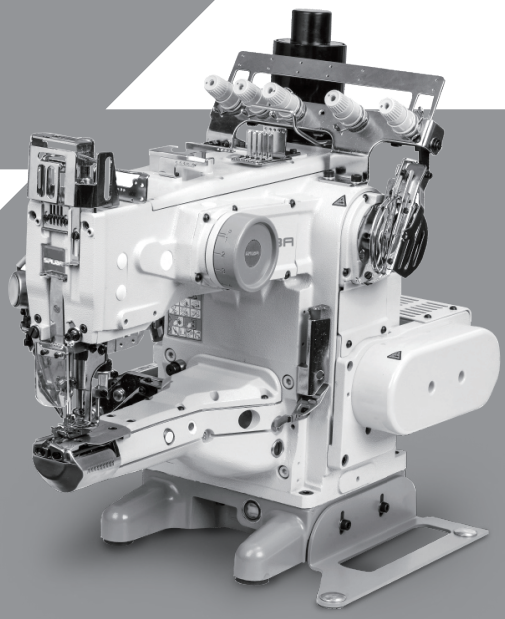
SIRUBA

使用説明書
INSTRUCTIONS BOOK

VTS1500



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希望

◇本说明书主要面向技术人员编写，但是，为了妥善操作缝纫机，凡是标有标记的项目，也希望操作人员阅读。

◇本说明书的说明图左下方所标注的数字表示图号。根据需要，在正文中也标清了图号，用户可以结合相关说明图查阅。

声明

本产品将会由于改良等原因而改变使用部件。因此，本说明书中的部分内容和说明图，可能与本产品不完全一致，请予谅解。另外，在编写本说明书时我们虽然采取了万全之策，但是，错误记载和遗漏之处在所难免，即使得以发现，有时也难以马上更正。

⚠为了能够让您安全使用⚠

1. 为了能够让您安全使用

为了工业用缝纫机以及装置使用上的安全，请经常注意以下事项。

1.1 用途 目的

此工业用缝纫机是为了提高缝制作业的生产性为目的而设计的，请勿用于其他的用途，目的。
另外对所装的驱动装置的安全措施，在未确认确实执行之前，请勿使用本缝纫机。

1.2 在使用之前

在使用缝纫机之前，应仔细阅读全部的使用说明书，按照使用说明书来正确使用。
并且也应熟读装配驱动装置的使用说明书。

1.3 使用环境

请勿在下列环境下使用。
◇对缝纫机的性能会有不良影响的环境温度与湿度的不良场所。
◇屋外或日光直射的场所。
◇在粉尘，腐蚀性气体，可燃性气体等环境中。
◇电压变动(不稳定)，超过规格电压的±10%的场所。
◇在不能达到使用马达规格之必要电源容量的场所。
◇在会受到输出功率较大的高周波发信机或是高周波熔接机的周边地区，发生强力电波、电磁的地区。

1.4 开箱 搬运

(1) 按照由上开始的顺序开箱。
(2) 把缝纫机机头从亲垫材料搬出的时候，绝对不要抬拉缝纫机车针附近或过线关联的零件。
(3) 搬运缝纫机机头的时候，应同助手二人一起搬运。
(4) 用台车搬运时，注意不要有过度的撞击或振动。

2. 安装、准备

为了工业用缝纫机以及装置使用上的安全，请经常注意以下事项。

2.1 教育、训练

缝纫机头部或是缝纫机系统的操作人员，以及从事指导，保全，修理的人员，为了安全的作业，必须要有适当的知识和操作技能。
管理人员应在事先做好对于作业人员及相关人员的教育，训练计划并实行。

2.2 缝纫机工作台和马达

(1) 采用能够承受针车头部的自重以及运转时的反弹应力的强度的缝纫机工作台(台板，脚架)。
(2) 应考虑缝纫机配置以及作业区域的照明，保证作业环境明亮。
(3) 在装配缝纫机控制箱以及相关零件时，应考虑作业者的姿式。
(4) 安装马达时，应按照马达生产厂家的使用说明书正确安装。

2.3 电路配线

(1) 在装设电路完成之前，请勿连接电源接头。
(2) 缝纫机机头，马达以及电器装置类的接线的接头，一定要确保固定。
(3) 不可以在接线电线上加施超负荷的压力。
(4) 在会有动作的机械部分附近连接电线电缆时，应将机械与电缆保持一定距离，使它们不接触。
(5) 在缝纫机指定位置，接上地线。

2.4 缝纫机运转之前的注意事项

(1) 在注入润滑油，硅油，黄油的时候，注意不要碰至眼睛和皮肤，并且，请存放在小孩不能接触到的地方。
(2) 缝纫机必须注油(滴油)后运转。请使用YAMATO指定的SF油。
(3) 接入电源时，请勿将手伸入针下附近以及有动作的机械部分。
(4) 首次使用运转缝纫机时，请确认针车飞轮回转方向和飞轮回转标志是否一致。

2.5 缝纫机运转时的注意事项

(1) 必须在确认装妥皮带罩壳，护指，护目等安全保护装置的状态下，方可运转缝纫机。
(2) 在缝纫机运转中，在车针下方附近以及在动作的机械部位的附近，请勿将手或头发靠近，不许将物品放置在旁。
(3) 穿线或换针的时候，务必在切断电源后进行。
(4) 附有切刀装置的缝纫机，在缝纫机运转时，不可把手指伸入切刀部位(上刀，下刀)。
(5) 在不使用缝纫机或作业人员要离开缝纫机时，务必关闭电源。
(6) 在使用中发现发生错误动作，异常声音，或异味时，应立即关闭电源。

2.6 拆卸

(1) 拆卸任何零件或更换时，以及进行调整作业时，必须先关掉电源。
(2) 拔掉插头的时候，不可拉扯电线，必须握住插头拉开。
(3) 控制箱内布有高压电负荷，所以在切断电源后，需等待5分钟以上才可以开盖。

3. 保全、检查、修理

(1) 保全、检查、修理时，应按照使用说明书来作业。
(2) 保全、检查、修理时，应由受过特别训练的人员来作业。
(3) 保全、检查、修理时，必须先切断电源，在确认缝纫机和马达完全停止时才开始作业。(离合器或马达，在关闭电源之后，由于马达的惯性仍然会暂时继续回转，应注意。)
(4) 客户不可根据自我判断来自行改造缝纫机。
(5) 避免使用指定以外的保全维修零件。

4. 警告标志及警告图标

为了防止对客户造成伤害以及对缝纫机造成损伤，本说明书上记载了警告标志以及警告图标。

4.1 警告标志的图标

“警告”，是表示具有潜在的危险的状况下，若不回避的情况下，有可能导致死亡或重大伤害的意思。
“注意”，是表示具有潜在危险的状况下，若不回避的话，在可能导致用户或其他人，受到轻中度的伤害，或者损伤缝纫机。

4.2 警告图标



这个图标表示，若不注意的话，有可能导致死亡或受到重伤。



这个图标表示应注意高温。



这个图标表示，若不注意的话，可能会导致轻伤或中度受伤，或者损伤缝纫机，或是强调必不可少的情报。



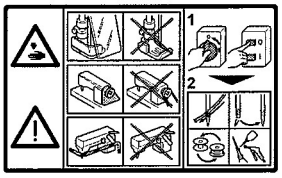
这个图标表示，警告注意高压触电。



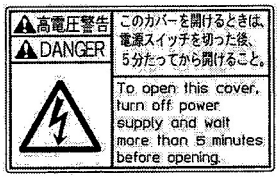
这个图标表示，在不接地线的情况下，缝纫机或装置发生错误动作，有可能引起伤害用户的事。这个图标表示，警告注意高压触电。

5. 贴付在缝纫机上的警告标识

为了防止对客户造成伤害以及对缝纫机造成损伤，本说明书上记载了警告标志以及警告图标。



表示禁止拆卸安全护具，禁止在投入电源时，另做缝制以外的作业。(详细参照次页。)



表示电源控制箱内布有高压电压，有触电的可能性发生。



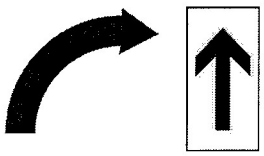
在安全护具上贴有此标记。但是，为了作业方便，护指和护目上没有贴附，但必须在指定的部位，安装护具。



谐步马达，电磁阀等，在长时间连续使用这下，有可能发生过热现象，有烫伤的危险，所以注意不可以触碰。



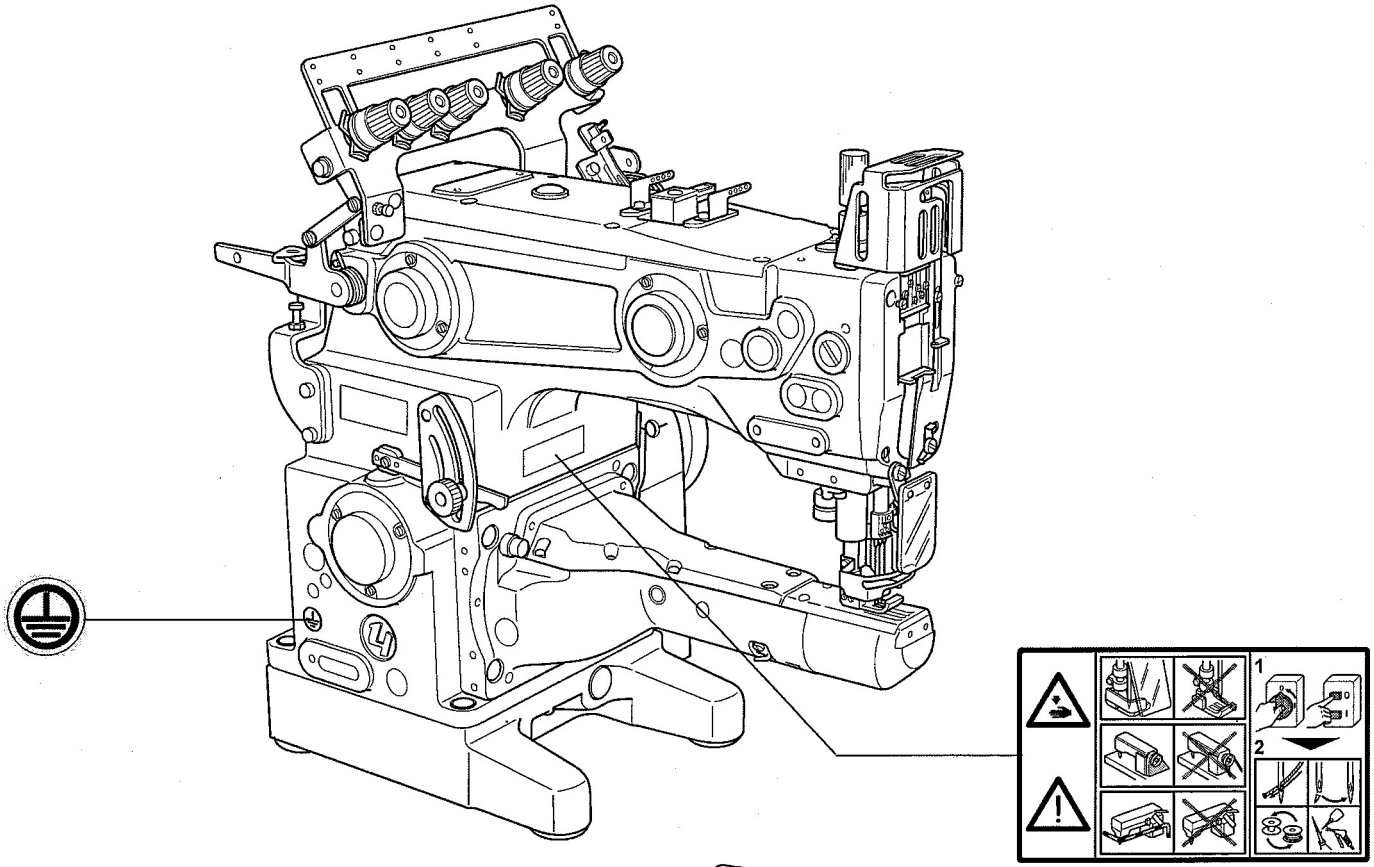
这个图标表示，未接地线的时候，有可能发生缝纫机或装置的误动作或伤害用户。

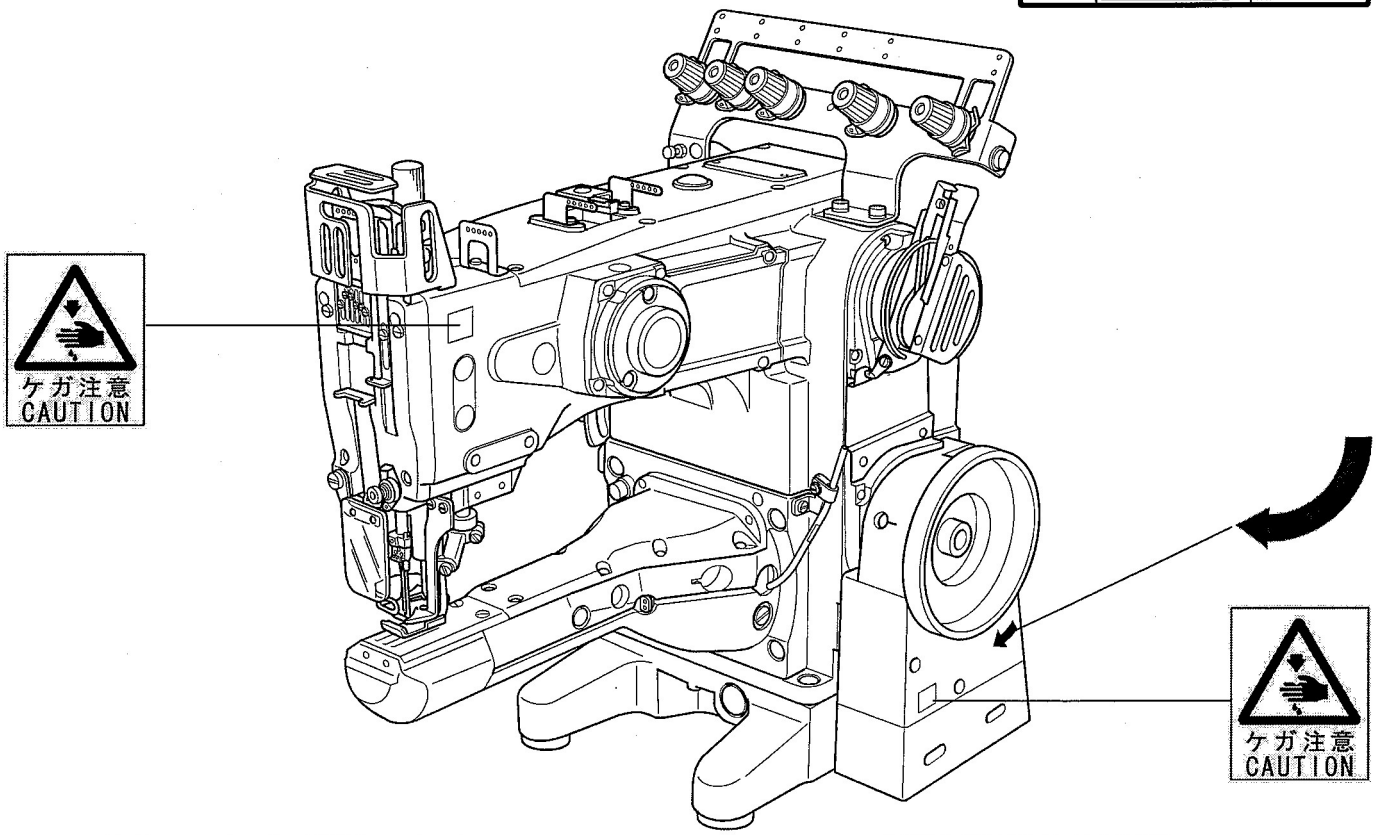


确认针车飞轮的回转方向和标示方向要一致。

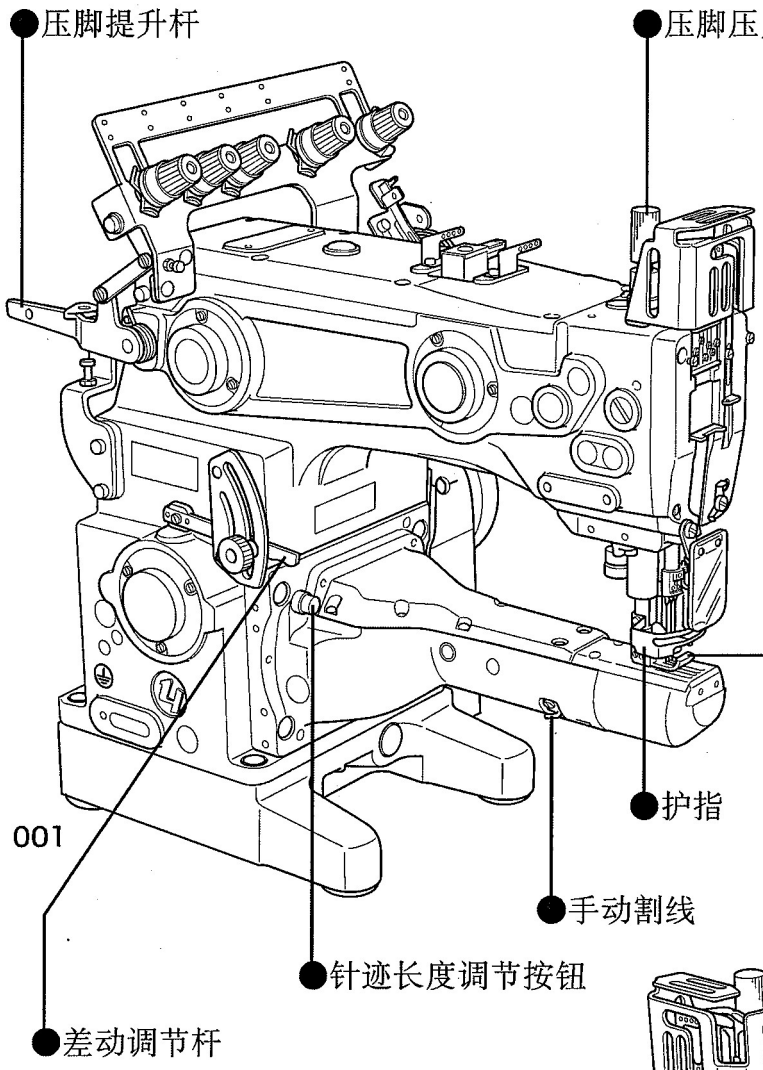
6. 安全标签的标贴位置

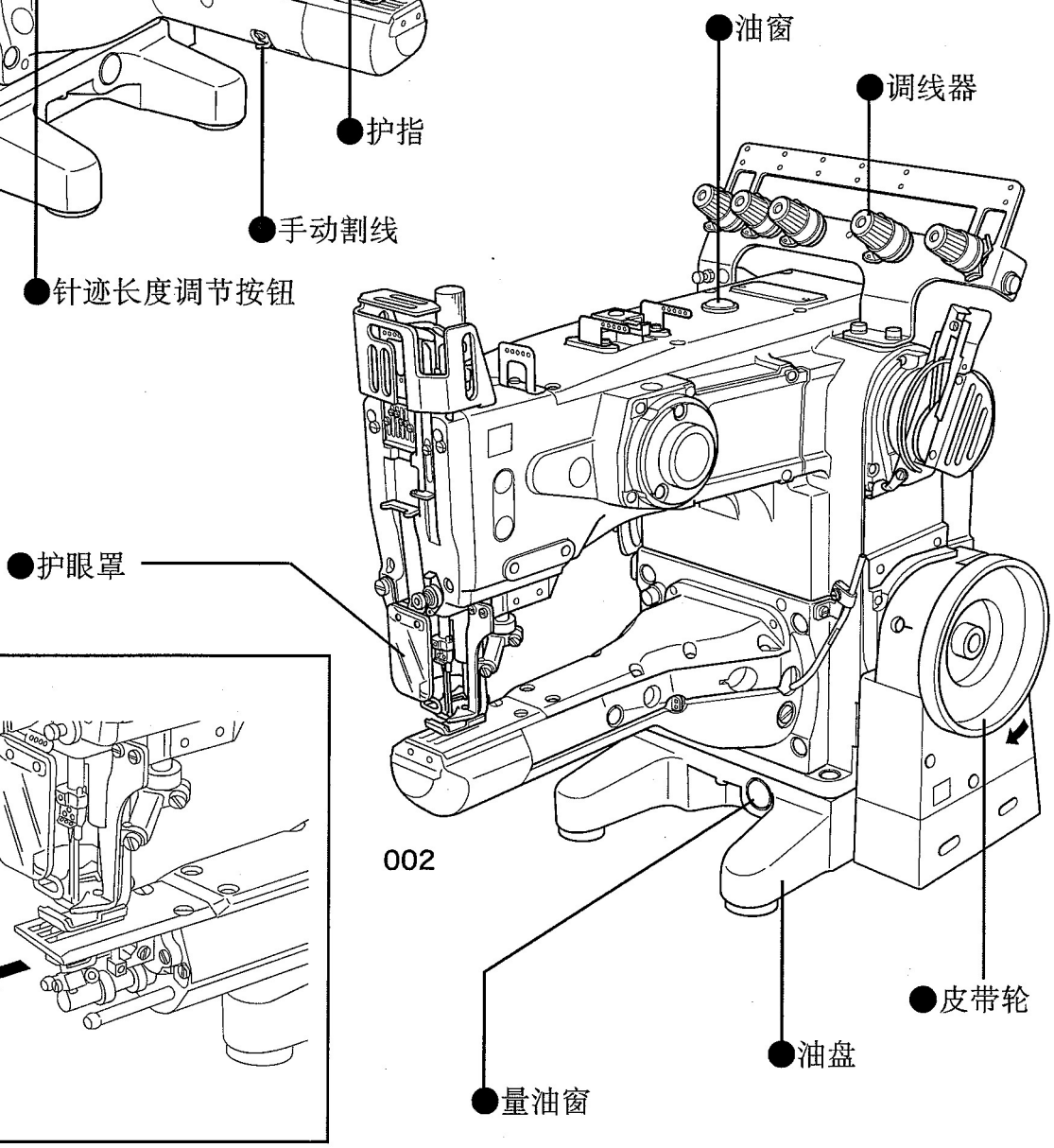
缝纫机上标出了为了安全进行作业的安全标签标贴位置。
要时刻保持安全标签的整洁且免受损坏，标签损坏或者丢失时，要重新贴上新的标签。





1. 各部分名称


压脚提升杆
压脚压力调节螺丝
压脚
护指
001
手动割线
针迹长度调节按钮
差动调节杆

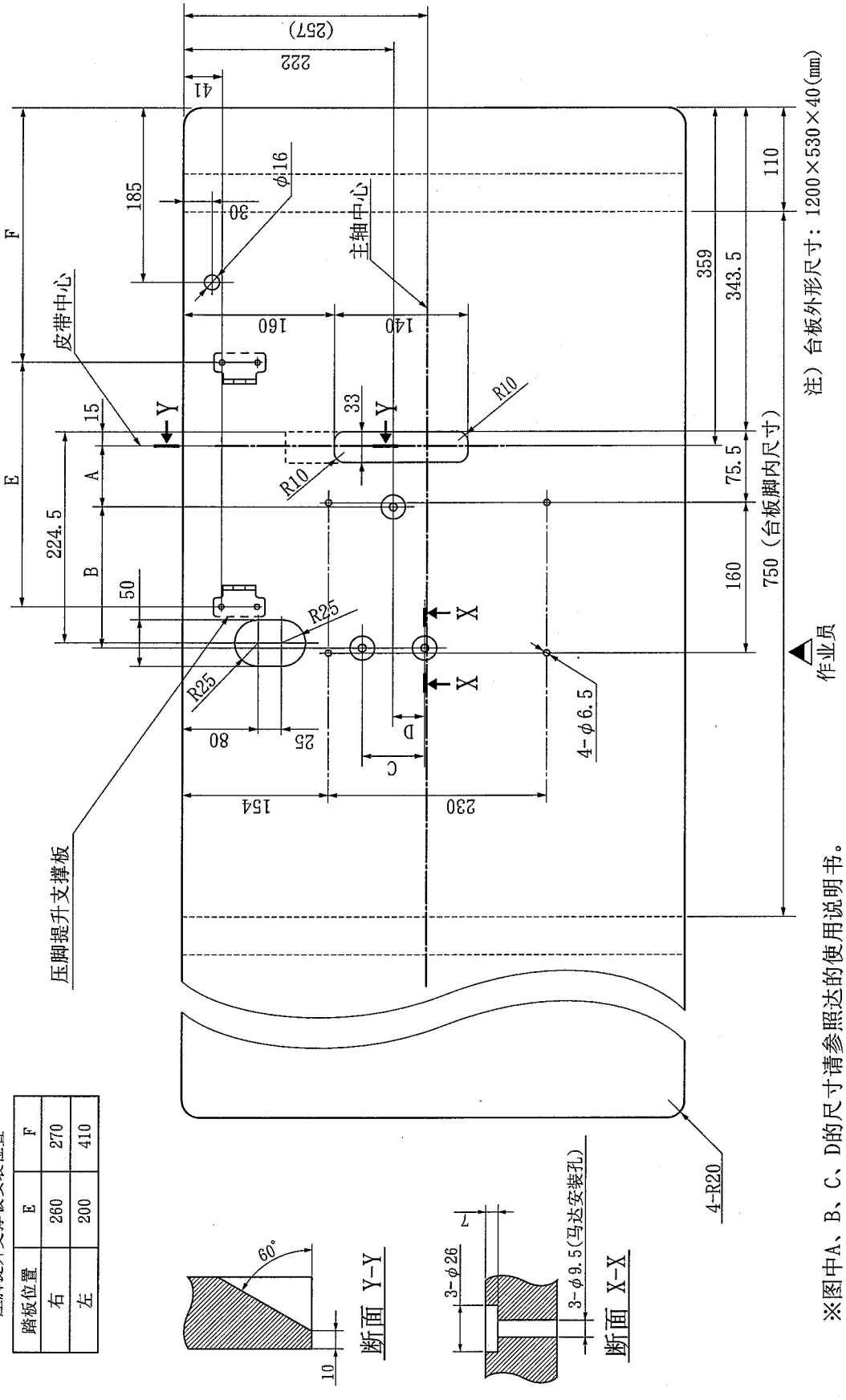

油窗
调线器
护眼罩
002
皮带轮
油盘
量油窗

小筒前盖板
003

2. 安装方法

2.1 板面式

2.1.1 台板图纸



压脚提升支撑板安装位置

踏板位置	E	F
右	260	270
左	200	410

004

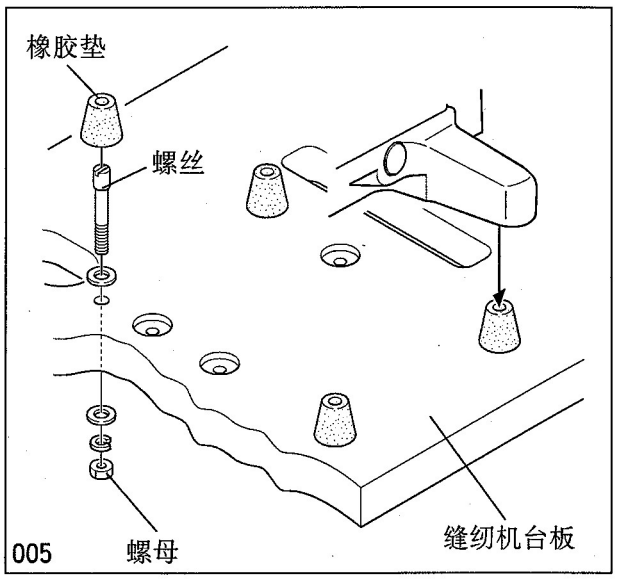
2.1.2 缝纫机的安装

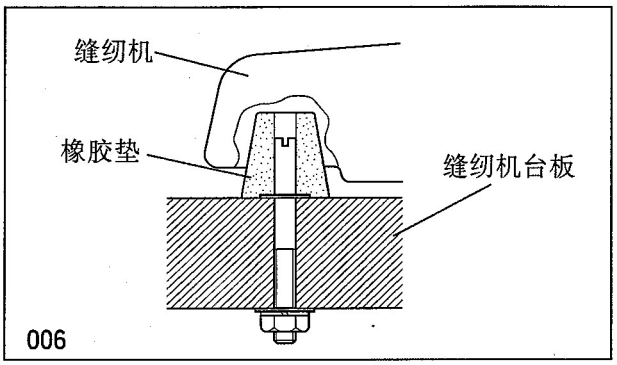
⚠注意

缝纫机的重量为42公斤以上。一定要由至少两个人进行开箱、搬运和安装。

请参考图(004、005、006)，正确安装缝纫机。

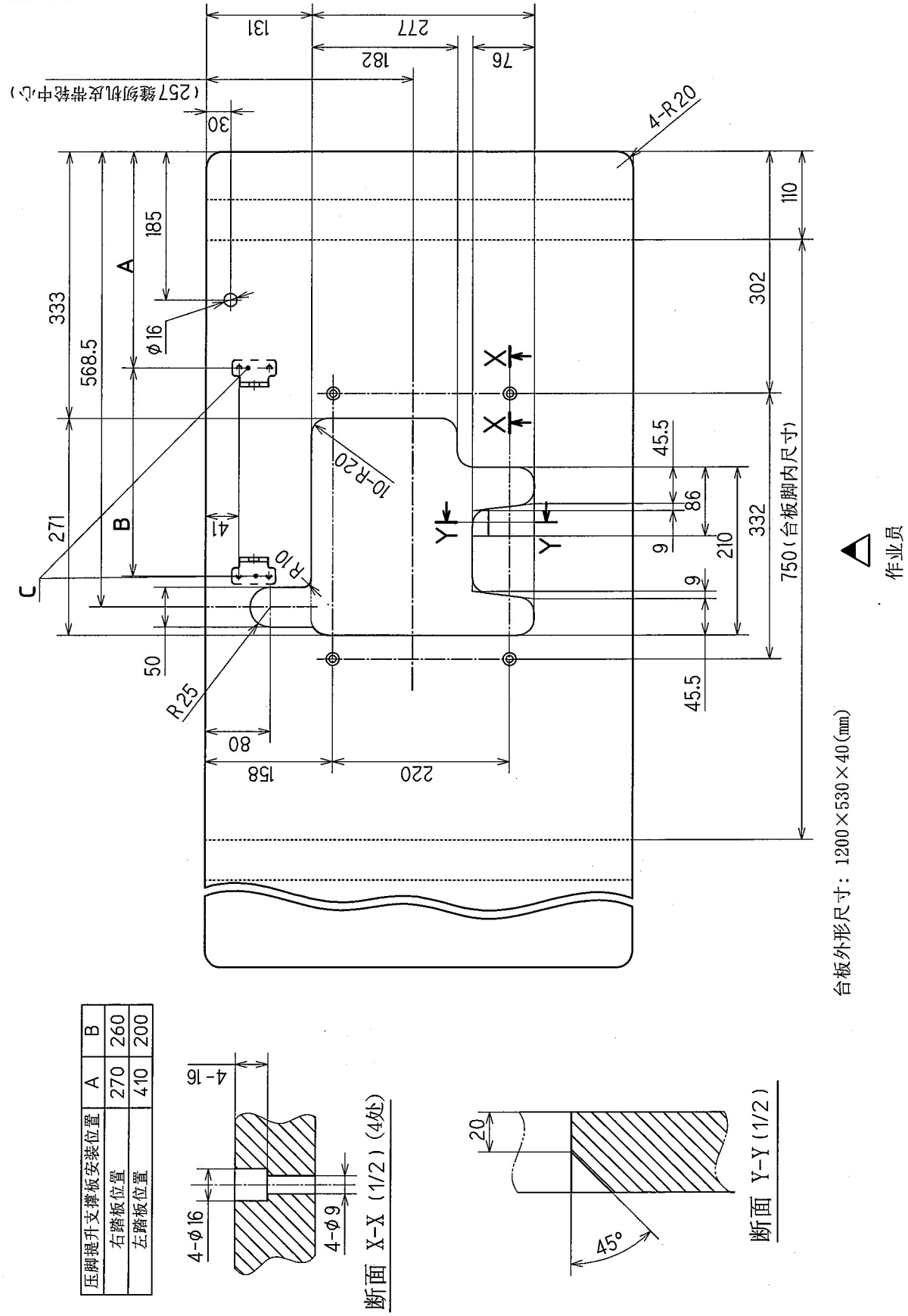
(1) 将螺丝和螺母安装到缝纫机台板上。
(2) 在螺丝上套上橡胶垫。
(3) 将缝纫机平稳地放到橡胶垫上。





2.2 半沉式

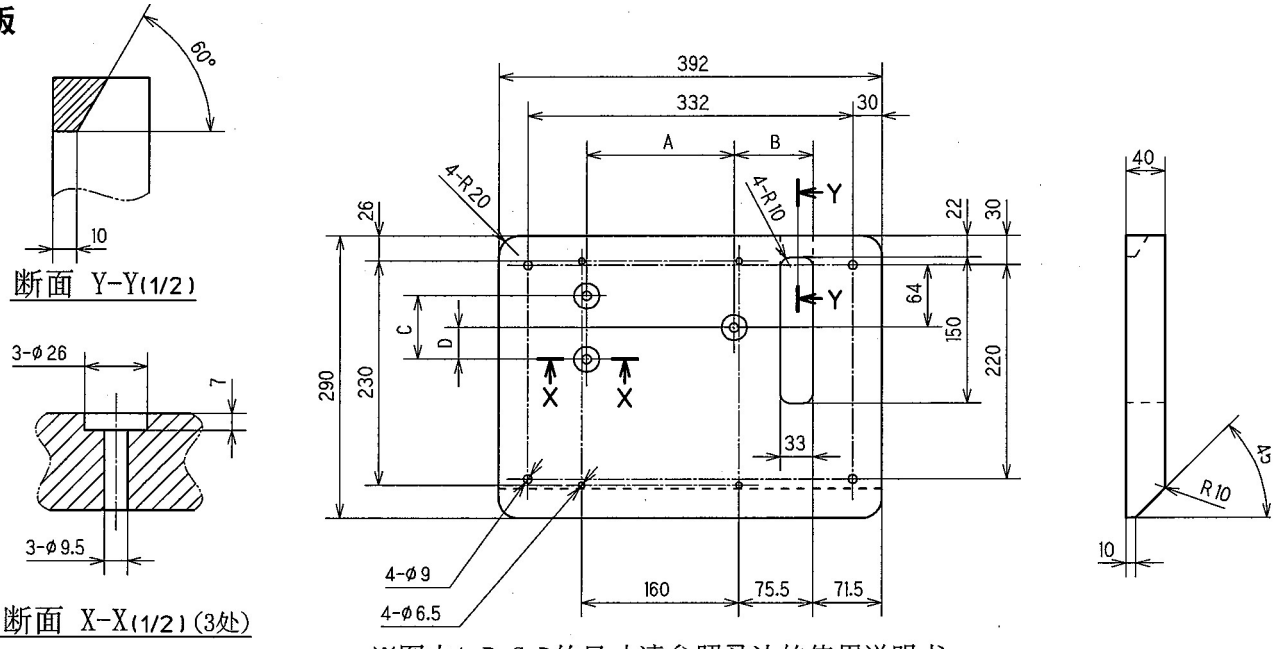
2.2.1 台板图纸



压脚提升支撑板安装位置	A	B
右踏板位置	270	260
左踏板位置	410	200

007

托板



008

※图中A、B、C、D的尺寸请参照马达的使用说明书。

2.2.2 缝纫机的安装

⚠注意

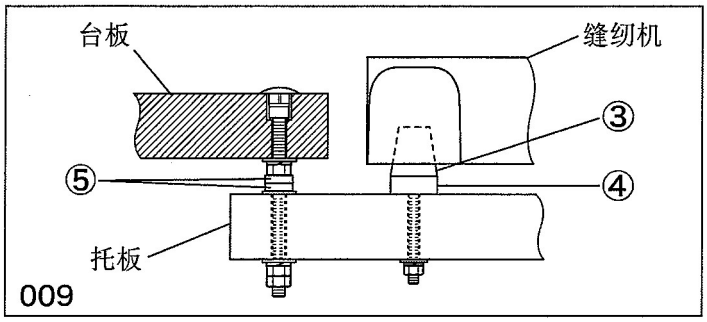
缝纫机的重量为42公斤以上。一定要由至少两个人进行开箱、搬运和安装。

请参考图，正确安装缝纫机。

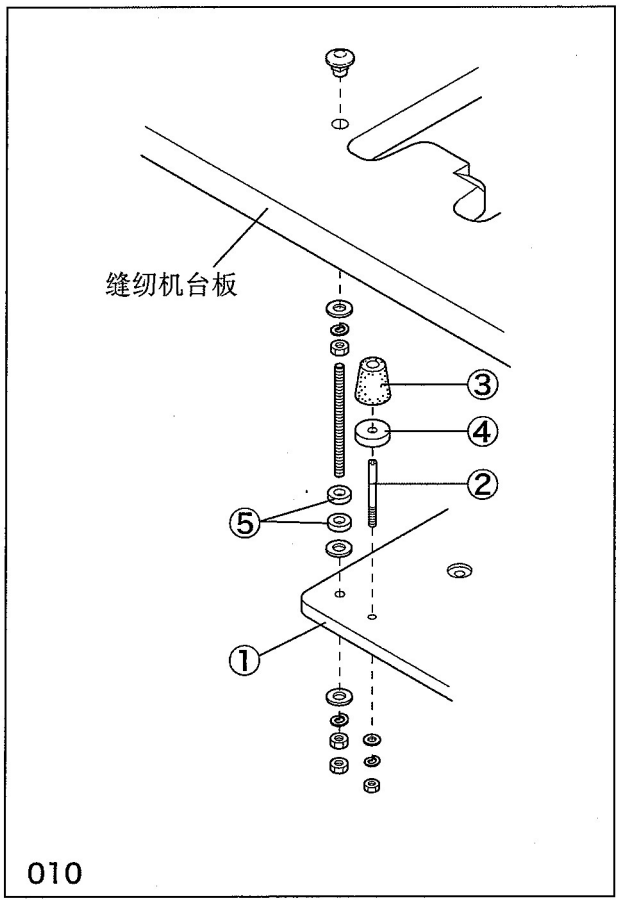
(1) 在托板①上安装螺丝②(4个)。
(2) 将像胶垫③插入螺丝②。
(3) 将托板①安装到缝纫机台板上，并在其之间衬以托板隔片⑤(2个)。

安装要求

- 台板厚度超过标准厚度(40mm)时，请使用像胶垫隔片④，或调整托板隔片⑤的数量。
- 从台板到针板上方的标准高度是约100mm。



009



010

2.3 马达与皮带

离合式马达

◇关于马达，请参照所使用马达的使用说明书。
◇关于马达的安装位置，在安装时，踏下脚踏板，当马达皮带轮②靠近左侧时，使马达皮带轮②中心与机器皮带轮①中心保持一致即可。
◇市售的皮带轮，外径以5mm为单位，因此选择了接近于计算值的市售皮带轮。

⚠注意

如果使用的马达皮带轮不正确，缝纫机的转速可能超过最高转速，从而引发故障。

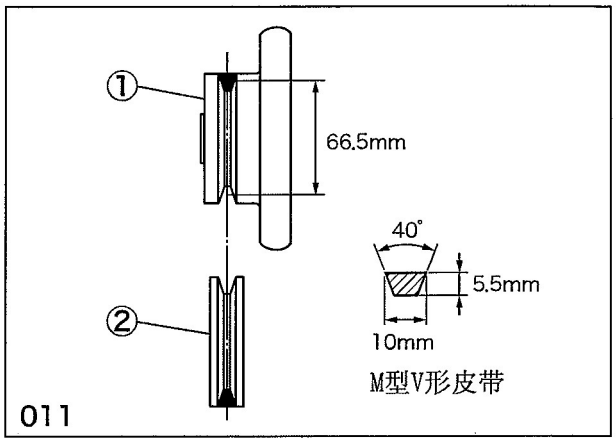


表1

马达皮带轮外径 (mm)	缝纫机转速(rpm)		皮带尺寸
	50Hz	60Hz	
65		3100	M35
70		3350	M35
75	3000	3600	M36
80	3200	3850	M36
85	3400		M36
90	3600		M37
95	3800		M37
100	4000		M37

◇表中为使用三相二极400瓦(1/2HP)的离合器马达时的数值。

伺服马达

关于马达，请参照所使用马达的使用说明书。
马达皮带轮的直径，按如下公式求出。或参照表2选择最合适的马达皮带轮。

$$\text{马达皮带轮直径} = \frac{\text{缝纫机常用转速}}{\text{伺服马达转速}} \times 66.5\text{+}5\text{mm}$$

◇市售的皮带轮，外径以5mm为单位，因此请选择接近计算值的市售皮带轮。

表2

缝纫机转速 (rpm)	马达皮带轮直径	
	伺服马达转速 (rpm)	
	3000	3600
3000	72	60
3300	78	66
3500	83	70
3800	89	75
4000	94	79

◇表中为伺服马达转速为3000rpm和3600rpm时的例子。

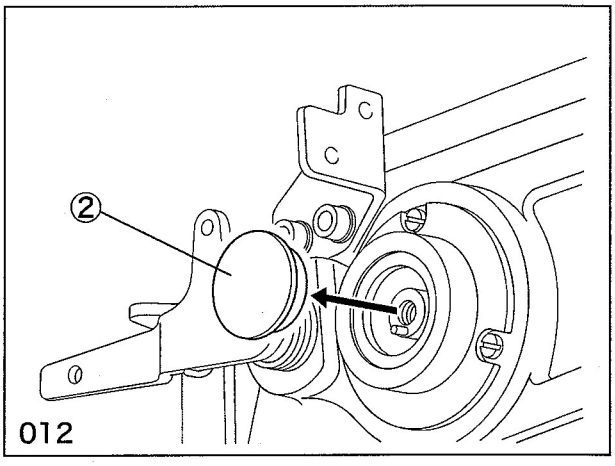
皮带

皮带使用M型皮带。
尺寸请参照表1。

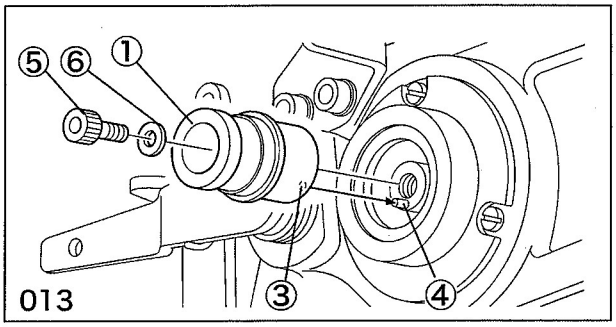
2.4 定位器的安装准备

为安装定位器⑪(位置检测器)，或同步器，安装同步器转接器①(附加)。

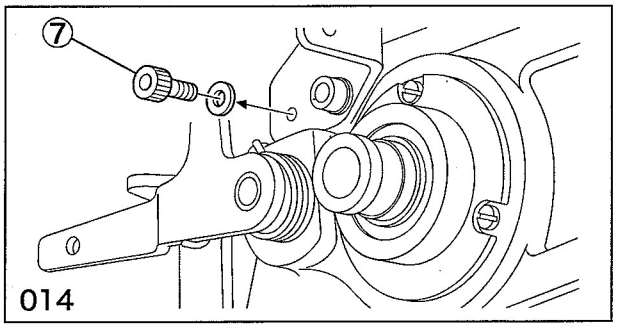
(1) 拿开塞子②。



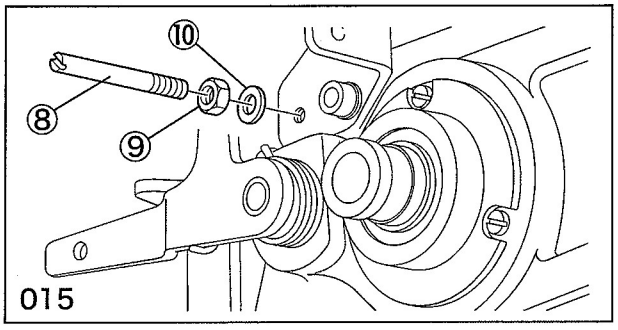
(2) 同步器转接器①的孔③对准轴的销钉④，用螺丝⑤和垫片⑥固定。



(3) 取下调线器安装板的固定螺丝⑦。

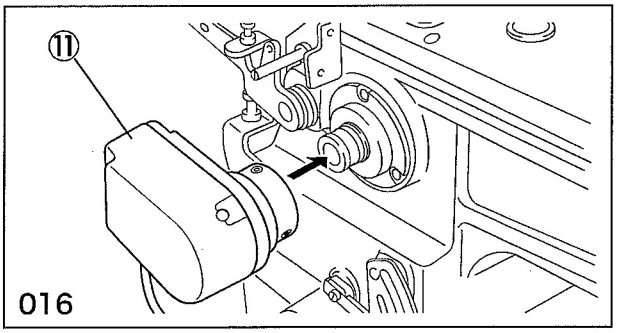


(4) 将螺母⑨装到定位器销钉⑧上，并将定位器销钉⑧和垫片⑩安装到缝纫机上。



※定位器销钉⑧，是为了钩住定位器⑪，使其固定，不会转动。

※定位器的安装和调整方法，请参照所使用的伺服马达的使用说明书。



2.5 皮带的安装方法

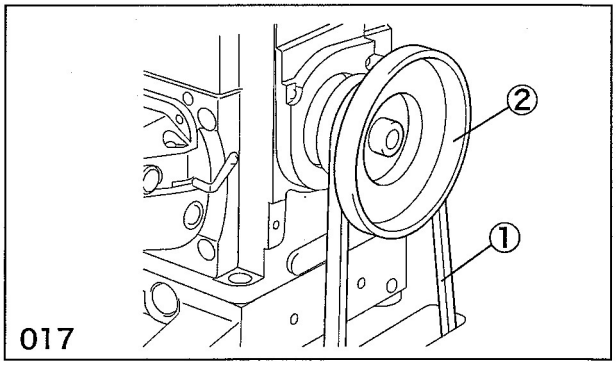
⚠注意

安装皮带时，务必切断马达的电源，确认马达停止旋转后再进行。以免手或衣服卷入皮带，导致受伤。

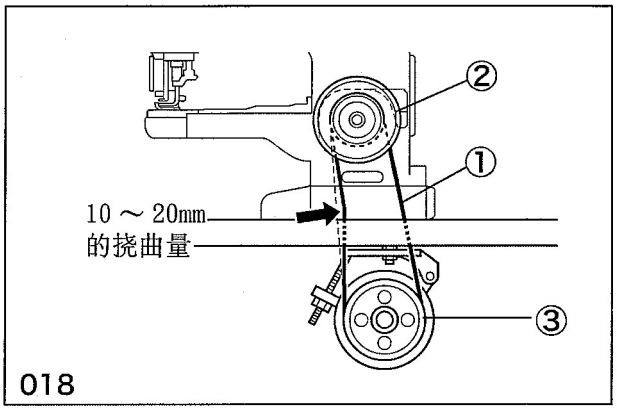
(1) 将皮带①先挂到机器皮带轮②上。
(2) 边旋转机器皮带轮②，边将皮带①的另一头套到马达皮带轮③上。
(3) 绷紧皮带，使得以大约10N(1.02kgf)的力按压皮带的中央部分时，挠曲量为10～20mm。
(4) 皮带轮绷紧完成后，在马达端固定牢靠。
※固定方法因马达而不同，请参照马达的使用说明书。

ⓘ补充

为半沉式时，请将皮带辅助罩壳安装到缝纫机上之后(参照第9页)，再将缝纫机置于台板上，并套上皮带。



017

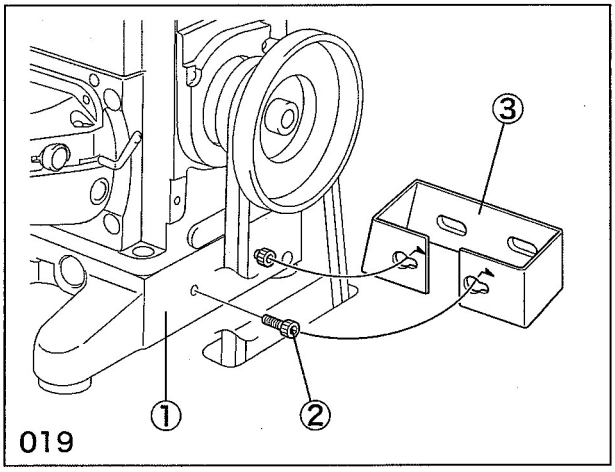


018

2.6 皮带罩壳的安装

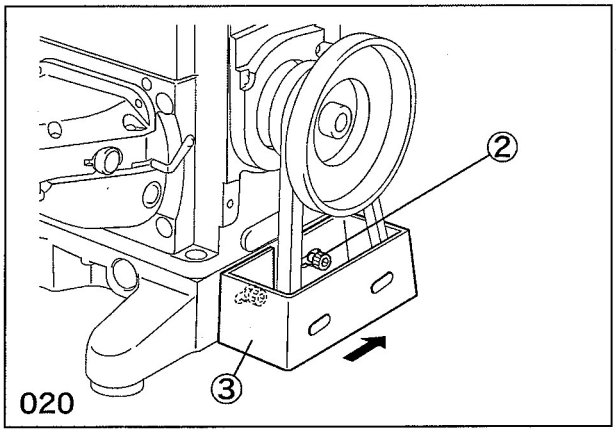
⚠注意

- 进行作业前请确认马达的电源已切断，并已停止旋转。以免受伤。
- 皮带罩壳一定要安装。
  如果不安装，可能会出现手和衣服被卷入而导致受伤，或缝制物被卷入而损坏的情况。



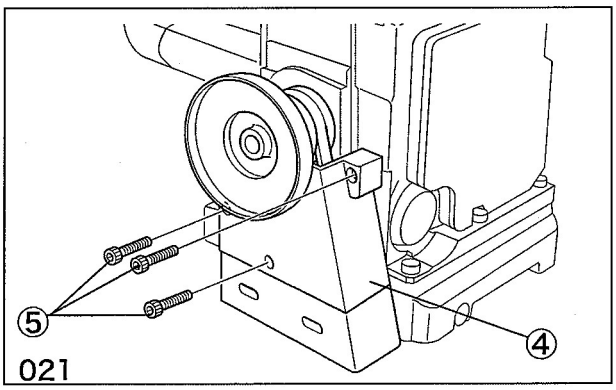
019

(1) 将螺丝②拧进接油槽①大约一半左右。
(2) 将皮带辅助罩壳③的孔套到螺丝②头上，向后挪动，拧紧螺丝②。



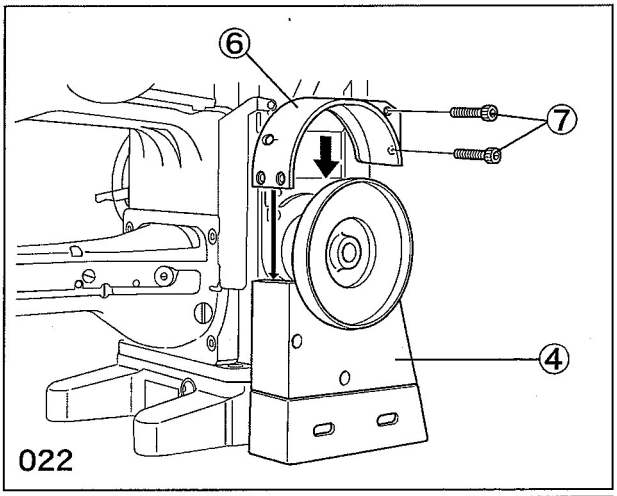
020

(3) 用螺丝⑤将皮带罩壳(下)④安装到缝纫机上。



021

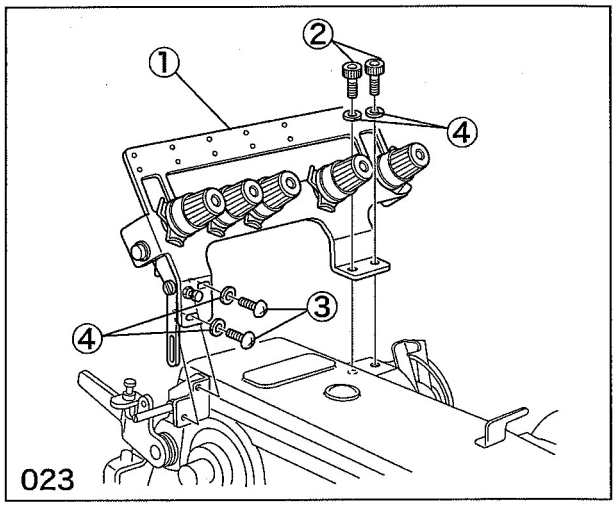
(4) 将皮带罩壳(上)⑥插到皮带罩壳(下)④上，用螺丝⑦固定。



022

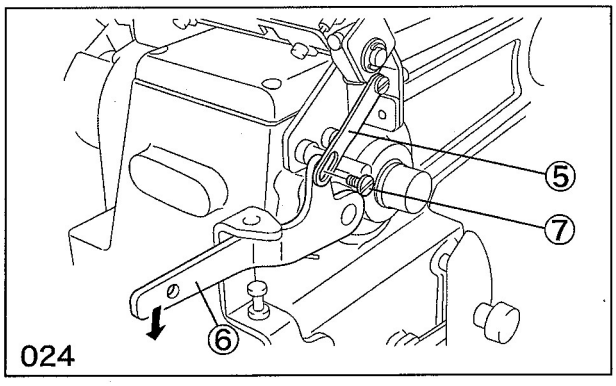
2.7 调线器的安装

(1) 用螺丝②③和垫片④(左右各2个)将调线器①安装到缝纫机上。



023

(2) 用螺丝⑦将松线连接板⑤安装到压脚提升杆⑥上。
(3) 按下压脚提升杆⑥，确认活动顺畅。

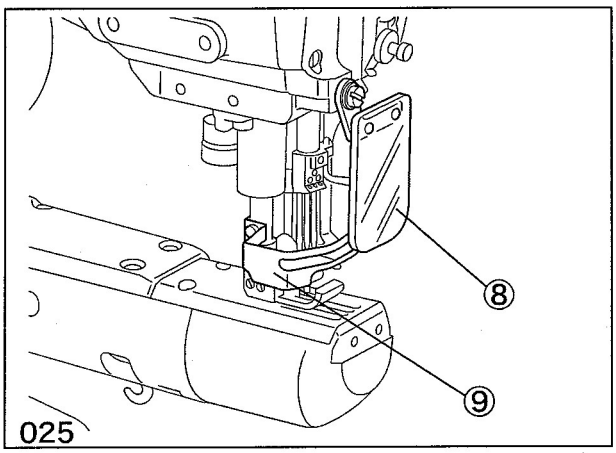


024

2.8 护眼罩和护指装置的安装

⚠注意

必须在安装好护眼罩⑧和护指装置⑨的状态下缝制。
此外，必须下调护眼罩⑧并将其固定到位。



025

2.9 压脚提升踏板的安装

将压脚提升轴(下)③安装到台板背面后，用链条将压脚提升踏板与压脚提升杆⑦连接到压脚提升轴(下)③上。

(1) 用木螺钉②将压脚提升轴支撑板①安装到台板背面。

(2) 如图所示，将轴环④、压脚提升返回弹簧⑤和压脚提升轴杆⑥安装到压脚提升轴(下)③上，之后穿过压脚提升轴支撑板①。

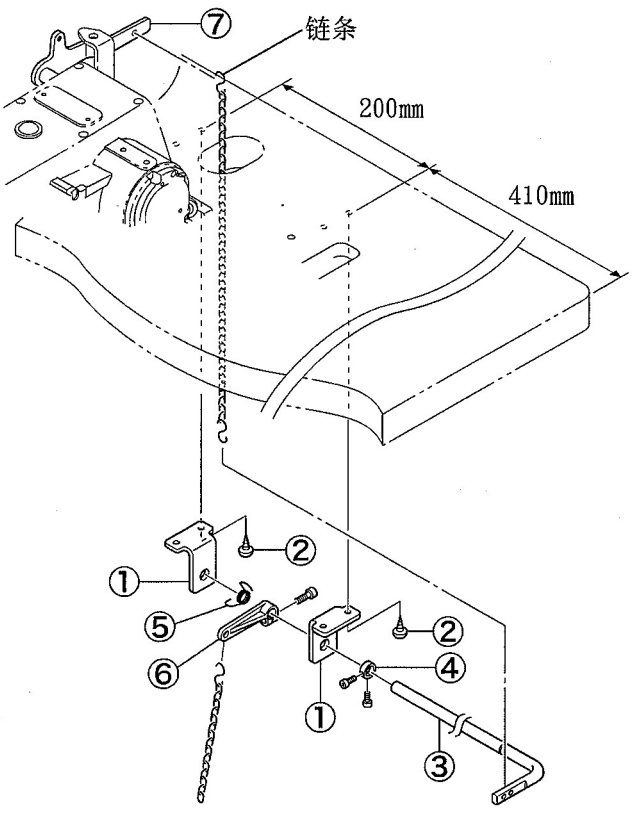
(3) 确认压脚提升轴(下)③可以顺畅转动。

(4) 左右移动轴环④，使压脚提升轴(下)③的轴柄处于压脚提升杆⑦的正下方。

(5) 使压脚提升轴(下)③的轴柄与压脚提升轴杆⑥水平，并固定。

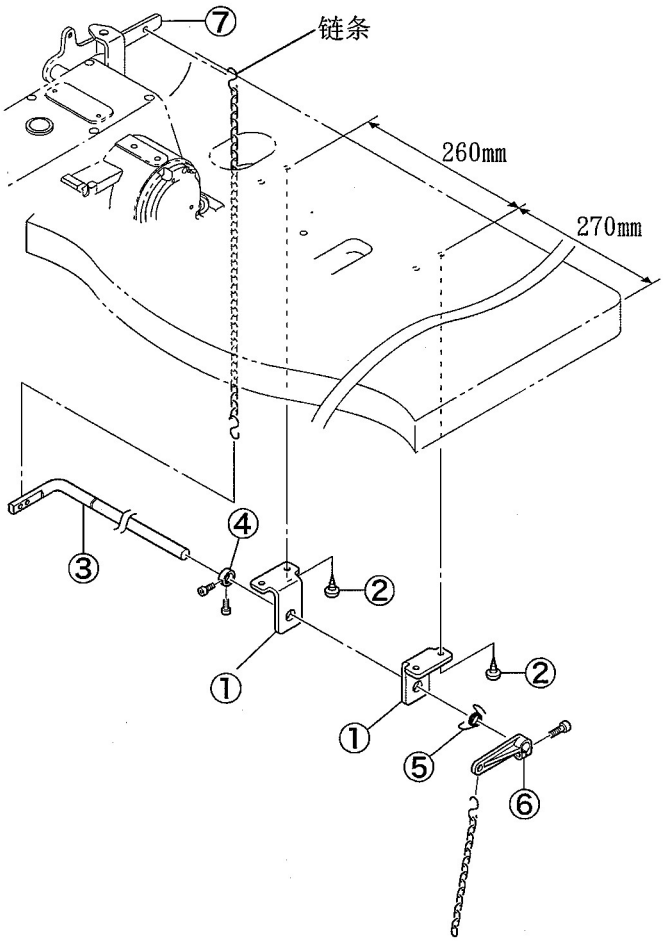
(6) 用链条连接压脚提升轴(下)③的轴柄与压脚提升杆⑦、压脚提升轴杆⑥与压脚提升踏板。

踏板安装到台板右侧时



与压脚提升踏板连接

踏板安装到台板左侧时



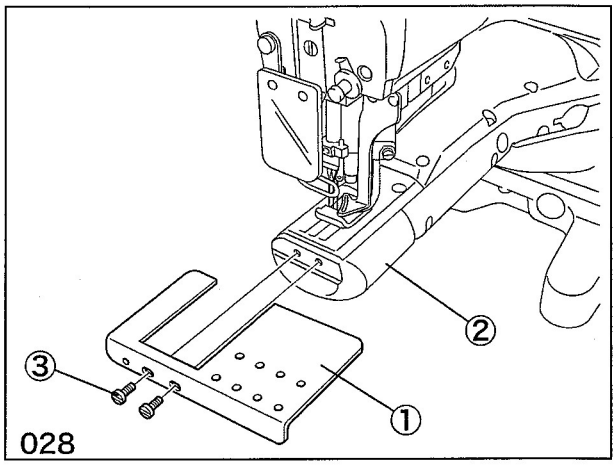
与压脚提升踏板连接

2.10 辅助挡板的安装

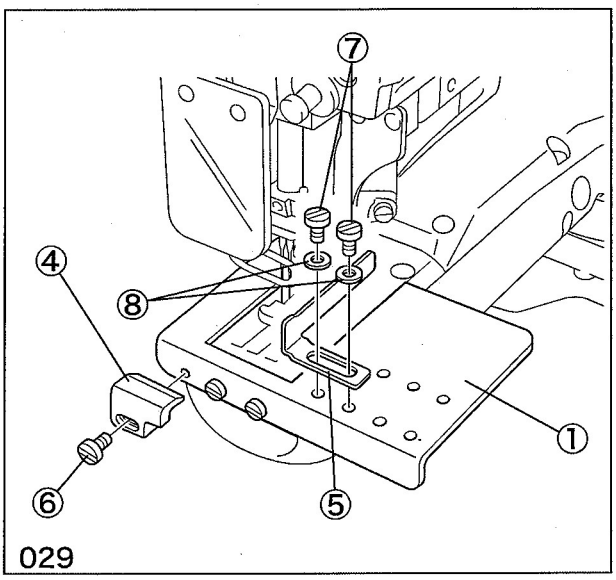
用螺丝③将辅助挡板①安装到小筒前盖板②上。
※导尺④⑤可用螺丝⑥⑦与垫片⑧安装到辅助挡板①上。

⚠注意

进行作业前请确认马达的电源已切断，并已停止旋转。以免受伤。



028

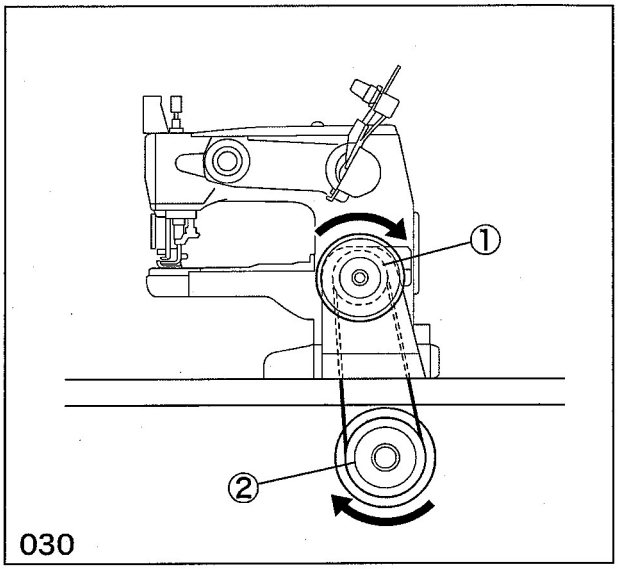


029

3. 缝纫速度与皮带轮的旋转方向

◇这种缝纫机的最高缝纫速度为4000rpm(间歇旋转时)。使用新缝纫机时，最初的200小时(大约1个月)，使用比最高转速低15%至20%的低转速，可以保证缝纫机在良好状态下长期使用。

◇马达皮带轮②和机器皮带轮①的旋转方向，如图所示为顺时针方向。



030

⚠注意

皮带轮反转时无法正常供油，会导致缝纫机发生故障。

4. 关于润滑油

⚠注意

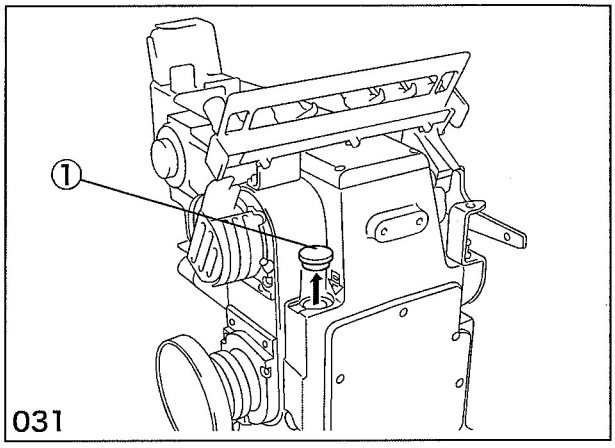
进行作业前请确认马达的电源已切断，并已停止旋转。以免受伤。

4.1 润滑油

⚠注意

请不要使用润滑油添加剂，以免导致润滑油的劣化及引起缝纫机故障。

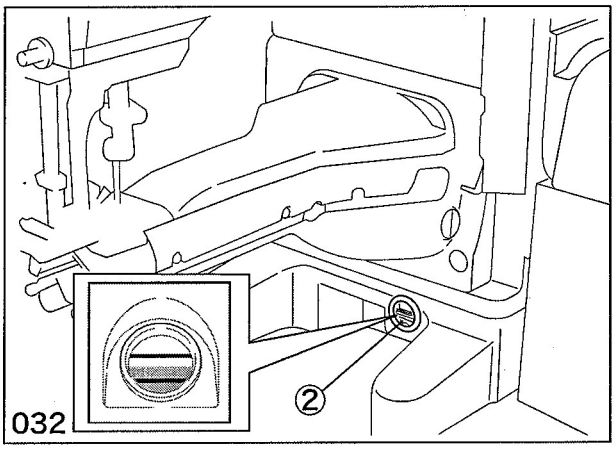
◇使用的润滑油：YamatoSF润滑油28
◇油量：600ml



4.2 供油

初次使用缝纫机时

出货时，润滑油已被放空。在初次使用缝纫机时，一定要加润滑油。
供油的方法是，取下标有“OIL”的橡胶塞①，加入润滑油至量油窗②上的标线为止。

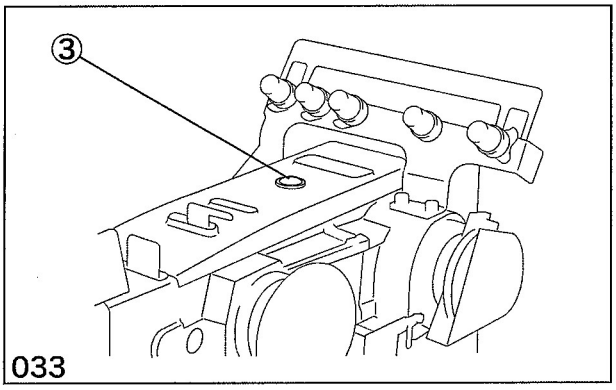


检查方法

缝纫机开始运转时，请查看油窗③，是否从喷嘴喷出润滑油。没有喷出润滑油时，请进行「润滑油过滤器的检查和更换」(参照第16页)。

⚠注意

尽管贮油量充分，但从油窗③里面的喷嘴喷出的油量却异常地少，或混有大量泡沫时，请立即检查、更换过滤器。



4.3 润滑油的更换

润滑油的更换时期

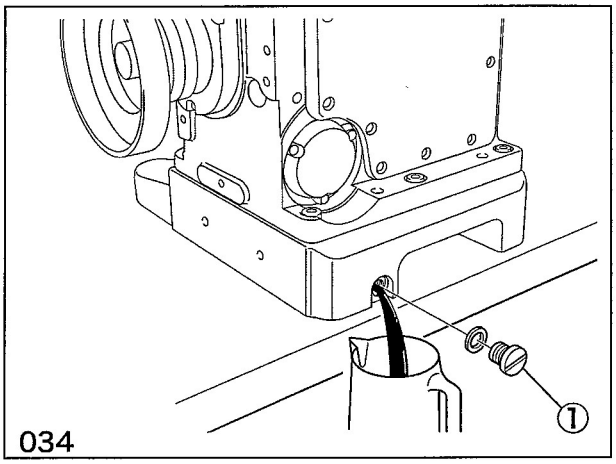
新缝纫机，在使用大约200小时（约1个月）后，需要更换润滑油。
此后，每年更换1 ～ 2次润滑油。

润滑油的更换方法

(1) 拆下皮带罩壳。（参照第9页）
(2) 从马达皮带轮上拆下V形皮带。（参照第8页）
(3) 从缝纫机台板上拆下缝纫机。
(4) 在放油螺丝①的下面放上承接润滑油的容器。
(5) 拆下放油螺丝①。
排放润滑油。

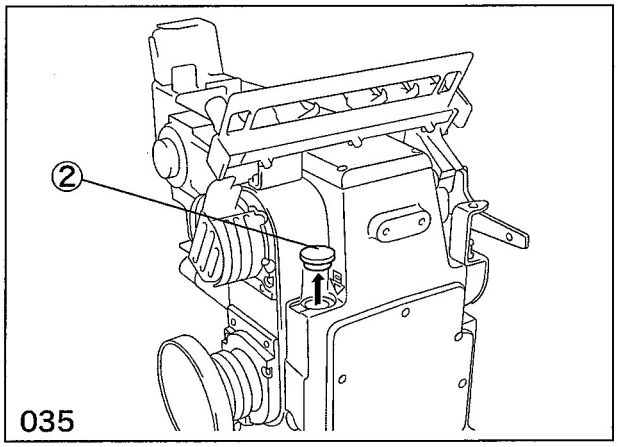
⚠注意

注意不要让油沾到V形皮带和机器皮带轮上。



034

(6) 照原样安装放油螺丝①。
(7) 取下标有“OIL”的橡胶盖②。
(8) 加入新的润滑油。（参照第14页）
(9) 将缝纫机安装到缝纫机台板上。
(10) 将V形皮带挂到马达皮带轮上，照原样安装皮带罩壳。
（参照第8、9页）

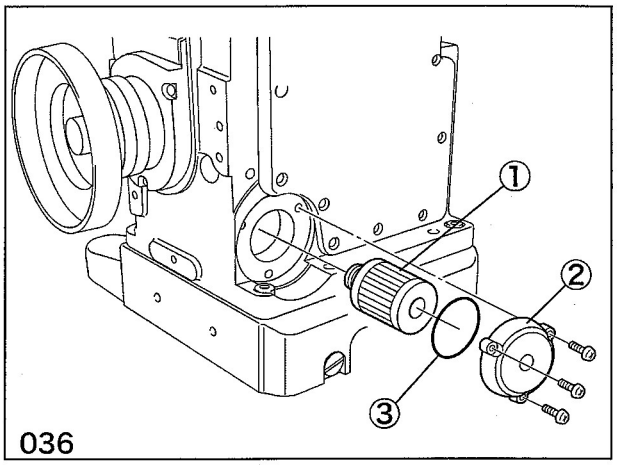


035

4.4 润滑油过滤器的检查和更换

◇如果润滑油过滤器①被污物堵塞，将无法正常供油。请每6个月对堵塞和破损情况进行检查。

◇尽管贮油量充分，但从油确认窗里面的喷嘴喷出的油量却异常地少，或混有大量泡沫时，请立即检查、更换过滤器。



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检查和更换

◇拿开润滑油过滤器挡板②，拔出0形环③和润滑油过滤器①，进行检查。

◇润滑油过滤器①被污物堵塞时，请进行清扫，或更换新的润滑油过滤器①。

◇破损时，请更换新的润滑油过滤器①。

⚠注意

- **拆下润滑油过滤器挡板②时，注意润滑油过滤器①中积存的润滑油会流出。**
- **安装润滑油过滤器①时，一定要可靠地插紧。**

5. 使用方法

5.1 小筒前盖板的拆卸和安装

拆卸方法

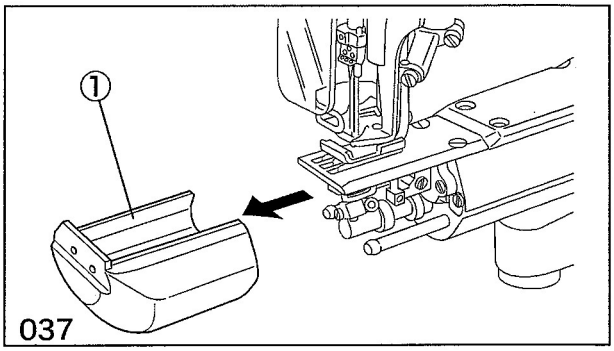
将小筒前盖板①径直向前拉出。

安装方法

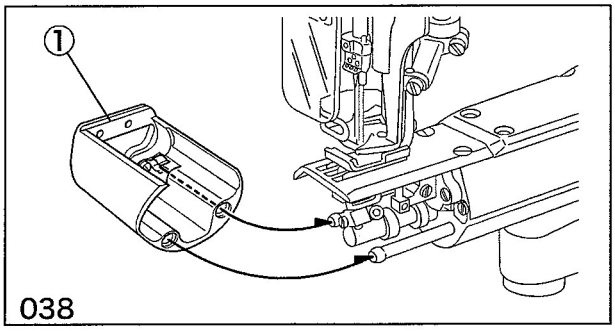
沿着销钉将小筒前盖板①径直插入，直到听到“咔哒”的声音。

⚠注意

缝制过程中，为了安全，一定要安装小筒前盖板①。



037



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5.2 使用的针

本产品使用的针为UY×128GAS(UY128GAS)。
针有各种不同的型号，请根据缝制的布料的厚度及材料选择合适的针。

表3

日本型号	8	9	10	11	12	13	14
德国型号	60	65	70	75	80	85	90

5.3 针的安装

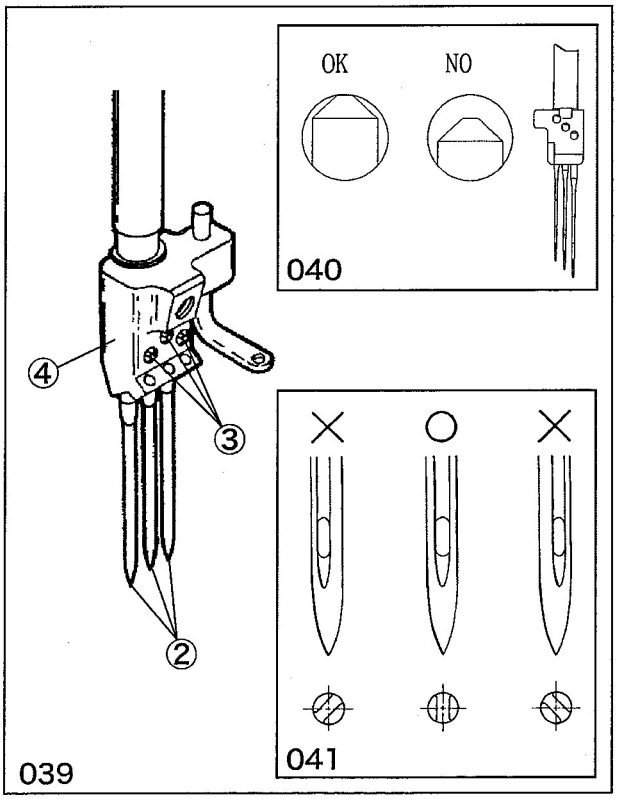
⚠注意

安装针时，请务必切断马达的电源，并确认马达已停止旋转再进行。以免受伤。

(1) 用螺丝刀松开针②的定位螺丝③。
更换针②时，请用镊子将旧针拔出。
(2) 将新针的凹槽放到后面，用镊子一直插入到针夹④孔内最上端。
(3) 拧紧针②的定位螺丝③。

安装要求

- 定位螺丝③的拧紧扭矩为0.6N·m (6kgf·cm)。
- 换针后请务必确认“针与弯针的间距”和“针与针托之间的间距”（参照第28、30页）。



039

040

041

5.4 穿线

⚠注意

- 穿线时，请务必切断马达的电源，并确认马达已停止旋转后再进行。以免受伤。
- 穿线方法错误，可能导致跳线、断线、针迹不匀等。

请按图042的要领穿线。

ⓘ补充

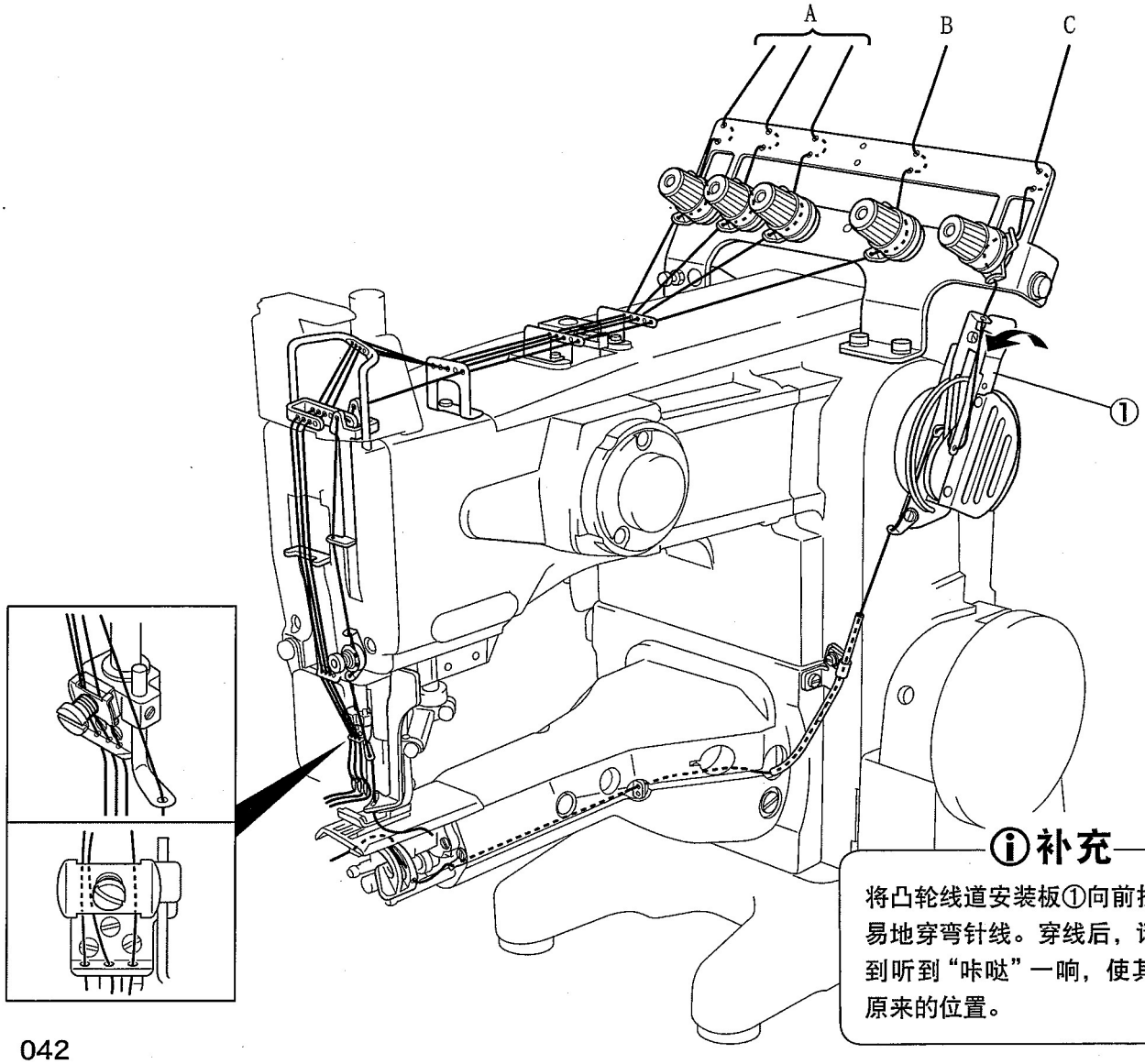
提升压脚，松线器即工作，可顺畅地引出线。

已穿线时，请系上缝线。

〈A　针线〉
将线的结头向前引出，先将结头剪掉后再穿针。

〈B　上装饰线〉
将线引出，直到结头出来。

〈C　弯针线〉
将线引出，直到结头出来，然后用剪刀剪掉线头。



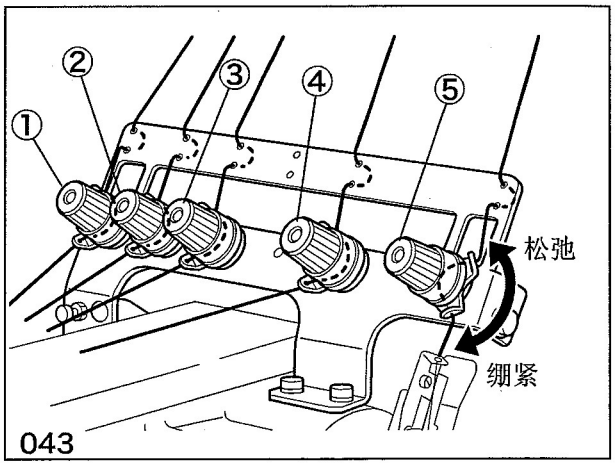
042

ⓘ补充

将凸轮线道安装板①向前拉，可容易地穿弯针线。穿线后，请按下直到听到“咔哒”一响，使其恢复到原来的位置。

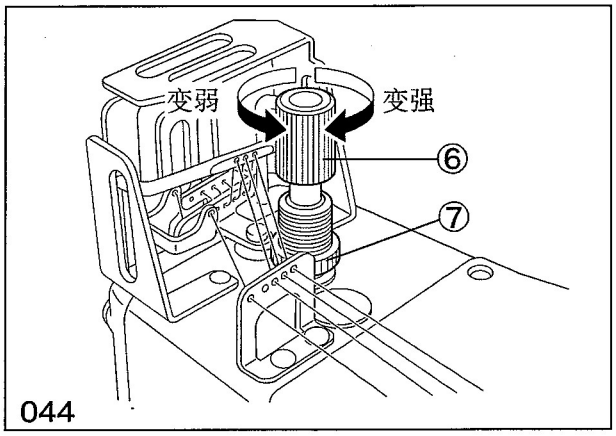
5.5 调线器的调节

线的松紧程度根据布料的种类、线的种类、缝制宽度、针迹长短、使用条件而变化。
请用各调线弹簧帽，将线的松紧程度调节合适。
●向右旋转(顺时针旋转)，线就会绷紧。
●向左旋转(逆时针旋转)，线就会松弛。
①左针线　④装饰线
②中针线　⑤弯针线
③右针线



5.6 压脚压力的调节

在针迹稳定的范围内，压脚压力应尽量调弱。
(1) 松开压脚调节螺丝⑥的锁定螺母⑦，旋转压脚调节螺丝⑥。
　● 向右旋转(顺时针旋转)，压脚压力就会变强。
　● 向左旋转(逆时针旋转)，压脚压力就会变弱。
(2) 调节后，拧紧松开了的锁定螺母⑦。



5.7 送齿差动量的调节

(1) 松开锁定螺母⑧。
(2) 调节差动调杆⑨。
　● 调节杆向上转动，可进行收缩缝制。
　● 调节杆向下转动，可进行伸展缝制。
　※请参照表4的刻度与差动比的关系，调节调节杆的位置。
(3) 调节后，拧紧松开了的锁定螺母⑧。

⚠注意

●最大针迹长度4mm时的差动比最大为1：1.5。
●最大差动比为1：2时，针迹长度小于等于3mm。

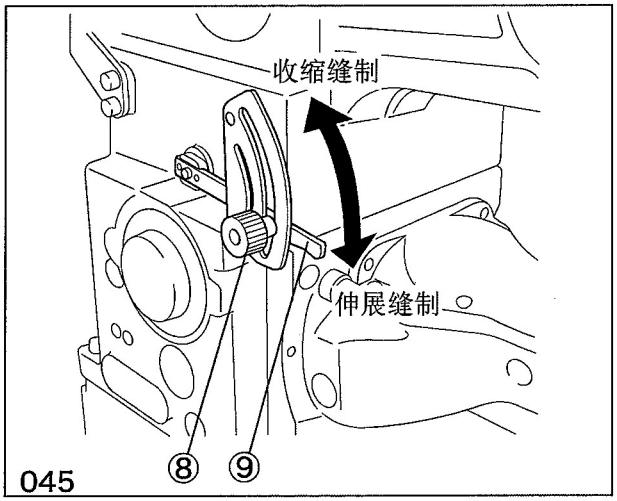


表4

刻度	差动比率	备注
S	1:0.8	伸展缝制
1	1:1	
	1:1.5	针迹长度小于等于4mm
2	1:2	针迹长度小于等于3mm

5.8 针迹长度的调节



⚠注意

调节针迹长度时，请务必切断马达的电源，并确认马达已停止旋转后再进行。以免受伤。

针迹长度在1.2mm至4.0mm的范围内可无级调节。
皮带轮上的刻度，表示1个针迹的长度(mm)。

※实际缝制的针迹长度，根据布料的种类和厚度以及差动比，有一定的差异。

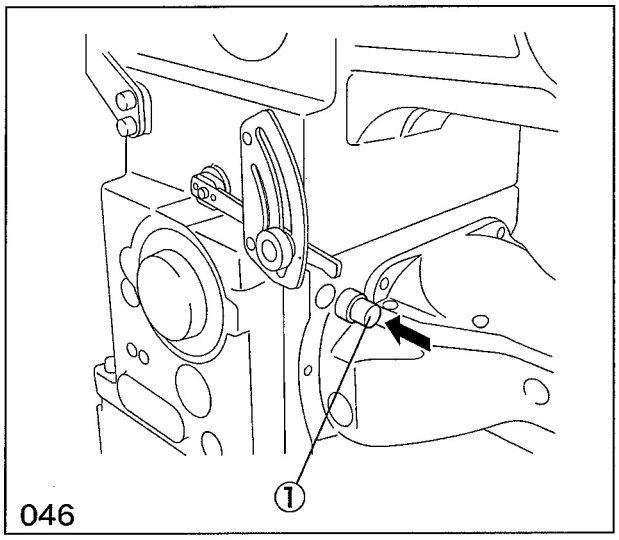
表5

针迹长度(mm)	1英寸内的针迹数量	30mm内的针迹数量
4.0	6	7.5
2.5	10	12
2.0	12.7	15
1.2	21	25

◇ 表中数据为各针迹长度，1英寸(25.4mm)内和30mm内的针迹数量。

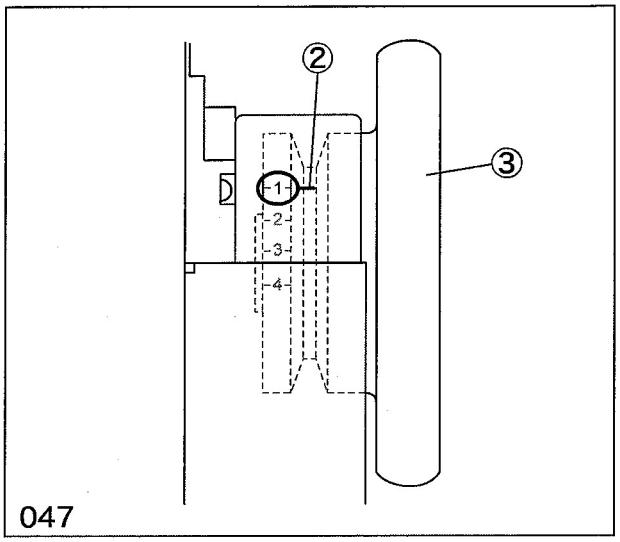
改变针迹长度的方法

(1) 左手轻按按扭①，感觉按扭的前端碰到了内部的零件。
(2) 继续轻按按扭①，右手将手轮向前旋转。在按扭①向里陷入处，用力按下按扭①。
- 向右旋转(顺时针旋转)，针迹长度就会变长。
- 向左旋转(逆时针旋转)，针迹长度就会变短。



046

(3) 在按住按扭①的状态下，将机器皮带轮③的刻度对准皮带罩壳上的孔的对准标记②。
(4) 对准刻度后，松开按扭①。



047

⚠注意

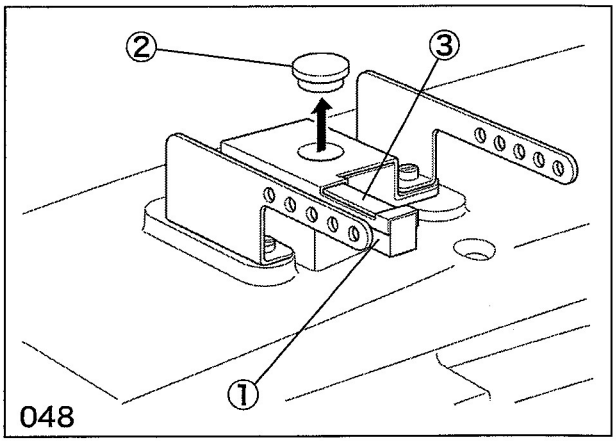
请确认按扭①已完全返回，且机器皮带轮③可轻松旋转。

5.9 关于SP装置

高速缝制及使用化纤线、化纤布料时，为了防止断线、跳针，请使用SP装置。
使用的润滑油为硅油(二甲基硅)。

使用缝纫机前的检查

拔出SP槽①的塞子②，确认里面硅油量。数量不足时，请补充硅油(二甲基硅)。



⚠注意

- 不使用SP装置时，请取出装置中的毛毡③。否则可能对缝制状态有不良影响。
- 硅油沾到SP装置以外的部件上时，务必擦拭干净。否则可能导致缝纫机出现故障。

5.10导尺的调节

下摆折边用

导尺(右)①用于调节布料的折边宽度。

(1) 松开定位螺丝②，左右调节导尺(右)①。

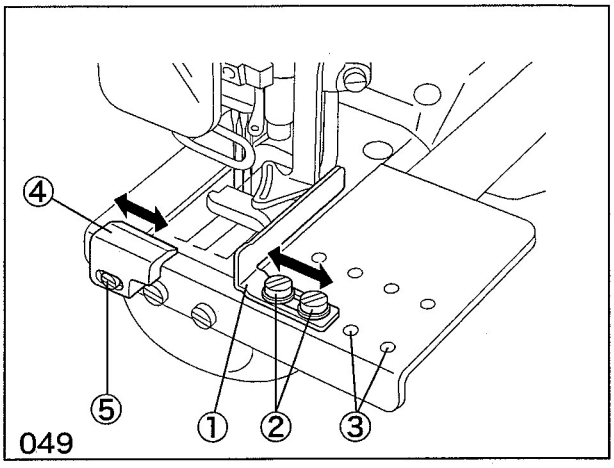
※ 位置改变较大时，请移动到另一个螺丝孔③的位置。

(2) 拧紧松开了的定位螺丝②。

导尺(左)④用于调节折边后的布料的左端。

(1) 松开定位螺丝⑤，左右调节导尺(左)④。

(2) 拧紧松开了的定位螺丝⑤。



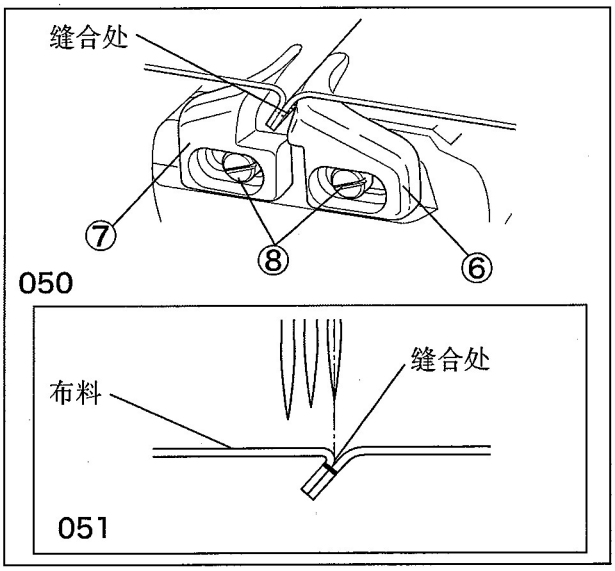
倒骨用

(1) 松开布料导轨的定位螺丝⑧。

(2) 将缝合的布料端放入布料导轨(右)⑥和布料导轨(左)⑦的中间。

(3) 布料的缝合缝处对准右针的中心，调整布料导轨(右)⑥与布料导轨(左)⑦的间隙宽度，使布料能顺畅通过。

(4) 调节后，拧紧松开了的定位螺丝⑧。



ⓘ补充

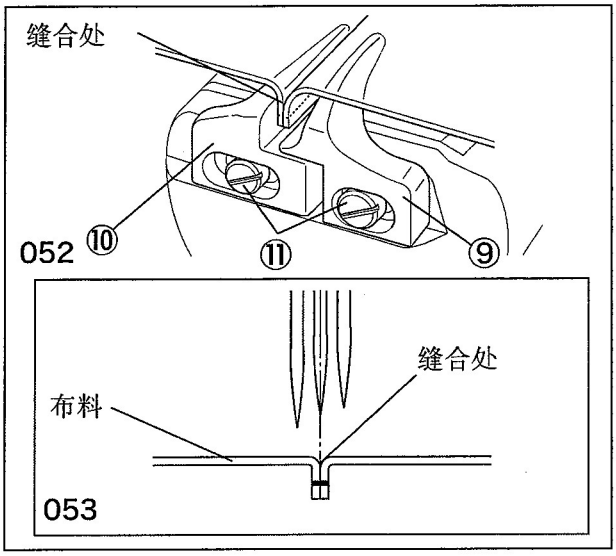
布料的缝合处与左针的关系，根据缝制品而不同。

立骨用

(1) 松开布料导轨的定位螺丝⑪。

(2) 打开缝合的布料，调节布料导轨(右)⑨与布料导轨(左)⑩的间隙宽度，使布料能顺畅通过，并使布料的缝合处在针距的中心。

(3) 调节后，拧紧松开了的定位螺丝⑪。



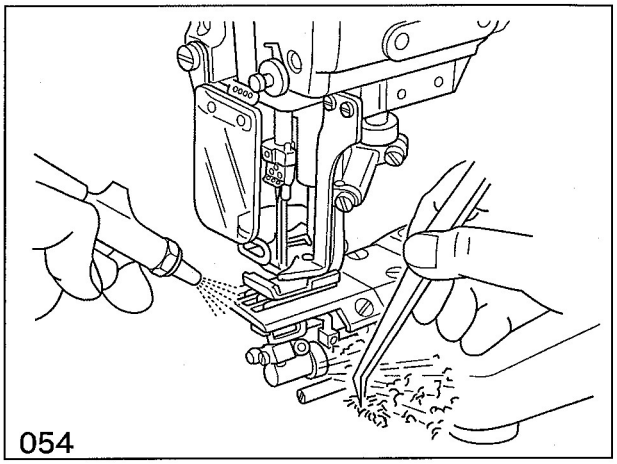
5.11 清洁

⚠注意

清洁时，请务必切断马达的电源，并确认马达已停止旋转后再进行。以免手和衣服卷入缝纫机，导致受伤。

◇每天的作业结束后，请拿开小筒前盖板，清扫积存在缝纫机内的灰尘及线屑等。

◇请每周1次，拿开小筒前盖板和压脚，清扫针板槽和送齿周围。



054

6. 缝纫机调整

⚠注意

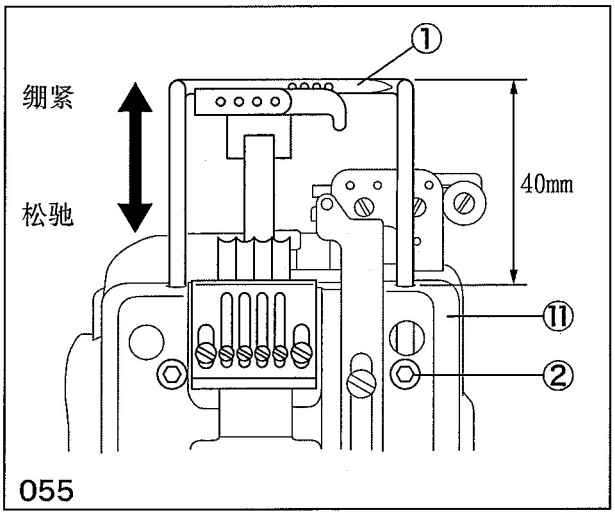
进行检修时，请务必切断马达的电源，并确认马达已停止旋转后再进行。

6.1 针线张紧程度的调节

针线道(前)的调节

用针线道(前)①可调节针线的绷紧程度。
针线道(前)①的标准位置是，臂上表面⑪到针线道(前)①上表面的尺寸为40mm。

松开定位螺钉②,调节针线道(前)①的安装位置。调节后，拧紧松开了的定位螺丝②。
●降低针线道(前)，针线就会松缓。
●提高针线道(前)，针线就会绷紧。

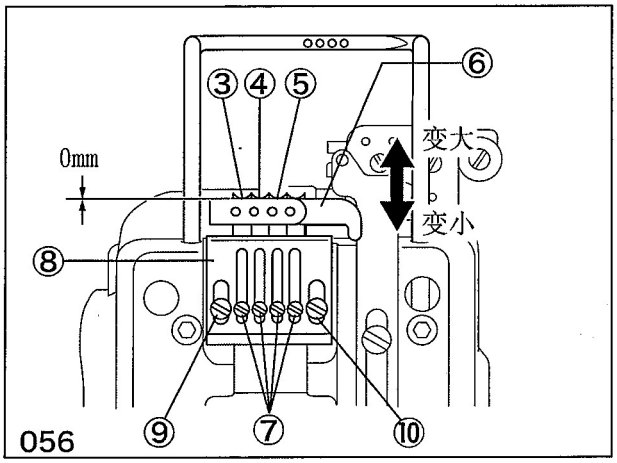


055

绕线器的调节

用绕线器③④⑤可调节针线环的大小。
绕线器③④⑤的标准位置是，当针杆降到最底下时，使针杆线道⑥的上面与绕线器的凹部底端一致。(图056)

松开各自的定位螺钉⑦，调节绕线器③④⑤的安装位置。调节后，拧紧松开了的定位螺钉⑦。
●降低绕线器，线环就会变小。
●提高绕线器，线环就会变大。



056

绕线器安装板的调节

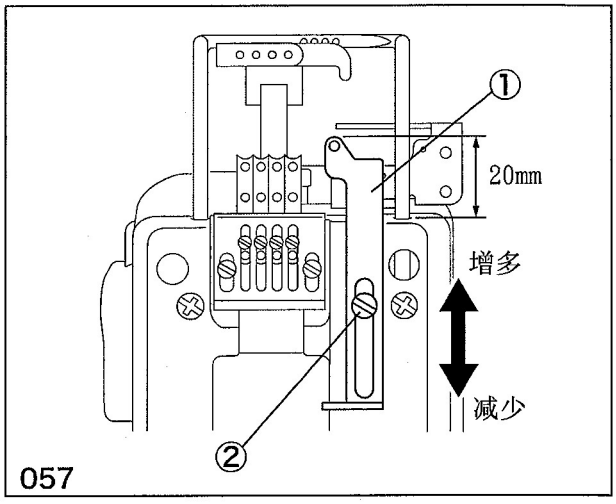
改变线的种类时，需要改变绕线器安装板⑧的位置，调节所有针线环的大小。

松开定位螺丝⑨⑩，调节绕线器安装板⑧的安装位置。调节后，拧紧松开了的定位螺丝⑨⑩。
●降低绕线器安装板，线环就会变小。
●提高绕线器安装板，线环就会变大。

6.2 上装饰线张紧程度的调节

装饰线线道①的标准位置是，臂上表面到装饰线道①上表面的尺寸为20mm。
松开定位螺钉②,调节装饰线线道①的安装位置。调节后，拧紧松开了的定位螺丝②。
●降低装饰线线道，调线量就会减少。
●提高装饰线线道，调线量就会增多。

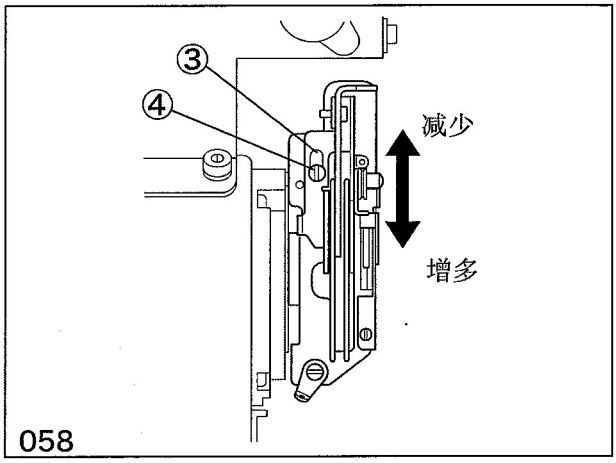
※装饰线使用有伸缩性的尼龙线等时，请将装饰线线道①降低。



6.3 弯针线张紧程度的调节

凸轮线道的调节

凸轮线道③的标准位置是，定位螺丝④位于长孔下侧的时候。
松开定位螺丝④，调节凸轮线道③的安装位置，调节后拧紧松开了的定位螺丝④。
●提高凸轮线道③，底线给线量就会减少。
●降低凸轮线道③，底线给线量就会增多。

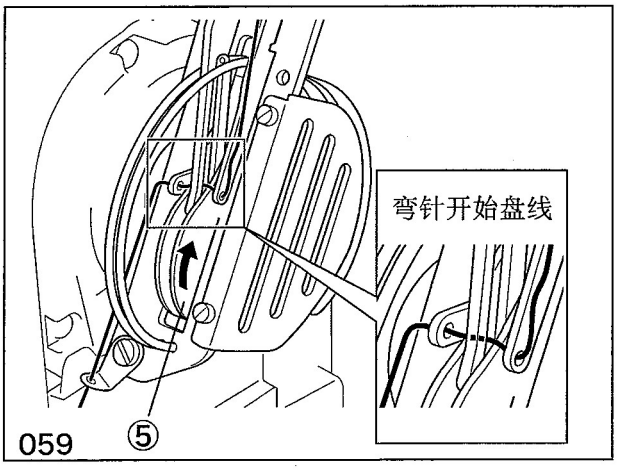


⚠注意

弯针线盘线量过多，可能导致跳线，需要注意。

弯针线张紧凸轮的调节

针杆在上死点时，将弯针线张紧凸轮⑤调节到弯针开始盘线的位置。



6.4 针和装饰线弯针的调节

6.4.1 装饰线弯针的调节

(1) 松开装饰线弯针定位螺丝③和弯针台定位螺丝④。(图060)

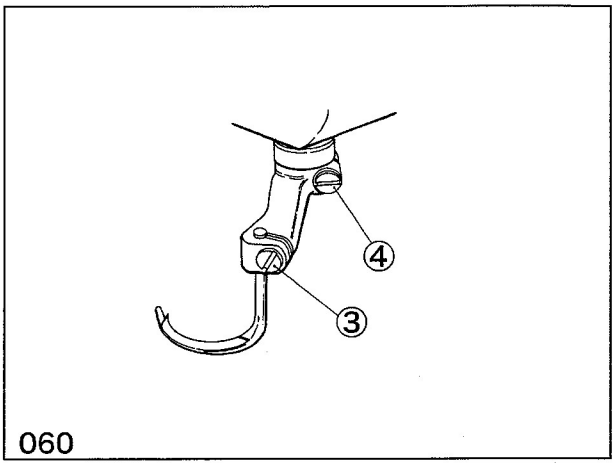
(2) 调节装饰线弯针①的位置，使左针与装饰线弯针①的导纱钩前端②之间的间隙为0.5～0.8mm。(图061)

(3) 进行调节，使装饰线弯针①到最左端时，从左针中心到导纱钩前端②的间隔为4.5～5.5mm，并拧紧定位螺丝④。(图060、061)

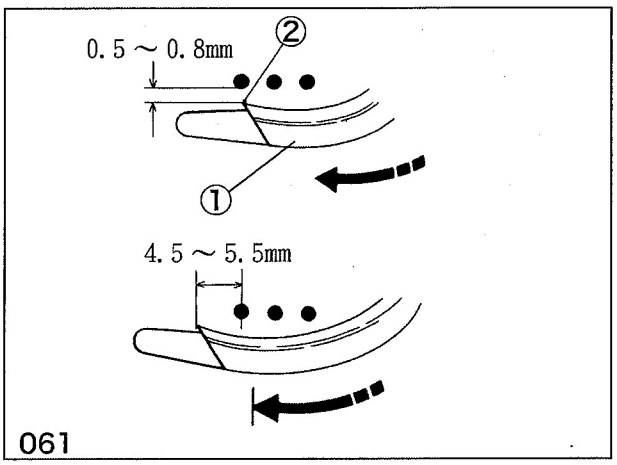
(4) 进行调节，使针板上表面到装饰线弯针①下表面的间隔为11～12mm，并拧紧定位螺丝③。(图060、062)

ⓘ补充

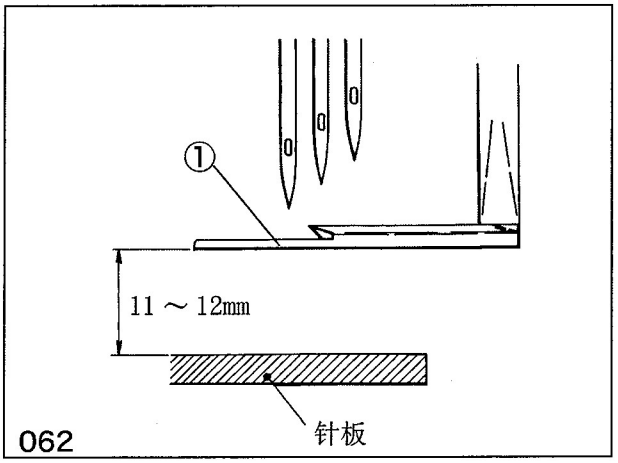
装饰线弯针①的高度，在调节范围内，根据针距找准，使装饰线可通过右针的后面，用左针抄取。



060



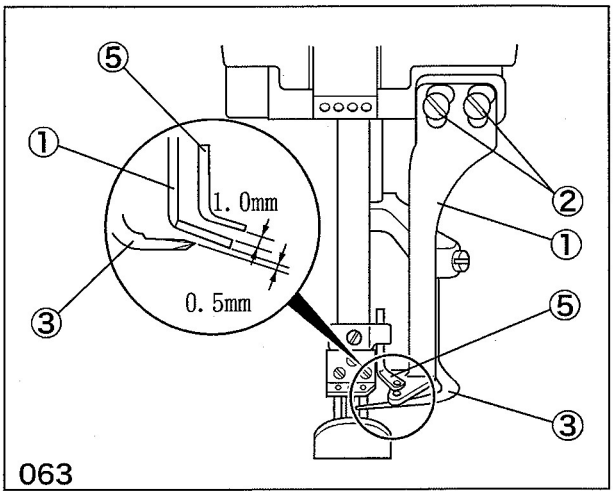
061



062

6.4.2 装饰线导线器的调节

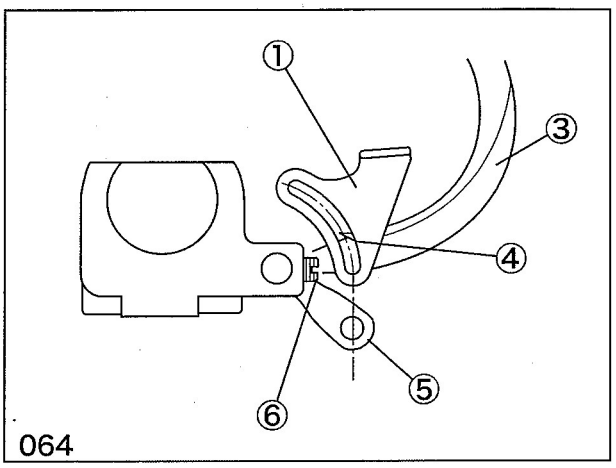
(1) 松开装饰线导线器①的定位螺丝②。(图063)
(2) 调节装饰线导线器①的位置，使装饰线弯针③的上表面与装饰线导线器①的下表面之间的间隙为0.5mm。(图063)
(3) 调节装饰线弯针的位置，使装饰线弯针③到最右端时，装饰线导线器①长槽的中心对准导纱钩前端④，并拧紧松开了的定位螺丝②。(图063、064)



063

6.4.3 装饰线道的调节

(1) 松开装饰线道⑤的定位螺丝⑥。(图064)
(2) 令针杆到最下点，调节装饰线道⑤，使装饰线导线器①的上表面与装饰线道⑤之间的间隙为1.0mm。(图063)
(3) 将装饰线道⑤的线孔对准装饰线导线器①长孔的延长线上。(图064)
(4) 拧紧松开了的定位螺丝⑥。(图064)



064

6.5 针和弯针的调节

6.5.1 弯针后曳量

针在最下点，弯针①在最右端时，弯针①前端到右针中心的后曳量，根据针距而不同。
请按表6的后曳量进行调节。
松开弯针台②的定位螺丝③和弯针台套环④的定位螺丝⑤，调节弯针①的位置。
调节后，拧紧松开了的定位螺丝③⑤。

ⓘ补充

即使针距不同，从针杆中心到弯针①前端的尺寸为6.2～6.4mm。（图067）

6.5.2 弯针角度和高度

将弯针①插入弯针台②的深处，拧紧定位螺丝⑥。
高度和安装角度（2°）随之而定。

6.5.3 弯针前后位置

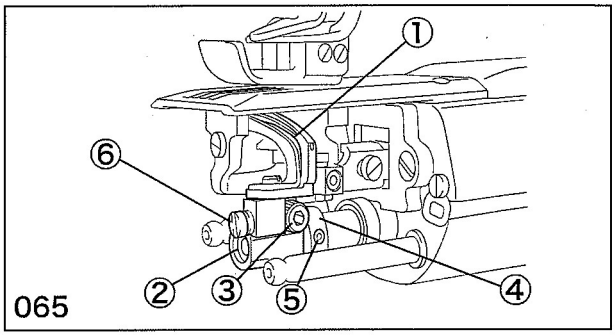
(1) 旋转机器皮带轮，使弯针①的前端对准左针⑦的中心。
(2) 松开定位螺丝③⑤，使左针⑦的背面与弯针①前端的间隙为0.2～0.3mm，连同弯针台套环④一起前后调节弯针台②。
(3) 拧紧松开了的定位螺丝③⑤。

ⓘ补充

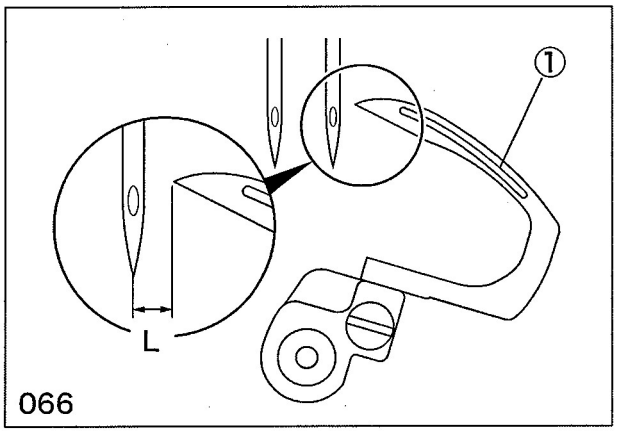
即使连同整个弯针台②取下弯针①，也很容易安装。
使弯针台②的孔对准并贴紧弯针台套环④的销钉，拧紧弯针台②的定位螺丝③。此时，请确认针与弯针①之间的间隙。

⚠注意

- 要让弯针台②与弯针台套环④贴紧。否则，针可能与弯针①接触，导致部件损坏。
- 拧紧定位螺丝③时，弯针①的前后位置可能会移动。拧紧定位螺丝③后，请再次确认弯针①的前后位置。



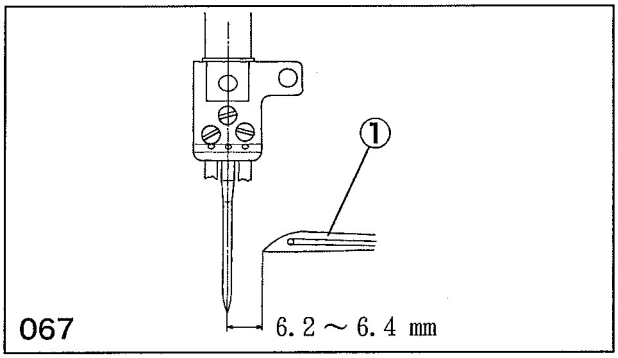
065



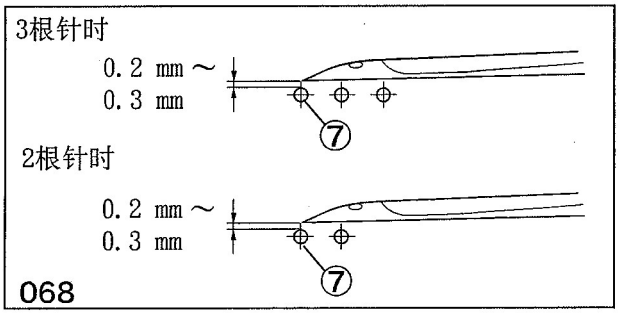
066

表6

针距（记号）	弯针后曳量(L)
3.2 (32)	4.6～4.8 mm
4.0 (40)	4.2～4.4 mm
4.8 (48)	3.8～4.0 mm
5.6 (56)	3.4～3.6 mm
6.4 (64)	3.0～3.2 mm



067



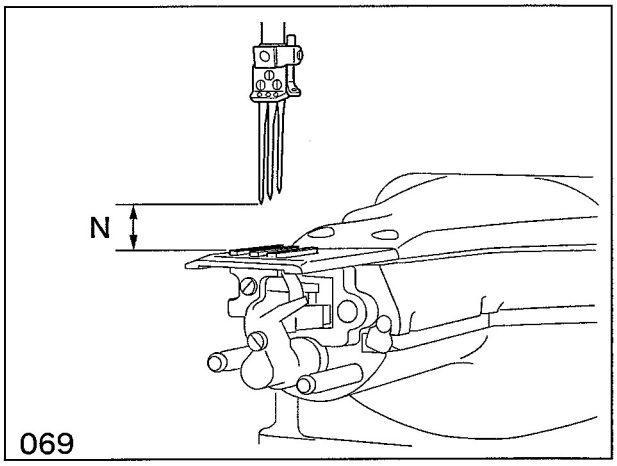
068

6.5 针高度

(1) 将针放到针挡的左针安装孔中。
(2) 取下盖螺丝①。
(3) 松开针杆固定螺丝②，上下调节针杆，使左针前端与针板上表面高度为右表(表7)中的数值(N)。
尺寸根据针距而不同。
(4) 确认针落到针板的落针孔的中心后，拧紧针杆固定螺丝②。
(5) 安装取下的盖螺丝①。

⚠注意

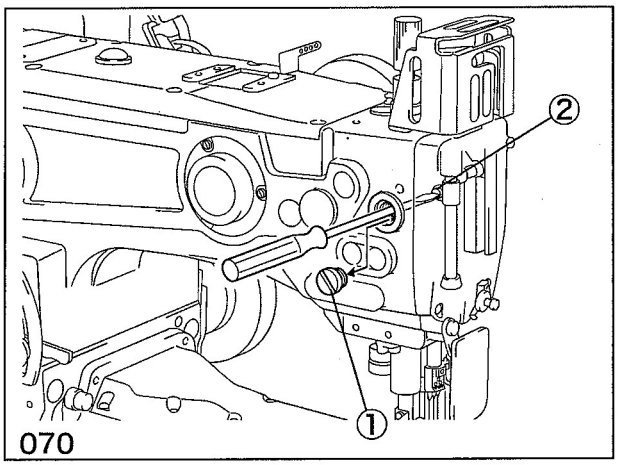
安装盖螺丝①时，应将旧的垫片清除干净，涂上液体垫片后再进行。否则可能导致漏油。



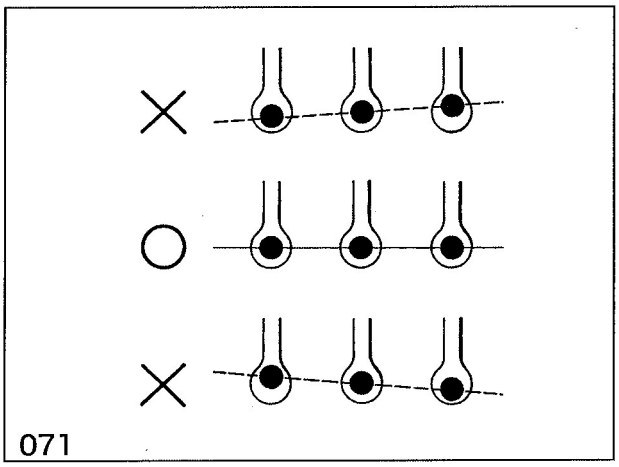
069

表7

针距	记 号	左针高度(N)
3.2mm	32	11.8～12.0mm
4.0mm	40	11.5～11.7mm
4.8mm	48	11.2～11.4mm
5.6mm	56	10.9～11.1mm
6.4mm	64	10.6～10.8mm



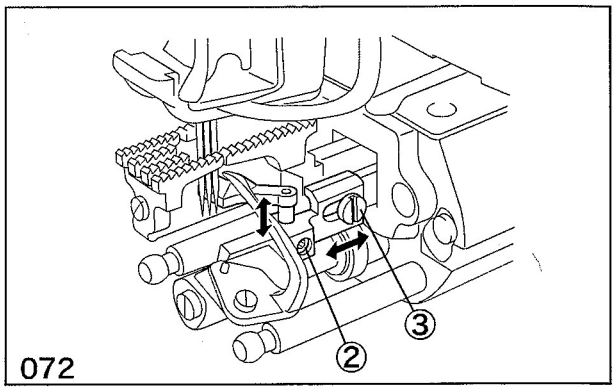
070


071

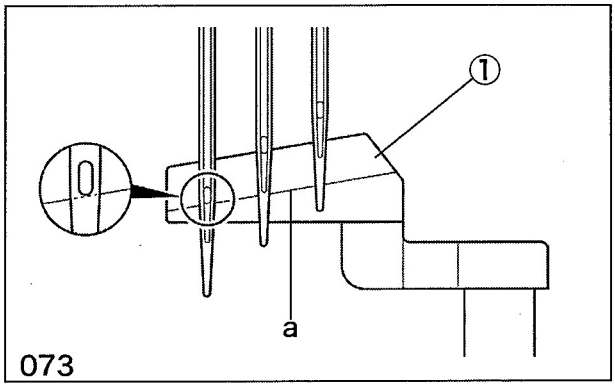
6.6 针托(后)的调节

针托(后)高度

(1) 松开螺丝②。
(2) 弯针来到右针中心时，使针托(后)①的棱线 a 与左针线孔下端处于同样的高度。
(3) 拧紧松开的定位螺丝②。



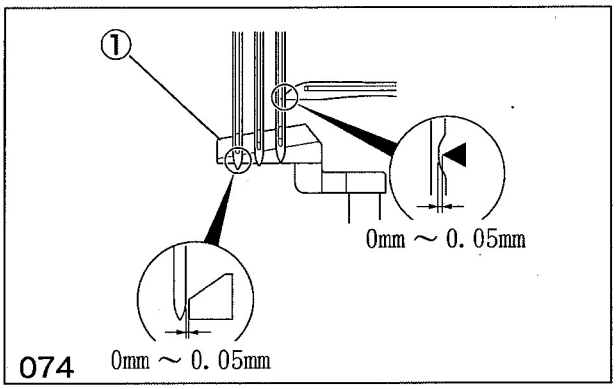
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针托(后)前后位置

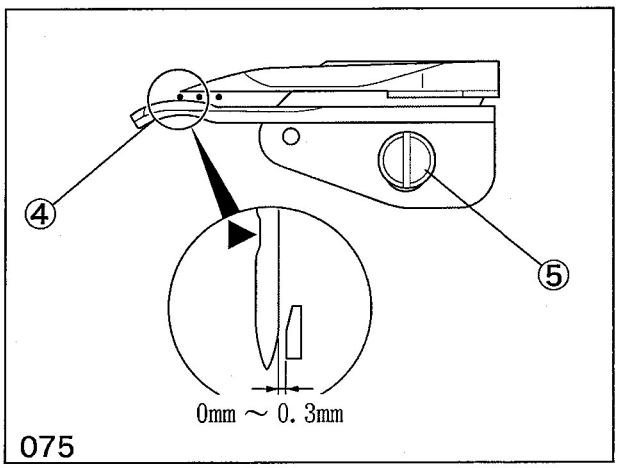
(1) 松开定位螺丝②③。
(2) 弯针前端来到右针中心时，用针托(后)①按住右针，针与弯针之间的间隙为0 ～ 0.05mm。此时，调节针托(后)①的角度与前后位置，使左针与针托(后)①之间的间隙为0 ～ 0.05mm。
(3) 中针和左针与针托(后)①开始接触时，请确认是否由针孔的下面接触。
(4) 拧紧松开的定位螺丝②③。



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6.7 针托(前)的调节

(1) 松开定位螺丝⑤，进行调节，使弯针前端来到左右针中心时，各针与针托(前)④之间的间隙为0 ～ 0.3mm。
(2) 拧紧松开的定位螺丝⑤。

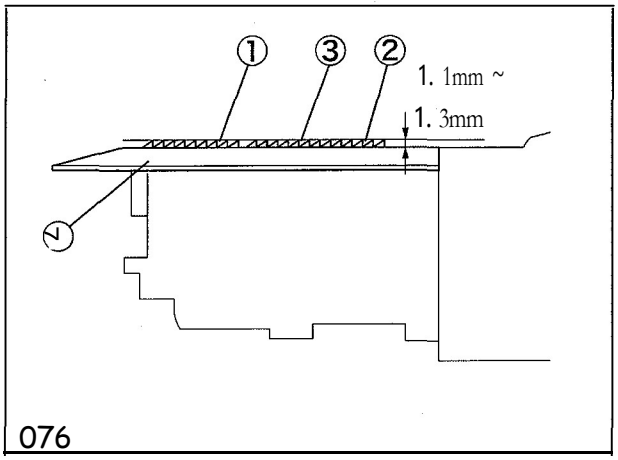


075

6.8送齿高度的调节

标准位置

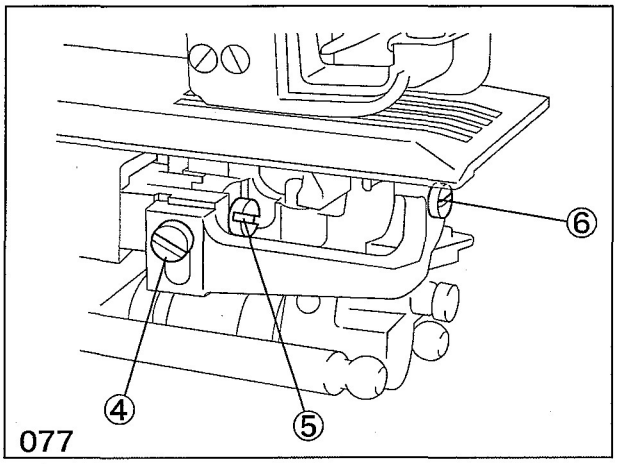
送齿上升到最高时,后送齿②的最后部分在距离针板上表面1.1~1.3mm。送齿升起来后与针板⑦上表面高度相 同时,前送齿①和后送齿②与针板平行。前送齿①、中送 齿③、后送齿②高度应相同。



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调节方法

前送齿①松开定位螺丝④、后送齿②松开定位螺丝⑤、中送齿③松开定位螺丝⑥后进行调节。调节后,分别拧紧 松开了的定位螺丝④⑤⑥。

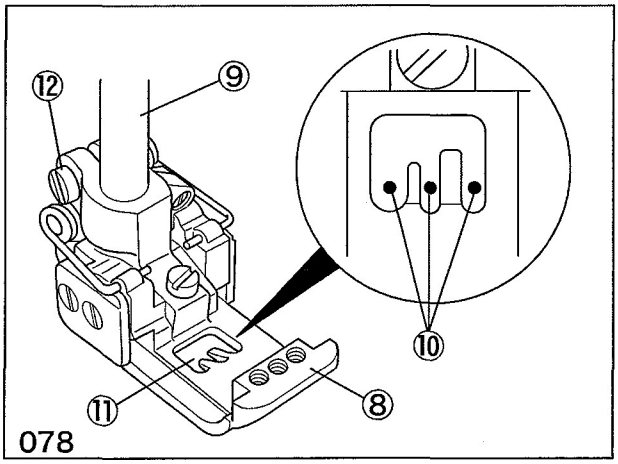


077

6.9 压脚位置的调节

压脚⑧应正确安装到压脚杆⑨上,针⑩应落到压脚⑧的落针孔的中心。

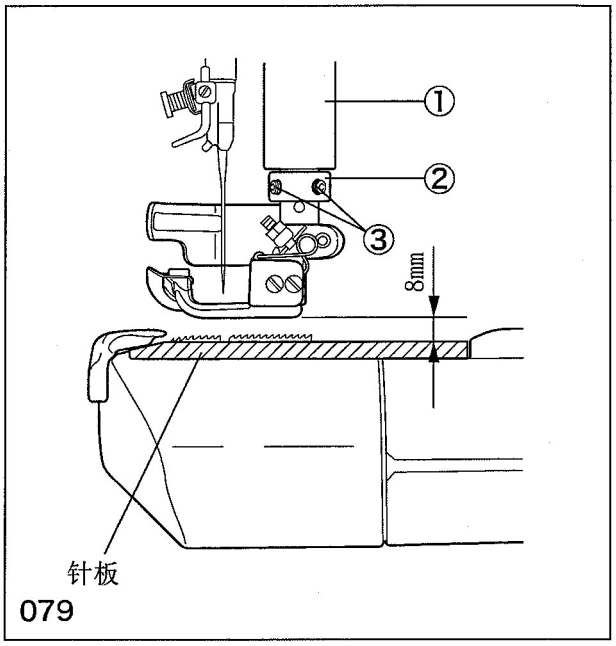
松开压脚⑧的定位螺丝⑫,左右调节压脚⑧,使针⑩落到压脚⑧的落针孔⑪的中心。



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6.10 压脚制动环的调节

压脚抬至最高时，使压脚杆衬套①与压脚制动环②之间的间隙为0.3mm。
调节时，请松开螺丝③，上下移动制动环②。

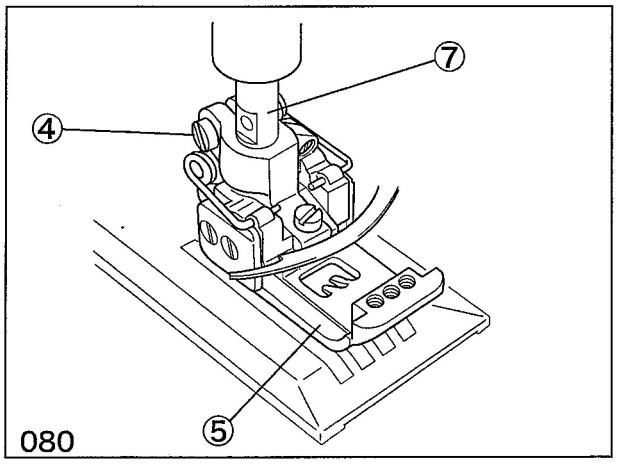


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6.11 压脚的安装和拆卸方法

拆卸

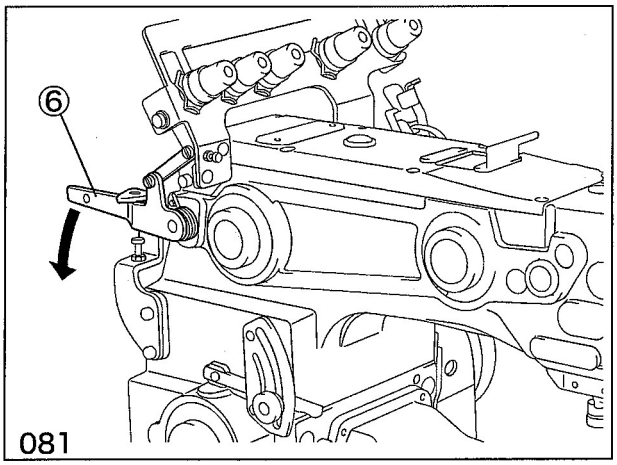
(1) 松开定位螺丝④。
(2) 按下压脚提升杆⑥，拆下压脚⑤。



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安装

(1) 按下压脚提升杆⑥，将压脚⑤插入压脚杆⑦中。
(2) 参照第31页「压脚位置的调节」，对准位置，拧紧松开了的定位螺丝④。



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7. 故障诊断

故障内容	确认事项	处理	参照页数
跳针	穿线方法是否有误?	请正确穿线。	18
	针是否弯曲、针尖是否破损?	请换针。	17
	线的张紧程度是否太紧?	请放松线的张紧程度。	19
	针与弯针及针托的时机、间隙是否合适?	请将针与弯针及针托的时机、间隙调整到合适的数值。	26 ～ 30
	针与线相比是否太细?	请换用合适的针，或换用合适的线。	17
	针的安装方法不好(方向、插入不够)	请正确安装针。	17
断线	线是否卷绕在线道上?	请清除卷绕的线。	
	穿线方法是否有误?	请正确穿线。	18
	线的张紧程度是否太紧?	请放松线的张紧程度。	19
	线与针相比是否太粗?	请换用合适的针，或换用合适的线	17
	线的质量是否不好?	请使用质量好的线。	
	线是否因为热而断?	请使用SP装置。	21
	线道、弯针绕线器等有无划伤?	请修理划伤处，或更换新的配件。	
断针	针是否碰到弯针?	请将针与弯针及针托的间隙调整到正确的数值。	28 30
线拉紧不良	穿线方法是否有误?	请正确穿线。	18
	针线与弯针线是否平衡?	请重新调整好线的张紧程度的平衡。	
线张紧程度不匀	穿线方法是否有误?	请正确穿线。	18
	针线与弯针线是否平衡?	请重新调整好线的张紧程度的平衡。	
喷嘴不喷润滑油	润滑油的量是否在供油观察下方的线的下面?	请补充润滑油。	16
	润滑油过滤器是否堵塞?	请更换润滑油过滤器。	16

8. 规格

名　　称	竖筒式三针绷缝机
外 观 尺 寸	430mm(长)×284mm(宽)×360mm(高)
筒 外 周	160mm
重　　量	42kg
针 迹 形 式	ISO标准 406, 407, 602, 605
用　　途	编织物、针织物等的地缝、对缝、下摆折缝、代缝
缝 制 速 度	最高 4000rpm(间歇运行时)
针 迹 长 度	1.2～4mm针迹数　1英寸(25.4mm)内　　6～21针 30mm 内　7.5～25针
针	UY×128GAS　　#9～#14　(标准#10)　(65～90)
针　　距	3针: 4.8mm, 5.6mm, 6.4mm(2针: 3.2mm, 4.0mm)
针 的 行 程	31.5mm
压 脚 提 升 量	8mm (带装饰套口器)
送 齿 调 节 方 法	按钮方式
差 动 送 齿 比 例	最大正差动 1: 2　最大逆差动 1: 0.8
差 动 调 节 方 法	外手柄式
润 滑 方 法	次摆线泵自动供油
润　　滑　　油	Yamato SF润滑油28
贮　　油　　量	600ml
安 装 方 法	板面式/半沉式

CONTANT

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Hope

◇This manual is mainly written for technical personnel, but in order to properly operate the sewing machine, it is hoped that the operators will also read the items marked with a symbol.

◇The numbers marked in the lower left corner of the illustrations in this manual indicate the figure numbers. According to the needs, the figure numbers are also marked in the text, and users can refer to the related illustrations.

Statement

Due to reasons such as improvements, the components used in this product may change. Therefore, some content and illustrations in this manual may not be completely consistent with the actual product, and we ask for your understanding. In addition, although we have taken all possible measures when writing this manual, errors and omissions are inevitable. Even if discovered, they may not be corrected immediately.

To ensure your safe

2. To ensure your safe use

For the safety of using industrial sewing machines and devices, please always pay attention to the following items.

1.2 Purpose

This industrial sewing machine is designed to improve the productivity of sewing operations. Do not use it for other purposes. Additionally, do not use this sewing machine until the safety measures of the installed drive device are confirmed to be properly executed.

1.3 Before use

Before using the sewing machine, carefully read the entire instruction manual and use it correctly according to the instructions.
Also, read the instruction manual for the assembled drive device.

1.4 Operating environment

Do not use in the following environments:

◇Environments with adverse temperature and humidity conditions that may negatively affect the performance of the sewing machine.
◇Outdoors or places with direct sunlight.
◇In environments with dust, corrosive gases, or flammable gases.
◇Places with unstable voltage fluctuations, exceeding the specified voltage by ±10%.
◇Places where the required power capacity for motor specifications cannot be reached.

In areas near high-frequency transmitters or high-frequency welding machines with strong electromagnetic waves.

1.5 Unpacking and transportation

(1) Unpack in the order from top to bottom.
(2) When removing the sewing machine head from cushioning materials, never lift or pull near the sewing machine needle or thread-related parts.
(3) When transporting the sewing machine head, it should be carried by two people together.
(4) When transporting with a cart, be careful not to cause excessive impact or vibration.

1. Installation and preparation

For the safety of using industrial sewing machines and devices, please always pay attention to the following items.

2.1 Education and training

Operators of the sewing machine head or sewing machine system, as well as those engaged in guidance, maintenance, and repair, must have appropriate knowledge and operational skills for safe work.
Management personnel should make and implement education and training plans for operators and related personnel in advance.

2.2 Sewing machine table and motor

(1) Use a sewing machine table (tabletop, stand) that can withstand the weight of the sewing machine head and the reactive force during operation.
(2) Consider the layout of the sewing machine and the lighting in the work area to ensure a bright working environment.
(3) When assembling the sewing machine control box and related parts, consider the operator's posture.
(4) Install the motor according to the manufacturer's instructions.

2.3 Circuit wiring

(1) Do not connect the power plug until the circuit installation is complete.
(2) Ensure that the connections of the sewing machine head, motor, and electrical devices are secure.
(3) Do not apply excessive pressure on the wiring.
(4) When connecting wires and cables near moving machine parts, keep a certain distance between the machine and the cables to prevent contact.
(5) Connect the ground wire to the designated location on the sewing machine.

2.4 Precautions before operating the sewing machine

(1) When adding lubricating oil, silicone oil, or grease, be careful not to touch your eyes or skin, and store them out of reach of children.
(2) The sewing machine must be oiled (dripped) before operation. Please use the SF oil specified by YAMATO.
(3) When connecting to the power source, do not put your hands near the needle area or moving machine parts.
(4) When operating the sewing machine for the first time, confirm that the rotation direction of the machine flywheel matches the flywheel rotation mark.

2.5 Precautions during sewing machine operation

(1) The sewing machine can only be operated after confirming that the belt cover, finger guard, eye guard, and other safety devices are in place.
(2) During sewing machine operation, do not place your hands or hair near the needle area or moving machine parts, and do not place items nearby.
(3) Threading or changing the needle must be done after turning off the power.
(4) For sewing machines with a cutter device, do not insert your fingers into the cutter area (upper knife, lower knife) while the machine is running.
(5) When the sewing machine is not in use or the operator needs to leave, be sure to turn off the power.
(6) If an error, abnormal sound, or unusual smell is detected during use, immediately turn off the power.

2.6 Disassembly

(1) Turn off the power before disassembling or replacing any parts or making adjustments.
(2) When unplugging, do not pull the cord; hold the plug to remove it.
(3) The control box contains high voltage loads, so wait at least 5 minutes after turning off the power before opening the cover.

3. Maintenance, inspection, and

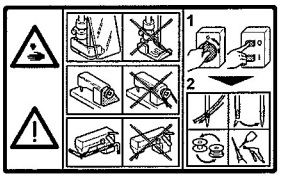
(1) Perform maintenance, inspection, and repair according to the instruction manual.

(2) Maintenance, inspection, and repair should be performed by specially trained personnel.

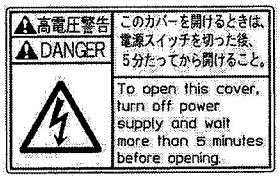
(3) Before performing maintenance, inspection, and repair, the power must be turned off, and work should begin only after confirming that the sewing machine and motor have completely stopped. (The clutch or motor may continue to rotate briefly due to inertia after the power is turned off. so be

4. Warning labels attached to the sewing machine

To prevent harm to customers and damage to the sewing machine, this manual includes warning signs and warning icons.



Indicates that removing safety guards is prohibited and no other operations should be performed while the power is on. (See next



Indicates that there is high voltage in the power control box and a risk of



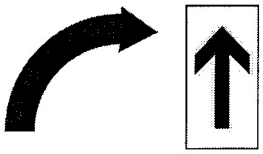
This mark is affixed to safety guards. However, for operational convenience, it is not affixed to finger guards and eye guards, but they must be installed in the designated positions.



Stepper motors, solenoid valves, etc., when used continuously for long periods, may overheat and pose a burn hazard, so be careful not to touch them.



This icon indicates that if not grounded, the sewing machine or device may malfunction or injure the user.



Ensure that the rotation direction of the sewing machine flywheel matches the indicated

5. Warning signs and warning

To prevent harm to customers and damage to the sewing machine, this manual includes warning signs and warning icons.

4.1 Warning signs icons

"Warning" indicates a potentially dangerous situation that, if not avoided, could result in death or serious injury.
"Caution" indicates a potentially dangerous situation that, if not avoided, could result in minor to moderate injury to the user or others, or damage to the sewing machine.

4.2 Warning signs icons



This icon indicates that if not heeded, it could lead to death or serious injury.



This icon indicates high temperature caution.



This icon indicates that if not heeded, it could result in minor or moderate injury, damage to the sewing machine, or highlights



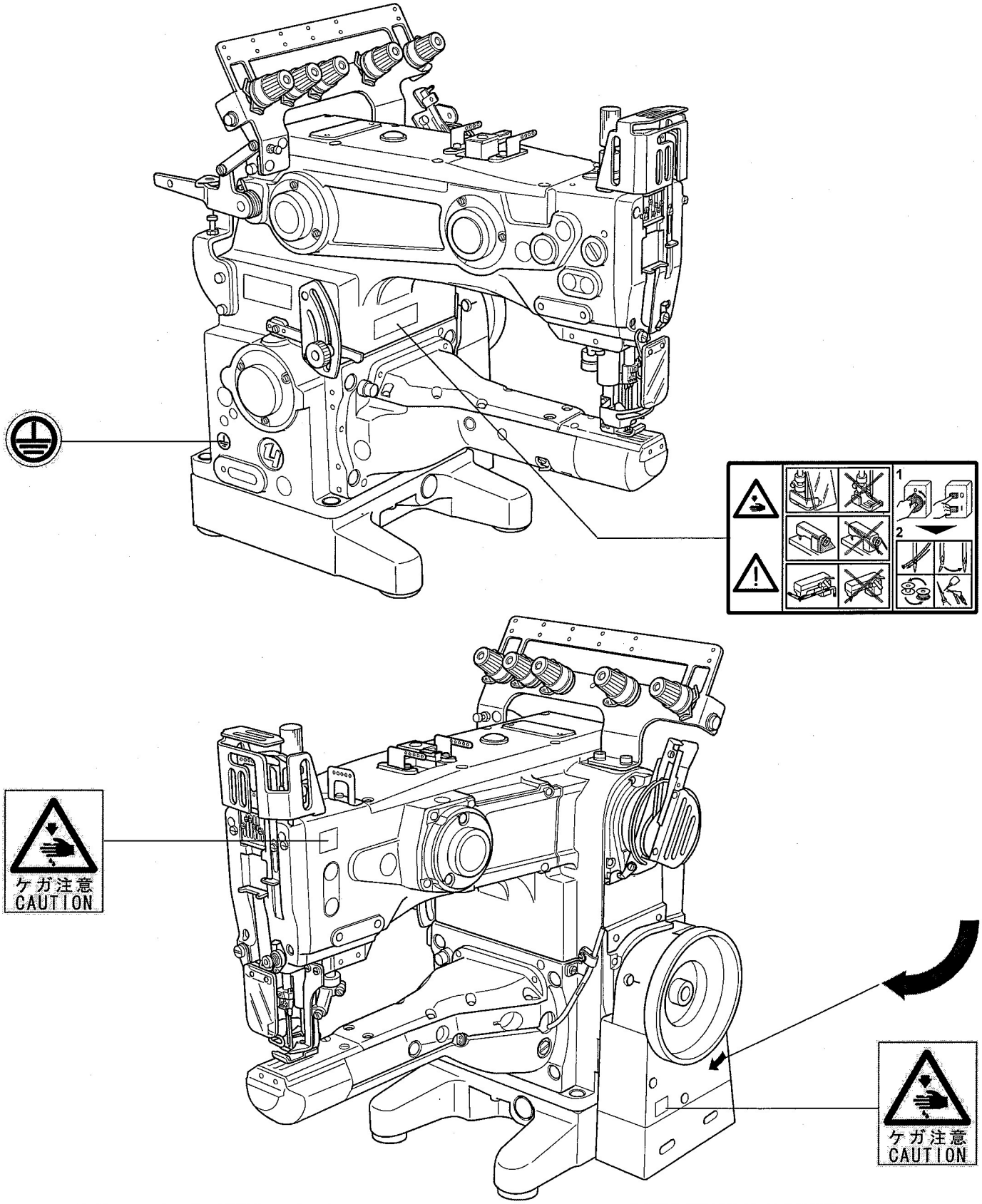
This icon indicates a warning about high voltage and electric



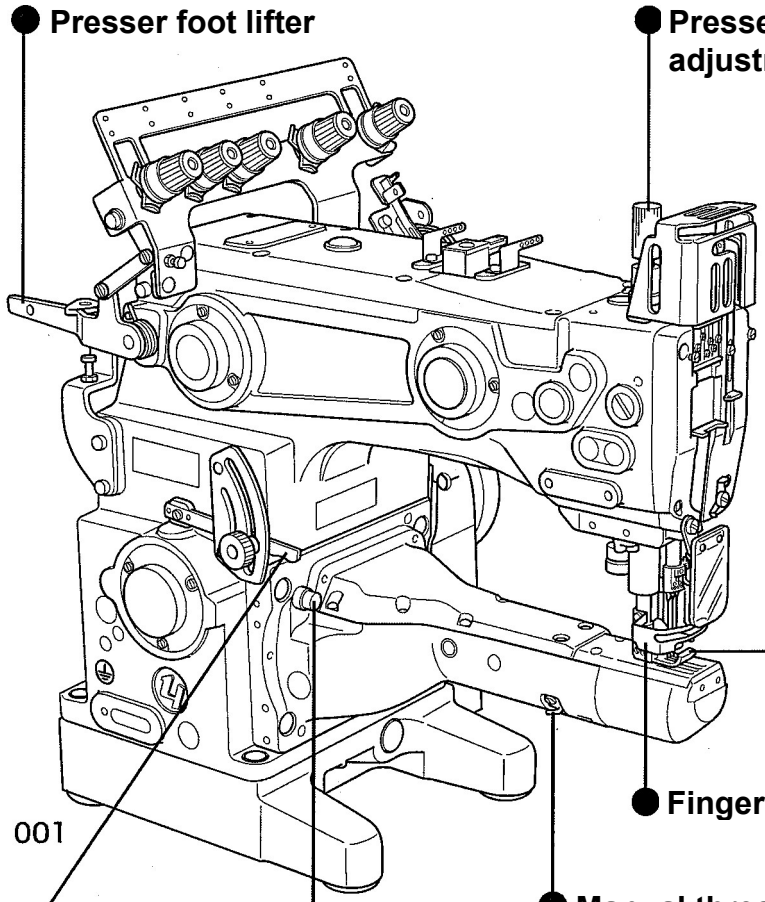
This icon indicates that if not grounded, the sewing machine or device could malfunction and potentially cause injury to the user. It warns about high voltage and electric shock.

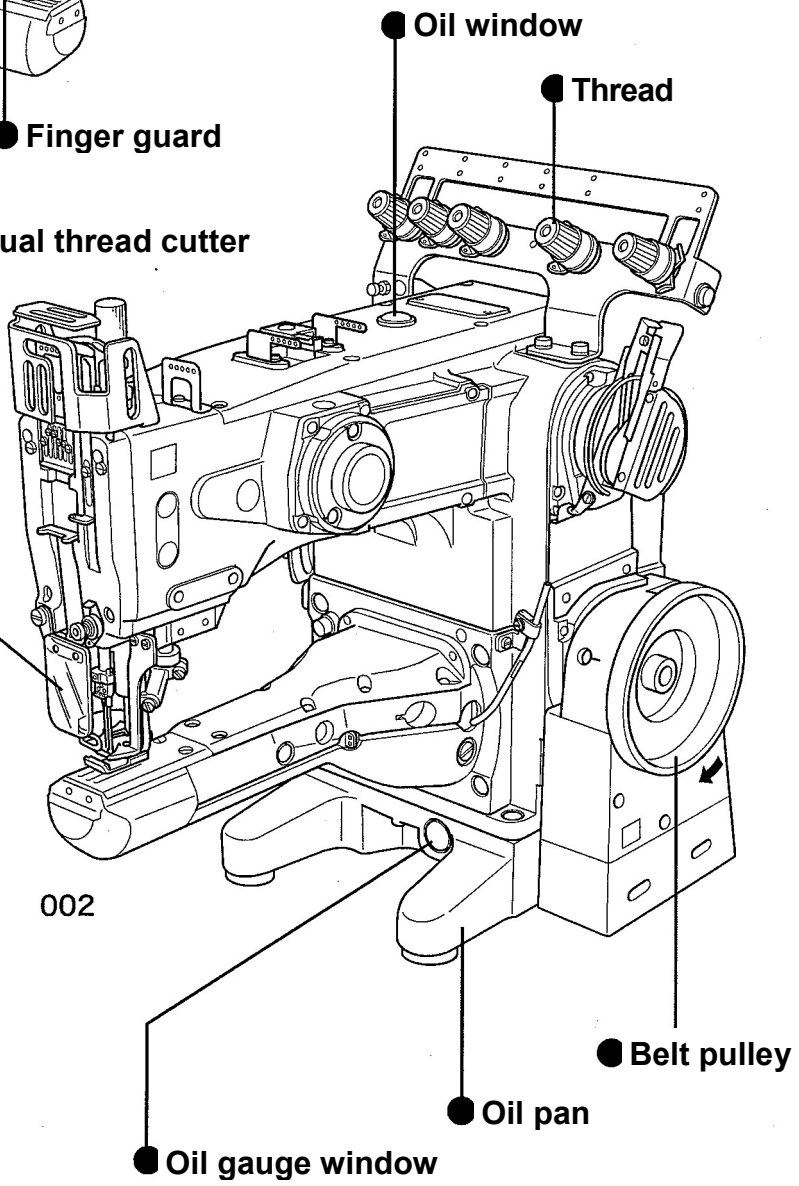
6. Placement of Safety Labels

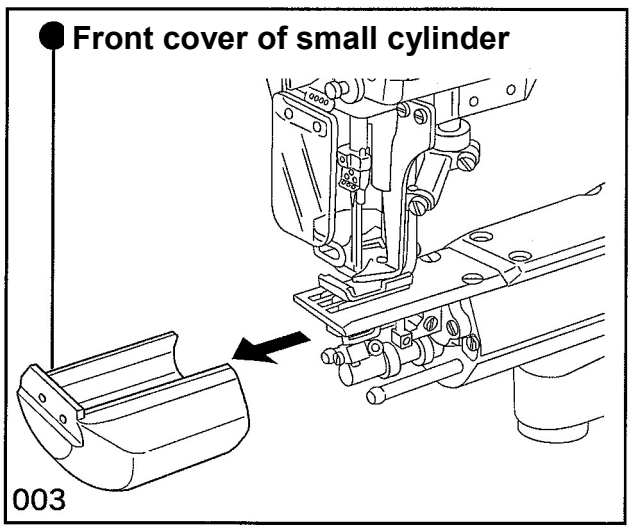
The sewing machine indicates the placement locations of safety labels to ensure safe operation.
Always keep the safety labels clean and undamaged. If the labels are damaged or lost, they



1. Names of each part



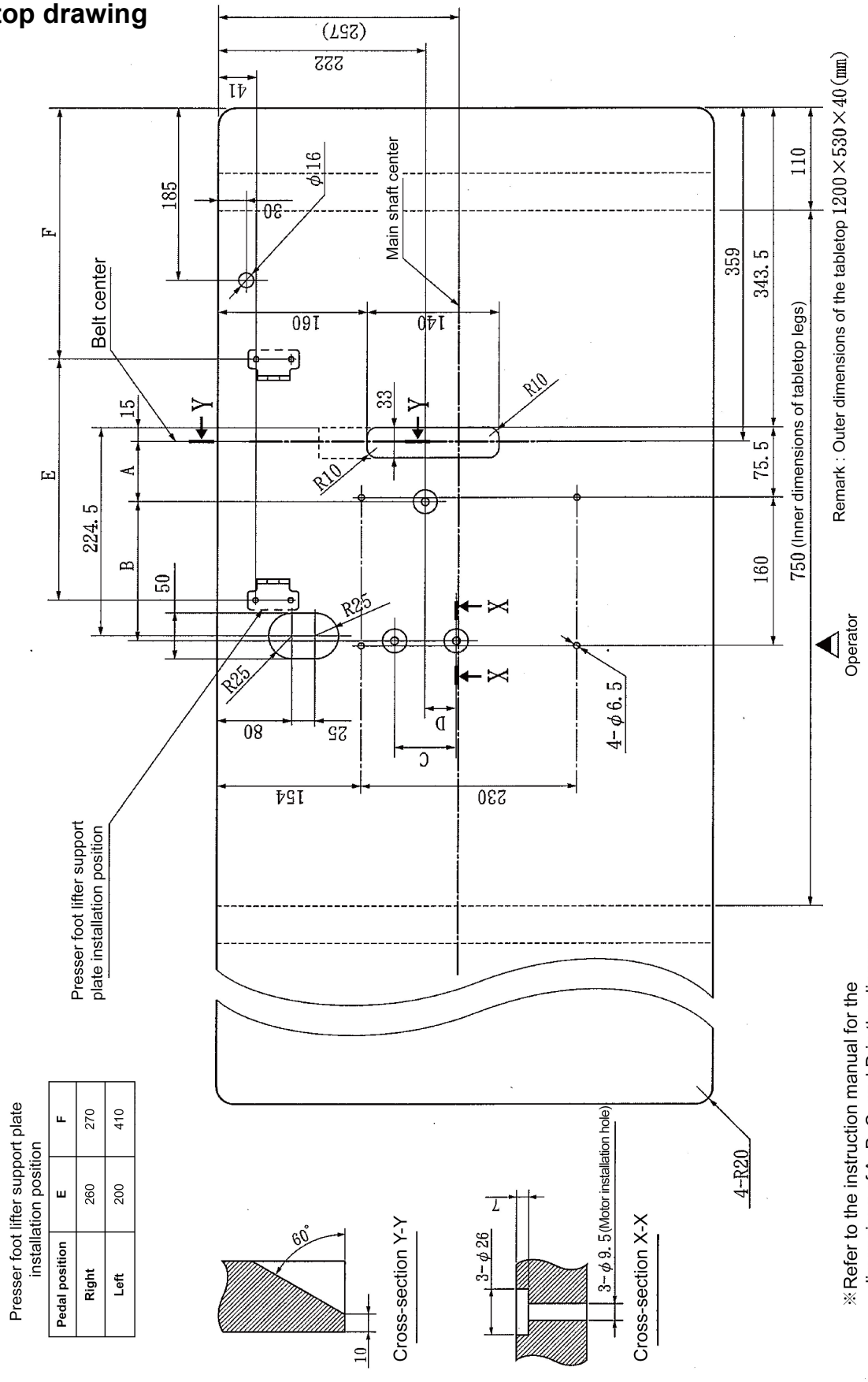




2. Installation method

2.1 Board surface type

2.1.1 **Tabletop drawing**



Presser foot lifter support plate installation position

Pedal position	E	F
Right	260	270
Left	200	410

※Refer to the instruction manual for the dimensions of A, B, C, and D in the diagram

004

2. Installation method

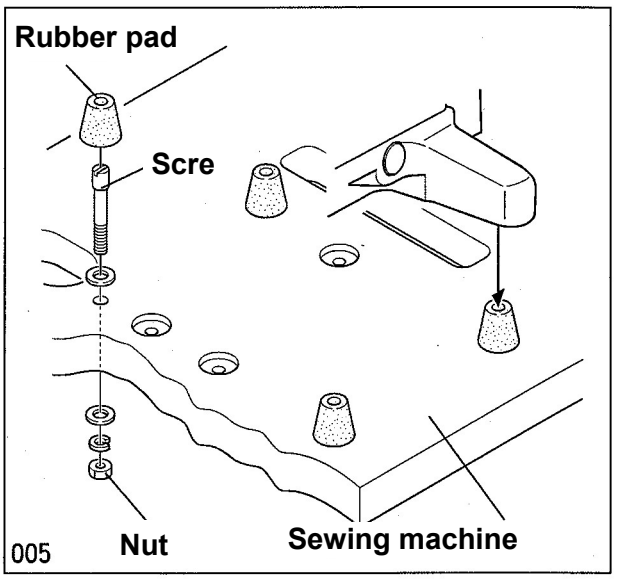
2.1.1 **Sewing machine installation**

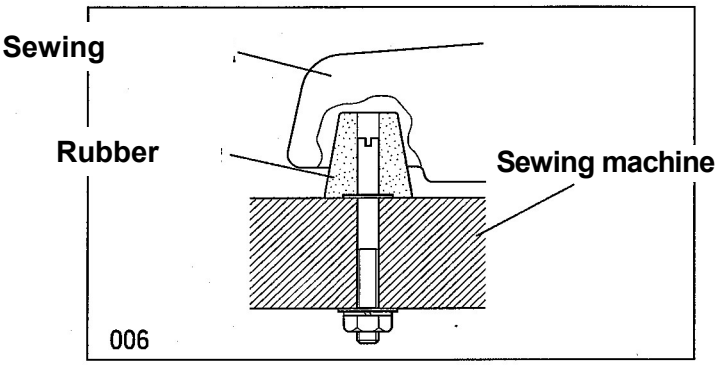
⚠ Notice

The sewing machine weighs over 42 kilograms.
At least two people are required for unpacking,

Refer to diagrams (004, 005, 006) for proper sewing machine installation.

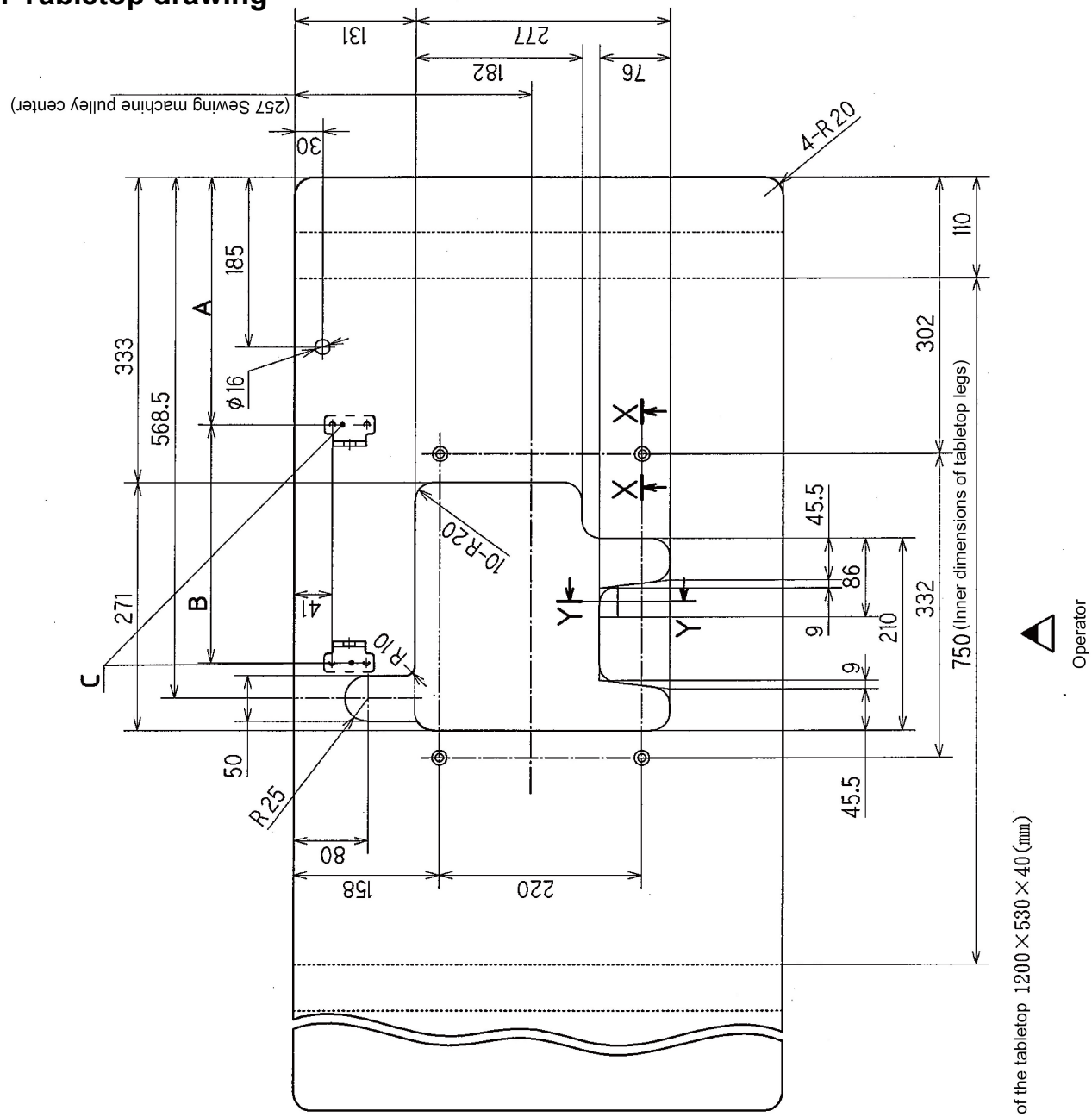
(1) Install the screws and nuts onto the sewing machine table.
(2) Place rubber pads onto the screws.
(3) Place the sewing machine smoothly onto the rubber pads.



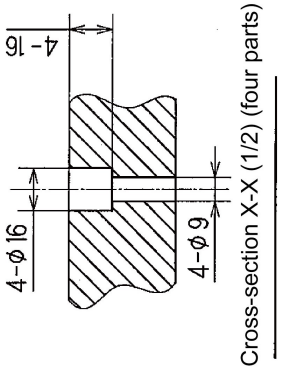


2.2 Sewing machine installation

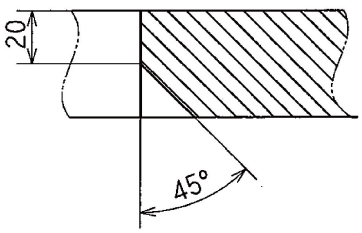
2.2.**1 Tabletop drawing**



Presser foot lifter support plate installation position	A	B
Right pedal	270	260
Left pedal	410	200



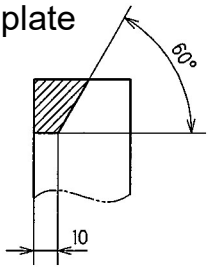
Cross-section X-X (1/2) (four parts)



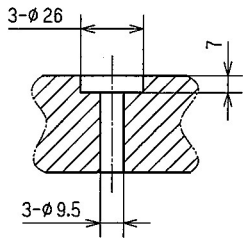
Cross-section Y-Y (1/2)

007

Slide plate

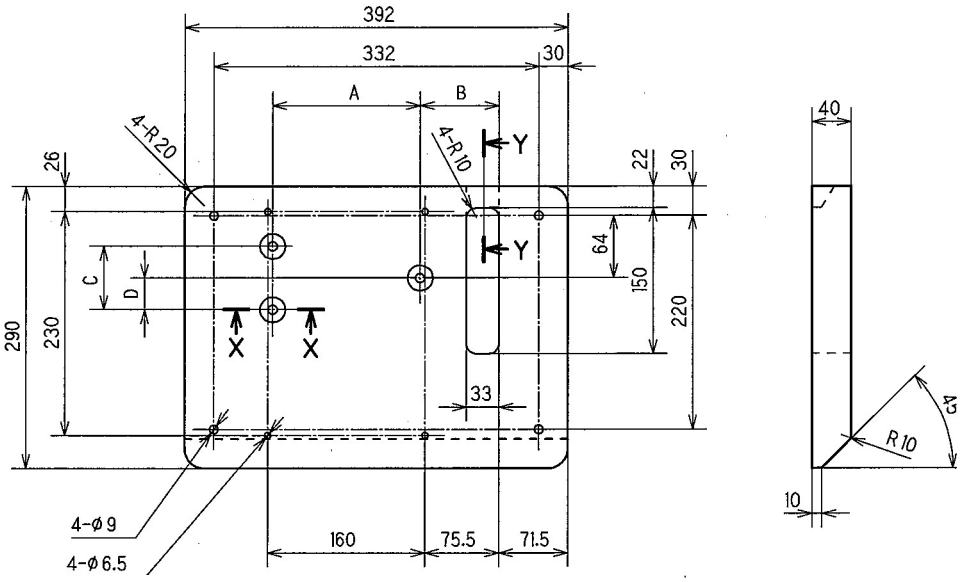


Cross-section Y-Y (1/2)



Cross-section X-X (1/2) (three

008



※Refer to the instruction manual for the dimensions of A, B, C, and D in the diagram

2.2.2 **Sewing machine installation**

⚠ Notice

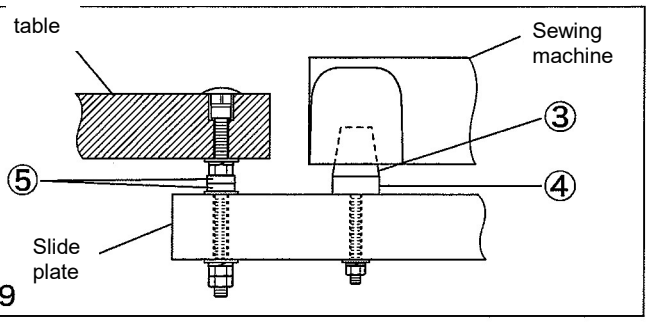
The sewing machine weighs over 42 kilograms. At least two people are required for unpacking, transportation, and installation.

Refer to the diagram for proper sewing machine installation.

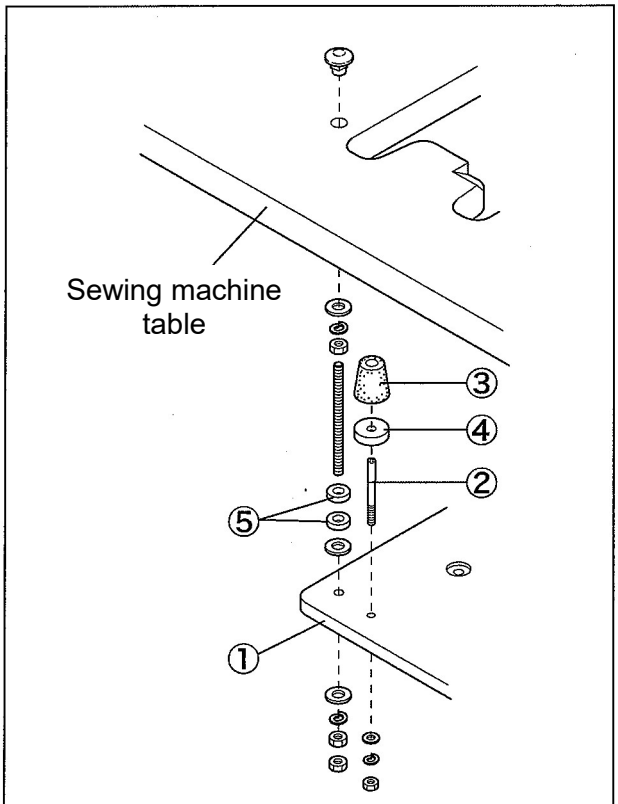
(1) Install screws ② (4 pieces) onto the base plate ①.
(2) Insert rubber pads ③ onto the screws ②.
(3) Mount the base plate ① onto the sewing machine table, and insert the base plate spacers ⑤ (2 pieces) in between.

Installation Requirements

● If the tabletop thickness exceeds the standard thickness (40mm), use rubber pad spacers ④, or adjust the number of base plate spacers ⑤.
● The standard height from the tabletop to the top of the needle plate is approximately 100mm.



009



010

2.3 Motor and Belt

Clutch Motor

◇ For the motor, please refer to the motor's instruction manual.

◇ Regarding the installation position of the motor, when installing, press down the foot pedal. When the motor pulley ② is close to the left side, align the center of the motor pulley ② with the center of the machine pulley ①.

◇ Commercially available pulleys have an outer diameter in 5mm increments, so choose a commercially available pulley that is close to the calculated value.

⚠ Caution

If the motor pulley used is incorrect, the sewing machine speed may exceed the maximum speed, causing malfunction.

Servo Motor

For the motor, please refer to the motor's instruction manual.

The diameter of the motor pulley is calculated by the following formula, or refer to Table 2 to select the most suitable motor pulley.

$$\text{Motor pulley diameter} = \frac{\text{Sewing machine normal operating speed}}{\text{Servo motor speed}} \times 66.5+5\text{mm}$$

◇ Commercially available pulleys have an outer diameter in 5mm increments, so choose a commercially available pulley that is close to the calculated value.

Belt

Use M-type belts.

Refer to Table 1 for dimensions.

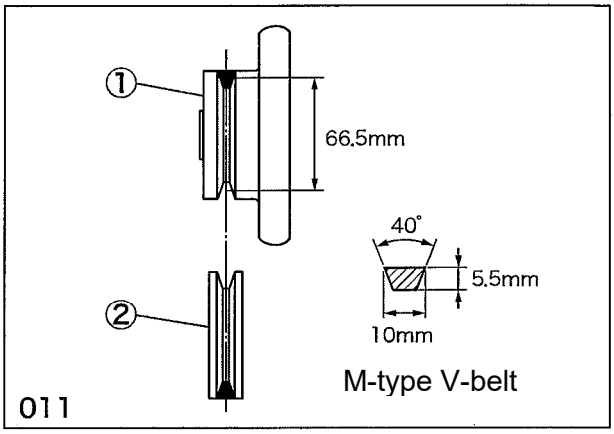


Table 1

Motor pulley outer diameter (mm)	Sewing machine speed (rpm)		Belt size
	50Hz	60Hz	
65		3100	M35
70		3350	M35
75	3000	3600	M36
80	3200	3850	M36
85	3400		M36
90	3600		M37
95	3800		M37
100	4000		M37

◇ The values in the table are for a three-phase, two-pole, 400-watt (1/2 HP) clutch motor.

Table 2

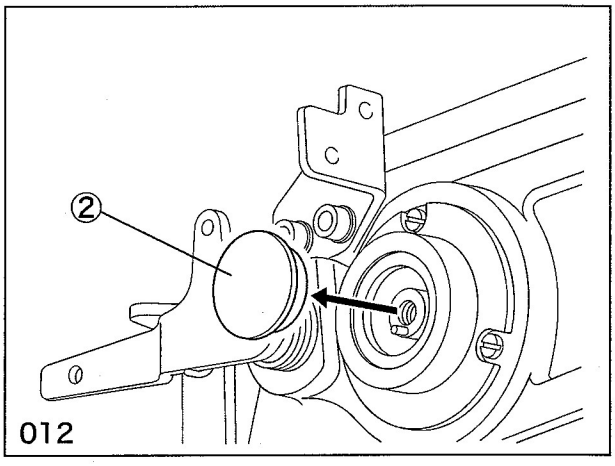
Sewing machine speed (rpm)	Motor pulley diameter	
	Servo motor speed (rpm)	
	3000	3600
3000	72	60
3300	78	66
3500	83	70
3800	89	75
4000	94	79

◇ The examples in the table are for servo motor speeds of 3000 rpm and 3600 rpm.

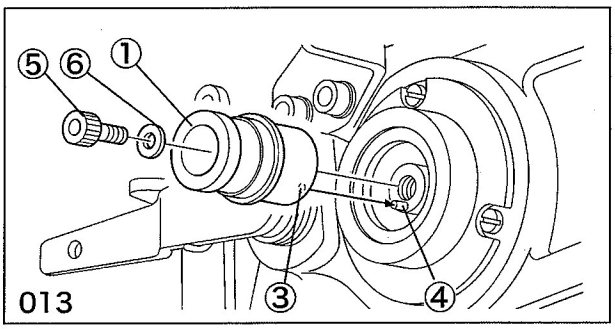
2.4 Preparation for installing the positioner

To install the positioner ① (position detector) or synchronizer, install the synchronizer adapter ① (additional).

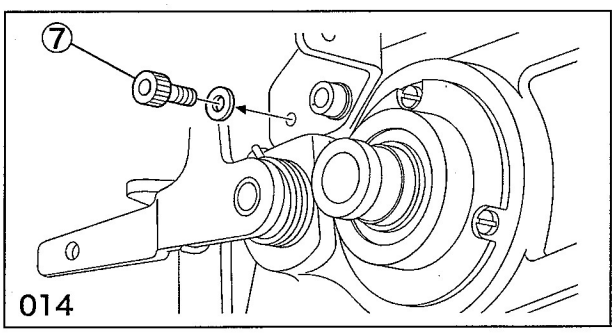
(1) Remove the plug ②.



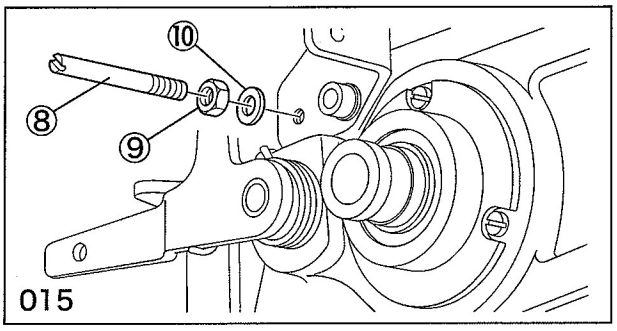
(2) Align the hole ③ of the synchronizer adapter ① with the pin ④ of the shaft, and fix it with screw ⑤ and washer ⑥.



(3) Remove the fixing screw ⑦ of the thread tensioner mounting plate.

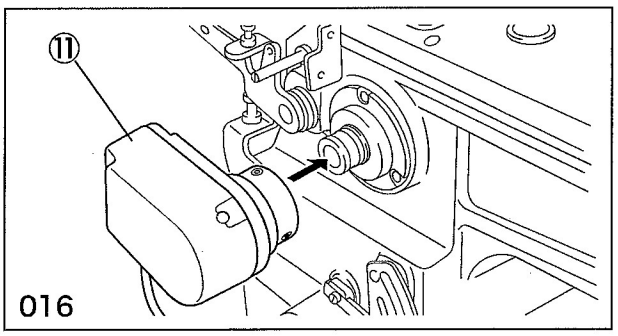


(4) Attach nut ⑨ to the positioner pin, and install the positioner pin ⑧ and washer to the sewing machine.



※ The positioner pin ⑧ is used to hook and fix the positioner ① so that it does not rotate.

※ For the installation and adjustment method of



2.5 Belt installation method

Caution

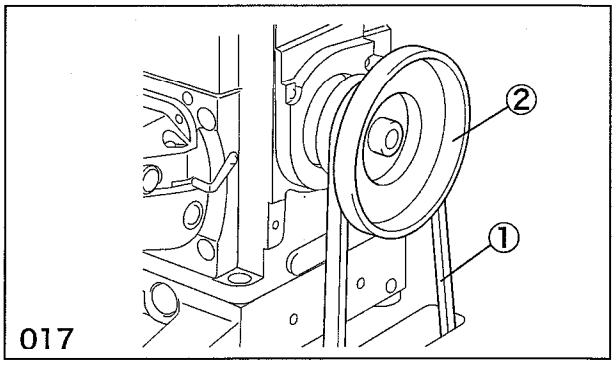
When installing the belt, be sure to turn off the motor's power and confirm that the motor has stopped rotating before proceeding. This is to prevent hands or clothing from being caught in the belt, causing injury.

(1) First, hang the belt ① onto the machine pulley ②.
(2) While rotating the machine pulley ②, loop the other end of the belt ① onto the motor pulley ③.
(3) Tighten the belt so that when a force of approximately 10N (1.02kgf) is applied to the center of the belt, the deflection is 10~20mm.
(4) After tightening the belt, secure it firmly at the motor end.

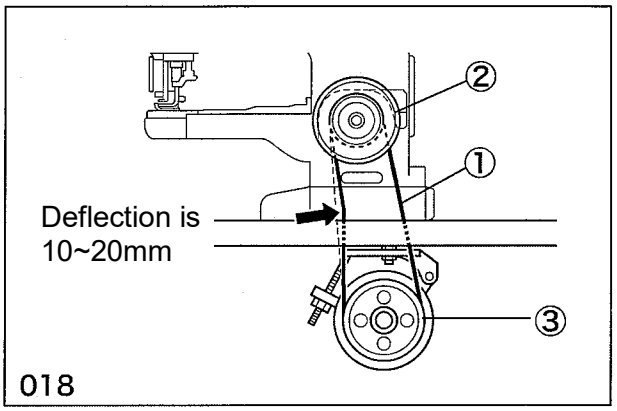
※ The fixing method varies depending on the motor, please refer to the motor's instruction manual.

Supplement

For semi-embedded type, please install the belt auxiliary cover to the sewing machine (refer to page 9) before placing the sewing machine on the table and looping the belt.



017

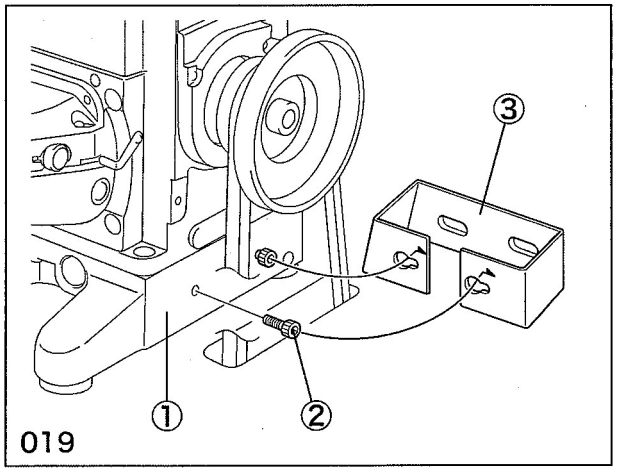


018

2.6 Belt cover installation

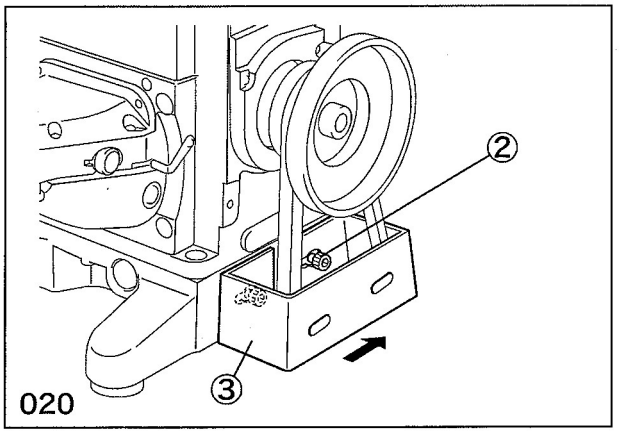
Caution

- Before performing any work, ensure that the motor power is turned off and it has stopped rotating to avoid injury.
- The belt cover must be installed.
  If not installed, hands and clothing may get caught, causing injury, or the sewing material may get caught, causing damage.



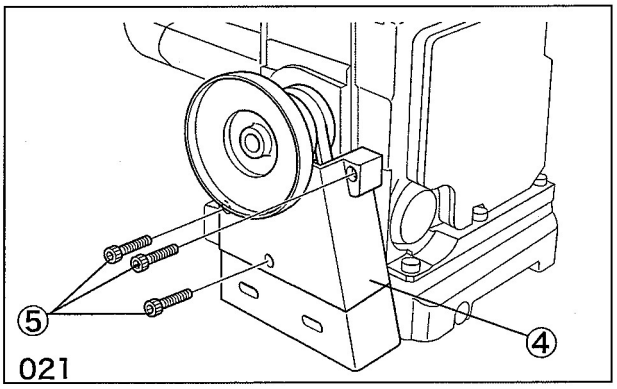
019

(1) Screw ② into the oil tray ① about halfway.
(2) Fit the hole of the belt auxiliary cover ③ onto the head of screw ②, move it backward, and tighten screw ②.



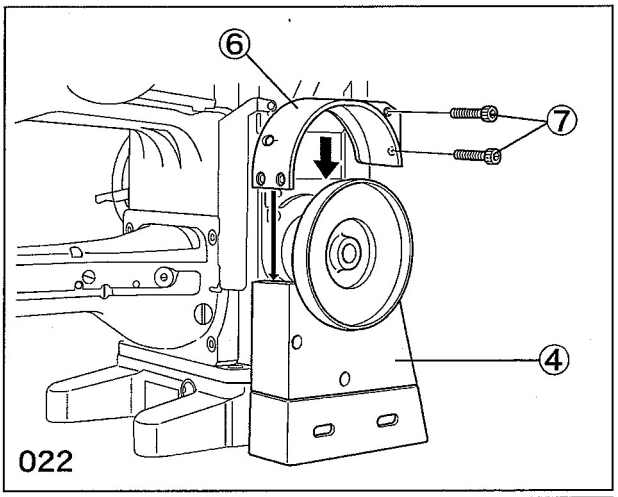
020

(3) Install the lower belt cover ④ onto the sewing machine with screw ⑤.



021

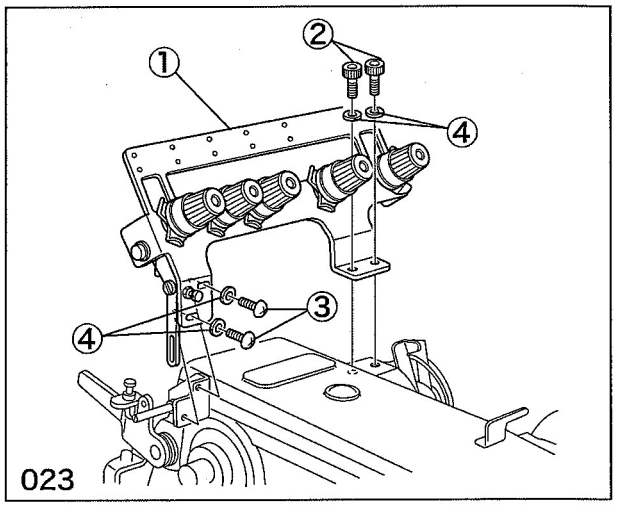
(4) Insert the upper belt cover ⑥ onto the lower belt cover ④ and secure it with screw ⑦.



022

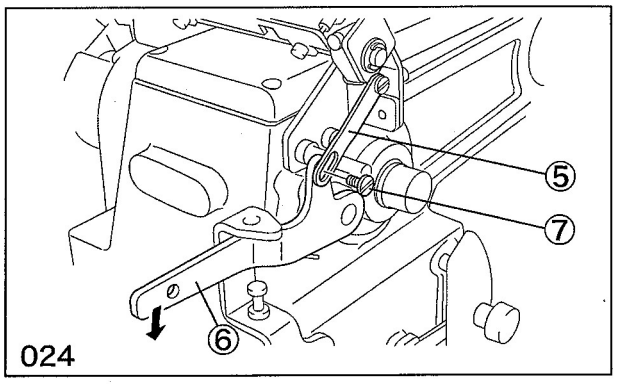
2.7 Thread tensioner installation

(1) Install the thread tensioner ① onto the sewing machine with screws ② and ③ and washers ④ (two on each side).



023

(2) Install the loose thread connection plate ⑤ onto the presser foot lifter lever ⑥ with screw ⑦.
(3) Press down the presser foot lifter lever ⑥ to ensure smooth operation.

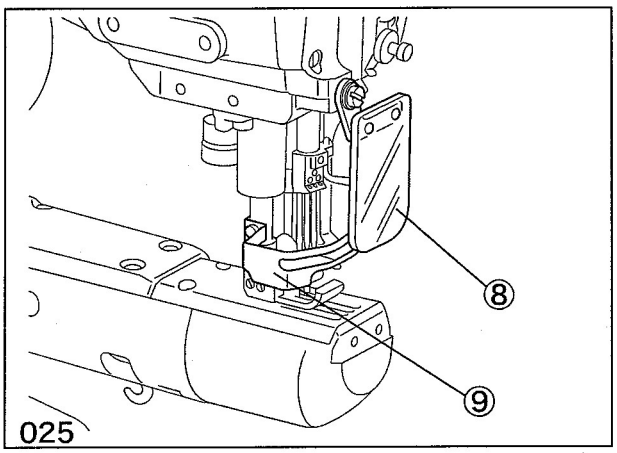


024

2.8 Eye guard and finger guard

⚠ Caution

Sewing must be done with the eye guard ⑧ and finger guard ⑨ properly installed.
Additionally, the eye guard ⑧ must be lowered and fixed in place.



025

2.9 Installation of presser foot lifter pedal

After installing the presser foot lifting shaft (lower) ③ to the back of the tabletop, use a chain to connect the presser foot lifter pedal to the presser foot lifter rod ⑦ and attach it to the presser foot lifting shaft (lower) ③.

(1) Use wood screws ② to install the presser foot lifting shaft support plate ① to the back of the tabletop.

(2) As shown in the figure, install the shaft ring ④, the presser foot lifting return spring ⑤, and the presser foot lifting rod ⑥ onto the presser foot lifting shaft (lower) ③, then pass it through the presser foot lifting shaft support plate ①.

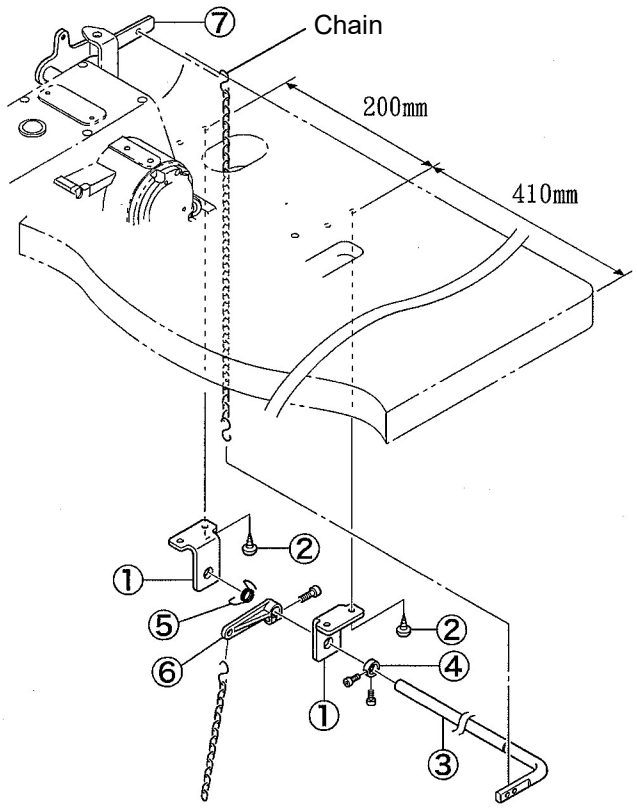
(3) Ensure that the presser foot lifting shaft (lower) ③ can rotate smoothly.

(4) Move the shaft ring ④ left and right to position the handle of the presser foot lifting shaft (lower) ③ directly below the presser foot lifting rod ⑦.

(5) Align the handle of the presser foot lifting shaft (lower) ③ with the presser foot lifting rod ⑥ horizontally and secure them.

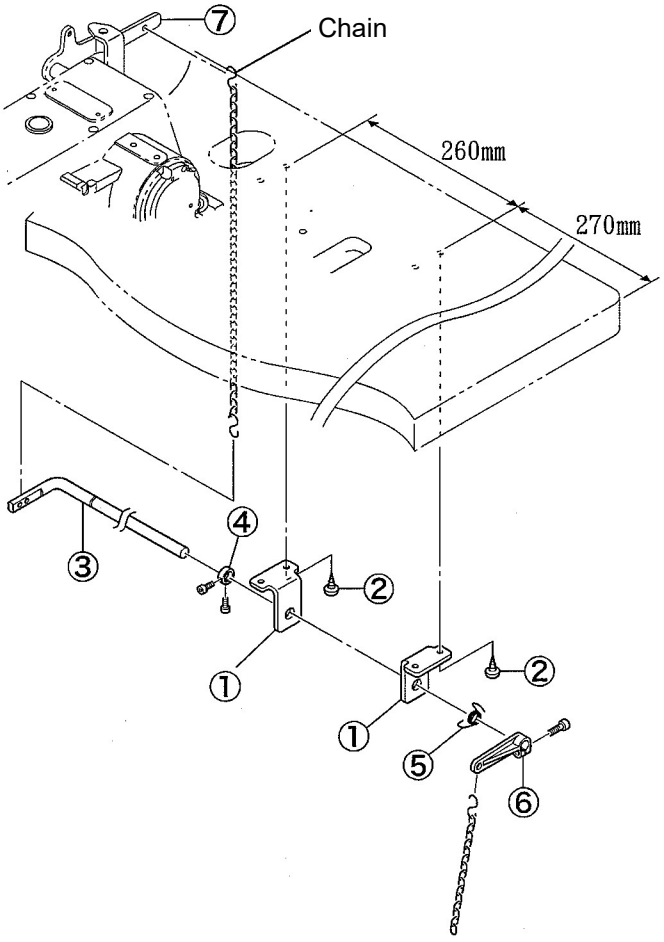
(6) Use a chain to connect the handle of the presser foot lifting shaft (lower) ③ with the presser foot lifting rod ⑦, and the presser foot lifting rod ⑥ with the presser foot lifter pedal.

When the pedal is installed on the right side of the



Connect to the presser foot lifter pedal

When the pedal is installed on the left side of the table



Connect to the presser foot lifter pedal

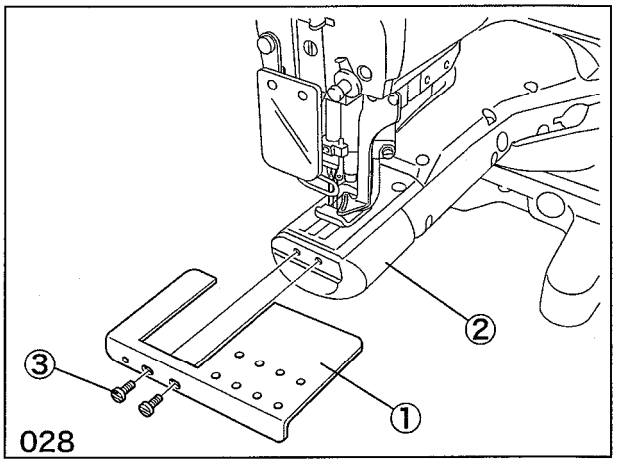
2.10 Installation of the auxiliary baffle

Use screws ③ to install the auxiliary baffle ① onto the front cover of the small cylinder ②.

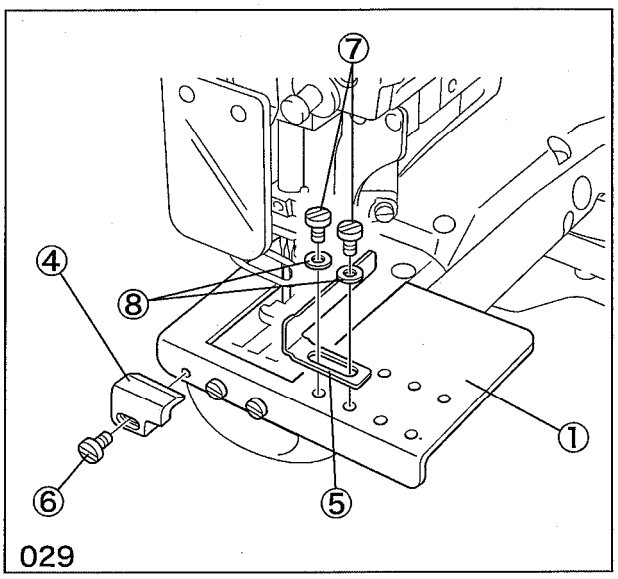
※ The guide rulers ④⑤ can be installed onto the auxiliary baffle ① with screws ⑥⑦ and washers ⑧.

Caution

Before performing any work, ensure that the motor power is turned off and it has stopped rotating to avoid injury.



028



029

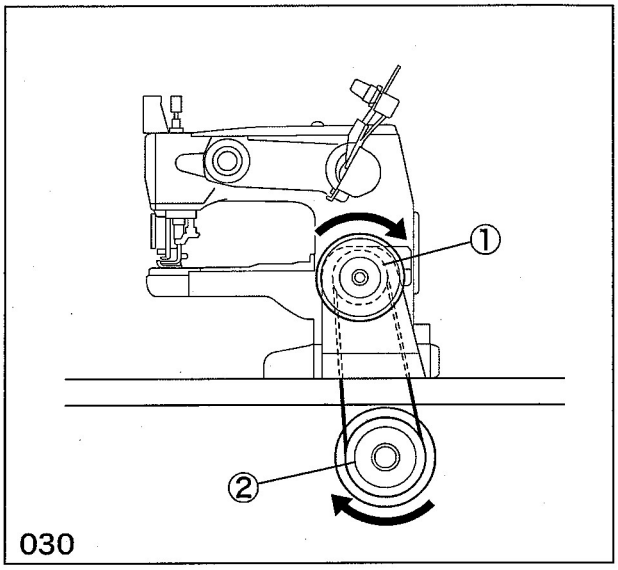
3. Sewing speed and pulley rotation direction

◇ The maximum sewing speed of this sewing machine is 4000rpm (when rotating intermittently). When using a new sewing machine, use a lower speed that is 15% to 20% lower than the maximum speed for the first 200 hours (about one month) to ensure long-term use of the sewing machine in good condition.

◇ The rotation direction of the motor pulley ② and the machine pulley ① is clockwise, as shown in the figure.

⚠ Caution

The pulley cannot supply oil properly when reversed, which may cause the sewing machine to malfunction.



4. About lubricating oil

⚠ Caution

Before performing any work, ensure that the motor power is turned off and it has stopped rotating to avoid injury.

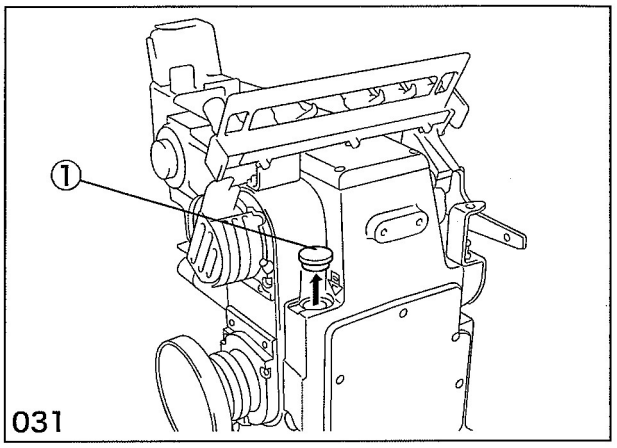
4.1 Lubricating oil

⚠ Caution

Do not use lubricating oil additives to avoid deterioration of the lubricating oil and potential sewing machine malfunctions.

◇ Lubricating oil used: YamatoSF lubricating oil 28

◇ Oil quantity: 600ml

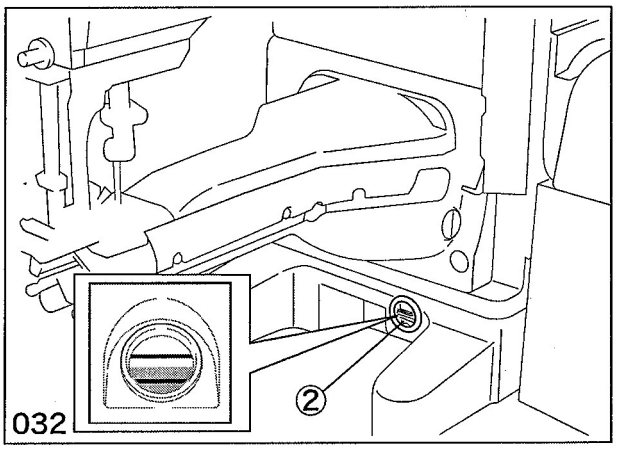


4.2 Oil supply

When using the sewing machine for the first time

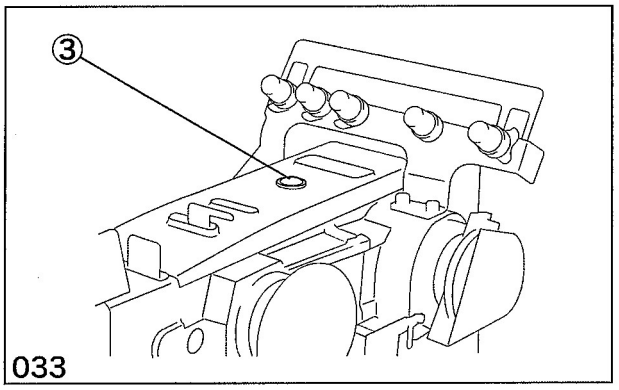
When shipped, the lubricating oil has been drained. Be sure to add lubricating oil when using the sewing machine for the first time.

The method of adding oil is to remove the rubber plug marked "OIL" ① and add lubricating oil up to the mark on the oil gauge window ②.



Inspection method

When the sewing machine starts running, check oil window ③ to see if lubricating oil is being sprayed from the nozzle. If no oil is sprayed, proceed with "Inspection and replacement of the lubricating oil filter" (refer to page 16).



⚠ Caution

Even if the oil reservoir is sufficiently filled, if the amount of oil sprayed from the nozzle inside oil window ③ is abnormally low or contains a large amount of bubbles, immediately inspect and replace the filter.

4.3 Lubricating Oil Replacement

Lubricating Oil Replacement Period

For a new sewing machine, lubricating oil needs to be replaced after approximately 200 hours (about 1 month) of use.

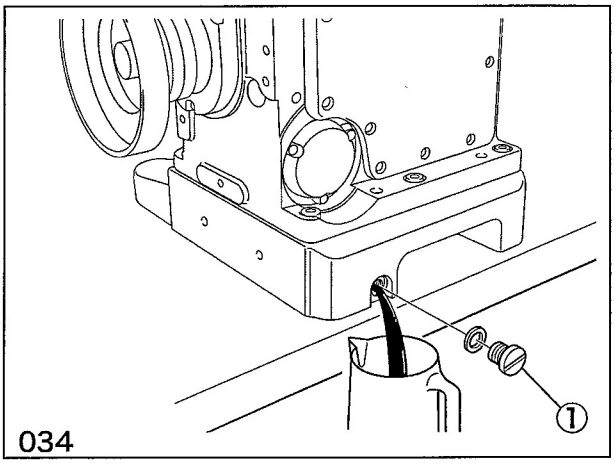
After that, replace the lubricating oil 1-2 times per year.

Lubricating Oil Replacement Method

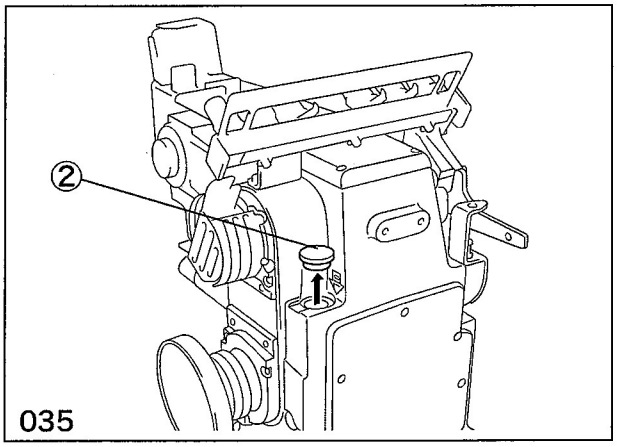
(1) Remove the belt cover. (Refer to page 9)
(2) Remove the V-belt from the motor pulley. (Refer to page 8)
(3) Remove the sewing machine from the table.
(4) Place a container under the oil drain screw ① to catch the lubricating oil.
(5) Remove the oil drain screw ① and drain the lubricating oil.

⚠Caution

Be careful not to get oil on the V-belt and machine pulley.

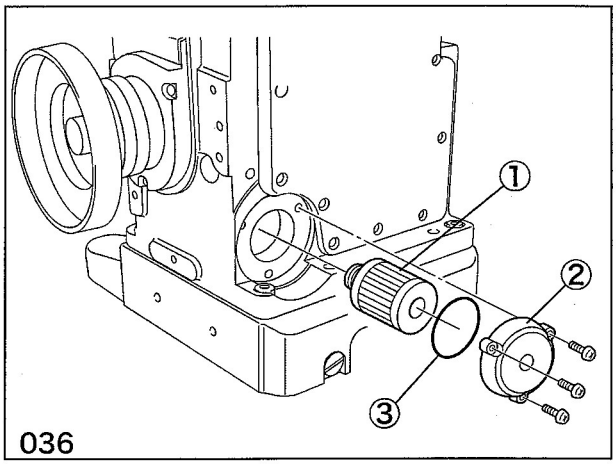


(6) Reinstall the oil drain screw ① as it was.
(7) Remove the rubber cap marked "OIL" ②.
(8) Add new lubricating oil. (Refer to page 14)
(9) Reinstall the sewing machine onto the table.
(10) Hang the V-belt on the motor pulley and reinstall the belt cover as it was. (Refer to pages 8 and 9)



4.4 Inspection and Replacement of

◇ If the lubricating oil filter ① is clogged with dirt, it will not supply oil properly.
Please inspect for clogging and damage every 6 months.
◇ Even if the oil reservoir is sufficiently filled, if the amount of oil sprayed from the nozzle inside the oil check window is abnormally low or contains a large amount of bubbles, immediately inspect and replace the filter.



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Inspection and Replacement

◇ Remove the lubricating oil filter cover ②, pull out the O-ring ③ and the lubricating oil filter ①, and inspect.
◇ If the lubricating oil filter ① is clogged with dirt, clean it or replace it with a new lubricating oil filter ①.
◇ If damaged, replace it with a new lubricating oil filter ①.

⚠ Caution

- When removing the lubricating oil filter cover ②, be careful as the lubricating oil accumulated in the lubricating oil filter ① will flow out.
- When installing the lubricating oil filter ①, make sure it is securely inserted.

5. Operating Method

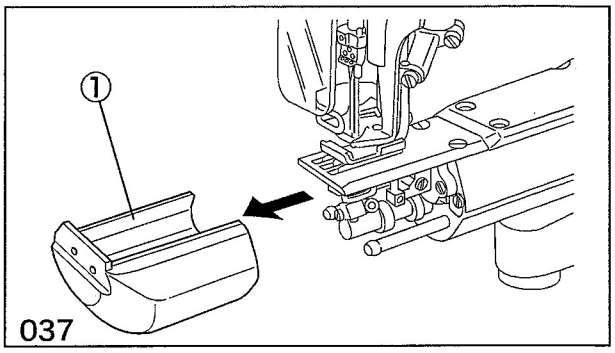
5.1 Removal and Installation of the Front Cover of the Small Cylinder

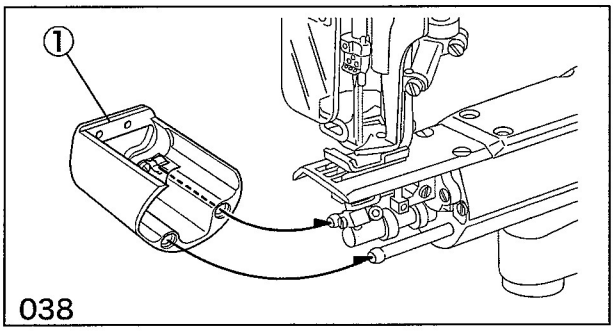
Removal Method

Pull the front cover of the small cylinder ① straight forward.

Installation Method

Insert the front cover of the small cylinder ① straight along the pin until you hear a "click" sound.





Caution

For safety, the front cover of the small cylinder ① must be installed during sewing.

5.2 Needles Used

This product uses UY×128GAS (UY128GAS) needles. There are various types of needles. Please choose the appropriate needle according to the thickness and material of the fabric being sewn.

Table 3

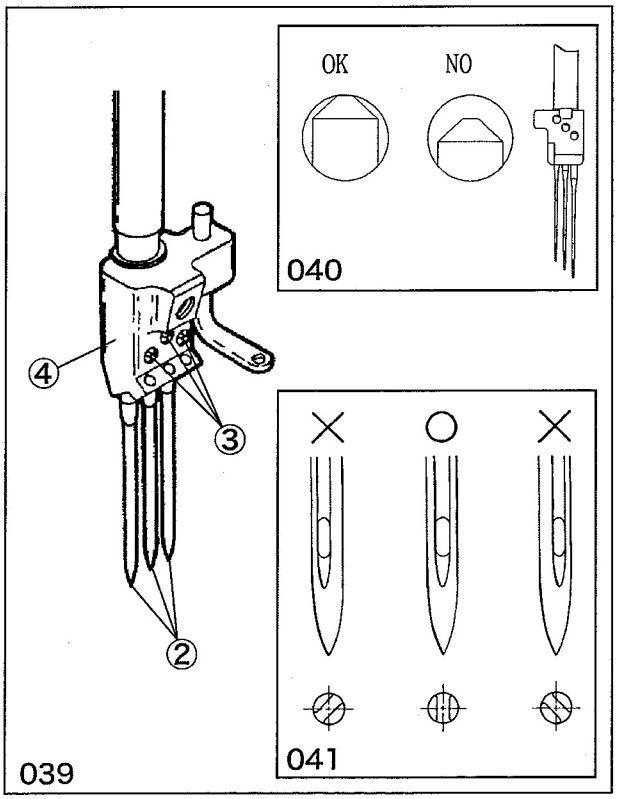
Japanese Model	8	9	10	11	12	13	14
German Model	60	65	70	75	80	85	90

5.3 Needle Installation

Caution

When installing the needle, be sure to turn off the motor power and confirm that the motor has stopped rotating to avoid injury.

(1) Use a screwdriver to loosen the needle clamp screw ③ of needle ②.
When replacing needle ②, use tweezers to pull out the old needle.
(2)Place the groove of the new needle at the back and use tweezers to insert it all the way into the top of the needle clamp ④ hole.
(3)Tighten the needle clamp screw ③ of needle ②.



Installation Requirements

- The tightening torque of the needle clamp screw ③ is 0.6Nm (6kgf.cm).
- After replacing the needle, be sure to check the "distance between the needle and the curved needle" and the "distance between the needle and the needle holder" (refer to pages 28 and 30).

5.4 Threading

⚠Caution

- When threading, be sure to turn off the motor power and confirm that the motor has stopped rotating to avoid injury.
- Incorrect threading method may cause skipped stitches, thread breakage, uneven stitches, etc.

Please follow the instructions in Figure 042 for threading.

ⓘ Supplement

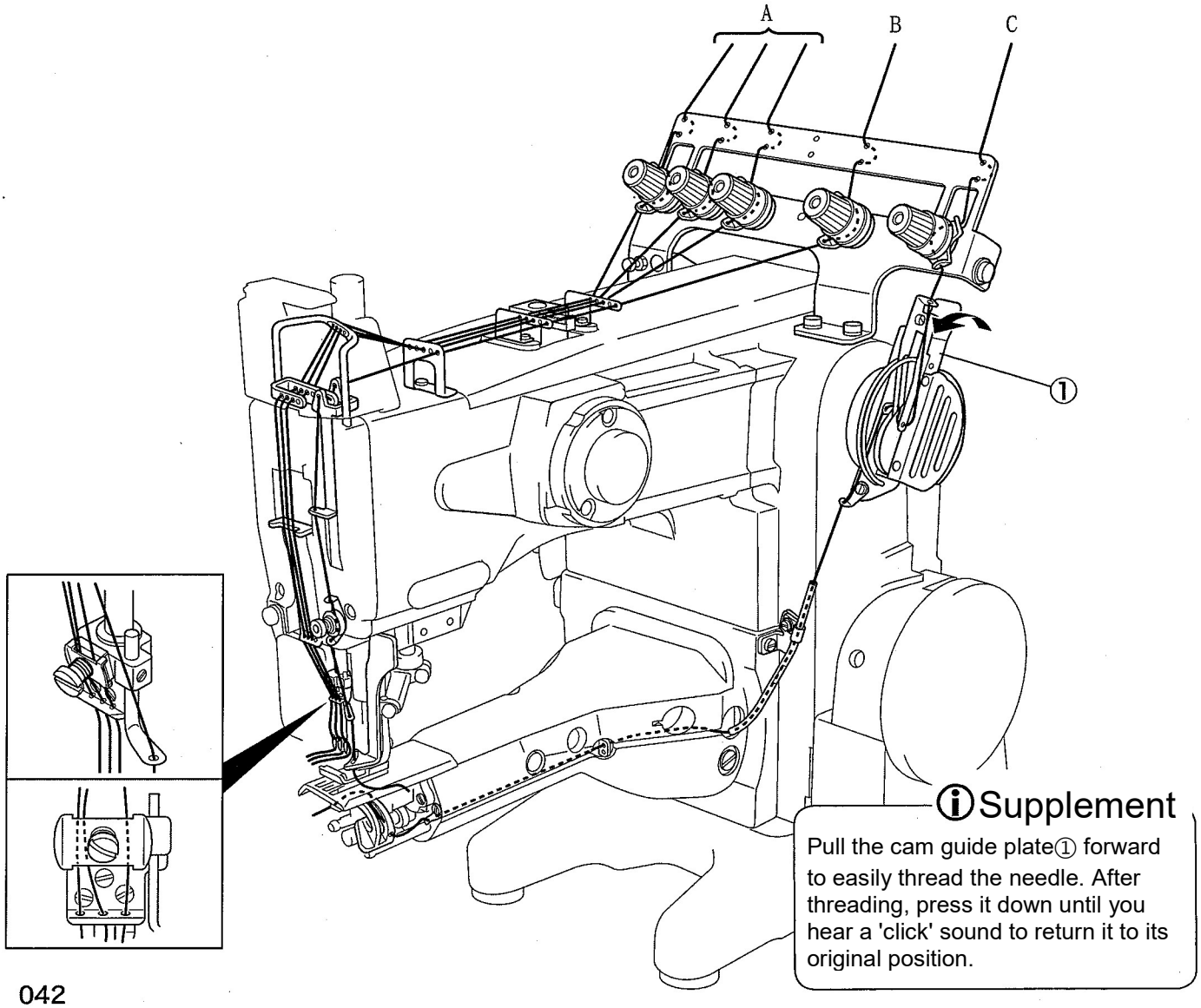
Raising the presser foot will activate the thread release mechanism, allowing the thread to be pulled out smoothly.

When threading is complete, tie the thread.

<A Needle Thread>
Pull the end of the thread forward, cut off the end before threading the needle.

<B Upper Decorative Thread>
Pull the thread out until the end comes out.

<C Curved Needle Thread>
Pull the thread out until the end comes out, then cut off the end with scissors.



ⓘ Supplement

Pull the cam guide plate① forward to easily thread the needle. After threading, press it down until you hear a 'click' sound to return it to its original position.

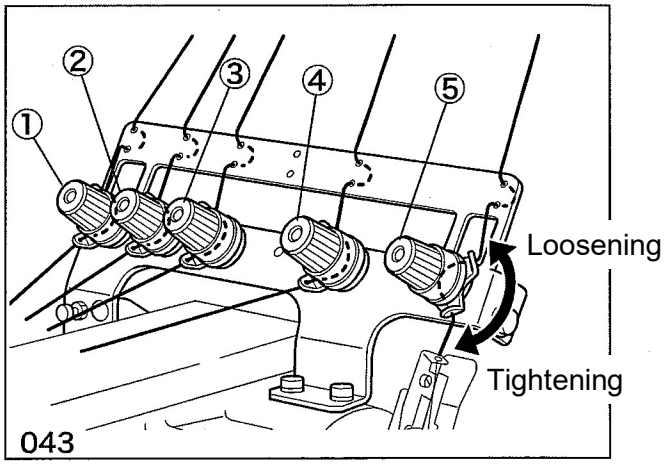
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5.5 Adjusting the Thread Tensioner

The tension of the thread varies according to the type of fabric, type of thread, sewing width, stitch length, and usage conditions.
Adjust the thread tension using the thread tension springs to make the thread tension appropriate.

- Turn to the right (clockwise) to tighten the thread.
- Turn to the left (counterclockwise) to loosen the thread.

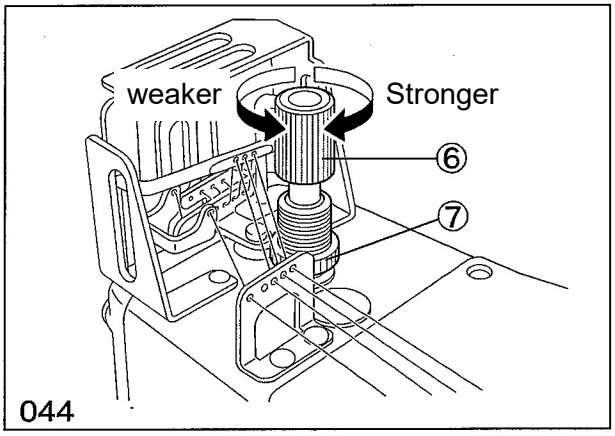
① Left needle thread
② Center needle thread
③ Right needle thread
④ Decorative thread
⑤ looper thread



5.6 Adjusting the Presser Foot Pressure

Within the stable range of stitches, the presser foot pressure should be adjusted as weak as possible.
(1) Loosen the lock nut of the presser foot adjustment screw.
- Turn to the right (clockwise) to increase the presser foot pressure.
- Turn to the left (counterclockwise) to decrease the presser foot pressure.

(2) After adjustment, tighten the lock nut.



5.7 Adjusting the Differential Feed Amount

(1) Loosen the lock nut.
(2) Adjust the differential feed adjustment lever.
- Turn the lever upwards for shrinkage sewing.
- Turn the lever downwards for expansion sewing.

※ Refer to Table 4 for the relationship between the scale and the differential ratio to adjust the position of the adjustment lever.
(3) After adjustment, tighten the lock nut.

⚠Caution

- The maximum differential ratio is 1:1.5 for a stitch length of 4mm.
- The maximum differential ratio is 1:2 for a stitch length of ≤3mm.

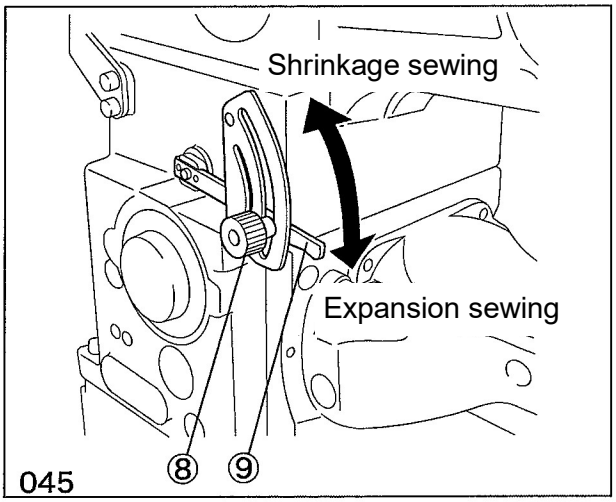


Table 4

Scale	Differential Ratio	Remarks
S	1:0.8	Expansion sewing
1	1:1	
	1:1.5	Stitch length ≤4mm
2	1:2	Stitch length ≤3mm

5.8 Adjusting the Stitch Length

Note

When adjusting the stitch length, be sure to turn off the motor power and confirm that the motor has stopped rotating to avoid injury.

The stitch length can be continuously adjusted between 1.2mm and 4.0mm. The scale on the belt wheel indicates the length of one stitch (mm).

※The actual stitch length may vary depending on the type and thickness of the fabric and the differential ratio.

Table 5

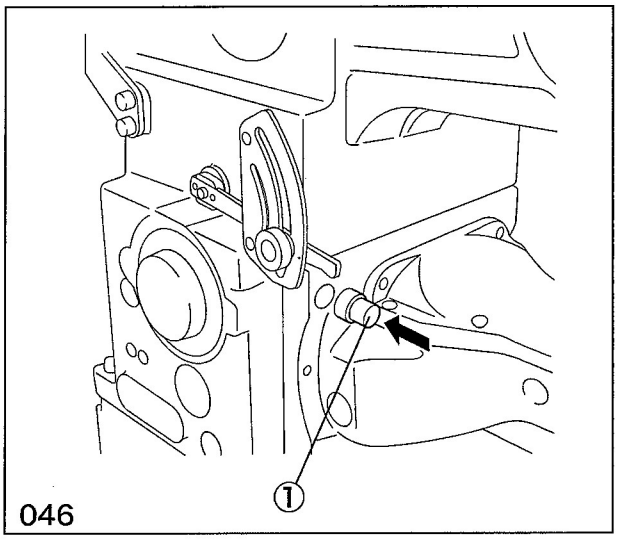
Stitch Length (mm)	Number of Stitches per Inch	Number of Stitches per 30mm
4.0	6	7.5
2.5	10	12
2.0	12.7	15
1.2	21	25

◇The table data indicates the number of stitches for each stitch length within 1 inch (25.4mm) and 30mm.

How to Change the Stitch Length:

(1) Lightly press the button with your left hand until you feel the front end of the button touch the internal component.

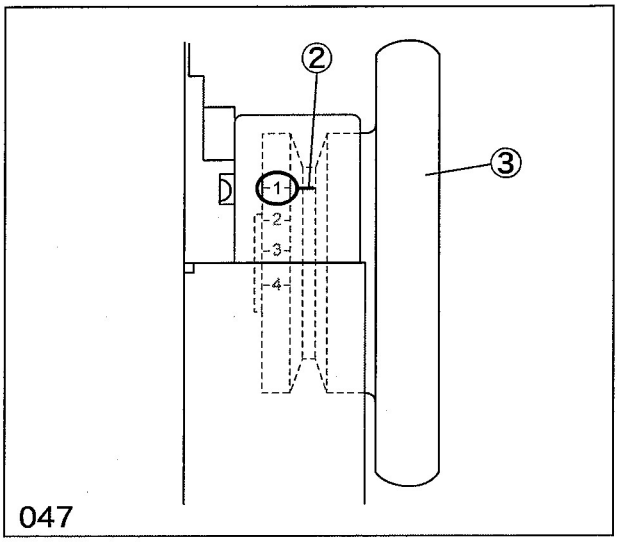
(2) Continue to lightly press the button, and turn the handwheel forward with your right hand. When the button sinks in, press the button firmly.
- ●Turn to the right (clockwise) to lengthen the stitch.
- ●Turn to the left (counterclockwise) to shorten the stitch.



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(3) While holding the button, align the scale on the machine belt wheel with the alignment mark on the belt cover hole.

(4) Release the button after aligning the scale.



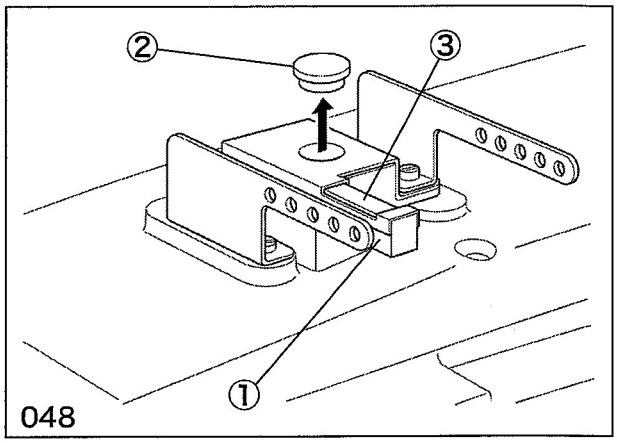
047

Note

Ensure that the button has fully returned and the machine belt wheel can rotate freely.

5.9 About the SP Device

When sewing at high speed and using synthetic threads or fabrics, use the SP device to prevent thread breakage and skipped stitches.



Pre-sewing Machine Check:
Remove the plug ② from the SP slot ①, check the amount of silicone oil inside. If the amount is insufficient, add silicone oil (dimethyl silicone).

⚠ Note

- If not using the SP device, remove the felt from the device. Otherwise, it may adversely affect the sewing condition.
- If silicone oil gets on parts other than the SP device, wipe it off cleanly. Otherwise, it may cause the sewing machine to malfunction.

5.10 Adjusting the Guide Ruler



For Hem Folding

The right guide ruler ① is used to adjust the width of the fabric hem.

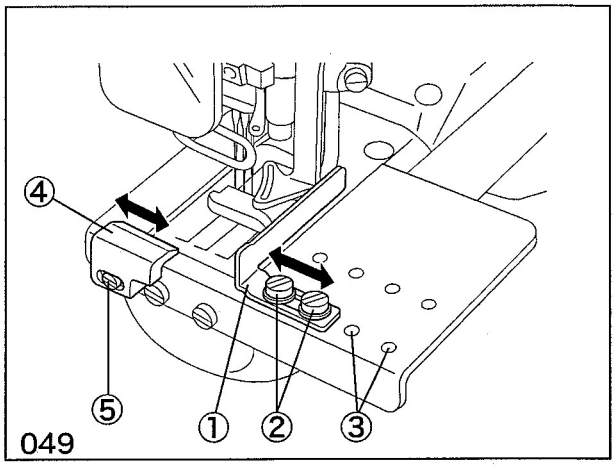
(1) Loosen the positioning screw ② and adjust the right guide ruler ① left or right.
※ If the position changes significantly, move to another screw hole ③.

(2) Tighten the loosened positioning screw ②.

The left guide ruler ④ is used to adjust the left side of the hemmed fabric.

(1) Loosen the positioning screw ⑤ and adjust the left guide ruler ④ left or right.

(2)Tighten the loosened positioning screw.



For Covering Seams Fold Down Type

(1) Loosen the positioning screw ⑧ of the fabric guide rail.

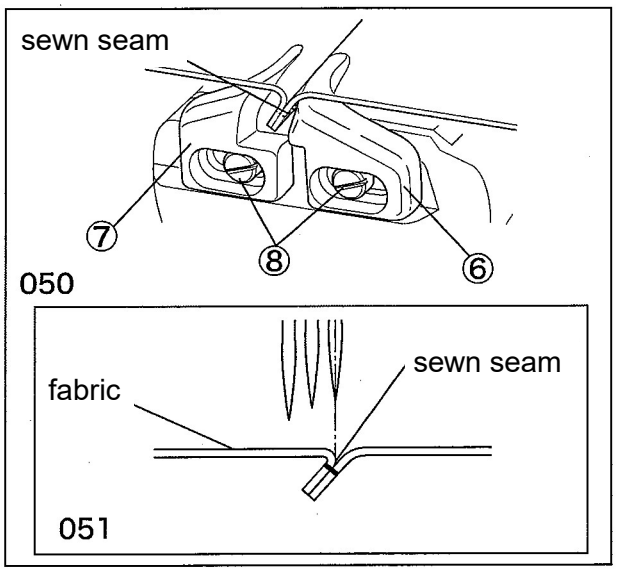
(2) Place the sewn fabric end between the right ⑥ and left ⑦ fabric guide rails.

(3) Align the sewn seam with the center of the right needle, adjust the gap width between the right ⑥ and left ⑦ fabric guide rails to allow the fabric to pass smoothly.

(4) After adjustment, tighten the loosened positioning screw ⑧.

ⓘ Supplement

The relationship between the sewn seam and the left needle varies depending on the sewing product.

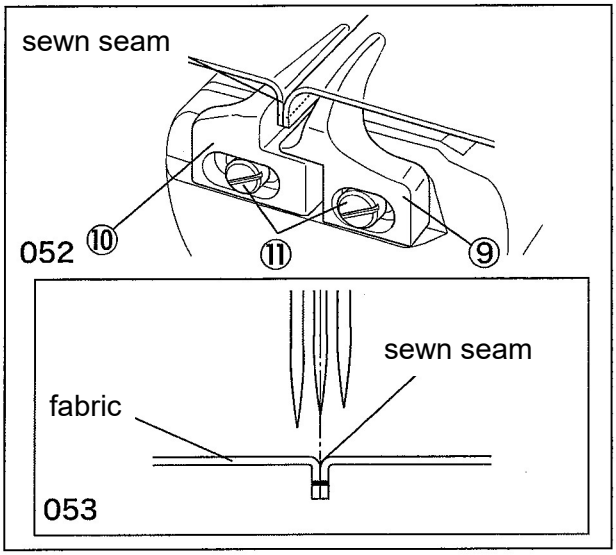


For Covering Seam Standing Type

(1) Loosen the positioning screw ① of the fabric guide rail.

(2) Open the sewn fabric, adjust the gap width between the right ⑨ and left ⑩ fabric guide rails to allow the fabric to pass smoothly and to center the sewn seam with the needle spacing.

(3) After adjustment, tighten the loosened positioning screw ①.

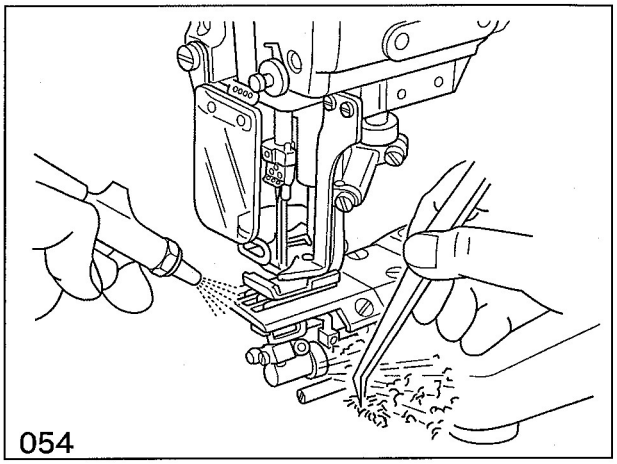


5.11 Cleaning

Note

When cleaning, be sure to turn off the motor power and confirm that the motor has stopped rotating to avoid getting your hands or clothes caught in the sewing machine, which could cause injury.

◇ At the end of each day's work, remove the small cylinder front cover plate and clean the dust and thread debris accumulated inside the sewing machine.
◇ Weekly, remove the small cylinder front cover plate and the presser foot, and clean the needle plate groove and the area around the feed dogs.



6. Sewing Machine

Note

When performing maintenance, be sure to turn off the motor power and confirm that the motor has stopped rotating before proceeding.

6.1 Adjusting the Thread Tension

Adjusting the Front Thread Path

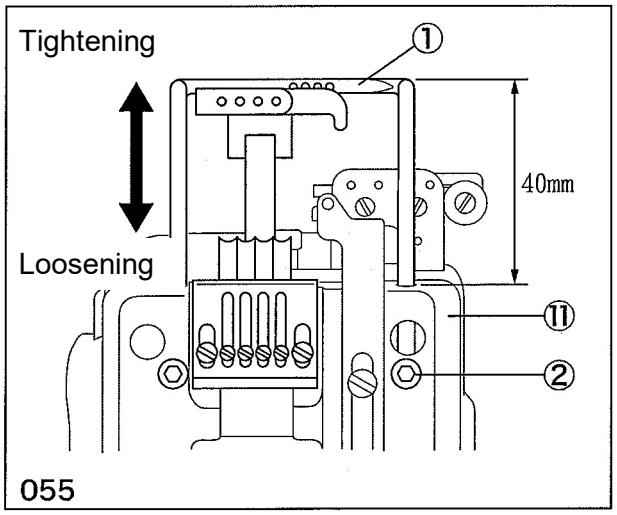
The front thread path ① can adjust the tension of the thread.

The standard position of the front thread path ① is such that the distance from the arm's upper surface ① to the upper surface of the front thread path ① is 40mm.

Loosen the positioning screw ② and adjust the installation position of the front thread path ①.

After adjustment, tighten the loosened positioning screw ②.

- Lowering the front thread path will loosen the thread.
- Raising the front thread path will tighten the thread.



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Adjusting the Bobbin Winder

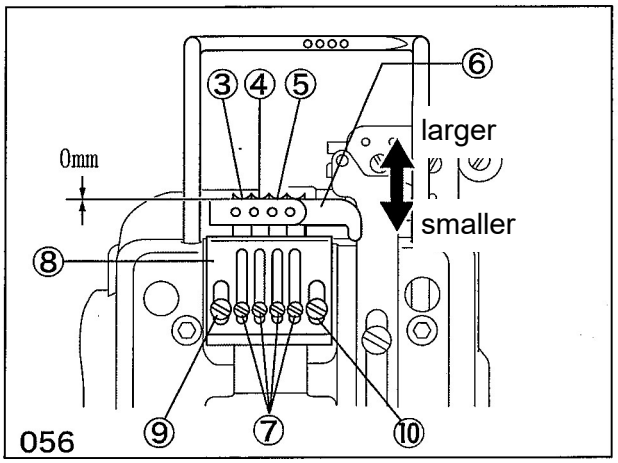
The bobbin winder ③④⑤ can adjust the size of the thread loop .

The standard position of the bobbin winder ③④⑤ is when the needle bar descends to the lowest point, the upper part of the needle bar thread path ⑥ aligns with the bottom recess of the bobbin winder (refer to figure 056).

Loosen each positioning screw ⑦ and adjust the installation position of the bobbin winder ③④⑤.

After adjustment, tighten the loosened positioning screws ⑦.

- Lowering the bobbin winder will make the thread loop smaller.
- Raising the bobbin winder will make the thread loop larger.



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Adjusting the Bobbin Winder Mounting Plate

When changing the type of thread, it is necessary to adjust the position of the bobbin winder mounting plate ⑧ to regulate the size of all thread loops.

Loosen the positioning screws ⑨⑩ and adjust the installation position of the bobbin winder mounting plate ⑧.

After adjustment, tighten the loosened positioning screws ⑨⑩.

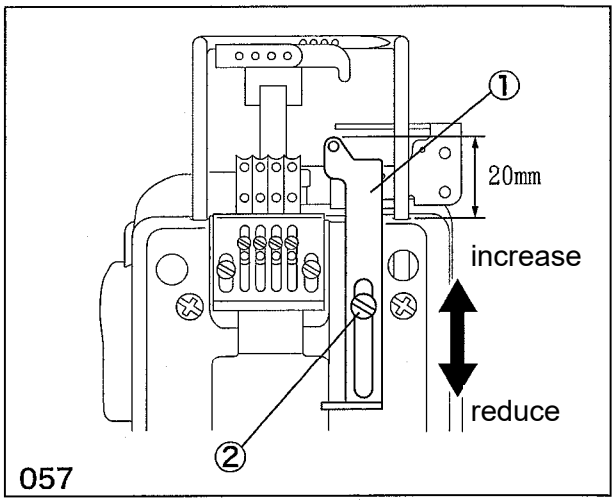
- Lowering the bobbin winder mounting plate will make the thread loop smaller.
- Raising the bobbin winder mounting plate will make the thread loop larger.

6.2 Adjusting the Tension of the Upper Decorative Thread

The standard position for the decorative thread path is that the distance from the upper surface of the arm to the upper surface of the decorative thread path is 20mm.
Loosen the positioning screw and adjust the installation position of the decorative thread path. After adjustment, tighten the loosened positioning screw.

- Lowering the decorative thread path will reduce the thread tension.
- Raising the decorative thread path will increase the thread tension.

※ When using elastic nylon thread for the decorative thread, lower the decorative thread path.

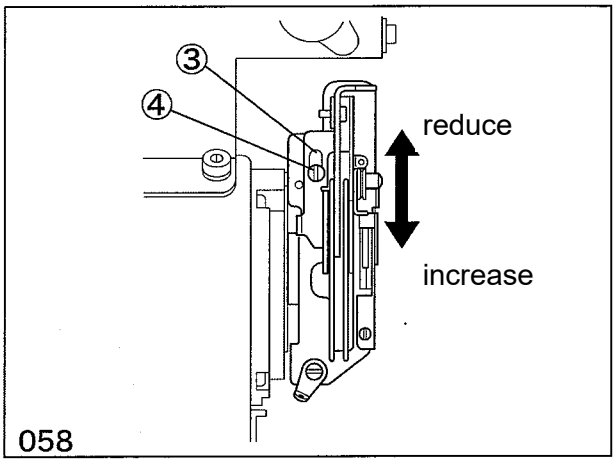


6.3 Adjusting the Tension of the Curved Needle Thread

Adjusting the Cam Thread Path

The standard position of the cam thread path ③ is when the positioning screw ④ is located below the long hole.
Loosen the positioning screw ④ and adjust the installation position of the cam thread path ③. After adjustment, tighten the loosened positioning screw ④.

- Raising the cam thread path ③ will reduce the lower thread supply.
- Lowering the cam thread path ③ will increase the lower thread supply.

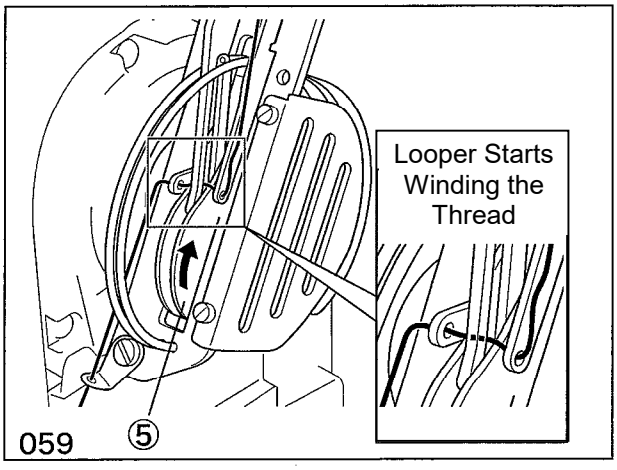


⚠ Caution

Excessive thread supply from the curved needle thread disk may cause skipped stitches, so be cautious.

Adjusting the Curved Needle Thread Tension Cam

When the needle bar is at the top dead center, adjust the curved needle thread tension cam ⑤ to the position where the curved needle starts winding the thread.



6.4 Adjusting the Needle and

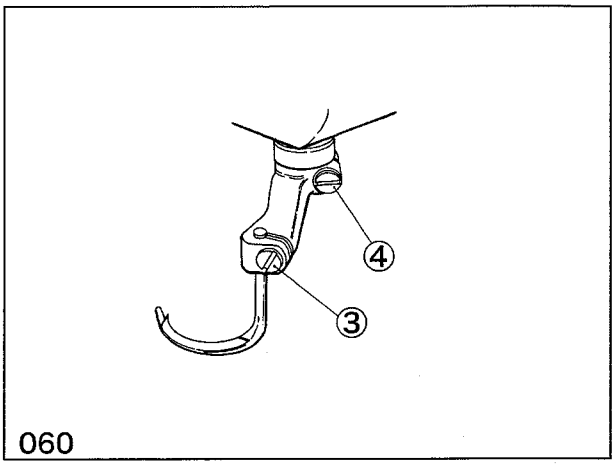
6.4.1 **Adjusting the Decorative Thread**

(1) Loosen the decorative thread curved needle positioning screw and the curved needle base positioning screw ④. (Refer to figure 060)

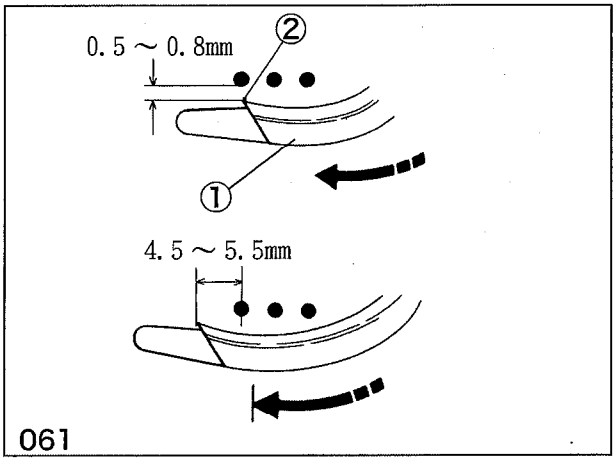
(2) Adjust the position of the decorative thread curved needle ① so that the gap between the left needle ① and the guide hook ② of the decorative thread curved needle is 0.5~0.8mm. (Refer to figure 061)

(3) Adjust so that when the decorative thread looper ① is at the far left, the distance from the center of the left needle to the front end of the guide hook ② is 4.5~5.5mm, and tighten the positioning screw ④. (Refer to figures 060 and 061)

(4) Adjust so that the distance from the upper surface of the needle plate to the lower surface of the decorative thread looper ① is 11~12mm, and tighten the positioning screw ③. (Refer to figures 060 and 062)



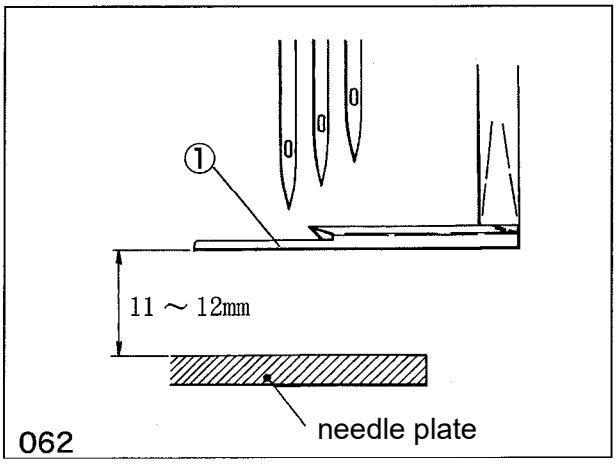
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Supplement

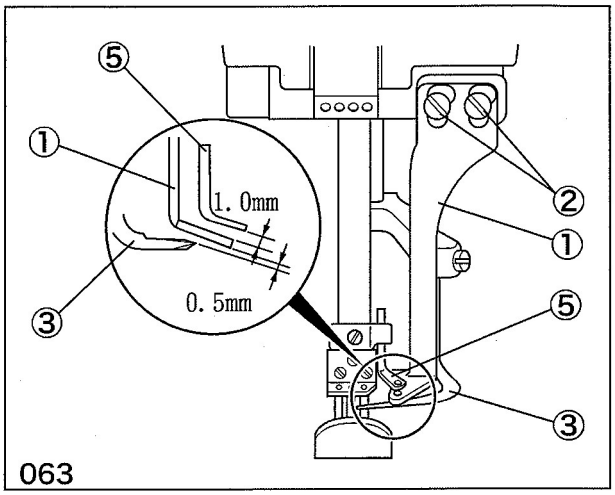
The height of the decorative thread curved needle ① should be adjusted within the range, so that the decorative thread can pass behind the right needle and be caught by the left needle.



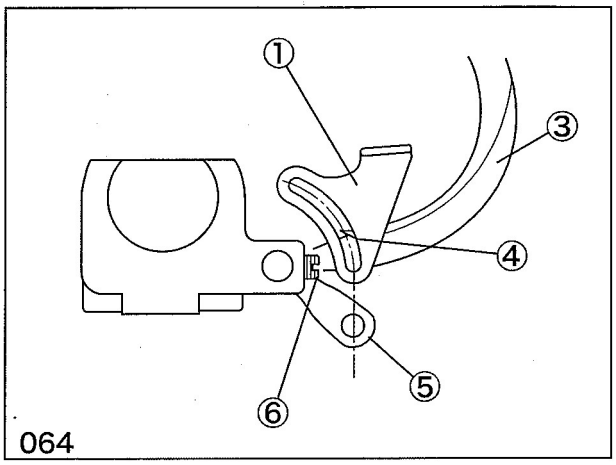
062

6.4.2 **Adjusting the Decorative Thread Guide**

(1) Loosen the positioning screw ② of the decorative thread guide ①. (Figure 063)
(2) Adjust the position of the decorative thread guide ① so that the gap between the upper surface of the decorative thread curved needle ③ and the lower surface of the decorative thread guide ① is 0.5mm. (Figure 063)
(3) Adjust the position of the decorative thread curved needle so that when the decorative thread curved needle ③ is at the far right, the center of the long slot of the decorative thread guide ① aligns with the front end of the guide hook ④. Tighten the loosened positioning screw ②. (Figures 063, 064)



063



064

6.4.3 **Adjusting the Decorative Thread Path**

(1) Loosen the positioning screw ⑥ of the decorative thread path ⑤. (Figure 064)
(2) When the needle bar is at the lowest point, adjust the decorative thread path ⑤ so that the gap between the upper surface of the decorative thread guide ① and the decorative thread path ⑤ is 1.0mm. (Figure 063)
(3) Align the thread hole of the decorative thread path ⑤ with the extended line of the long hole of the decorative thread guide ①. (Figure 064)
(4) Tighten the loosened positioning screw ⑥. (Figure 064)

6.5 Adjusting the Needle and Looper

6.5.1 Looper Backward Amount

When the needle is at the lowest point and the curved needle ① is at the far right, the backward amount from the front end of the curved needle ① to the center of the right needle varies depending on the needle pitch.

Adjust according to the backward amount in Table 6.

Loosen the positioning screw ③ of the looper base ② and the positioning screw ⑤ of the curved needle base ring ④, adjust the position of the curved needle ①.

After adjustment, tighten the loosened positioning screws ③⑤.

Supplement

Even if the needle pitch varies, the distance from the center of the needle bar to the front end of the curved needle is 6.2~6.4mm. (Figure 067)

6.5.2 Looper Angle and Height

Insert the looper into the looper base deeply and tighten the positioning screw. The height and installation angle (2°) are determined accordingly.

6.5.3 Looper Front and Rear Position

(1) Rotate the machine pulley so that the front end of the looper aligns with the center of the left needle.

(2) Loosen the positioning screws, adjust the gap between the back of the left needle and the front end of the looper to be 0.2~0.3mm, and adjust the front and rear position of the looper base along with the looper base ring.

(3) Tighten the loosened positioning screws.

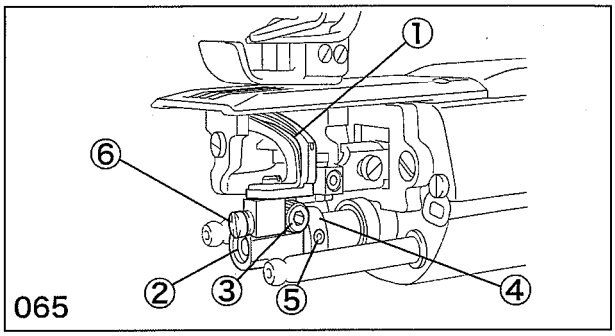
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Even if the entire looper base is removed, it can be easily installed. Align the hole of the looper base with the pin of the looper base ring, and tighten the positioning screw of the looper base. Ensure the gap between the needle and the looper is correct.

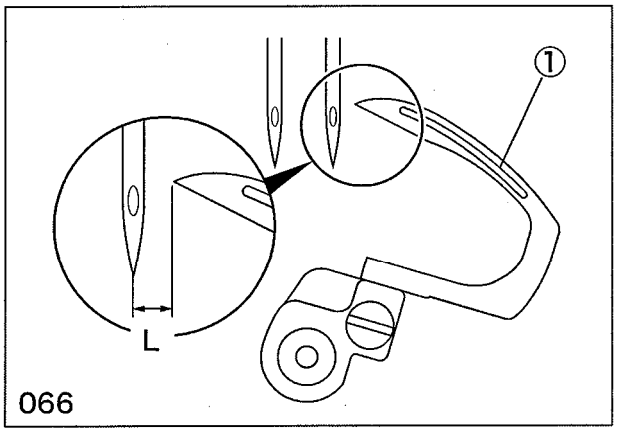
Note

● Ensure the loooper base is tightly attached to the looper base ring. Otherwise, the needle may contact the looper, causing damage to the parts.

● The front and rear position of the looper may move when tightening the positioning screw. After tightening the positioning screw, recheck the front and rear position of the looper.



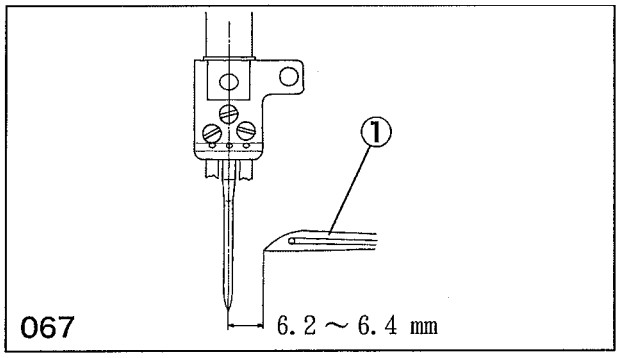
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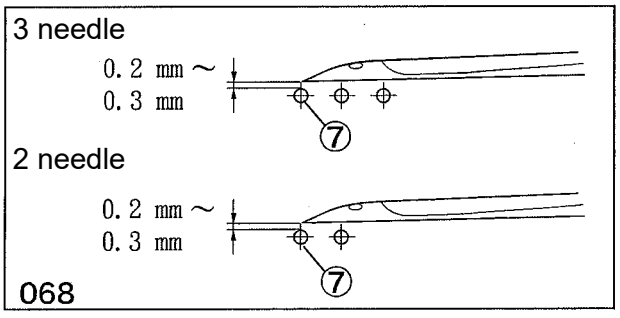
066

Table 6

Needle Pitch (Mark)	Looper Backward Amount (L)
3.2 (32)	4.6~4.8 mm
4.0 (40)	4.2~4.4 mm
4.8 (48)	3.8~4.0 mm
5.6 (56)	3.4~3.6 mm
6.4 (64)	3.0~3.2 mm



067



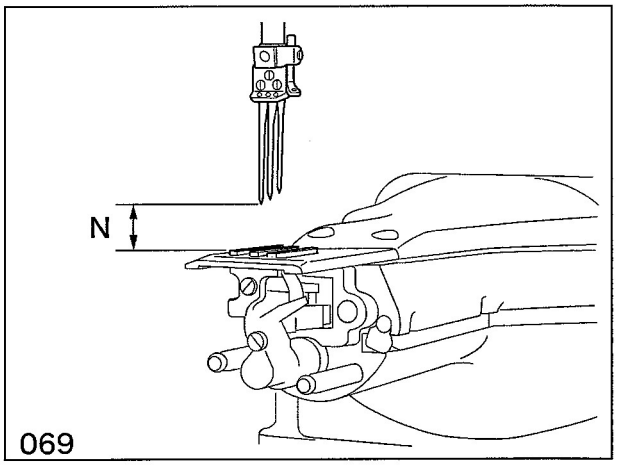
068

6.5 Needle Height

(1) Place the needle into the left needle mounting hole of the needle guard.
(2) Remove the cover screw ①.
(3) Loosen the needle bar fixing screw ② and adjust the needle bar up or down, so that the height of the front end of the left needle matches the value (N) in Table 7, depending on the needle pitch.
(4) Ensure that the needle falls into the center of the needle hole on the needle plate, then tighten the needle bar fixing screw ②.
(5) Install the removed cover screw ①.

⚠Note

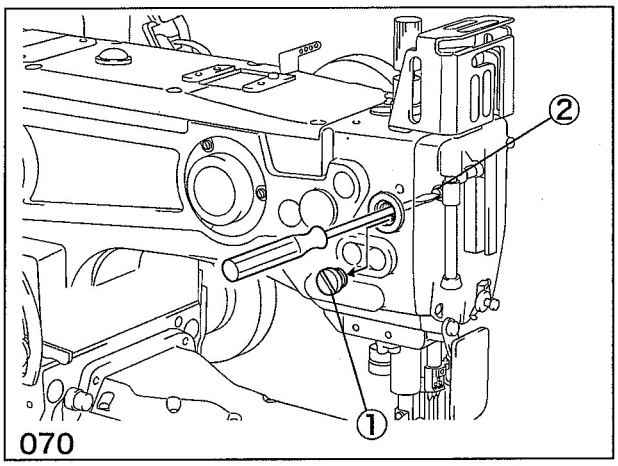
When installing the cover screw ①, clean the old gasket thoroughly and apply liquid gasket before installation to prevent oil leakage.



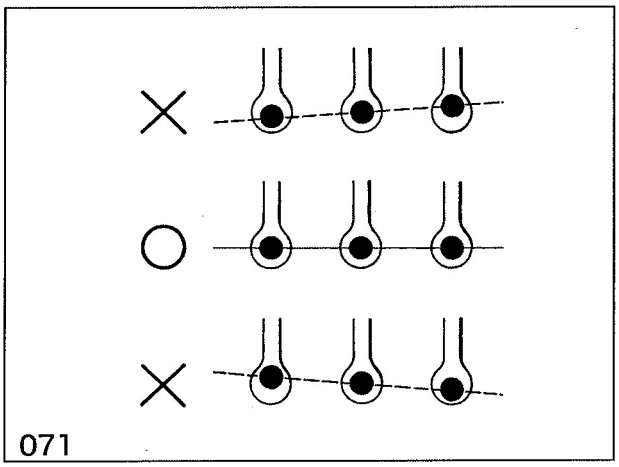
069

Table 7

Needle Pitch	Mark	Left Needle Height (N)
3.2 mm	32	11.8~12.0mm
4.0 mm	40	11.5~11.7mm
4.8 mm	48	11.2~11.4mm
5.6 mm	56	10.9~11.1mm
6.4 mm	64	10.6~10.8mm



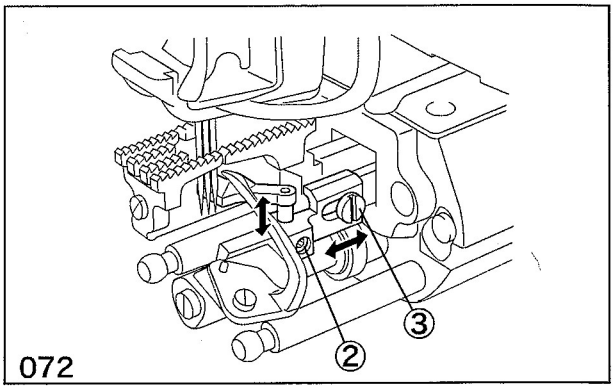
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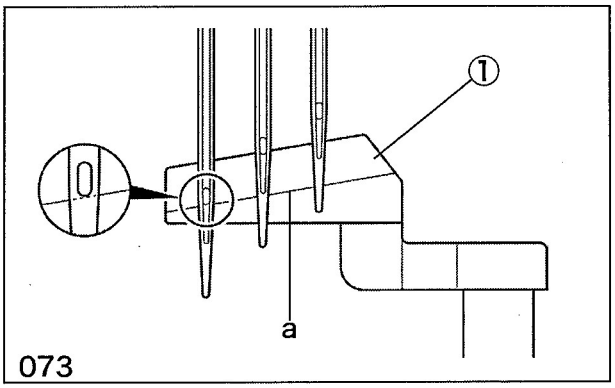
6.6 Adjusting the Rear Needle Holder

Needle Holder (Rear) Height

(1) Loosen the screw ②.
(2) When the looper reaches the center of the right needle , adjust the rear needle holder ① so that its edge is at the same height as the lower end of the left needle hole.
(3) Tighten the loosened positioning screw ②.



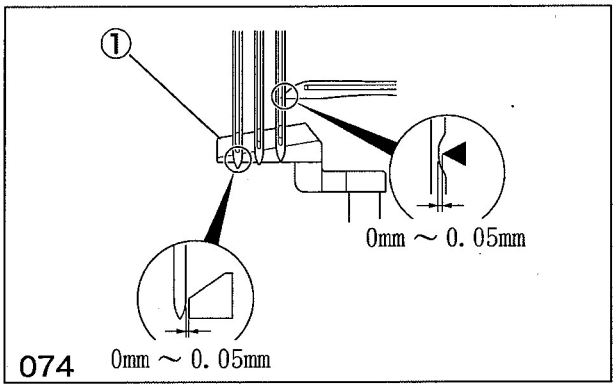
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073

Needle Holder (Rear) Front-Back Position

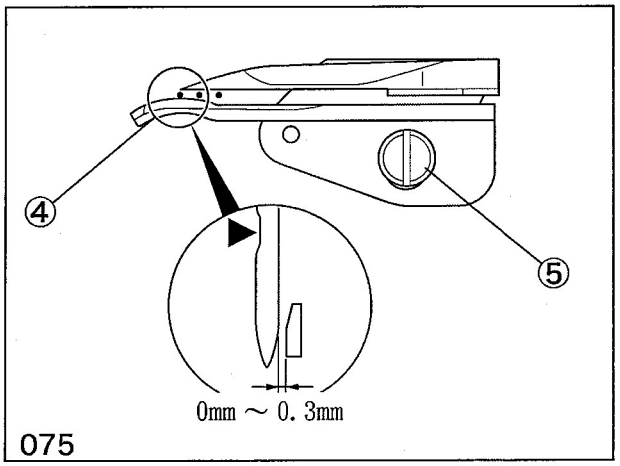
(1) Loosen the positioning screws ②③.
(2) When the front end of the looper reaches the center of the right needle, press the right needle with the rear needle holder ①, ensuring the gap between the needle and the looper is 0-0.05mm. Adjust the angle and front-back position of the rear needle holder ① so that the gap between the left needle and the rear needle holder ① is 0-0.05mm.
(3) Ensure that the center and left needles begin to contact the rear needle holder ① from below the needle hole.
(4) Tighten the loosened positioning screws ②③.



074

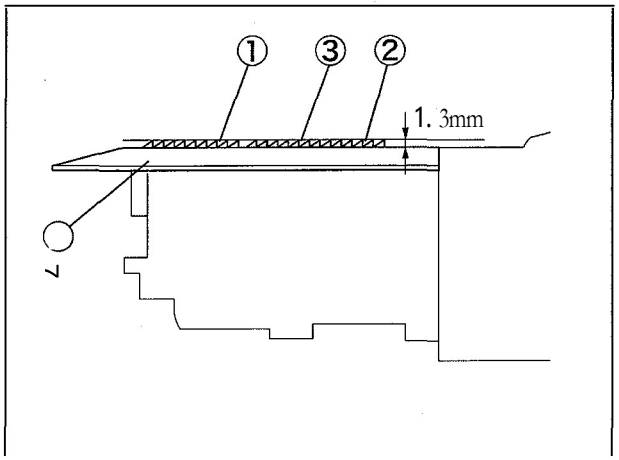
6.7 Adjusting the Front Needle

(1) Loosen the positioning screws ⑤ and adjust so that the gap between the curved needle front end and the left and right needles is 0-0.3mm when the curved needle reaches the center.
(2) Tighten the loosened positioning screws ⑤.



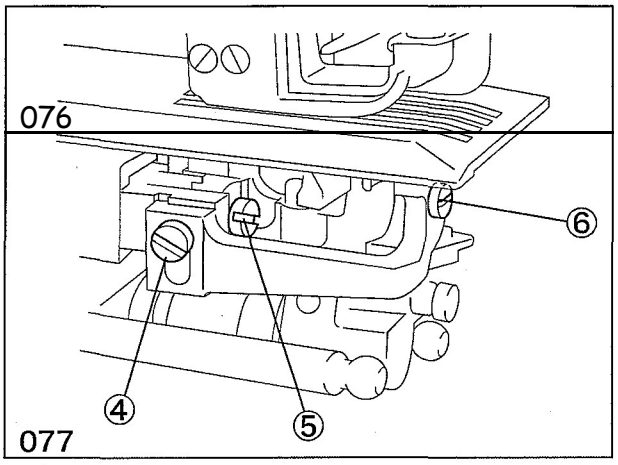
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6.8 Adjusting the Height of the Feed Dogs



Standard Position

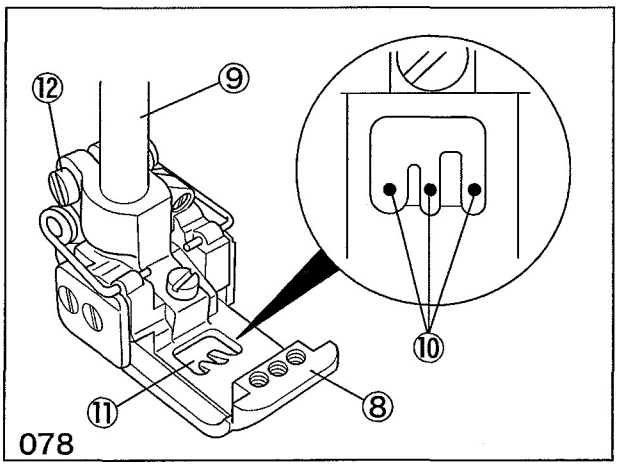
When the feed dogs are raised to the highest point, the rearmost part of the rear feed dog ② should be 1.1~1.3mm above the needle plate surface. When the feed dogs are raised to be level with the needle plate ⑦, the front feed dog ①, middle feed dog ②, and rear feed dog ① should all be parallel to the needle plate. The heights of the front ①, middle ③, and rear ② feed dogs should be the same.



Adjustment Method

Loosen the positioning screws ④⑤⑥ of the front feed dog ① , rear feed dog ②, and middle feed dog ③ to adjust. After adjustment, tighten the loosened positioning screws ④⑤⑥.

6.9 Adjusting the Position of the Presser Foot

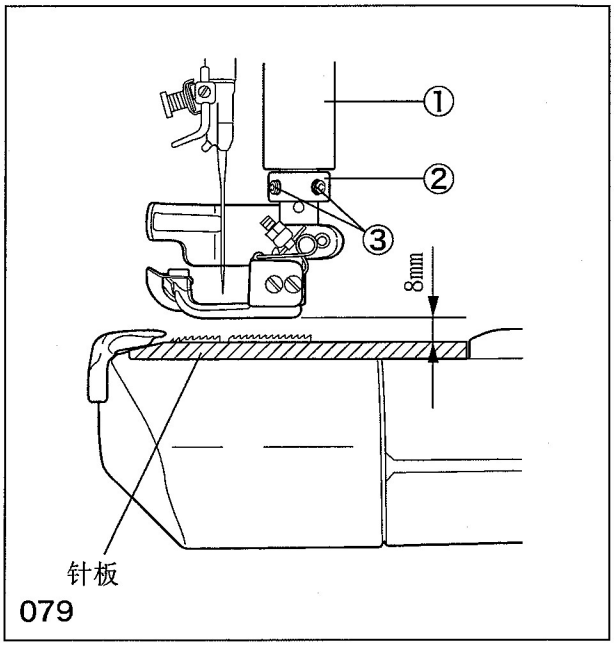


The presser foot ⑧ should be properly installed on the presser foot bar ⑨, and the needle ⑩ should drop to the center of the needle hole on the presser foot ⑧.

Loosen the positioning screw ⑫ of the presser foot ⑧ , adjust the presser foot ⑧ left or right so that the needle ⑩ falls into the center of the needle hole ⑪ on the presser foot ⑧..

6.10 Adjusting the Presser Foot Brake Ring

When the presser foot is raised to the highest point, the gap between the presser foot bar bushing ① and the presser foot brake ring ② should be 0.3mm.
Loosen the screw ③, move the brake ring ② up or down to adjust.



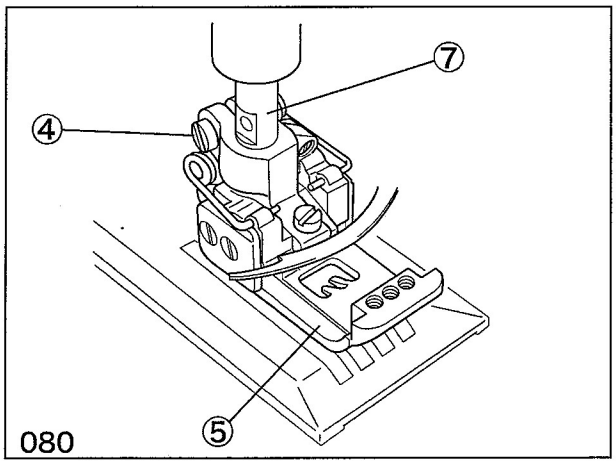
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6.11 Installing and Removing the Presser Foot



Removing

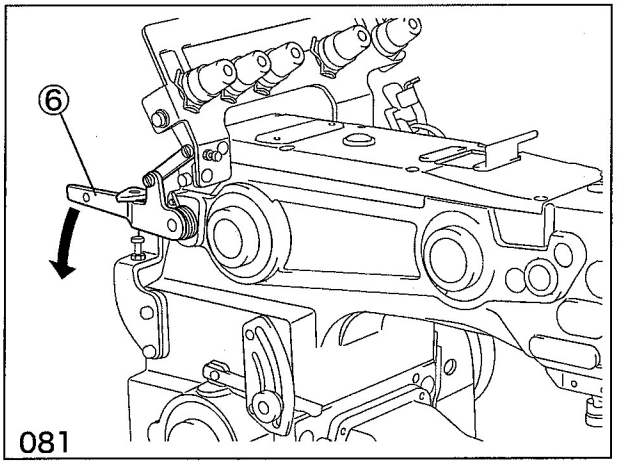
(1) Loosen the positioning screw ④.
(2) Press down the presser foot lifter ⑥ and remove the presser foot ⑤.



080

Installing

(1) Press down the presser foot lifter ⑥ and insert the presser foot ⑤ into the presser foot bar ⑦.
(2) Refer to the "Adjusting the Position of the Presser Foot" section on page 31, align the position, and tighten the loosened positioning screw ④.



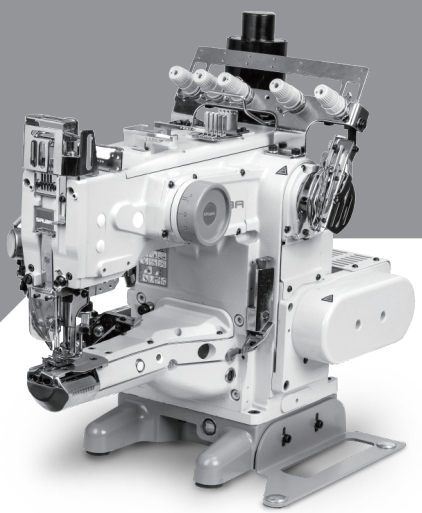
081

7 Troubleshooting

Problem	Checkpoint	Solution	Reference Page
Skipped Stitches	Is the threading method incorrect?	Please thread correctly.	18
	Is the needle bent or the tip broken?	Please replace the needle.	17
	Is the thread tension too tight?	Please loosen the thread tension.	19
	Are the timing and gap between the needle, curved needle, and needle holder appropriate?	Adjust the timing and gap between the needle, curved needle, and needle holder to the correct values.	26~30
	Is the needle too fine compared to the thread?	Use an appropriate needle or appropriate thread.	17
	Is the needle installed correctly (direction, insertion depth)?	Install the needle correctly.	17
Broken Thread	Is the thread wound around the thread path?	Remove the wound thread.	
	Is the threading method incorrect?	Please thread correctly.	18
	Is the thread tension too tight?	Please loosen the thread tension.	19
	Is the thread too thick compared to the needle?	Use an appropriate needle or appropriate thread.	17
	Is the thread quality poor?	Use good quality thread.	
	Is the thread breaking due to heat?	Use the SP device.	21
	Are there any scratches on the thread path, curved needle winder, etc.?	Repair the scratches or replace with new parts.	
Broken Needle	Is the needle hitting the curved needle?	Adjust the gap between the needle, curved needle, and needle holder to the correct values.	28 30
Poor Thread Tension	Is the threading method incorrect?	Please thread correctly.	18
	Are the needle thread and curved needle thread balanced?	Adjust the thread tension balance correctly.	
Uneven Thread Tension	Is the threading method incorrect?	Please thread correctly.	18
	Are the needle thread and curved needle thread balanced?	Adjust the thread tension balance correctly.	
No Lubrication Oil from Nozzle	Is the amount of lubrication oil below the line in the oil supply observation window?	Replenish the lubrication oil.	16
	Is the lubrication oil filter clogged?	Replace the lubrication oil filter.	16

8 Specifications

Name	Vertical Cylinder Three-Needle Coverstitch Machine
Dimensions	430mm (L) × 284mm (W) × 360mm (H)
Cylinder Circumference	160mm
Weight	42kg
Stitch Types	ISO Standards 406, 407, 602, 605
Applications	Seam stitching, joining seams, hemming, substitute sewing for knitted and woven fabrics.
Sewing Speed	Maximum 4000 rpm (during intermittent operation)
Stitch Length	1.2~4mm Number of stitches per inch (25.4mm): 6~21 Number of stitches per 30mm: 7.5~25
Needles	UYX128GAS #9~#14 (Standard #10) (65~90)
Needle Spacing	3 needles: 4.8mm, 5.6mm, 6.4mm 2 needles: 3.2mm, 4.0mm
Needle Stroke	31.5mm
Presser Foot Lift	8mm (with decorative binding attachment)
Feed Dog Adjustment Method	Button method
Differential Feed Ratio	Maximum reverse differential 1:0.8 Maximum forward differential 1:2
Differential Adjustment Method	External handle type
Lubrication Method	Hypocycloid pump automatic oil supply
Lubricating Oil	Yamato SF Lubricating Oil 28
Oil Capacity	600ml
Installation Method	Tabletop type / Semi-submerged type



高林股份有限公司
KAULIN MFG. CO., LTD.

由於對產品的改良及更新 , 本產品零件圖及外觀的修改恕不事先通知 !
The specification and/or appearances of the equipment described in this parts list are subject to change because of modification which will without previous notice.
LML-19AG01.AUG.2024