22-11505013	橡胶塞	PLUG	1
25	411.01-03	松线电磁铁	AT SOLENOID	1
26	411.01-04	松线电磁铁安装板	AT_PLATE	1
27	411.01-17	防震垫圈	WASHER	2
28	03-604000220-1	六角螺母M4	NUT	1
29	03-603000240-3	六角螺母M3	NUT	2
30	411.01-19	松线电磁铁顶杆螺母	NUT	1
31	411.01-12	松线顶杆	TENSION RELEASING	1
32	06-0400809-1	E型挡圈4	E-RING 4	1
33	05-053101001-5	平垫圈	WASHER	2
34	411.01-13	复位簧	SPRING	1
35	411.01-09	松线电磁铁盖	COVER PLANK	1
36	411.01-10	面板	FACE COVER	1
37	01-404001023-1	十字一字槽螺钉 M4×10	SCREW M4 L=10	9
38	H0-001	钻石型号牌	MARK	1
39	22-12505016	橡胶塞	PLUG	1
40	01-804000614-1	内六角凹端螺钉 M4×6	SCREW M4 L=6	1
41	421.12-27	挑线上过线钩B	TAKE-UP THREAD GUIDE	1
42	01-806000614-1	内六角凹端螺钉 M6×6	SCREW M6 L=6	5
43	421.12-20-02	翻转轴	HINGE STUD	2
44	411.01-20-00	起针夹线器	THREAD TUN SIN ASM.	1
45	421.12-09-01-00	梭盖组件	CYLINDER ARM CAP	1
46	411.01-27	磁钢座组件	ALNICO SEATING ASM	1
47	01-103000421-1	一字沉头螺钉M3×4	SCREW M3 L=4	2
48	421.12-09-03	摆梭罩压簧支架销	HOOK COVER PRESSER SPRING PIN	1
49	421.12-09-04	摆梭罩压簧A	HOOK COVER PRESSER SPRING A	1
50	421.12-09-05	摆梭罩压簧B	HOOK COVER PRESSER SPRING B	1
51	113.09-03	夹线器组件	THREAD TUN SIN ASM.	1
52	421.12-29	缓线调节钩	L_SHAPED_THREAD_GUIDE_A	1
53	03-604000320-3	六角螺母 M4	NUT	1
54	411.01-26	挑线下过线钩	FRAME THREAD GUIDE	1

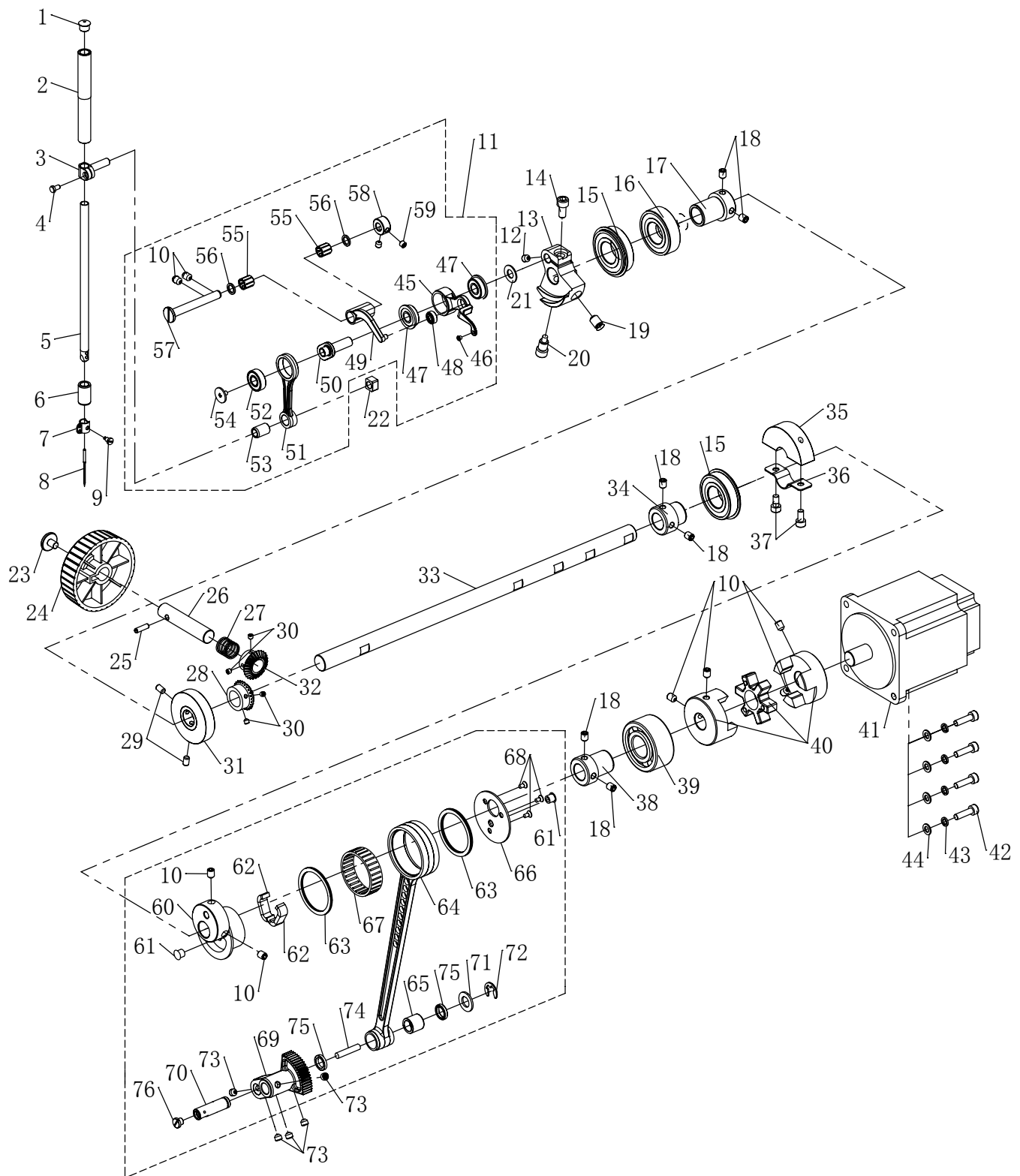
01. 机壳部件 FRAME ASSEMBLY



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序号	图 号	名 称	NAME OF PARTS	数量
55	421.12-30	右线钩	ARM THREAD GUIDE	1
56	22-14505016	橡胶塞	PLUG	1
57	421.07-17-00	上夹线器组件	PRE-TENSION CONTROLLER ASM.	1
58	411.01-14	右盖板	BED COVER RIGHT	1
59	421.12-26	导线板	BTW BEARING SPACER	1
60	H0-004	型号牌	TYPE PLATE	1
61	17-3200500-5	铆钉 M2×5	RIVET	2
62	421.12-31	第一过线钩	THREAD GUIDE NO. 1	1
63	411.01-22-00	钉扣机照明灯PCB板	LIGHTING ASM	1
64	01-404001023-3	十字一字盘头 M4×10	SCREW M4 L=10	2
65	411.01-11	护线板	PROTECT LINE PLANK	1
66	411.01-16	线路板支架	PROTECTION PLATE	1
67	411.05-17	机头信号转接板	MACHINE SIGNAL CONNECTING PLATE	1
68	421.12-19	M4螺柱	BOLT M4	4
69	421.12-08-01	安全开关安装板	SAFETY SWITCH BASE	1
70	421.12-08-05	安全开关固定板	SAFETY SWITCH NUT	1
71	421.12-08-02	安全开关板簧	SAFETY SWITCH ARM	1
72	421.12-08-03	安全开关板簧螺钉	SAFETY SWITCH SPRING SCREW	1
73	421.12-08-06	安全开关	SAFETY SWITCH	1
74	421.12-08-04	安全开关扭簧	SAFETY SWITCH SPRING	1
75	01-402001222-3	十字槽盘头螺钉 M2X12	SCREW M2×12	2
76	01-405000823-1	十字一字盘头螺钉 M5×8	SCREW M5×8	1
80	411.01-22-00	照明灯组件	LIGHT ASM	1
81	18-404000823-3	组合螺钉 M4×8	SCREW M4×8	4
82	411.05-20	端子	PORT	1
83	411.05-18	6P插头	6P PIN	1
84	411.05-19	2P插头	2P PIN	1
85	411.05-13	机头信号转接板连接电缆	MACHINE SINGNAL ELECTRICAL WIRE	1
86	411.05-15	LED照明灯连接线缆	LED LIGHT ELECTRICAL WIRE	1
87	411.05-14	电磁铁连接线缆	AT SOLENOID ELECTRICAL WIRE	1
88	411.05-12	接地端子连接电缆	EARTH LINE	1

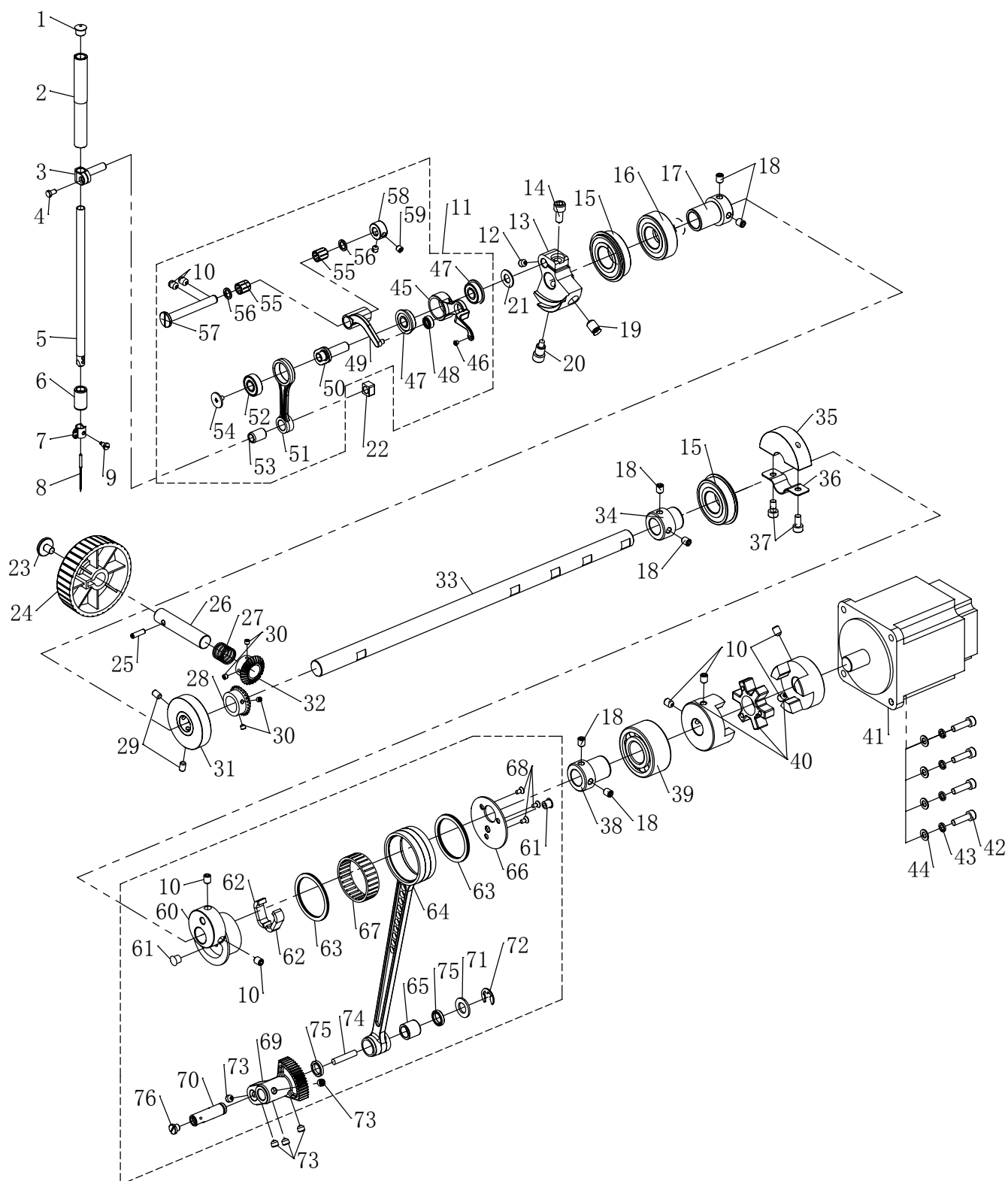
02. 上轴部件-1 CRANKSHAFT MECHANISM-1



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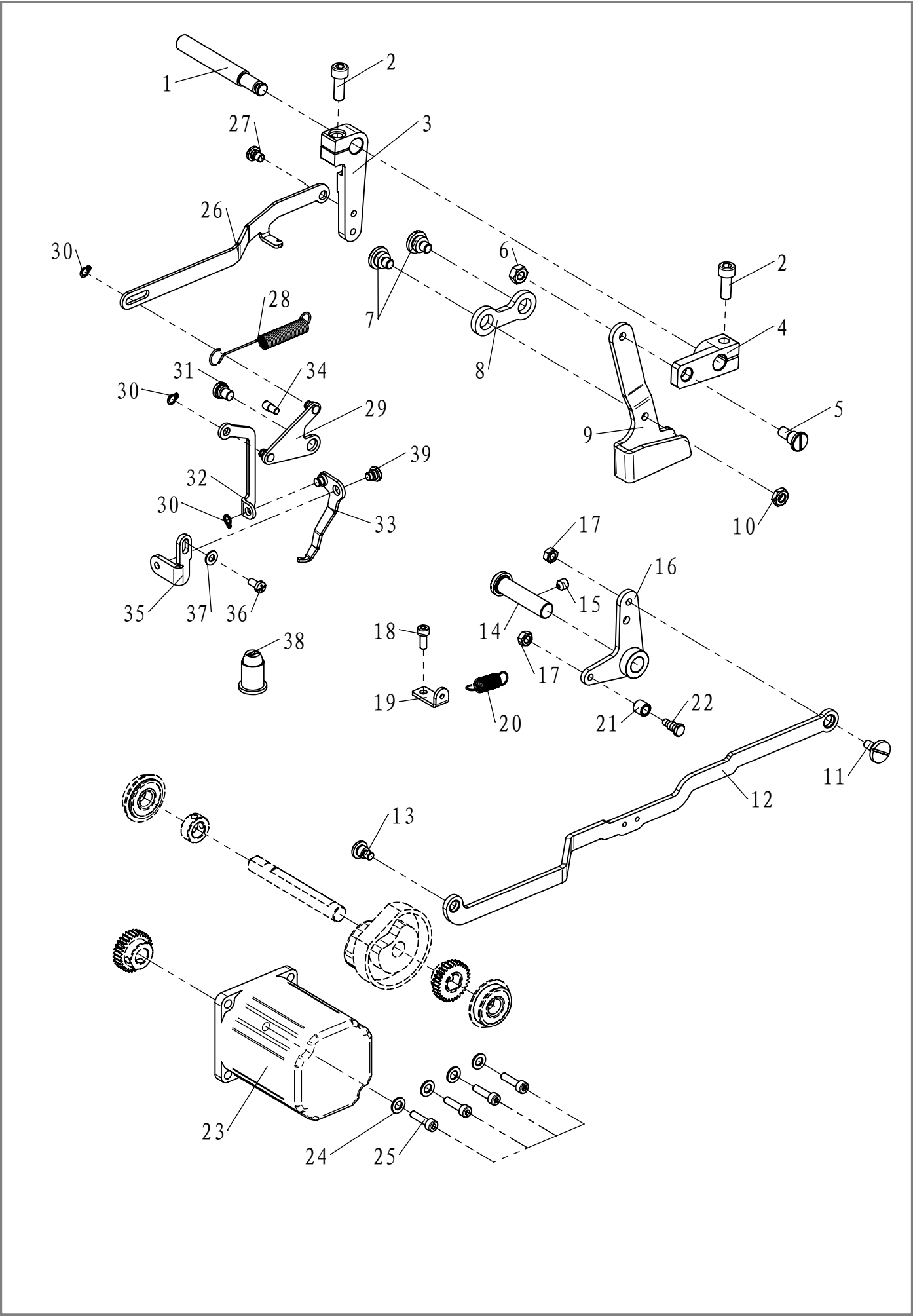
序号	图 号	名 称	NAME OF PARTS	数量
1	22-08506511	橡胶塞	PLUG	1
2	421.02-22	针杆上套	NEEDLE ROD METAL	1
3	421.02-18	针杆连接柱	NEEDLE BAR CLAMP	1
4	02-509400721-1	螺钉SM9 / 64"×40-7	SCREW	1
5	411.02-01	针杆	NEEDLE BAR	1
6	411.02-10	针杆下套	NEEDLE ROD LOWER METAL	1
7	411.02-02	针杆线钩	NEEDLE BAR THREAD GUIDE	1
8	101.12-11-20	机针	NEEDLE	1
9	01-503000421-1	螺钉M3×4	SCREW M3 L=4	1
10	01-806000814-1	内六角凹端螺钉 M6×8	SCREW M6 L=8	8
11	421.02-10-000	挑线组件	NEEDLE BAR CRANK ROD ASM	1
12	01-806750614-1	内六角螺钉M6×0.75×6	SCREW M6×0.75 L=6	1
13	421.02-09	针杆曲柄	COUNTER_WEIGHT	1
14	01-506001224-1	内六角圆柱头螺钉M6×12	SCREW M6 L=12	1
15	14-6004-2ZNR	带挡圈轴承	BEARING	1
16	14-6004-2Z	深沟球轴承(6004-2Z)	BEARING	1
17	411.02-06	上轴前轴套	BEARING_BUSH_B	1
18	01-806750814-1	内六角凹端紧定螺钉M6×0.75×8	SCREW M6×0.75 L=8	6
19	01-808001014-1	内六角凹端螺钉M8×10	SCREW M8 L=10	1
20	421.02-32	针杆曲柄定位螺钉	COUNTER WEIGHT SCREW	1
21	05-081101603-5	平垫圈	WASHER	1
22	421.02-19	针杆连接柱滑块	SLIDE BLOCK	1
23	01-606000821-1	手轮螺钉	SET-SCREW	1
24	421.08-01	手轮	PULLEY	1
25	15-1401405-1	弹性圆柱销4×14	SPRING PIN 4×14	1
26	411.02-04	手轮轴	HAND PULLEY SHAFT	1
27	421.08-03	手轮复位簧	SPRING	1
28	421.08-05-00	上轴手动离合齿轮	GEAR A	1
29	01-805000814-1	内六角平端紧定螺钉M5X8	SCREW M5 L=8	2
30	01-804000414-1	凹端紧定螺钉 M4×4	SCREW M4 L=4	4
31	421.13-02	绕线驱动轮	BTW_DRIVING_WHEEL	1
32	421.08-04-00	手轮轴齿轮	GEAR B	1
33	411.02-05	上轴	MAIN SHAFT	1
34	411.02-07	上轴中轴套	BEARING_BUSH	1
35	421.02-08	平衡块	AC SERVO MOTOR	1
36	421.02-07	平衡块安装架	CRANK_BALANCER_FIX_PLATE	1
37	01-505001024-1	内六角圆柱头螺钉M5×10	SCREW M5 L=10	2
38	411.02-08	上轴后轴套	BEARING_BUSH_B	1
39	14-3204-2Z	轴承3204-2Z	BEARING	1
40	421.02-05-00	联轴器	COUPLING	1
41	411.02-11	上轴电机	MOTOR	1
42	01-505001824-1	内六角圆柱头螺钉M5×18	SCREW M5 L=18	4
43	07-0521313-1	弹簧垫圈5	SPRING WASHER	4
44	05-056101000-4	平垫片	WASHER 5.6-10	4
45	421.02-10-01	挑线杆	THREAD TAKE UP LEVER	1
46	421.02-10-02	挑线杆过线套	THREAD PASS BUSH	1
47	14-619/8-2Z	轴承F698 ZZ	BEARING	2
48	14-619/4-2Z	轴承619-4	BEARING	1
49	421.02-11	挑线连杆	THREAD TAKE UP CRANK	1
50	421.02-15	挑线曲柄	NEEDLE ROD CRANK	1
51	421.02-17-01	针杆连杆	NEEDLE BAR CRANK ROD	1
52	14-619-8-2Z	轴承619-8-2Z	BEARING	1

02. 上轴部件-2 CRANKSHAFT MECHANISM-2



02. 上轴部件-2 CRANKSHAFT MECHANISM-2

序号	图 号	名 称	NAME OF PARTS	数量
53	421.02-17-02	针杆连杆轴套	NEEDLE BAR CRANK ROD METAL	1
54	421.02-16	挑线曲柄左旋螺钉	LEFT SCREW	1
55	14-K71010	滚针轴承K7X10X10	BEARING	2
56	421.02-14	挑线连杆垫圈	BEARING SUPPORT	2
57	421.02-12	挑线连杆销	THREAD TAKE UP CRANK SHAFT	1
58	421.02-13	挑线连杆销挡圈	THRUST COLLAR	1
59	01-805000514-1	内六角凹端螺钉M5×5	SCREW M5 L=5	2
60	421.02-25	送料凸轮	ECCENTRIC	1
61	22-06406009	油塞 $\phi 6.7$	PLUG D=6.7	2
62	421.02-27	送料凸轮油毡	UNDER CAM FELT	2
63	421.02-29	送料连杆轴承垫圈	WASHER	4
64	421.02-28-01	送料连杆	LINK	1
65	421.02-28-02	送料连杆销衬套	BUSHING	1
66	421.02-26	送料凸轮盖板	CRANK ROD SUPPORT PLATE	1
67	14-K384313	送料连杆滚针轴承	BEARING	1
68	01-103000621-1	十字沉头螺钉M3×6	SCREW M3 L=6	3
69	421.02-30	摆动齿轮	OSCILLATOR	1
70	421.02-31	送料连杆销	PIN	1
71	421.02-33	送料连杆销垫圈	WASHER	1
72	06-0801016-1	E型挡圈8	E-RING	1
73	01-806750514-1	内六角凹端紧定螺钉M6×0.75×5	SCREW M6×0.75 L=5	5
74	421.03-19	跳压脚轴油芯	OIL WICK	1
75	13-08240150	骨架油封	OIL SEAL	2
76	421.02-35	送料连杆销端面螺钉	SCREW M6 L=5	1

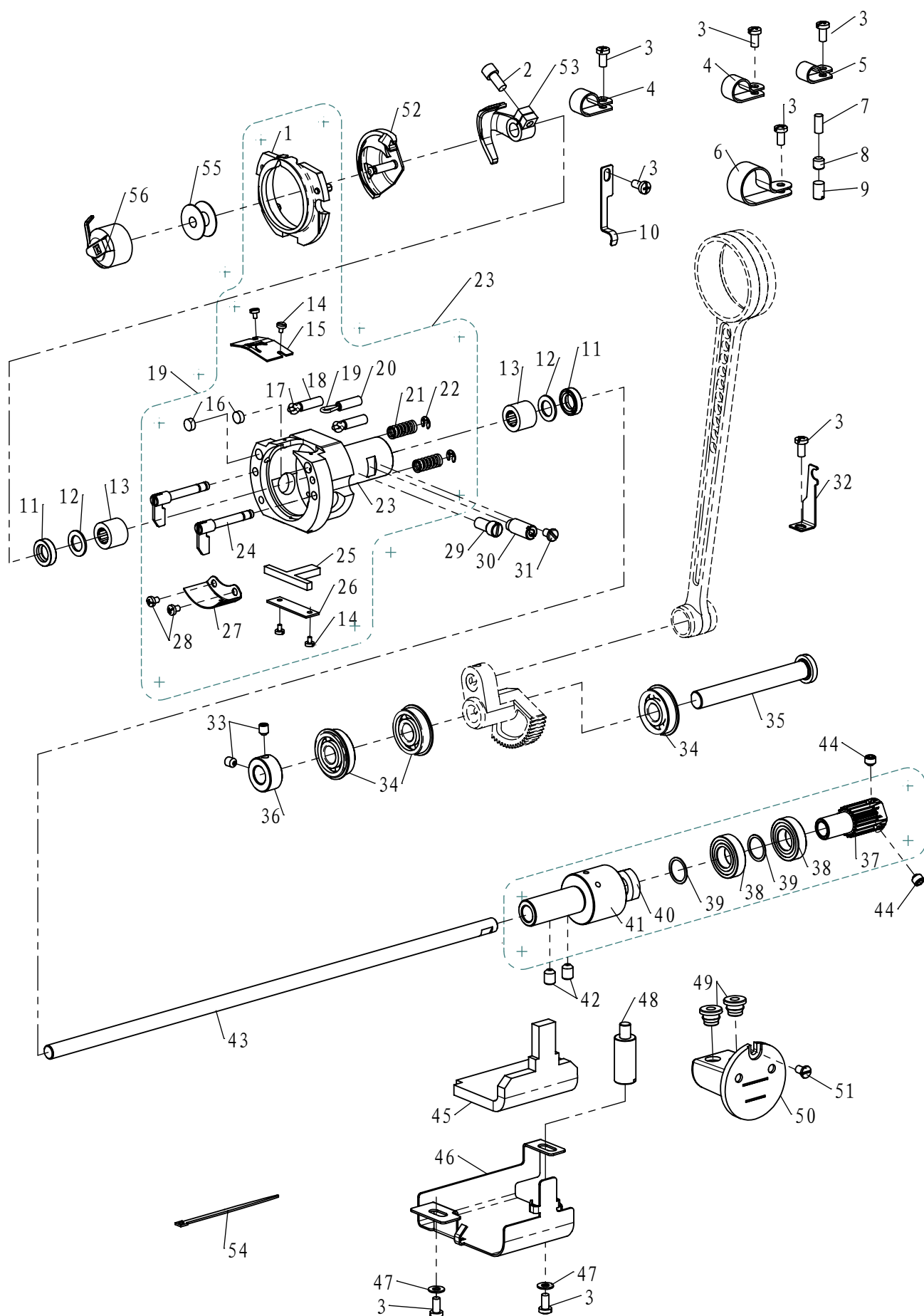


03. 抬压脚部件

PRESSER FOOT MECHNISM

序号	图 号	名 称	NAME OF PARTS	数量
1	411. 03-04	抬压脚摆动臂销	CONNECTING SHAFT	1
2	01-506001824-1	内六角螺钉M6 × 18	SCREW M6 L=18	2
3	411. 03-05	抬压脚摆动臂A	CONNECTING ARM	1
4	411. 03-09	抬压脚摆动臂B	LOWERING ARM	1
5	411. 03-10	抬压脚摆动臂轴位螺钉	HINGE SCREW D=8 H=6	1
6	03-606000520-1	六角螺母M6	NUT M6	1
7	411. 03-06	抬压脚压杆轴位螺钉	HINGE SCREW D=10 H=4	2
8	411. 03-07	抬压脚连杆	CONNECTING LINK	1
9	411. 03-08	抬压脚压杆	LOWERING FOOT	1
10	03-606000350-1	六角螺母M6	NUT M6	1
11	421. 04-11	连杆调整轴位螺钉	HINGE SCREW D=8 H=3. 3	1
12	411. 03-02	抬压脚拉杆	LIFTER LINK B	1
13	411. 03-03	抬压脚拉杆轴位螺钉	HINGE SCREW D=7 H=4	1
14	411. 03-17	抬压脚轴	THREAD TRIMMER SHAFT	1
15	01-806000614-1	内六角凹端螺钉 M6 × 6	SCREW M6 L=6	1
16	411. 03-16	抬压脚连杆	LIFTER LINK A ASM	1
17	03-605000400-1	六角螺母M5	NUT M5	2
18	01-504001024-1	内六角圆柱头螺钉M4 × 10	SCREW M4 L=10	1
19	411. 03-13	抬压脚弹簧拉板	SPRING RACK	1
20	421. 04-10	压脚调整拉杆弹簧	SPRING	1
21	411. 03-15	抬压脚凸轮销滚柱	NEEDLE CAM ROLLER A	1
22	411. 03-14	抬压脚凸轮销螺钉	CAM ROLLER SHAFT	1
23	411. 03-19	剪线抬压脚伺服电机	FEED MOTOR	1
24	05-056101000-4	平垫片	WASHER 5. 6-10	4
25	01-504001624-1	内六角螺钉M4 × 16	SCREW M4 L=16	4
26	411. 03-23	拨线连杆	WIPER CONNECTING LINK	1
27	411. 03-27	轴位螺钉2	HINGE SCREW	1
28	411. 03-29	弹簧	SPRING	1
29	411. 03-21	拨线连杆	WIPER CONNECTING LINK	1
30	10-0470610-1	轴用挡圈	RETAINING RING 4. 7	3
31	411. 03-25	轴位螺钉	HINGE SCREW	1
32	411. 03-30	拨线连接板	WIPER_CONNECTING_PLATE	1
33	411. 03-20	拨线勾	WIPER C ASM	1
34	411. 03-24	限位螺钉销	PIN	1
35	411. 03-22	拨线板	WIPER BASE PLATE	1
36	01-404000823-1	十字一字槽螺钉 M4 × 8	SCREW M4 L=8	1
37	05-045080900-1	垫片	WASHER 4. 8 × 8. 4 × 0. 8	1
38	411. 03-28	橡胶套	RUBBER COVER	1
39	411. 03-26	轴位螺钉1	HINGE SCREW	1

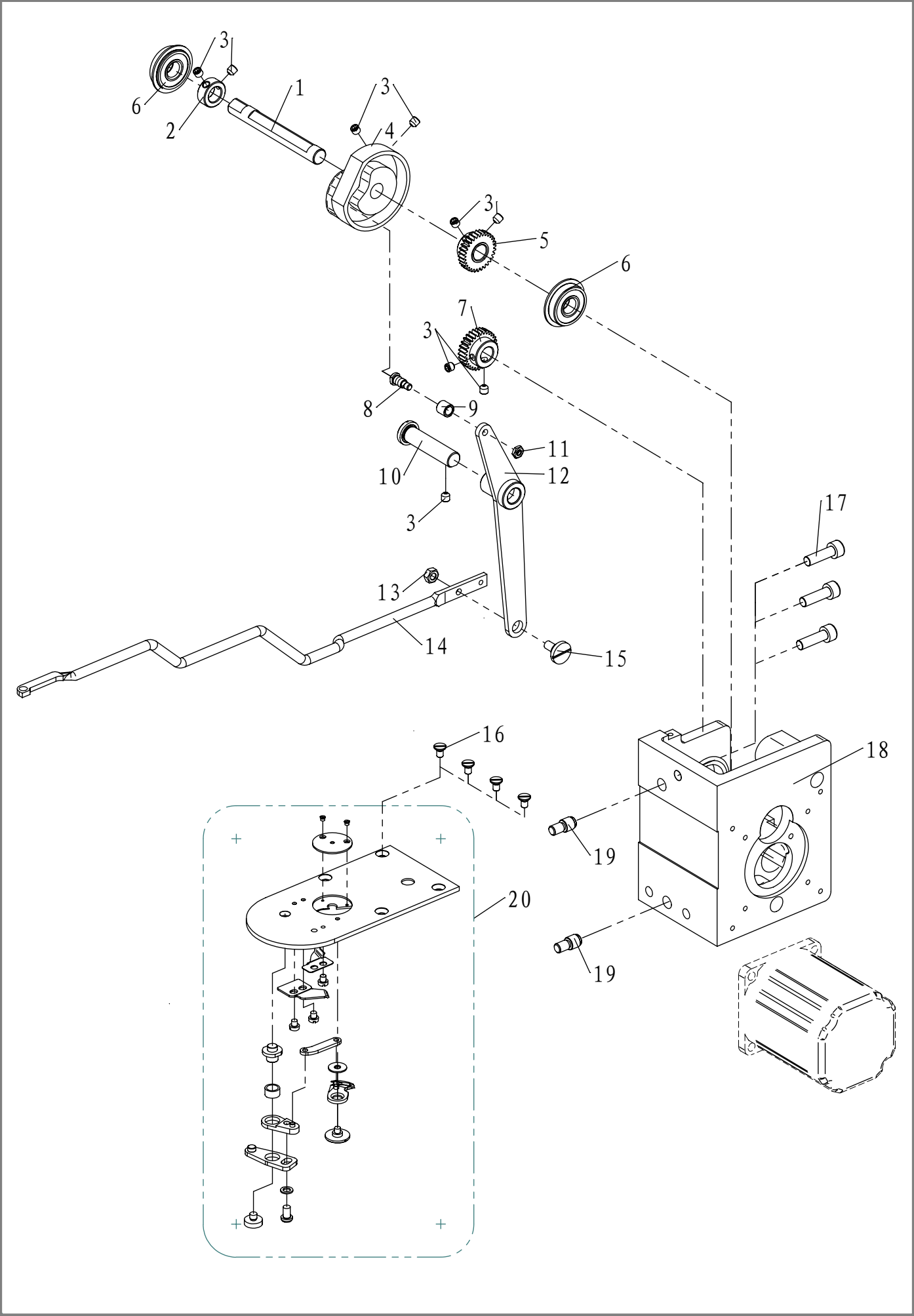
04. 下轴部件 CRANKSHAFT MECHANISM



04. 下轴部件 CRANKSHAFT MECHANISM

序号	图 号	名 称	NAME OF PARTS	数量
1	421.05-05-10	摆梭盖组件	INNER HOOK PRESSER ASM	1
2	02-512281024-1	内六角圆柱头螺钉SM3/16×28-10	SCREW	1
3	01-404000823-1	十字一字槽螺钉 M4×8	SCREW M4 L=8	8
4	331.18-22	线夹(中)	CLAMP	2
5	381.03-11	线夹(小)	CLAMP	1
6	411.04-11	线夹(大)	CLAMP	1
7	411.04-01	油芯顶杆	OIL WICK PRESSER	1
8	01-806000621-1	开槽平端紧定螺钉M6×6	SCREW	1
9	01-806001041-1	开槽尖端螺钉M6×10	SCREW	1
10	411.04-02	油路管夹	OIL-PIPE-HOLDER	1
11	13-08240150	骨架油封	SHUTTLE OIL SEAL	2
12	05-095101483-5	摆梭轴垫片	SHUTTLE BEARING RING	2
13	14-K81210	无内圈单列滚针轴承K8×12×10	BEATING	2
14	01-602000421-1	开槽大帽圆柱头螺钉M2 L=3.5	SCREW M2 L=3.5	4
15	411.04-04	梭子上弹簧片	INNER HOOK UPPER SPRING	1
16	421.05-05-05	摆梭润滑盖	SHUTTLE OIL FELT	2
17	411.04-03-01	油线	OIL WICK	2
18	411.04-03-02	油管	TUBE	2
19	411.04-03-03	油线	OIL WICK	1
20	411.04-03-04	油管	TUBE	1
21	421.05-05-13	摆梭压紧弹簧	INNER HOOK PRESSER SPRING	2
22	06-0300607-1	E型挡圈3	E-RING	2
23	421.05-05-00	摆梭座	SHUTTLE	1
24	421.05-05-12-00	摆梭压紧杆组件	INNER-HOOK-PRESSER-ASM	2
25	421.05-05-07	油毡	SHUTTLE ONCE THROUGH OIL FELT	1
26	421.05-05-06	油毡夹	ONCE THROUGH OIL GELT PRESSER	1
27	421.05-05-04	摆梭润滑盘	SHUTTLE LUBRICATING PLATE	1
28	01-403000423-1	十字盘头螺钉M3x4	SCREW M3 L=4	2
29	421.05-05-14	摆梭锁紧螺钉	SHUTTLE-ASM-SCREW	1
30	421.05-05-11	偏心销轴	SHURRLE-RACE-ADJUSTING-SHAFT	1
31	01-604000621-1	一字薄帽圆柱头螺钉M4×6	SCREW	1
32	411.04-06	油管固定架	TUBE-CLAMP	1
33	01-805000614-1	内六角凹端螺钉M5×6	SCREW M5 L=6	2
34	14-6000-2LSNR	带挡圈轴承6000-2LSNR	BEARING	3
35	411.04-05	摆动齿轮轴	OSCILLATOR SHAFT	1
36	421.04-08	挡圈10	THRUST-COLLAR	1
37	421.05-04-01	下轴齿轮	SHAFT	1
38	14-61901-2Z	轴承 14-61901-2Z	BEARING	2
39	421.05-04-02	下轴齿轮环	RING	2
40	421.05-04-03	下轴齿轮螺母	NUT	1
41	421.05-04-04	下轴齿轮座	LOWER-SHAFT-HOLDER	1
42	01-806000814-1	内六角凹端螺钉 M6×8	SCREW M6 L=8	2
43	411.04-07	下轴	LOWER SHAFT	1
44	01-806000514-1	内六角凹端螺钉 M6×5	SCREW M6 L=5	2
45	411.04-09	下轴齿轮盖毛毡	LOWER-SHAFT-GEAR-FELT	1
46	411.04-08	下轴齿轮盖	LOWER-SHAFT-GEAT-COVER	1
47	05-043080900-4	平垫圈	WASHER	2
48	411.04-10	齿轮盖连接柱	GEAR-COVER-PILLAR	1
49	421.12-10-02	油杯密封圈	RUBBER BUSH	2
50	421.12-10-01	油杯	OIL TANK ASM	1
51	01-604000621-1	开槽薄帽螺钉M4×6	SCREW	1
52	411.04-15	摆梭(小梭芯)	SHUTTLE	1
53	411.04-14	摆梭驱动(小牛角)	SHUTTLE-DRIVER	1
54	CB01-16-A00	电线扎紧带	CABLE BAND	1
55	411.04-12	小梭芯	BOBBIN	1
56	411.04-13	小梭壳	BOBBIN CASE ASM	1

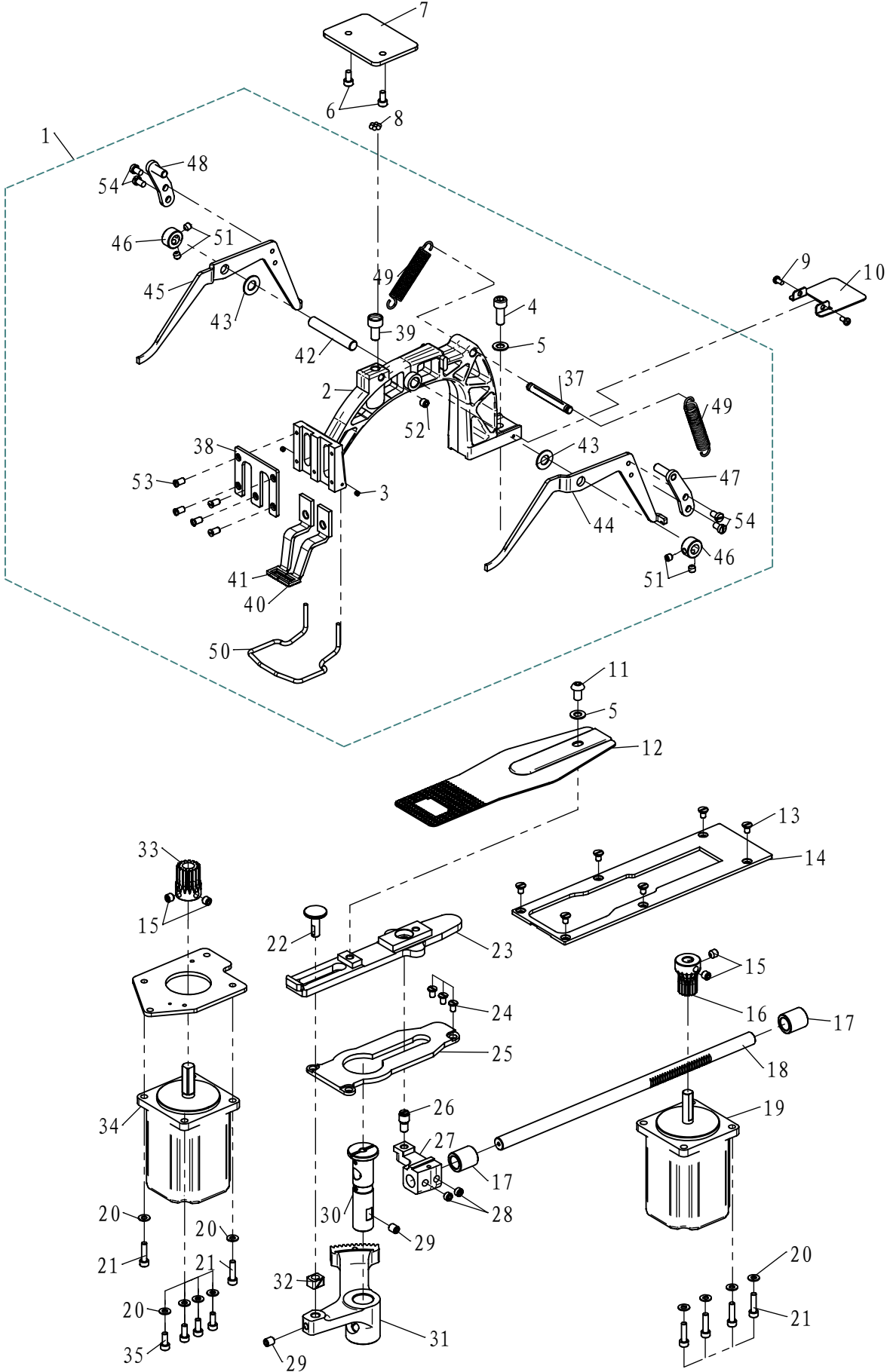
05. 剪线部件 THREAD TRIMMER MECHANISM COMPONENTS



05. 剪线部件 THREAD TRIMMER MECHANISM COMPONENTS

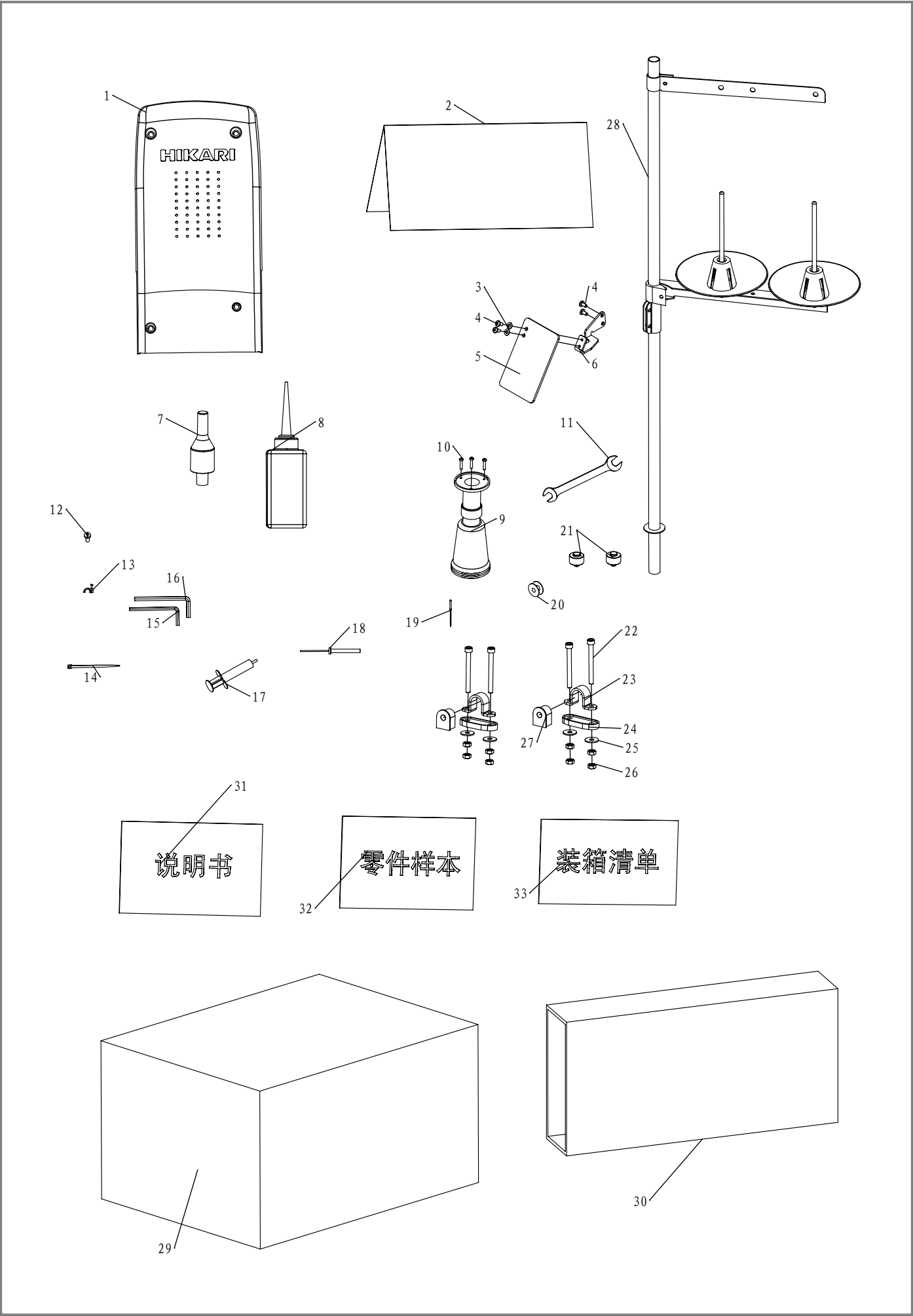
序号	图 号	名 称	NAME OF PARTS	数量
1	411. 05-05	抬压脚剪线凸轮轴	CONNECTING SHAFT	1
2	411. 05-11	挡圈	THRUST_COLLAR	1
3	01-805000514-1	内六角凹端紧定螺钉M5×5	SCREW	9
4	411. 05-06	抬压脚剪线凸轮	THREAD TRIMMER CAM	1
5	411. 05-08	抬压脚剪线从动齿轮	GEAR B	1
6	14-6000-2LSNR	带挡圈轴承	BEARING	2
7	411. 05-07	抬压脚剪线主动齿轮	GEAR A	1
8	411. 03-14	抬压脚凸轮销螺钉	CAM ROLLER SHAFT	1
9	411. 03-15	抬压脚凸轮销滚柱	NEEDLE CAM ROLLER	1
10	411. 03-17	抬压脚轴	THREAD TRIMMER SHAFT	1
11	03-604000220-1	六角螺母M4×2.2	NUT	1
12	411. 05-09	剪线连杆	THREAD TRIMMER LINK ASM.	1
13	03-605000400-1	六角螺母M5	NUT	1
14	411. 05-01	剪线拉杆	CONNECTING BAR	1
15	421. 06-14	切线连杆轴位螺钉	HINGE SCREW D=8 H=3.3	1
16	01-104000721-1	开槽沉头螺钉M4	SCREW	4
17	01-506002024-1	内六角圆柱头M6×20	SCREW	3
18	411. 05-10	抬压脚剪线电机座	SOLENOID BASE	1
19	411. 06-07-04	送料轴连杆螺钉	SCREW	2
20	411. 05-02-00	针板剪刀组件	MOVING KNIFE WASHER	1

06. 送料部件 FEED MECHANISM COMPONENTS



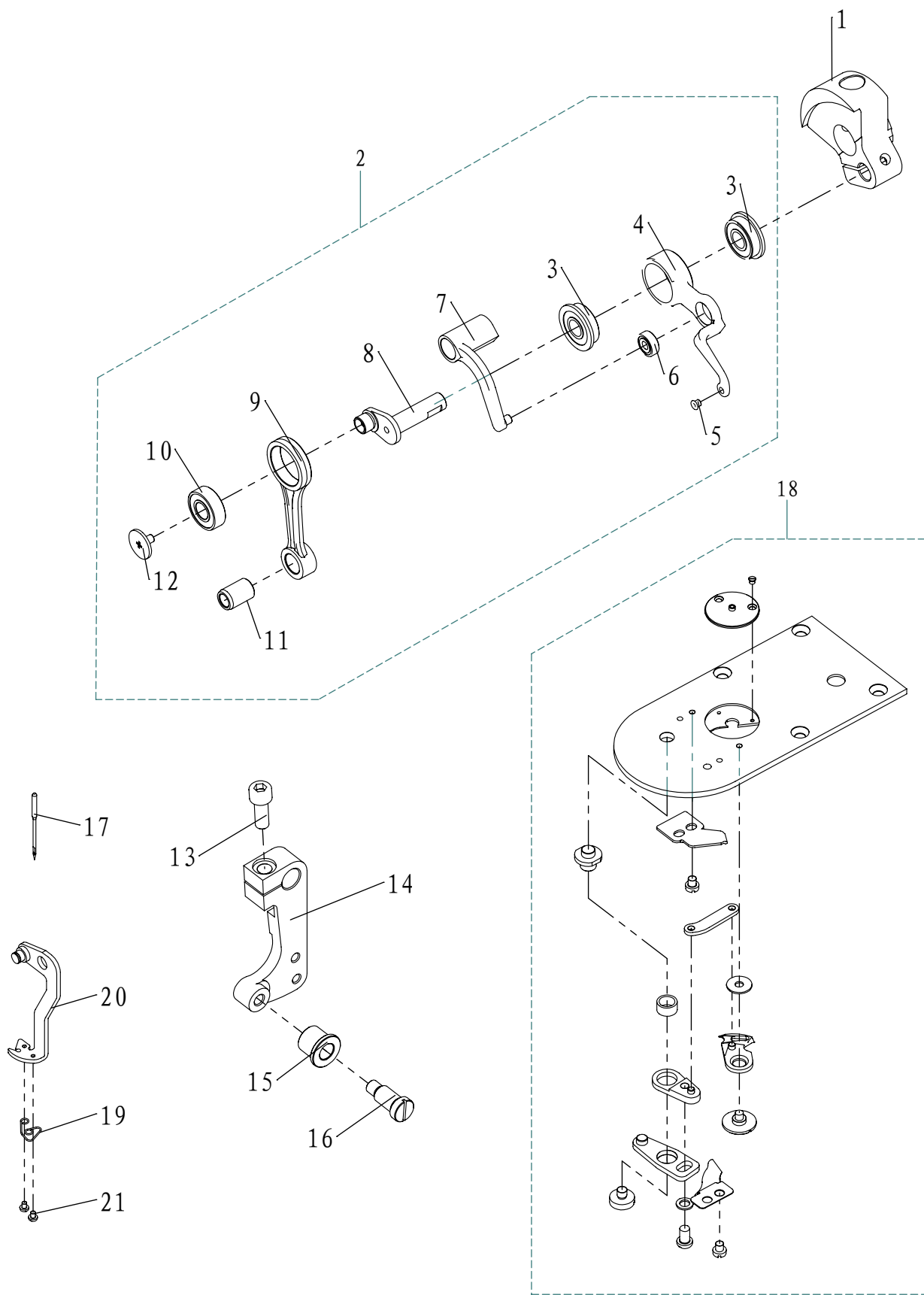
06. 送料部件 FEED MECHANISM COMPONENTS

序号	图 号	名 称	NAME OF PARTS	数量
1	411. 06-01-00	送料托架组件	FEED BRACKET B	1
2	411. 06-01-07	送料托架	FEED DRIVING ARN SHAFT	1
3	02-808440311-1	内六角平端紧定螺钉SM1/8" × 44-3	SCREW SM1/8" × 44 L=3	2
4	01-506001824-1	内六角螺钉M6 × 18	SCREW M6 L=18	1
5	05-063101201-1	平垫片	WASHER	2
6	01-504000824-1	内六角圆柱头螺钉M4 × 8	SCREW M4 L=8	2
7	411. 06-02	送料架支撑板	SUPPORT PLATE	1
8	260. 29-01-04	滚珠	WORK CLAMP FOOT MOUNTING BASE	7
9	01-403000623-1	十字一字槽螺钉M3 × 6	SCREW M3 L=6	2
10	411. 06-04	遮尘盖	HIDDEN_PLATE	1
11	01-306001024-1	内六角圆头螺钉M6 × 10	SCREW M6 L=10	1
12	411. 06-05	Y轴运动上盖	Y FEED PLATE	1
13	01-104000721-1	开槽沉头螺钉M4 × 7	SCREW M4 L=7	6
14	411. 06-06	盖板	CLOTH FEED PRESSER PLATE	1
15	01-806000614-1	内六角凹端螺钉 M6 × 6	SCREW M6 L=6	4
16	411. 06-19	Y向驱动齿轮	Y FEED GEAR	1
17	411. 06-10	轴套	BUSHING REAR	2
18	411. 06-11	Y向驱动齿轮轴	X FEED SHAFT	1
19	411. 06-20	Y向伺服电机	FEED MOTOR	1
20	05-043080900-4	平垫圈	WASHER	10
21	01-504001624-1	内六角螺钉M4 × 16	SCREW M4 L=16	6
22	411. 06-07-02	滑块销	SLIDE BLOCK STUD	1
23	411. 06-07-00	X方向摆动架组件	CLOTH FEED PLATE	1
24	01-604000621-1	开槽薄帽螺钉M4 × 6	SCREW	3
25	411. 06-07-03	X方向摆动架托板	CLOTH FEED SUPPORT PLATE	1
26	411. 06-07-04	送料轴连杆螺钉	HINGE STUD	1
27	411. 06-13	Y送料轴连杆	Y FEED ARM	1
28	02-816400514-1	内六角凹端紧定螺钉SM1 / 4" × 40 × 5	SM1 / 4" × 40 L=5	2
29	01-806000814-1	内六角凹端螺钉 M6 × 8	SCREW M6 L=8	2
30	411. 06-14	摆动架销	FEED DRIVING ARM SHAFT	1
31	411. 06-15	X向扇形齿轮	X SECTOR GEAR	1
32	411. 06-07-06	滑块	SQUARE BLOCK	1
33	411. 06-17	X向驱动齿轮	X FEED GEAR	1
34	411. 06-21	X向伺服电机	FEED MOTOR	1
35	01-504001024-1	内六角圆柱头螺钉M4 × 10	SCREW M4 L=10	4
36	411. 06-18-02	X向电机固定板2	X_FEED_MOTOR_BASE	1
37	411. 06-01-12	弹簧支撑销	SPING SUSPENSION	1
38	411. 06-01-08	压脚盖板	WORK CLAMP FOOT FACE PLATE	1
39	411. 06-01-05	钢珠碗	BLL RETAINER	1
40	411. 06-01-10	压脚（左）	WORK CLAMP FOOT, LEFT	1
41	411. 06-01-09	压脚（右）	WORK CLAMP FOOT, RIGHT	1
42	411. 06-01-06	提升杆轴	LIFTING LEVER SHAFT	1
43	05-84151503-5	平垫圈8. 1, 1, 16	WASHER	2
44	411. 06-01-14	提升杆(右)	LIFTING LEVER RIGHT	1
45	411. 06-01-03	提升杆(左)	LIFTING LEVER LEFT	1
46	411. 06-01-02	挡圈	THRUST_COLLAR	2
47	411. 06-01-13-00	提升杆顶板组件(右)	LIFTING LEVER_PLATE_ASM (R)	1
48	411. 06-01-01-00	提升杆顶板组件(左)	LIFTING LEVER_PLATE_ASM (L)	1
49	411. 06-01-04	提升杆拉簧	CLOTH PRESSER SPRING	2
50	411. 06-01-11	护指架	FINGER GUARD	1
51	01-805000514-1	内六角凹端螺钉M5 × 5	SCREW M5 L=5	4
52	02-815280614-1	内六角凹端螺钉SM15 / 64" × 28-6	SM15 / 64" × 28 L=6	1
53	02-211400821-1	半沉头螺钉SM11/64" × 40-8	SCREW SM11/64" × 40 L=8	5
54	02-411400721-1	开槽圆柱头螺钉SM11/64" × 40-7	SCREW	4



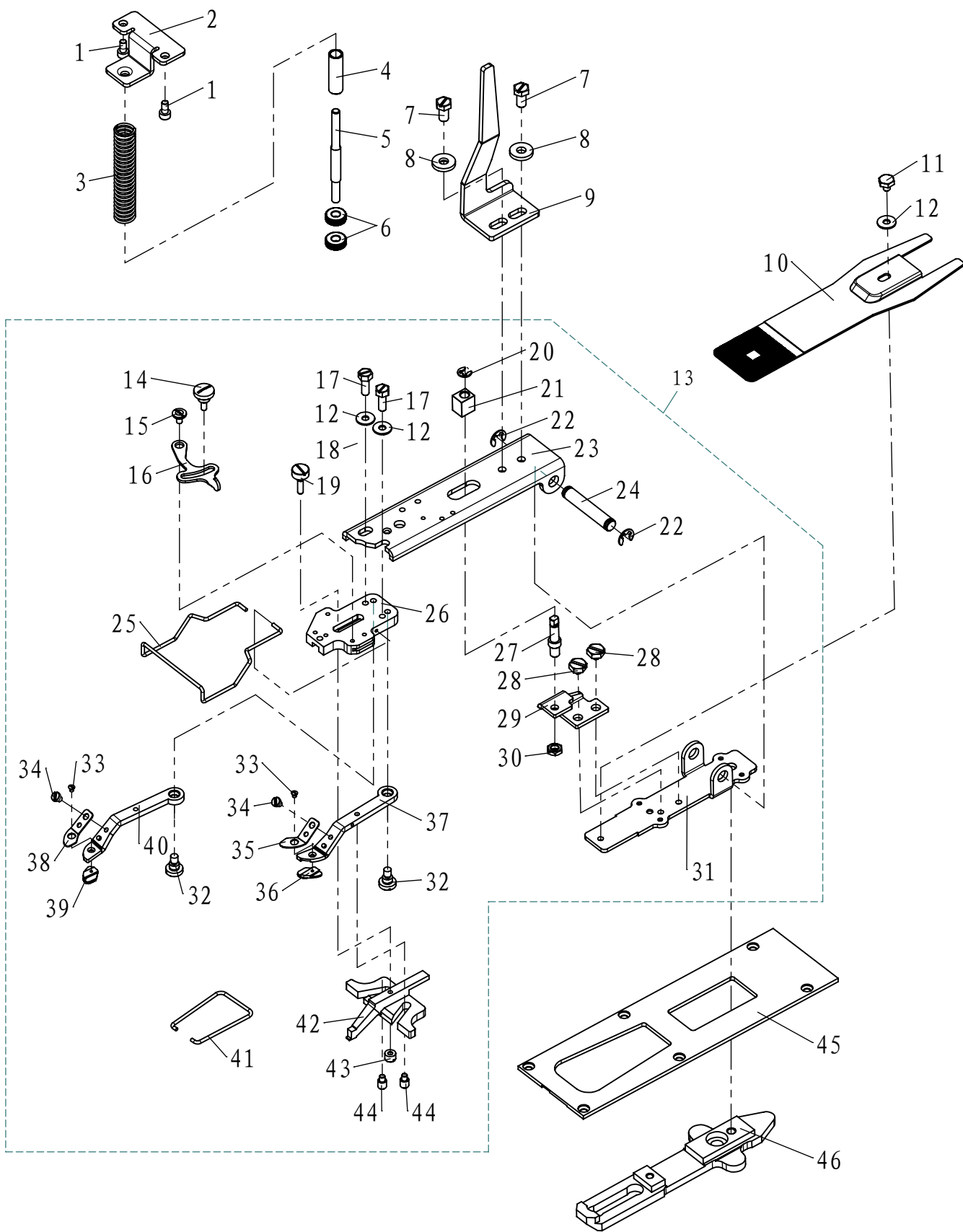
07 附件 ACCESSORIE PART COMPONENTS

序号	图 号	名 称	NAME OF PARTS	数量
1	411. 01-06	后罩壳	MOTOR COVER	1
2	103. 20-52	机头罩	DUST-PROOF CAP	1
3	05-043080900-1	平垫圈	WASHER	2
4	01-404000823-1	十字一字槽盘头螺钉 M4X8	SCREW M4 L=8	4
5	421. 12-21-01	安全板	SAFETY PLATE	1
6	421. 12-21-02	安全板安装架	SAFETY PLATE BASE	1
7	411. 07-03	机壳支撑杆	HEAD SUPPORT BAR	1
8	103. 20-50	注油壶组件	OILER	1
9	421. 17-07-00	回油壶组件	OIL CAN	1
10	20-4291632-3	自攻螺钉2. 9 × 16	WOOD SCREW	3
11	103. 20-04-01	外六角扳手 (8-9)	WRENCH	1
12	01-405001023-1	十字一字槽螺钉 M5 × 10	SCREW M5 L=10	4
13	A-1100-QD007	塑料卡钉	PLASTIC BUTTON	5
14	CB01-16-A00	电线扎紧带	CABLE BAND	5
15	411. 07-08	内六角扳手4	HEXAGONAL SPANNER S4	1
16	411. 07-09	内六角扳手5	HEXAGONAL SPANNER S5	1
17	30016226	注射器	INJECTING SYRINGE	1
18	201. 22-07-06-16	1. 5mm带柄螺丝刀	HEXAGONAL SPANNER S1. 5	1
19	419. 01-04	机针	NEEDLE DP × 17	5
20	411. 04-12	小梭芯	BOBBIN	1
21	411. 07-04	橡胶垫	FRAME SUPPORT RUBBER	2
22	01-506006024-1	内六角圆柱头螺钉 M6 × 60	SCREW M6 L=60	4
23	421. 12-20-03	翻转脚夹紧圈	BED HINGE	2
24	411. 07-05	翻转脚垫	BED HINGE RUBBER	2
25	05-064151902-5	平垫片	WASHER	4
26	03-606000500-1	六角螺母M6-5	NUT M6	8
27	421. 12-20-01	翻转脚	HINGE RUBBER	2
28	101. 12-01	过线架组件	THREAD STANDING	1
29	411. 07-11-02	附件纸箱	ACCESSORIES BOX	1
30	411. 07-11-03	附件箱挡板	BAFFLE OF ACCESSORIES BOX	1
31	411. 07-12	说明书	INSTRYCTION MANUAL	1
32	411. 07-13	零件样本	PARTS BOOK	1
33	411. 07-14	装箱清单	ACCESSORIES LISTING	1

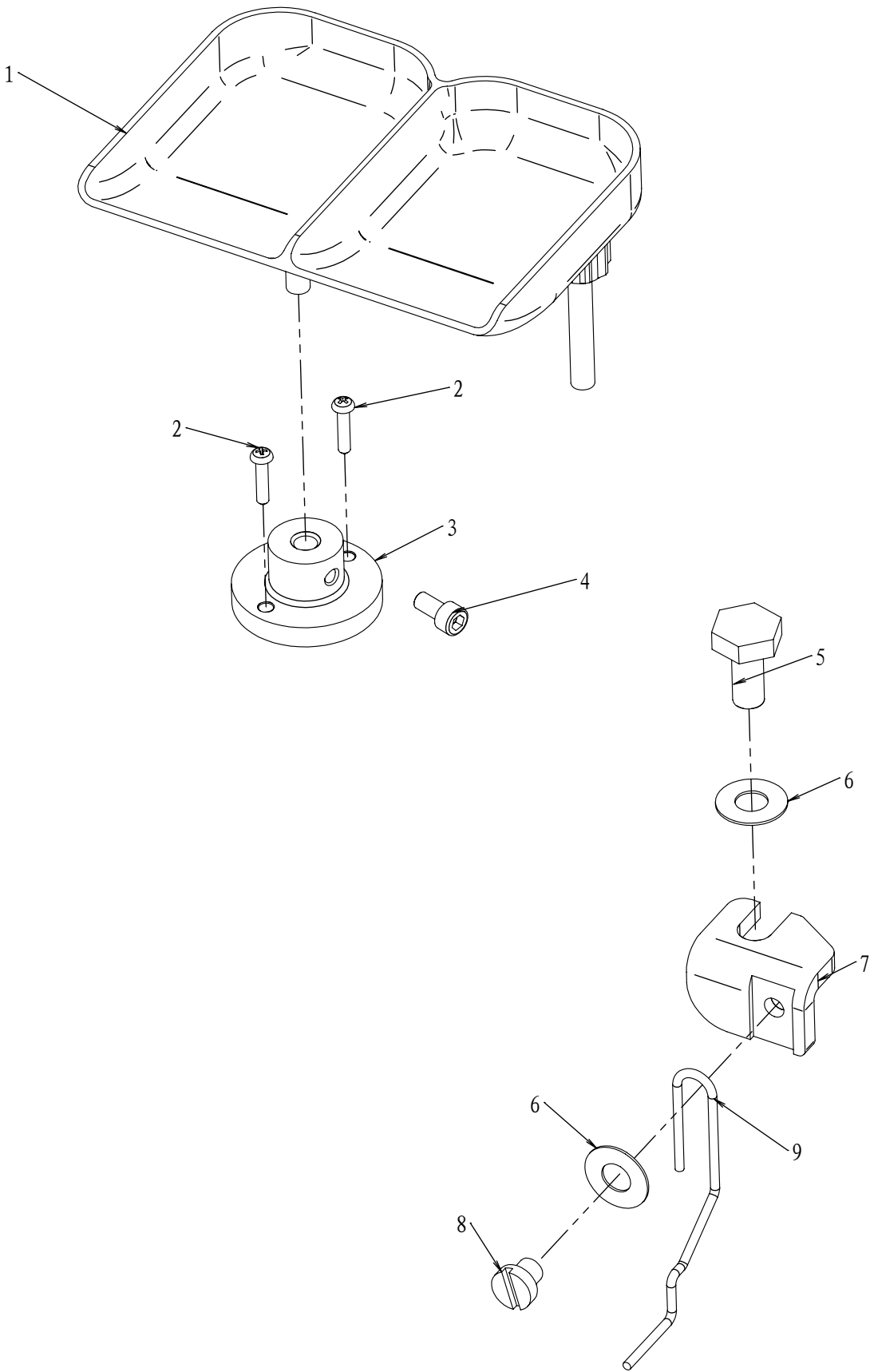


HK2903(1) EXCLUSIVE PARTS FOR HK2903(1)

序号	图 号	名 称	NAME OF PARTS	数量
1	419. 01-01	针杆曲柄	COUNTER_WEIGHT_B	1
2	419. 01-02-00	挑线组件	NEEDLE BAR CRANK ROD ASM	1
3	14-619/8-2Z	轴承 (单边凸缘) 698LB (挑线杆轴承)	BEARING	2
4	419. 01-02-01	挑线杆	THREAD TAKE UP LEVER	1
5	421. 02-10-02	挑线杆过线套	THREAD PASS BUSH	1
6	14-619/4-2Z	轴承619-4 (挑线连杆轴承)	BEARING	1
7	421. 02-11	挑线连杆	THREAD TAKE UP CRANK	1
8	419. 01-02-02	挑线曲柄	NEEDLE ROD CRANK B	1
9	421. 02-17-01	针杆连杆	NEEDLE BAR CRANK ROD	1
10	14-619-8-2Z	轴承619-8-2Z (针杆连杆轴承)	BEARING	1
11	421. 02-17-02	针杆连杆轴套	NEEDLE BAR CRANK ROD METAL	1
12	421. 02-16	挑线曲柄左旋螺钉	LEFT SCREW	1
13	01-506001824-1	内六角圆柱头螺钉M6×18	SCREW M6 L=18	1
14	419. 01-05	抬压脚摆动臂	CONNECTING ARM B	1
15	419. 01-06	抬压脚连杆套	STOP MOTION TRIPPING LEVER CAM	1
16	419. 01-07	抬压脚连杆套轴位螺钉	HINGE SCREW D=7.94 H=12.7	1
17	419. 01-04	机针	NEEDLE	1
18	419. 01-08-00	钉扣机针板剪刀组件	MOVING KNIFE WASHER	1
19	419. 01-12	拨线勾	WIPER ASM	1
20	419. 01-11	拨线簧	WIPER THREAD CATCH SPRING	1
21	02-506560321-1	紧定螺钉SM3/32"-56	SCREW SM1/8"-56 L=2.8	2



序号	图 号	名 称	NAME OF PARTS	数量
1	01-504000824-1	内六角圆柱头螺钉M4×8	SCREW M4 L=8	2
2	419.02-01	抬压脚上支撑架	ACCEPT PLATE, UPPER	1
3	419.02-02	调节杆弹簧	PRESSURE SPRING	1
4	419.02-03	调节杆套	SLEEVE	1
5	419.02-04	调节杆	ADJUSTING SHAFT	1
6	419.02-05	调节杆螺帽	THREAD TENSION NUT	2
7	02-715281121-1	螺钉SM15-64×28 L=11	SCREW 15/64-40 L=11	2
8	05-061251500-1	平垫圈6.1×15.0×2.5	WASHER 6.1×15.2×2.5	2
9	419.02-06	抬压脚连动板	MOVING PLATE	1
10	419.02-07	Y向运动压板	PRESSURE PLATE	1
11	02-711400525-1	螺钉11×64-40 L=5.3	SCREW 11×64-40 L=5.3	1
12	05-045101200-1	平垫圈5×10.5×1	WASHER 5×10.5×1	3
13	419.02-08	夹紧纽扣组件	VERY SMALL CLAMP MECHANISM ASM	1
14	419.02-08-01	纽扣大小调节螺钉	CLAMP SCREW A	1
15	419.02-08-02	锁紧螺钉	HINGE SCREW D=5.50 H=1.8	1
16	419.02-08-03	调节扳手	SNAP FASTENER CLAMP STOP LEVER	1
17	02-712321421-1	螺钉 3/16-32 L=13.5	SCREW 3/16-32 L=13.5	2
18	419.02-08-04	压脚锁紧板	PRESSER PLATE	1
19	419.02-08-05	调节螺丝	HINGE SCREW D=5.5 H=3	1
20	06-0400809-1	安装板导向轴挡圈	SNAP RING, FOR CONNECTING ROD	1
21	419.02-08-06	滑块	SLIDE BLOCK	1
22	06-0600812-1	安装轴挡圈	E-RING 7	2
23	419.02-08-07	夹头安装板	PICK-UP FOOT INSTALLING BASE	1
24	419.02-08-08	安装轴	INSTALLING SHAFT	1
25	419.02-08-09	护指器	FINGER GUARD	1
26	419.02-08-10	夹头基座	PICK-UP FOOT INSTALLING BASE	1
27	419.02-08-11	安装板导向轴	STATIONING BLOCK SHAFT	1
28	02-711400421-1	螺钉 11/64-40 L=4	SCREW 11/64-40 L=4	2
29	419.02-08-12	安装板导向支撑架	SUPPORT PLATE	1
30	04-615280300-1	螺帽 15/64-28	NUT 15/64-28	1
31	419.02-08-13	安装支架	PICK-UP INSTALLING BASE	1
32	419.02-08-14	连接轴位螺钉	HINGE SCREW D=6.35 H=3.9	2
33	02-106560321-1	压脚垫块螺钉 D=6.35 H=3.9	SCREW 3/32-56 L=3	2
34	02-509400421-1	开槽圆柱头螺钉SM9 / 64×40	SCREW 9 / 64-40 L=3.5	2
35	419.02-08-15	右弹簧垫片	SPRING, LEFT	1
36	419.02-08-16	右平板夹	PLATE L, L	1
37	419.02-08-17	右夹紧杆	SMALL CLAMP JAW LEVER, L	1
38	419.02-08-18	左弹簧垫片	SPRING RIGHT	1
39	419.02-08-19	左平板夹	PLATE L, R	1
40	419.02-08-20	左夹紧杆	SMALL CLAMP JAW LEVER ASM, L	1
41	419.02-08-21	纽扣夹紧弹簧	BUTTON CLAMP JAW LEVER SPRING	1
42	419.02-08-22	纽扣夹紧滑块	BUTTON CLAMP SLIDE	1
43	419.02-08-23	调节螺母	NUT	1
44	419.02-08-24	纽扣调节导向螺钉	BUTTON CLAMP STOP PIN	2
45	419.02-09	盖板	CLOTH FEED PRESSER PLATE B	1
46	419.02-10-00	摆动架组件	CLOTH FEED PLATE	1



序号	图 号	名 称	NAME OF PARTS	数量
1	419.03-03	纽扣托盘	BUTTON TRAY ASM	1
2	20-4421632-3	自攻螺钉	WOOD SCREW	2
3	419.03-04	纽扣托盘固定座	BUTTON TRAY BASE	1
4	01-506001224-1	内六角圆柱头螺钉M6×12	SCREW M6 L=12	1
5	02-709400825-1	螺钉SM9/64"-40 L=8	SCREW SM9/64"-40 L=8	1
6	05-037030801-1	垫片	WASHER	2
7	419.03-02-01	钮扣挑线簧安装支架	INSTALLING BASE	1
8	02-508442921-1	螺钉	SCREW	1
9	419.03-02-02	钮扣挑线簧	BUTTON RISING BAR	1