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15 **钉扣校验**
Adjustment



请注意所有使用说明第1章"安全"中给出的提示! 特别要注意, 所有的防护设施在校验工作完成后, 要按规定重新安装好, 见使用说明1.06章, 危险提示!

Please observe all notes from Chapter 1 Safety of the instruction manual! In particular care must be taken to see that all protective devices are refitted properly after adjustment, see Chapter 1.06 Danger warnings of the instruction manual!



如果没有其它的说明, 将机器与电源分开!
If not otherwise stated, the machine must be disconnected from the electrical power supply.

15.01 **对校验的说明**
Notes on adjustment

本说明中所述的所有校验工作都是针对完全安装完毕的机器, 并且只允许由受过相应培训的专业人员来完成。

那些在检查和校验工作中需要卸下和重新安装上的机器盖板在文章中将不再提及。后续章节的顺序按照机器进行全部调整的工作顺序排列。如果仅是有目的的完成某一单独的工作步骤, 则要注意其前、后的章节。

写在括号 () 内的螺钉和螺母用来固定机器部件、它们必须在校验工作之前松开, 并在校验工作之后重新拧紧。

All following adjustments are based on a fully assembled machine and may only be carried out by expert staff trained for this purpose.

Machine covers, which have to be removed and replaced to carry out checks and adjustments, are not mentioned in the text.

The order of the following chapters corresponds to the most logical work sequence for machines which have to be completely adjusted. If only specific individual work steps are carried out, both the preceding and following chapters must be observed.

Screws, nuts indicated in brackets () are fastenings for machine parts, which must be loosened before adjustment and tightened again afterwards

15.02 **工具、量规和其它辅助材料**
Tools, gauges and other accessories

- 1套2至10mm头宽的螺丝刀
1 set of screwdrivers with blade widths from 2 to 10 mm
- 1套7至14mm扳口宽的扳手
1 set of spanners with jaw widths from 7 to 14 mm
- 1套1.5至6mm的内六角螺钉扳手
1 set of Allen keys from 1.5 to 6 mm

15.03 **缩写**
Abbreviations

o.T.=上死点
u.T.=下死点
t.d.c.= top dead centre
b.d.c.= bottom dead centre

15.04

图标说明

Explanation of the symbols

在本校验说明中，所要完成的工作或者重要的信息都用图标来表达。

所使用的图标具有下述意义：

In this adjustment manual, symbols emphasize operations to be carried out or important information. The symbols used have the following meaning



提示，信息

Note, information



维护，修理，校验，维修

(只能由专业人员完成的工作)

Service, repair, adjustment, maintenance

(work to be carried out by qualified staff only)

15.05

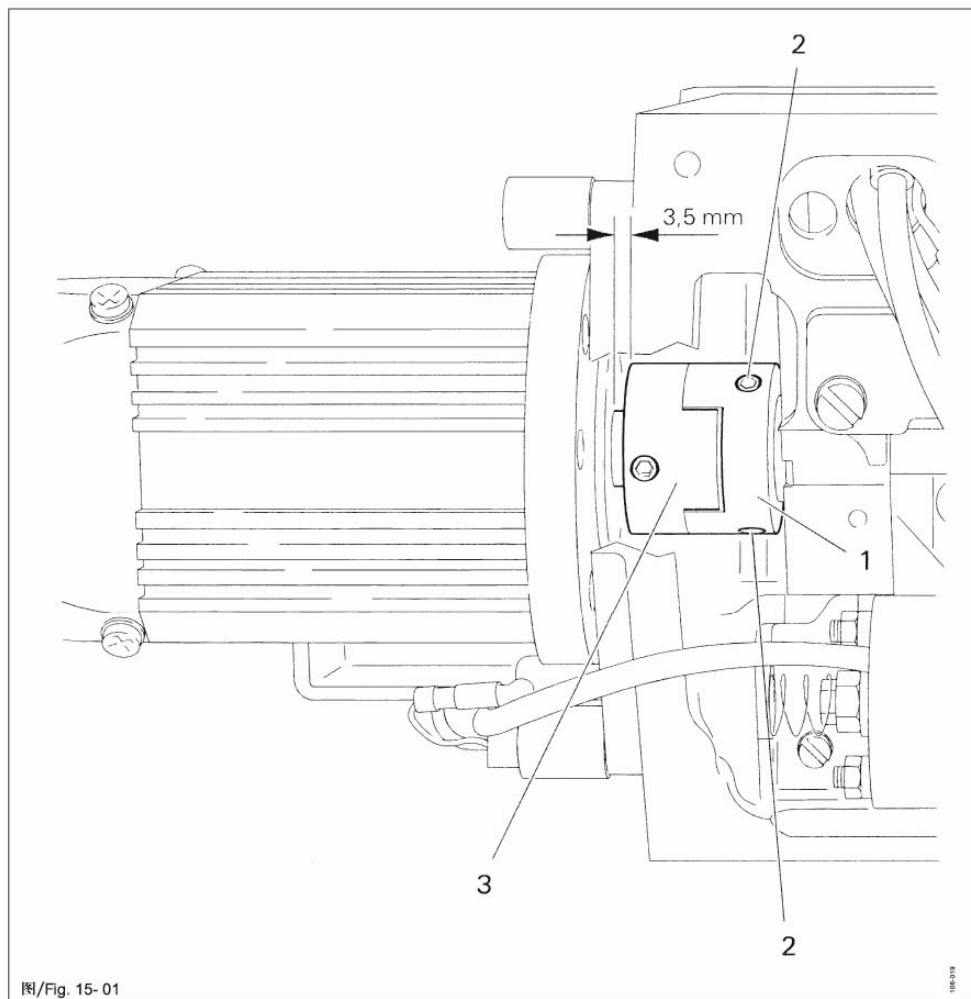
机器的初始位置

Basic position of the machine

规则 Requirement

起动之后，机器处在针杆的上死点位置。

After the machine has been switched on, it should position in t.d.c. needle bar.



- 起动机器。
Switch on the machine.
- 固定半联轴器1(螺钉2)，并且通过转动手轮将针杆移动到相应的位置。
Hold coupling part 1 and bring the needle bar (screws 2) into the appropriate position by turning the balance wheel.
- 关闭机器。
Switch off the machine.



半联轴器3与电机盘之间的距离应为3.5mm。

The distance from the clutch 1 to the motor plate should be 3.5 mm.

半联轴器1应该靠在轴向轴承的O型圈上。

Coupling part 1 should be touching the O-ring of the thrust bearing.

15.06

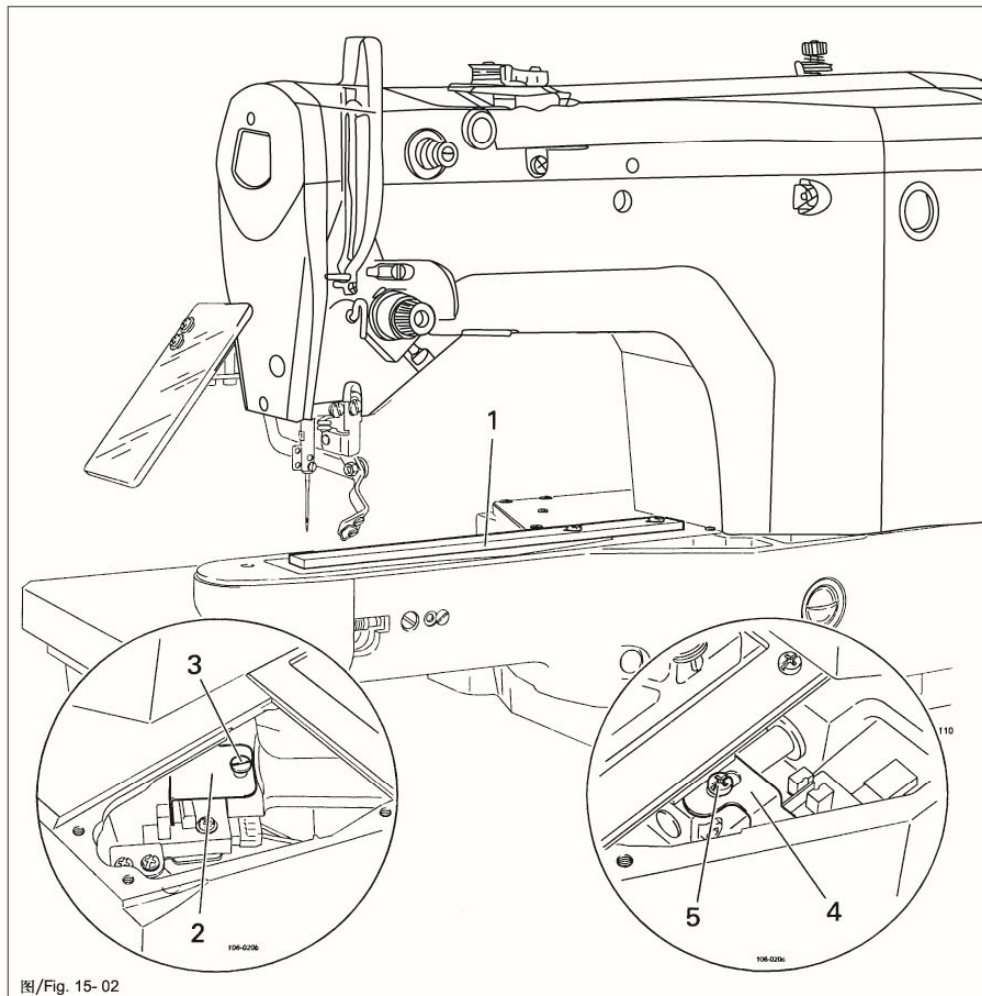
钮夹零点
Button clamp zero point

规则 Requirement

启动机器和调用参数"608"后, 应该达到如下状态:

After the machine has been switched on and parameter "608" selected,

1. 针应该处在校验量规的孔中心。
1. the needle should be centred to the hole in the adjustment gauge,
2. 开关角铁2和4应该与各自相应的临界开关对中。
2. the switch lugs 2 and 4 should be centred to the respective initiator.



图/Fig. 15- 02



- 拆下钮夹架和下送料板
Remove the button clamp holder and the lower feed plate.
- 将校验量规1 (订货号: 61-111 637-08) 拧在钮夹驱动器上。
Screw adjustment gauge 1 (part no. 61-111 637-08) to the work clamp drive unit.

预校验

Preliminary adjustment

- 按规则1相应地用手移动钮夹驱动器
Move the button clamp drive unit by hand in accordance with requirement 1.
- 按规则2相应地调整开关角铁2 (螺钉3) 和开关角铁4 (螺钉5)
Adjust switch lug 2 (screw 3) and switch lug 4 (screw 5) in accordance with requirement 2.

精密校验

Fine adjustment

- 起动机
Switch on the machine.
- 在操作方式输入下, 调用参数"608", 见使用说明11.03章, 参数输入
In the input mode, select parameter"608", see Chapter 11.03 Parameter input in the instruction manual.
- 需要时, 输入操作密码, 见使用说明11.05.01章, 操作密码输入。
If necessary, enter the access code, see Chapter 11.05.01 Entering the access code in the instruction manual.



- 按规则1相应地用相应的正/负 键运行钮夹驱动器, 见使用说明11.03章。
参数输入。
With the corresponding plus/minus key move the button clamp drive unit in accordance with requirement 1, also see Chapter 11.03 Parameter input.
- 关闭机器。
Switch off the machine.
- 拆下校验量规1
Remove adjustment gauge 1.
- 装上下送料板和钮夹架
Fit the lower feed plate and button clamp holder.

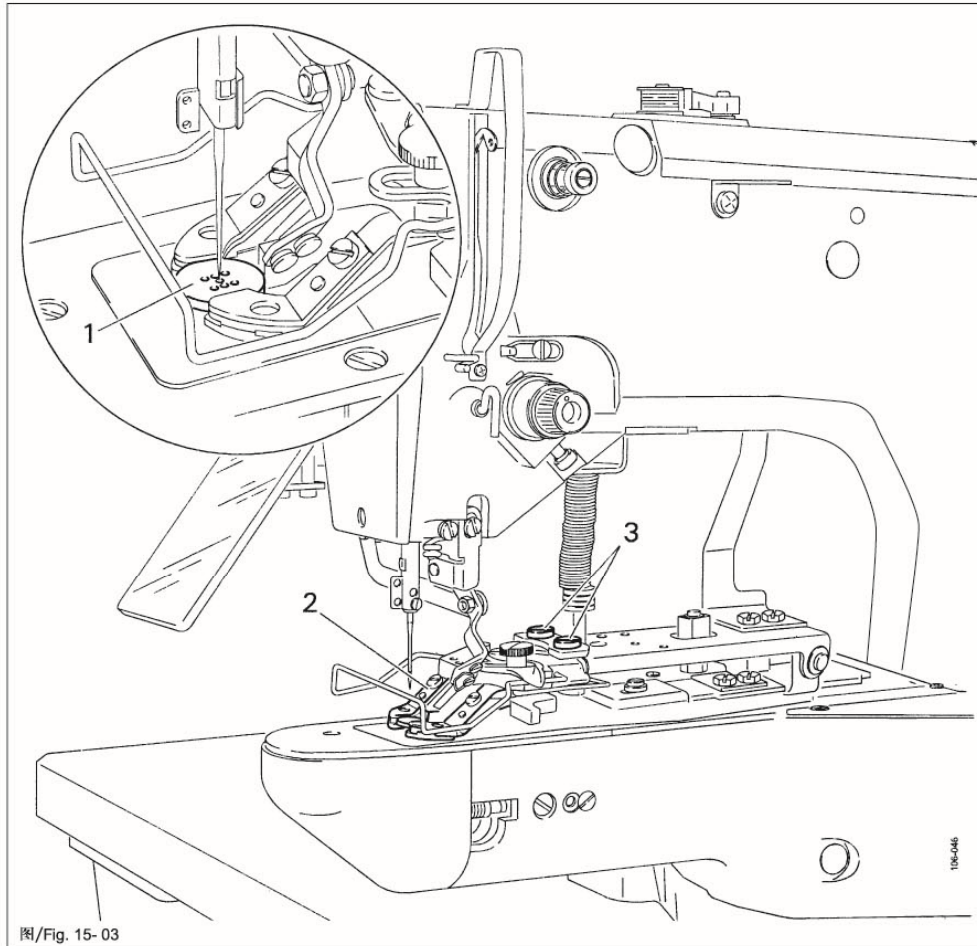
15.07

钮夹调整

Aligning the button clamp

规则 Requirement

钮夹应该在"X"和"Y"方向上如此调整,使针准确地插入量规钮扣的钮孔中心。
The button clamp should be aligned in "X" and "Y" direction,so that the needle penetrates the centre of the gauge button.



- 放入量规钮扣1和起动机器。
Insert gauge button 1 and switch on the machine.
- 设置缝纫区尺寸 (见使用说明9.07章,缝纫区尺寸设置)。
Set the sewing area size (See Chapter 9.07 Adjusting the size of sewing area in the instruction manual)
- 在操作方式输入下, 调用参数"609",见使用说明11.03章, 参数输入。
In the input mode, select parameter"609",see Chapter 11.03 Parameter input in the instruction manual.
- 在需要时, 输入操作密码, 见使用说明11.05.01章, 操作密码输入。
If necessary,enter the access code, see Chapter 11.05.01 Entering the access code in the instruction manual.



- 按规则相应地用正/负键在X方向上运行钮夹2。
With the plus/minus keys move the button clamp 2 in the X-direction in accordance with the instruction manual.



- 调用参数 "610" 和按规则相应地在X和Y方向移动钮夹2（螺钉3）。
Select parameter " 610" and move button clamp 2(screws 3)in the X-and Y-direction in accordance with the requirement.



- 结束输入,取出量规钮扣和关闭机器。
Conclude the input, remove the gauge button and switch off the machine.

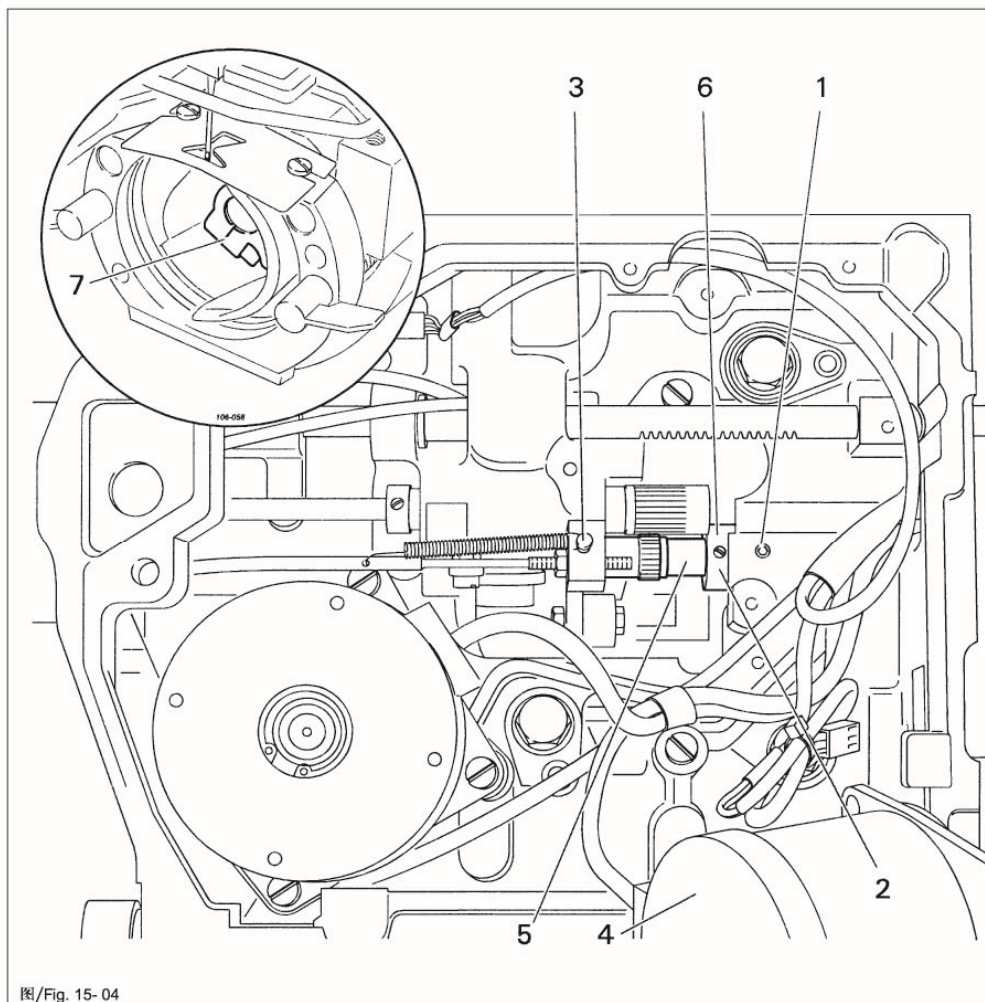
15.08

线梭驱动器

Hook driver

规则 Requirement

1. 在转动手轮时，机器不许有沉重的感觉。
1. When the balance wheel is turned, the machine should not bind.
2. 随动件7的话动间隙应该小于0.1mm
2. The play of catch 7 should be less than 0.1 mm.



图/Fig. 15- 04



- 取下线梭。
Remove the hook.
- 松开螺钉1、2和3（拆下电机4）。
Loosen screws 1,2 and 3(remove motor 4).
- 按规则1相应地推移偏心轴5，并按规则2相应地转动。
Move the eccentric shaft 5 in accordance with requirement 1 and twist it in accordance with requirement 2.

- 拧紧螺钉1和3
Tighten screws 1 and 3.
- 使调整环6靠紧在铸件边沿上，并拧紧螺钉2。
Move adjustment ring 6 against the metal edge and tighten screw 2.
- 装上线梭。
Insert the hook.



随动件7的间隙过大，会增大机器的噪音。

If catch 7 has too much play, the running noise of the machine increases. Too

如果间隙过小，可能会导致机器抱轴。

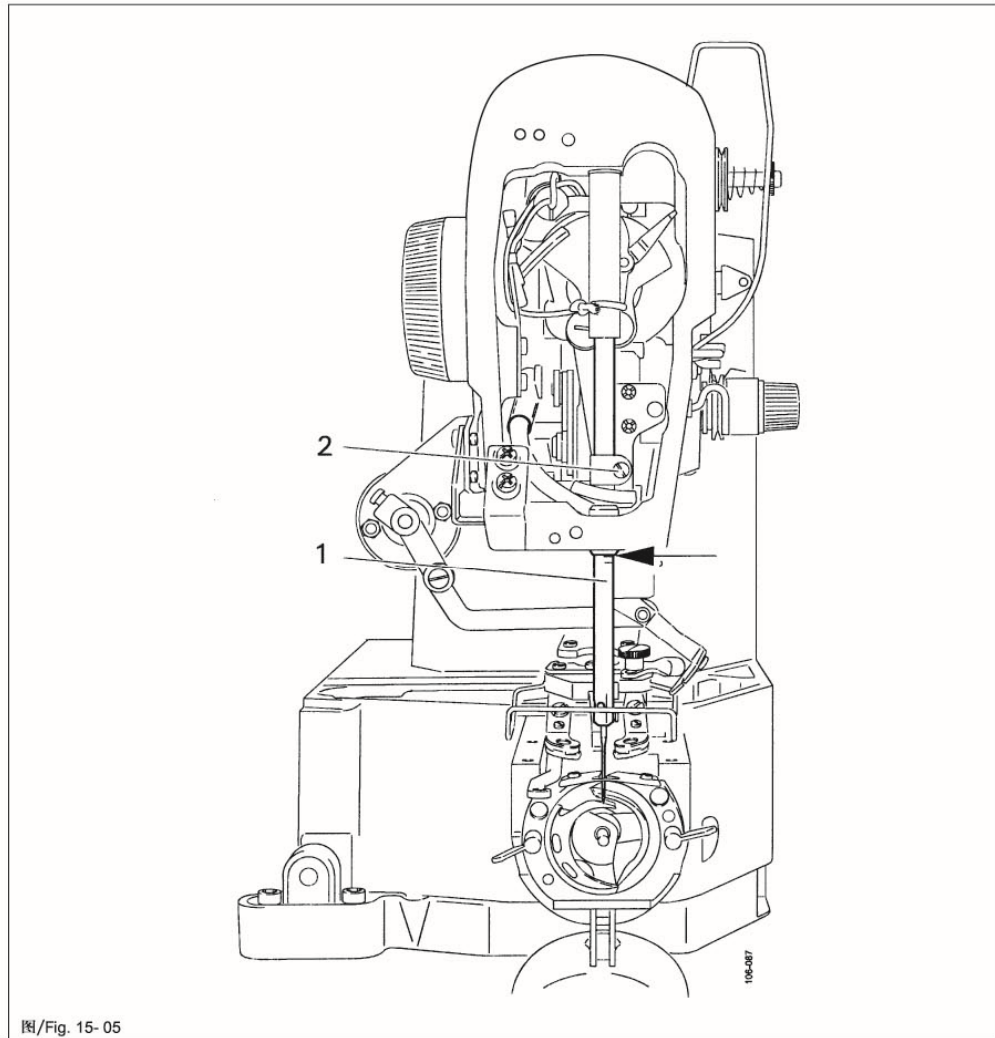
little play may cause the machine to jam.

15.09 针高度
Needle height

规则 Requirement

在针杆的下死点，应该使针杆1的上标记与针杆套的下边沿平方。

With the needle bar in b.d.c., the upper marking on the needle bar 1 should be flush with the lower edge of the needle bar bush.



- 按规则相应地移动针杆1（螺钉2）。
Adjust needle bar 1(screw 2)in accordance with the requirement.

15.10

线梭距离

Hook-to-needle clearance

规则 Requirement

当针杆从下面来，并且在它的下标记与针杆套的下边沿平齐时：

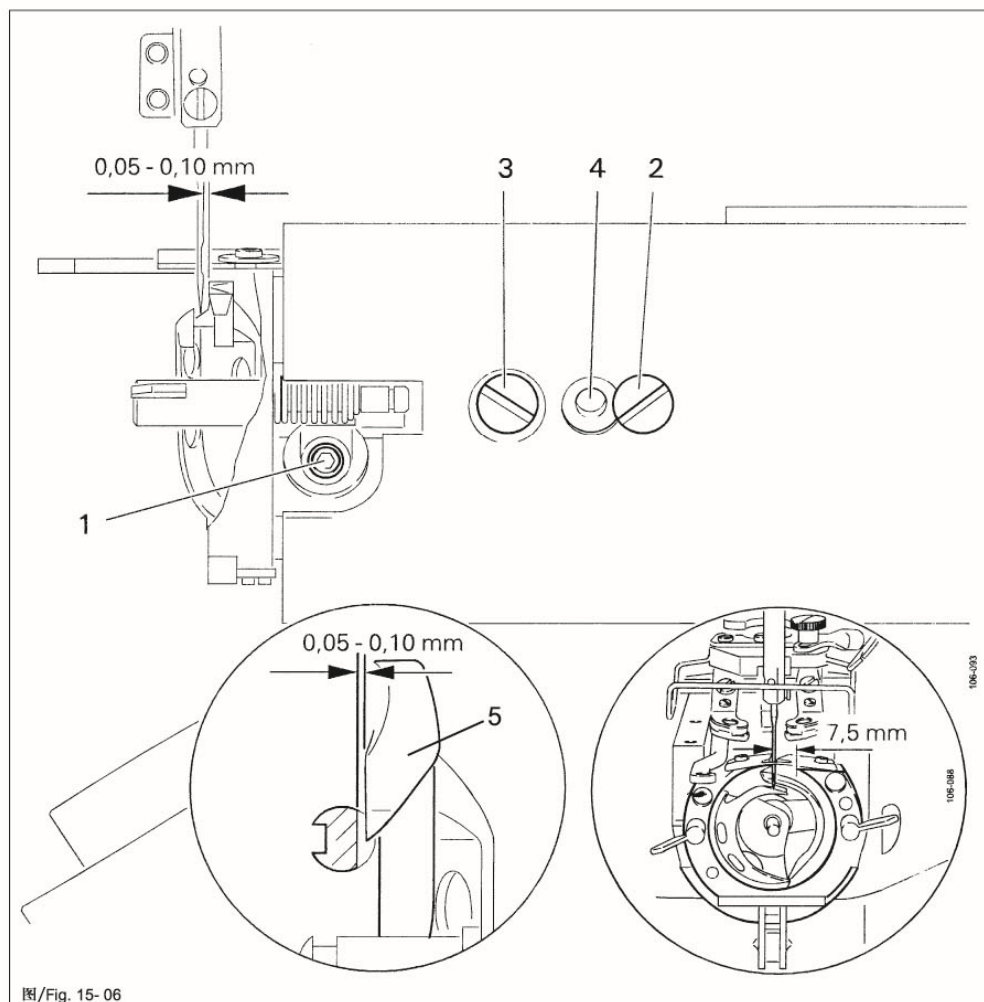
When the bottom marking of the ascending needle bar is level with the lower edge of the needle bar bush

1. 旋梭尖5应该处在距离机针槽0.05-0.1mm的位置。

1.the hook point 5 should be at a distance of 0.05 -0,1 mm from the needle groove.

2. 针与线梭轨道尖之间应该有一个7.5mm的距离。

2.the distance between the needle and the tip of the hook rece should be 7.5 mm.



- 松开螺钉1,2和3

Loosen screws 1,2 and 3.

- 按规则相应地转动偏心销4。

Turn the eccentric pin 4 in accordance with the requirements..

- 拧紧螺钉2和3。

Tighten screws 2 and 3.



在后续的校验工作中，螺钉1保持在松开的状态。

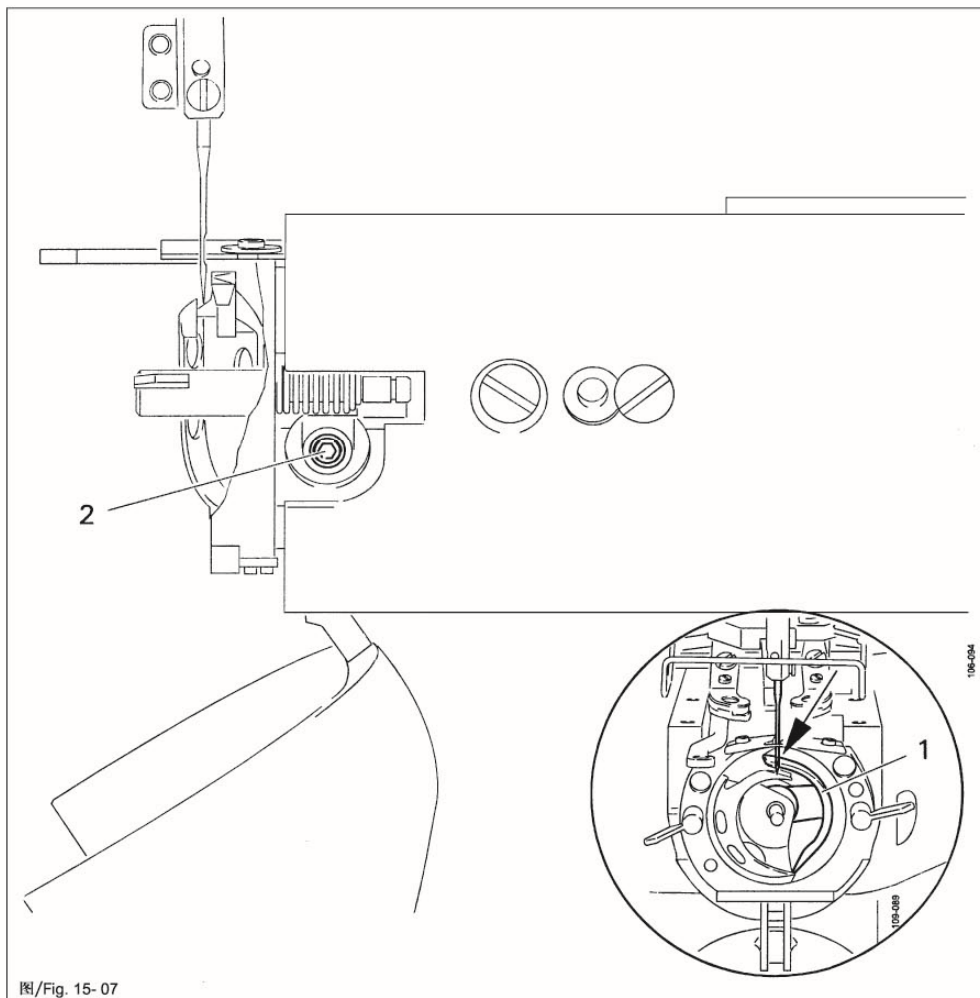
Screw 1 remains loose for further adjustments.

15.11 针天心动程和针保护器
Needle rise and needle guard

规则 Requirement

当针杆从下面来,并且在它的下标记与针杆套的下边沿平齐时:
When the bottom marking of the ascending needle bar is level with the lower edge of the needle bar bush

1. 线梭钩线尖应该对准针的中心。
- 1.the hook point should be centred to the needle and
2. 针保护器(见箭头)应该与针有轻微接触。
- 2.the needle guard (see arrow) should slightly touch the needle.



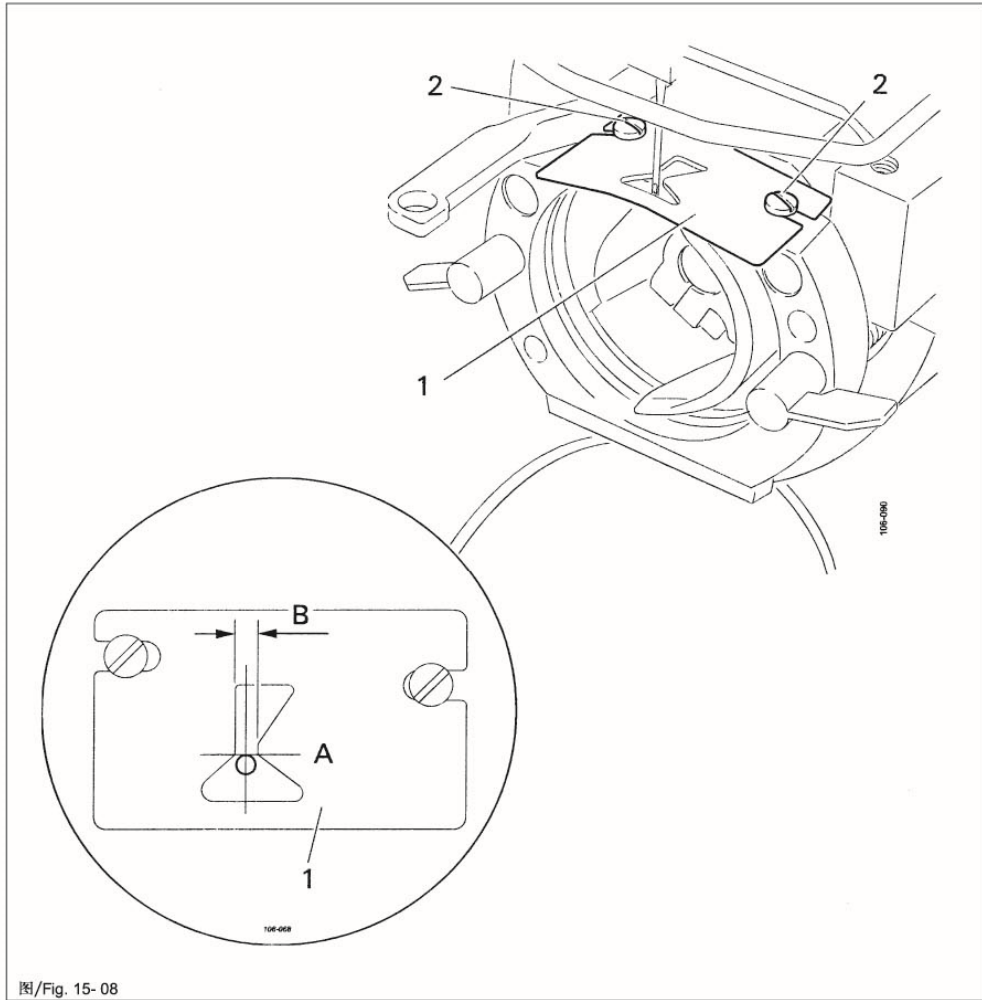
图/ Fig. 15-07



- 按规则1相应地转动随动件1 (螺钉2), 及按规则2相应地移动随动件。
Turn catch 1(screw 2) in accordance with requirement 1, or move it in accordance with requirement 2.

15.12 线梭轨道盖板的调整
Aligning the hook race cover

规则 Requirement
 针应该与豁口B对中，并以其背面与想象中的线A平齐。
 The needle should be centred to cutout Band the rear side of the needle flush to the imaginary line A.



图/Fig. 15- 08



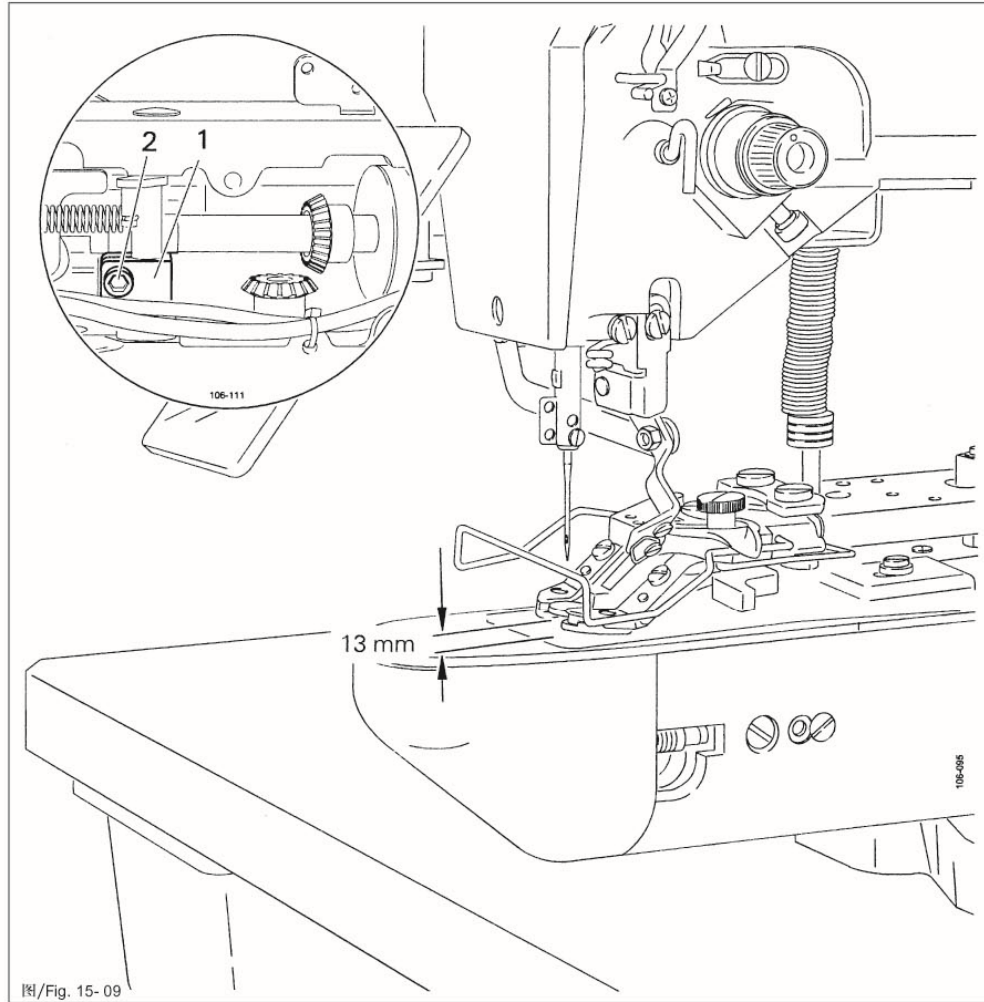
- 按规则相应地移动线梭轨道盖板1（螺钉2）。
Move the hook race cover 1(screws 2) in accordance with the requirement.

15.13 钮夹高度
Button clamp height

规则 Requirement

钮夹应该处在高于针板上边沿13mm的位置。

The button clamp should be 13 mm above the upper edge of the needle plate.



- 按规则1相应地转动拉杆1（螺钉2）。
Turn lever 1(nut 2 and screw 3) in accordance with requirement.

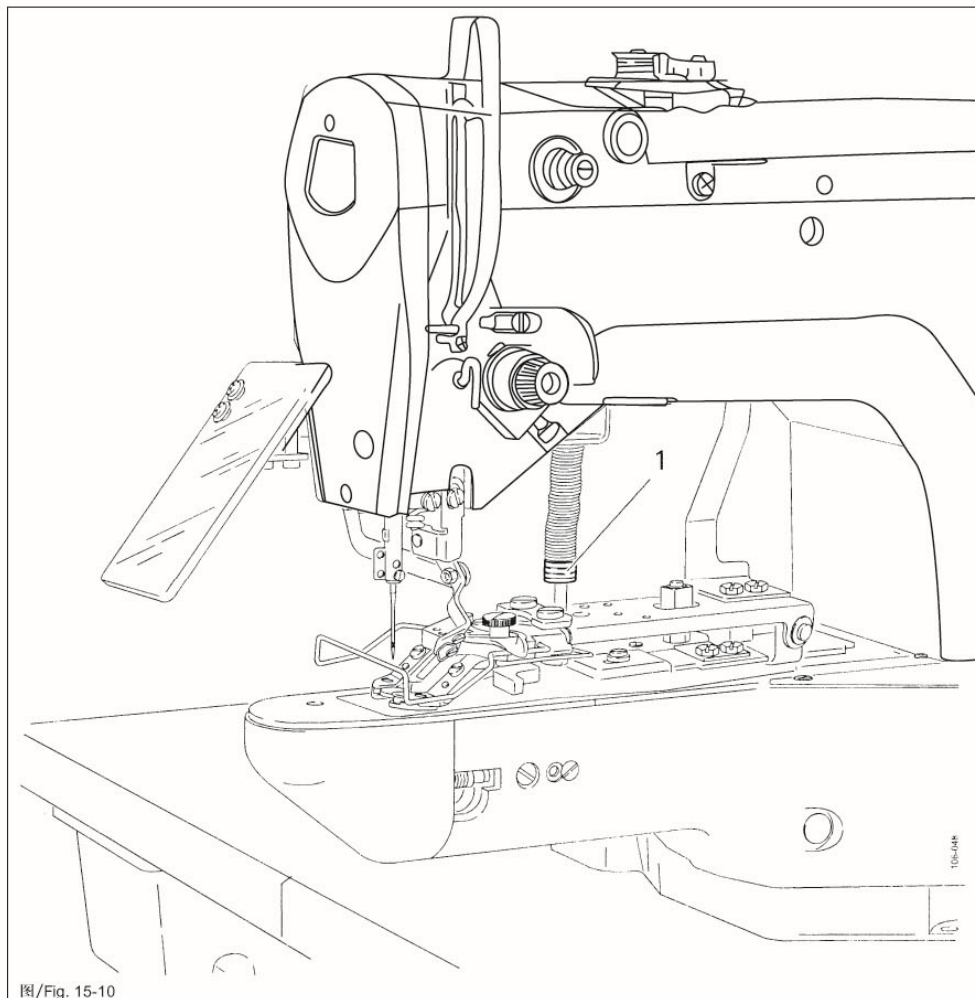


钮夹调整结束之后，必须检查拨线器的位置，见15.15章，
拨线器的位置！有断针的危险！

After aligning the button clamp, it is imperative to check the position of the
thread wiper, see Chapter 15.15.Position of the thread wiper! Danger of
needle breakage!

15.14 钮夹压力
Button clamp pressure

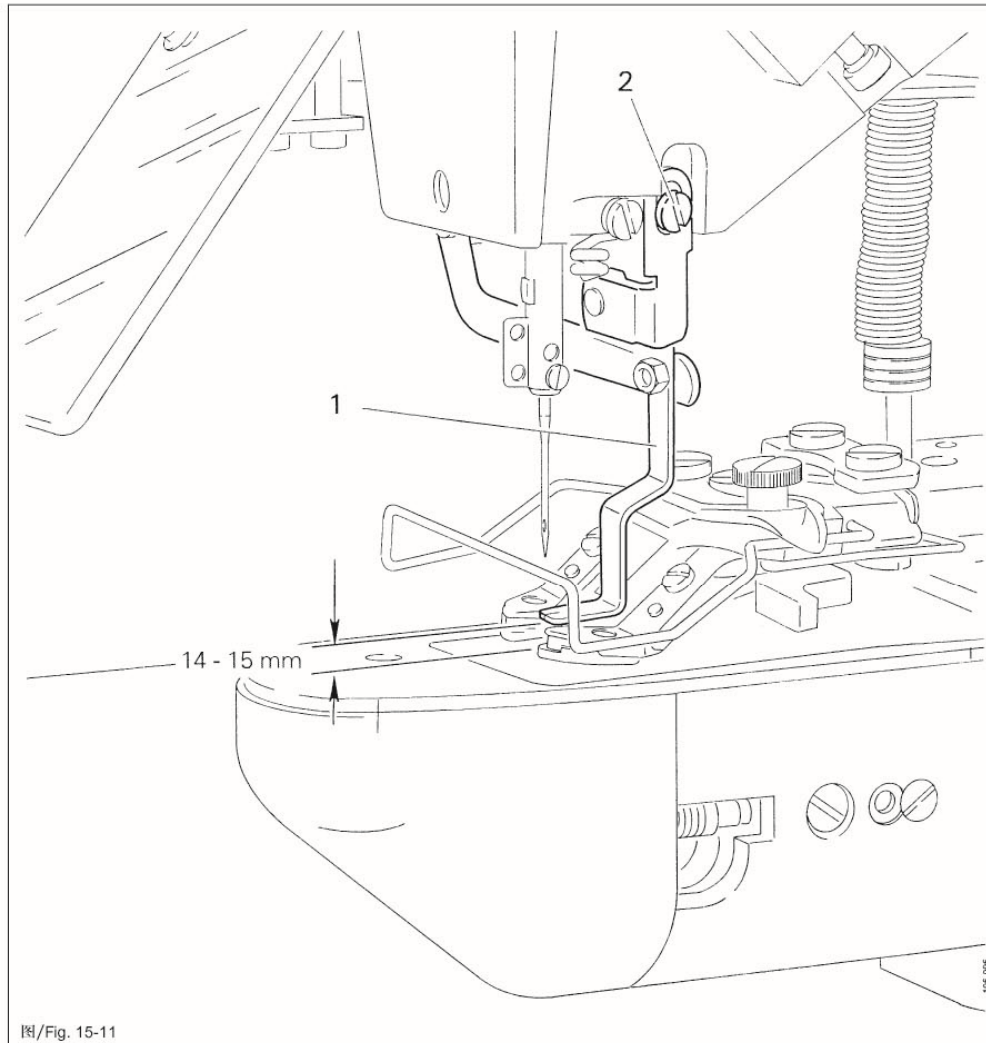
规则 Requirement
 钮夹压力应该如此调节，能够没有压痕地可靠夹住缝料。
 The pressure of the button clamp should be set so that the workpiece can be held reliably without pressure marks.



- 按规则相应地转动花纹螺钉1。
Adjust milled screw 1 in accordance with the requirement.

15.15 拨线器的位置
Position of the thread wiper

规则 Requirement
当拨线器与针对中时，它的下边沿应该高出针板上边沿14-15mm。
When the thread wiper is centred to the needle, its lower edge should be 14-15 mm above the upper edge of the needle plate.



图/ Fig. 15-11



- 将拨线器1移到相应的位置。
Bring thread wiper 1 into the appropriate position
- 按规则相应地移动拨线器1（螺钉2）。
Move thread wiper 1(screw 2) in accordance with the requirement

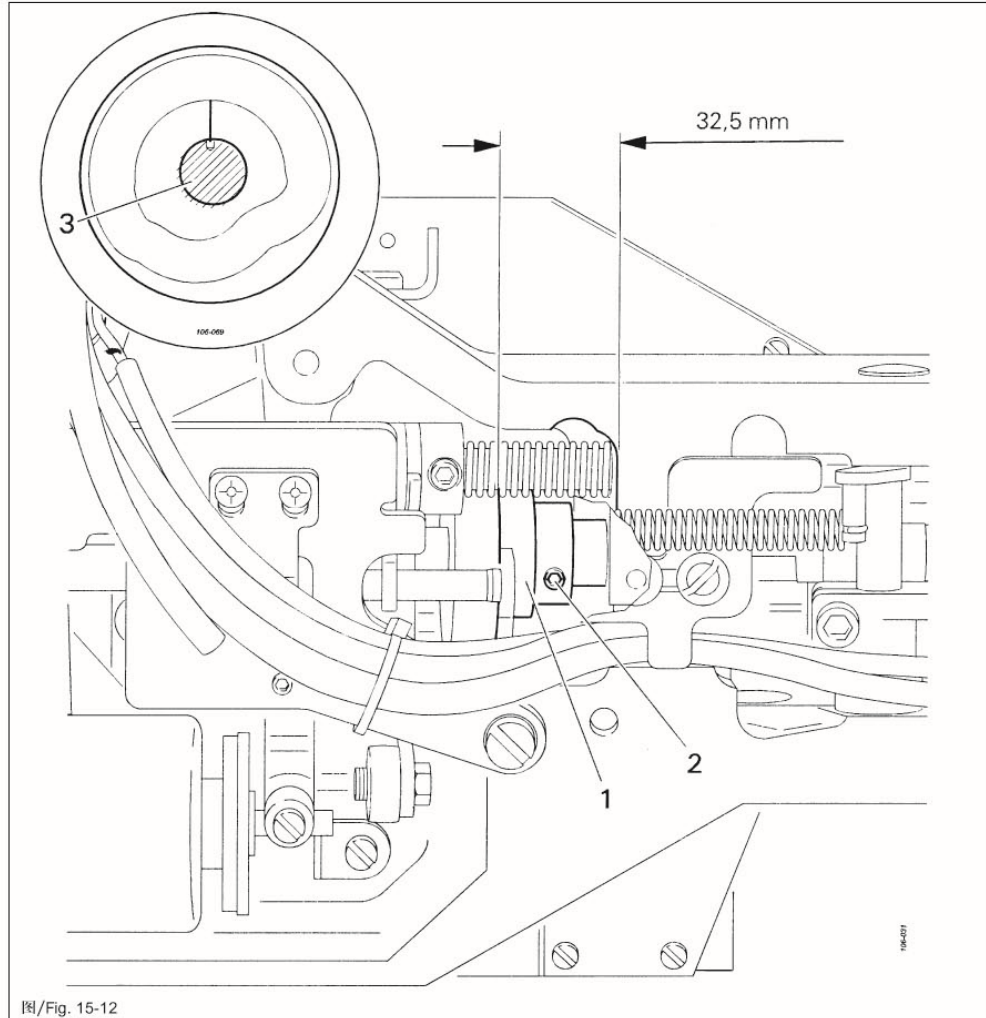
15.16

控制凸轮的位置

Position of the control cam

规则 Requirement

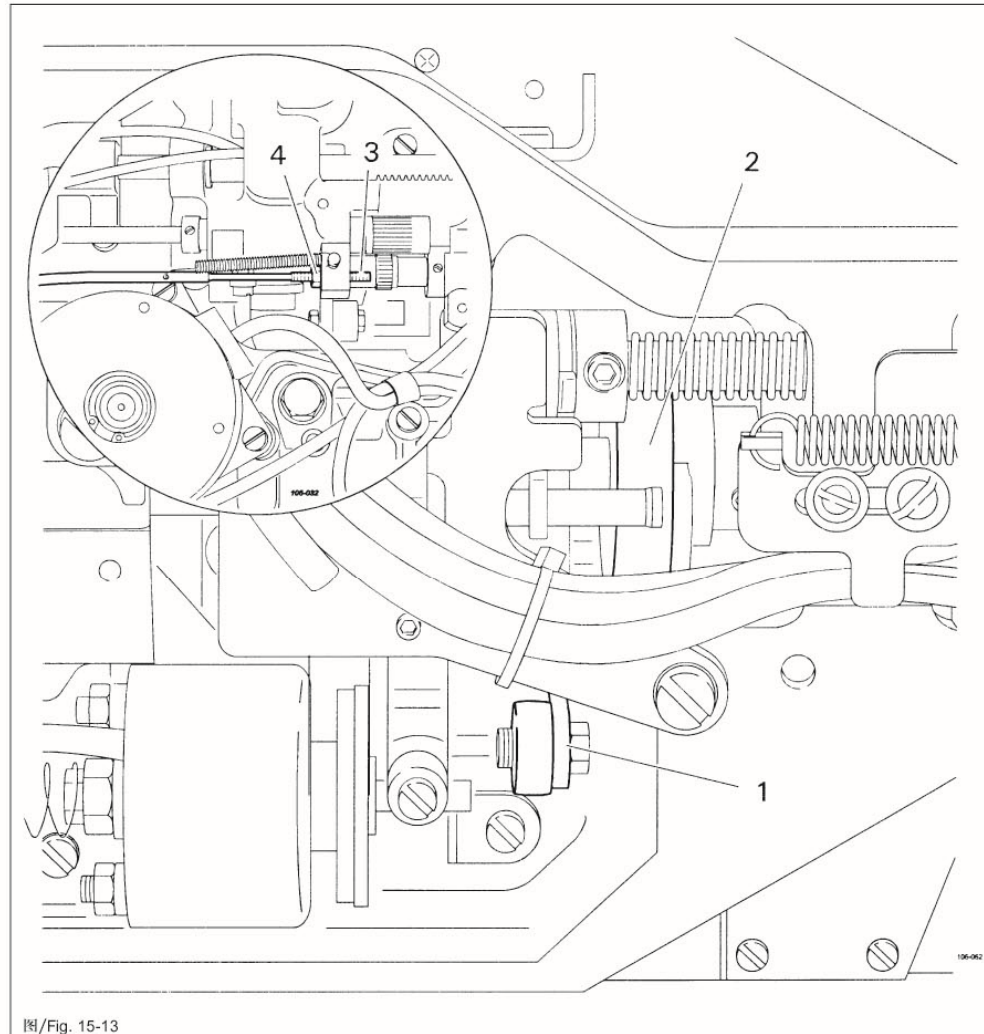
1. 控制凸轮1上的标记，要与臂轴3上的标记一致。
- 1.The markings on control cam 1 and arm shaft 3 should correspond with each other.
2. 控制凸轮1的外沿应该与机壳上的铸铁面有一个32.5mm的距离。
- 2.The outer edge of control cam 1 should be at a distance of 32.5 mm from the metal surface of the case.



- 按规则1相应地转动控制凸轮1（螺钉2），以及按规则2相应地推移控制凸轮。
Turn control cam 1 (screw 2) in accordance with requirement 1, or move it in accordance with requirement 2.

15.17 控制辊的位置
Position of the control roller

规则 Requirement
在针杆的下死点位置，控制辊应该与控制凸轮2的运行轨道对中。
When the needle bar is at its b.d.c., the control roller should be centred to the running path of control cam 2.



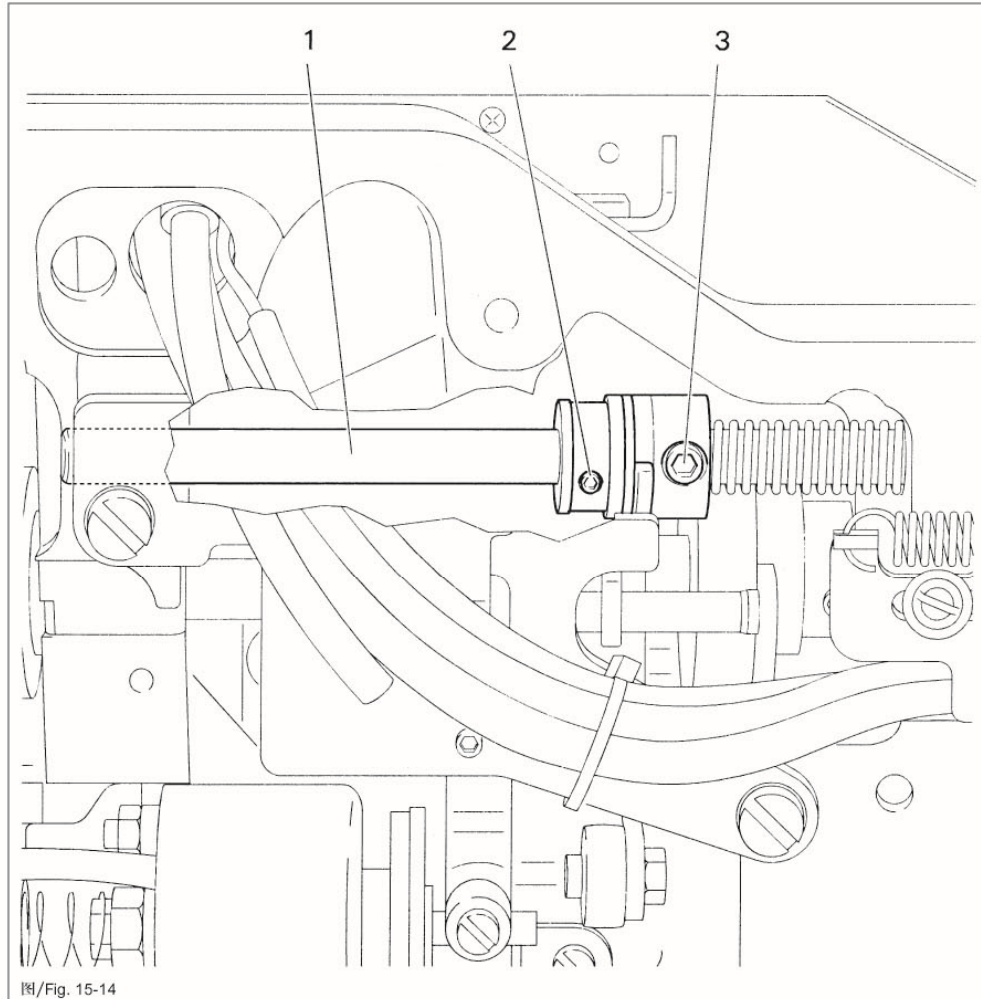
图/ Fig. 15-13



- 按规则相应地转动螺钉3（螺母4）。
Turn screw 3 (nut 4) in accordance with the requirement.
- 为进行检查，用手通过连杆1使控制辊落到控制凸轮2的运行轨道上。
For checking purposes, operate lever 1 by hand to let the control roller fall into the running path of control cam 2.

15.18 切线器驱动轴的位置
Position of the drive shaft of the thread trimmer

规则 Requirement
在切线器的初始位置。轴1应该与机壳的铸铁边沿平齐。
When the thread trimmer is in its basic position, shaft 1 should be flush with the metal edge of the machine case.



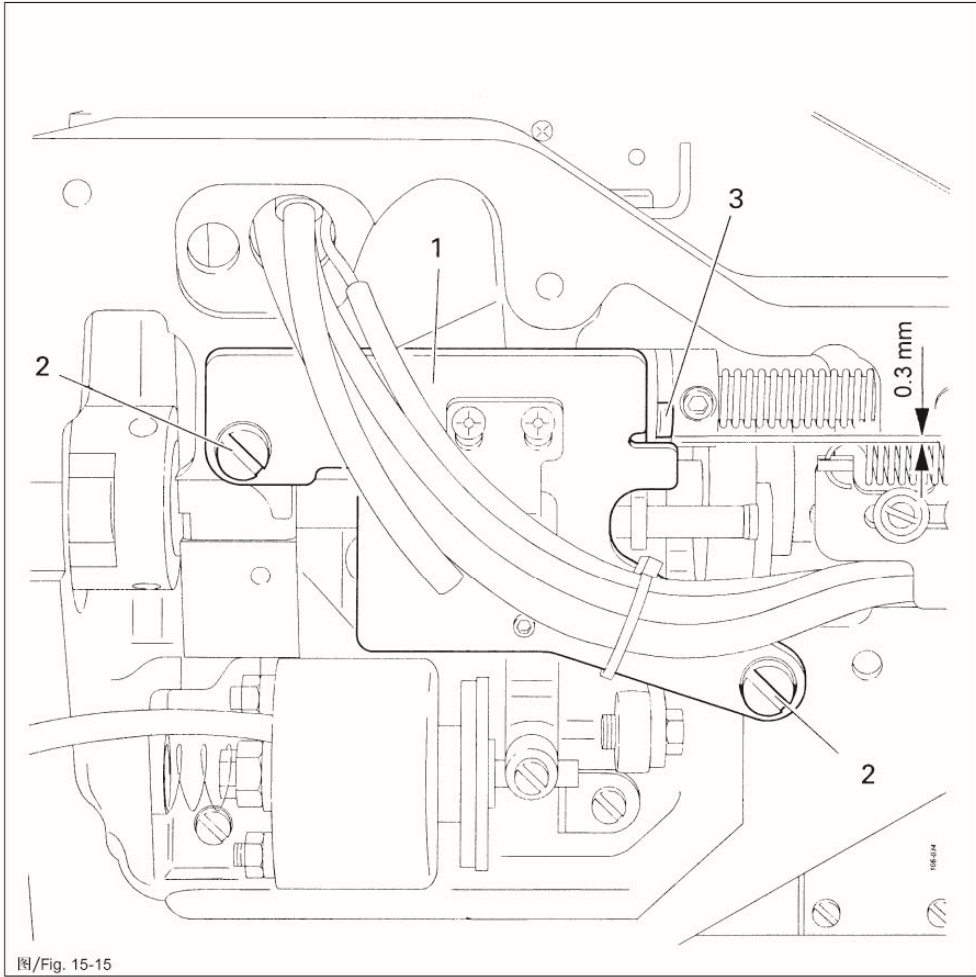
图/ Fig. 15-14



- 按规则相应地移动轴1（螺钉2和3）。
Move shaft 1(screws 2 and 3)in accordance with the requirement.:

15.19 止挡板的调整
Aligning the stop plate

规则 Requirement
在切线器的初始位置，连杆3应该与板1有一个0.3mm的距离。
When the thread trimmer is in its basic position, there should be a clearance of 0.3 mm between lever 3 and plate 1.



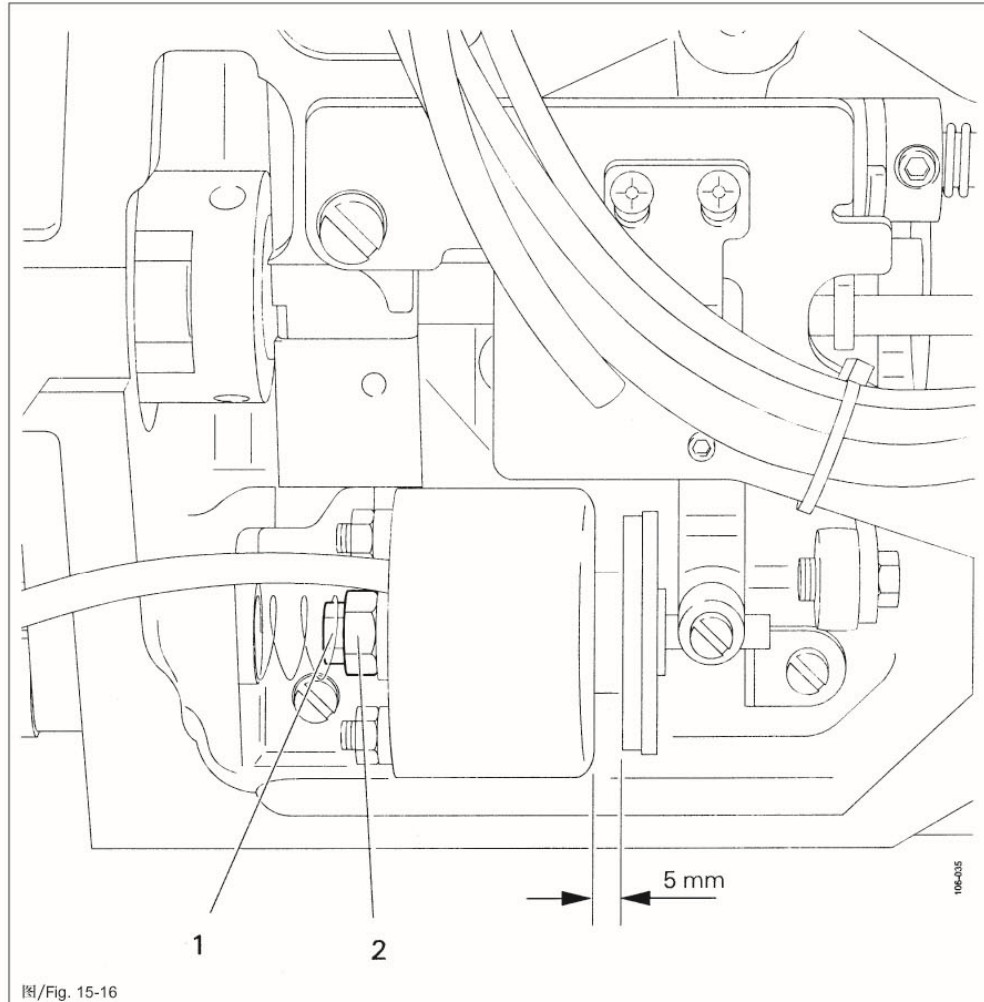
图/ Fig. 15-15



- 按规则相应地移动板1（螺钉2）。
Move plate 1(screws 2)in accordance with the requirement.

15.20 切线磁铁的调整
Aligning the trimmer solenoid

规则 Requirement
在切线器的静止位置，磁铁1应该与机壳有一个5mm的距离。
When the thread trimmer is in its neutral position, solenoid 1 should be at a distance of 5 mm from the case.



图/ Fig. 15-16

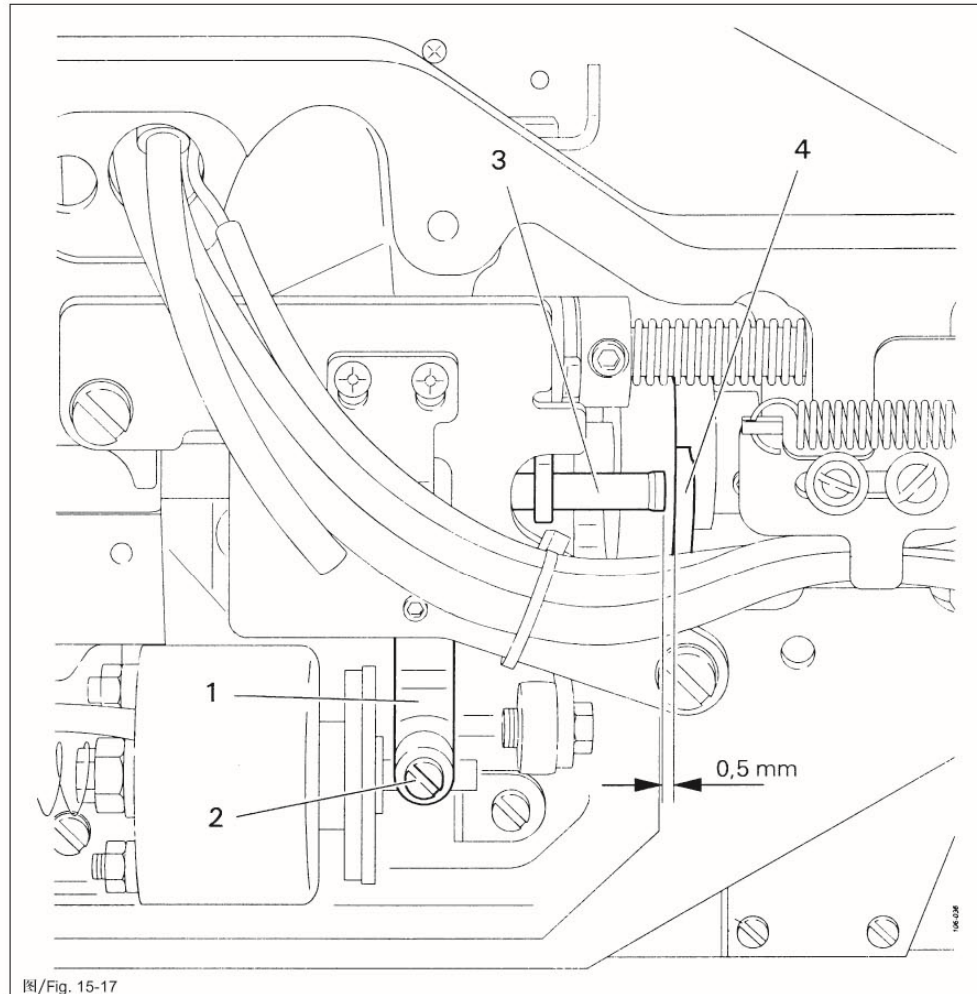


- 按规则相应地转动螺母1(螺母2)。
Turn net 1(nut 2) in accordance with the requirement.

15.21 压入杆的调整
Aligning the engaging lever

规则 Requirement

在切线器的静止位置。销3应该与离合凸轮4有一个0.5mm的距离。
When the thread trimmer is in its neutral position, pin 3 should be at a distance of 0.5 mm from release trip 4.

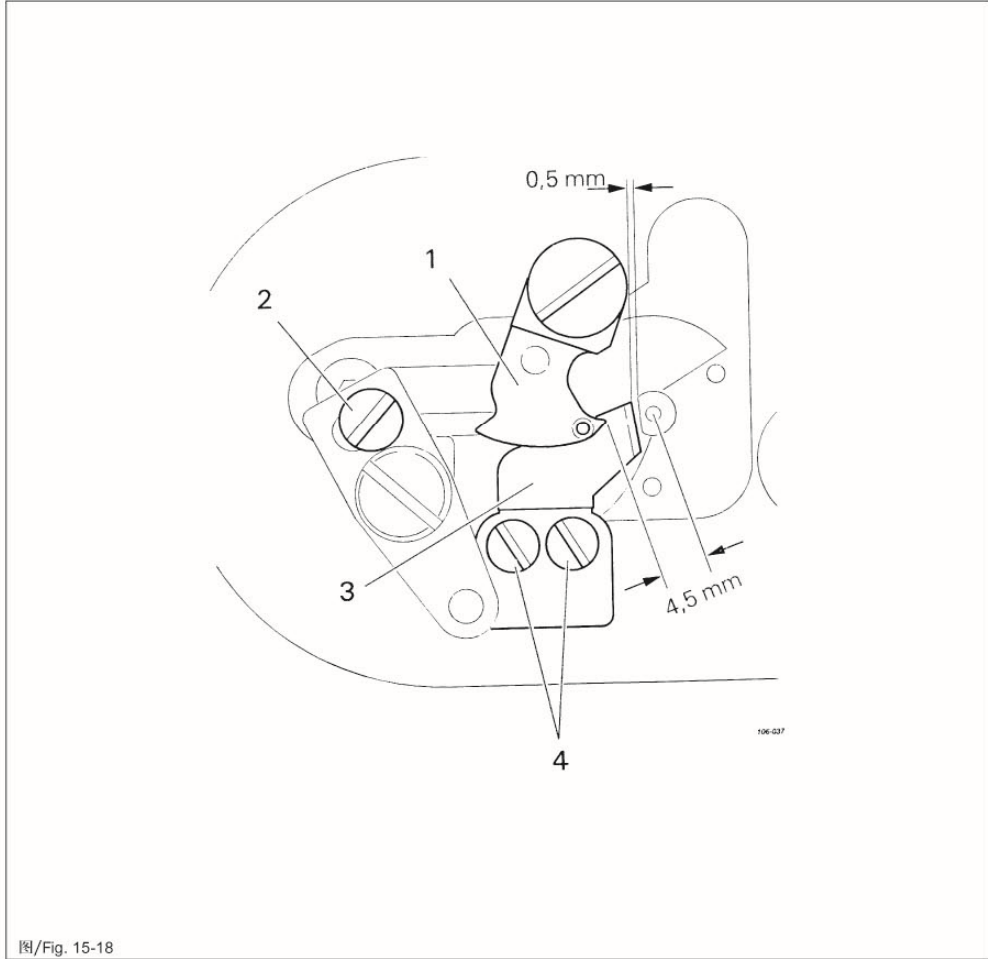


- 按规则相应地移动杆1 (螺钉2)。
Move lever 1(screws 2) in accordance with the requirement.

15.22 捕线器和切线刀的位置
Position of the thread catcher and knife

规则 Requirement
在机器的初始位置时:
When the machine is in its basic position

1. 捕线器1的钩线尖应该停在距针孔中心4.5mm的位置。
1. the tip of the thread catcher 1 should be at a distance of 4.5 mm from the centre of the needle hole.
2. 切线刀3的刃口应该与针板部件有一个0.5mm的距离。
2. The blade of knife 3 should be at distance of 0.5 mm from the needle plate insert.



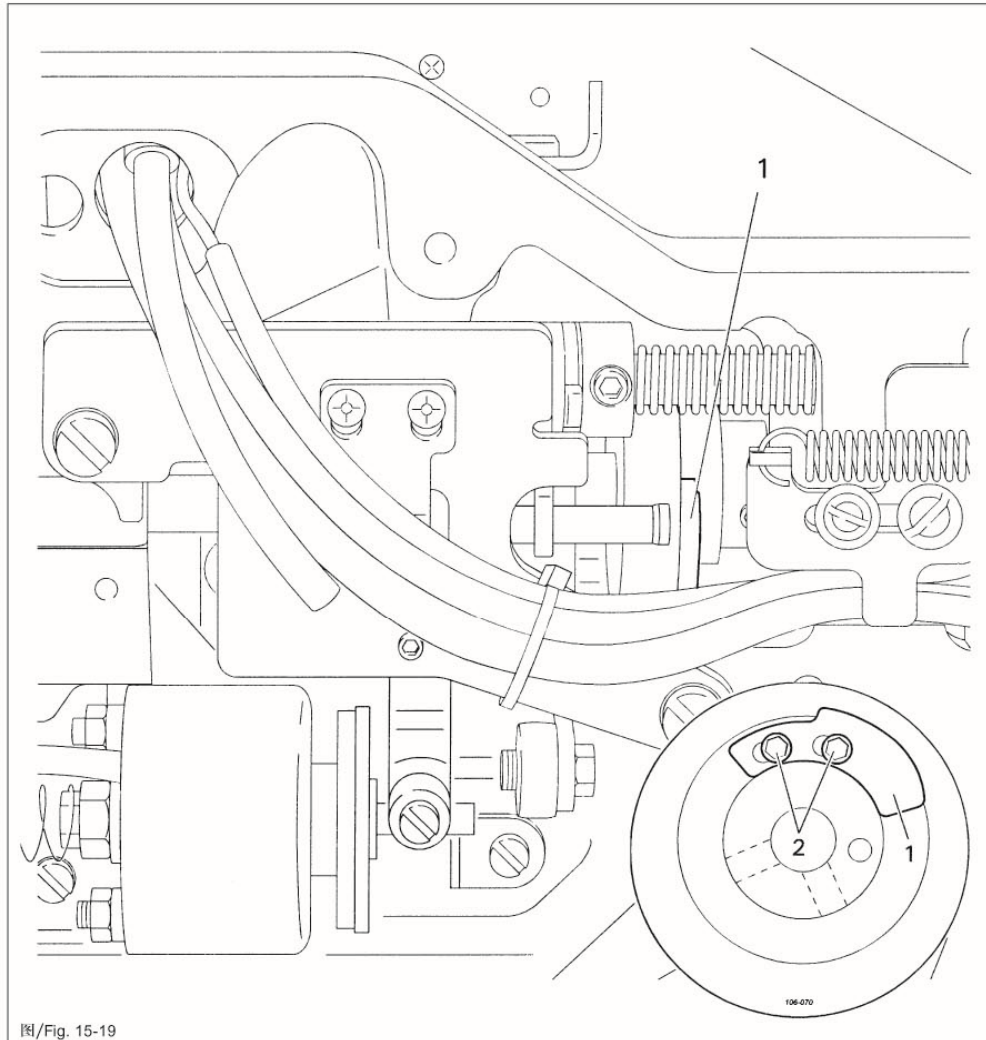
图/ Fig. 15-18



- 按规则1相应地调节捕线器1（螺钉2）
Adjust thread catcher 1(screw 2) in accordance with requirement 1.
按规则2相应地移动切线刀3（螺钉4）。
Adjust knife 3(screws 4) in accordance with requirement 2.

15.23 离合凸轮的位置
Position of the release trip

规则 Requirement
凸轮1应该用它的长孔右侧靠在螺钉2上。
The slots of trip 1 should be touching screws 2 on the right side.



- 按规则相应地移动凸轮1（螺钉2）。
Move trip 1(screws 2) in accordance with the requirement.



切线后的针线过短时，可以再稍微调整一下凸轮1。
If the needle thread is too short after trimming, trip 1 can be slightly readjusted.

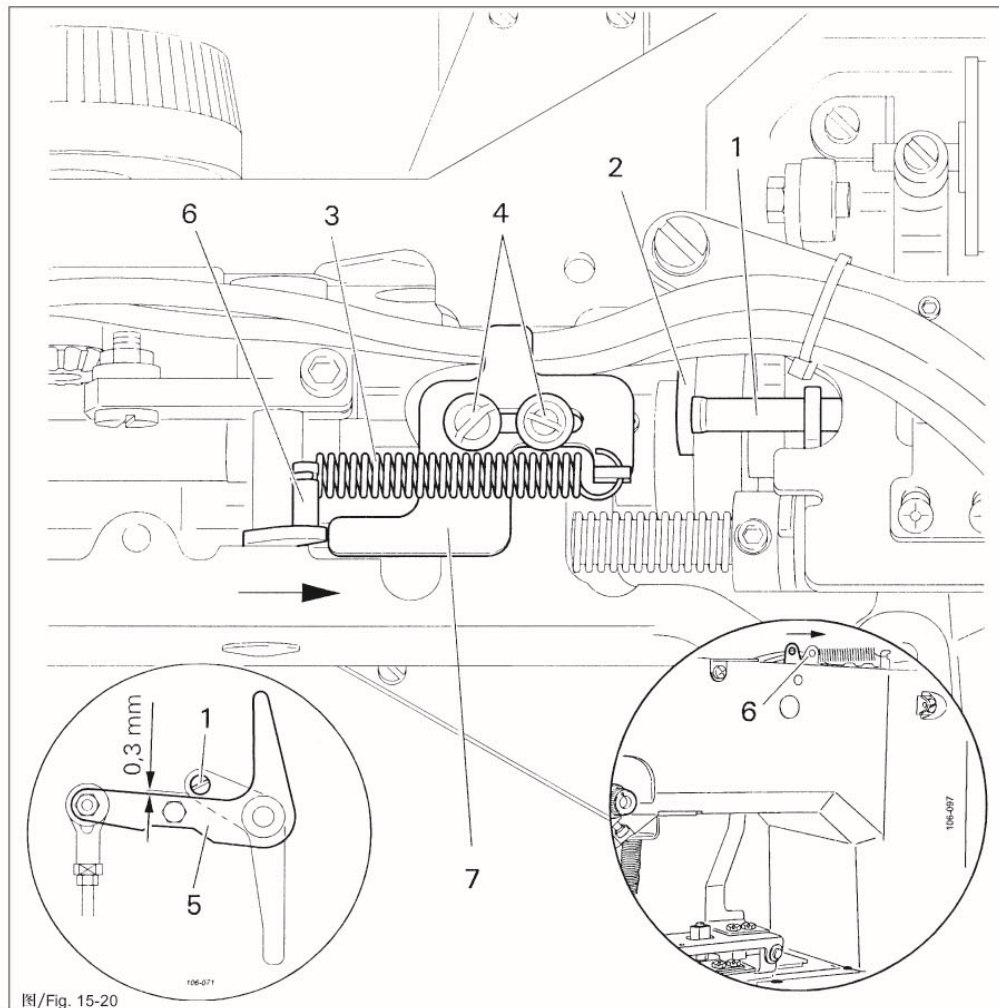
15.24

离合定位器的位置

Position of the release catch

规则 Requirement

当杆6靠在离合定位器7上时, 应该在驱动杆5和销1之间有一个0.3mm的距离。
When lever 6 is touching release catch 7, there should be a distance of 0.3 mm between drive lever 5 and pin 1.



图/Fig. 15-20



- 转动手轮, 直至销1不再停在凸轮2上。
Turn the balance wheel until pin 1 is no longer on the release trip 2.
- 取下弹簧3和松开螺钉4。
Release spring 3 and loosen screws 4.
- 将塞尺按规则相应地塞入驱动杆5和销1之间。
In accordance with the requirement place the feeler gauge between the drive lever 5 and pin 1.

- 将杆6轻微地沿箭头方向推压。
Push lever 6 lightly in the direction shown by the arrow.
- 将离合定位器7靠上杆6，并拧紧螺钉4。
Move release catch 7 against lever 6 and tighten screws 4.
- 取出塞尺和挂上弹簧3。
Remove the feeler gauge and attach spring 3.

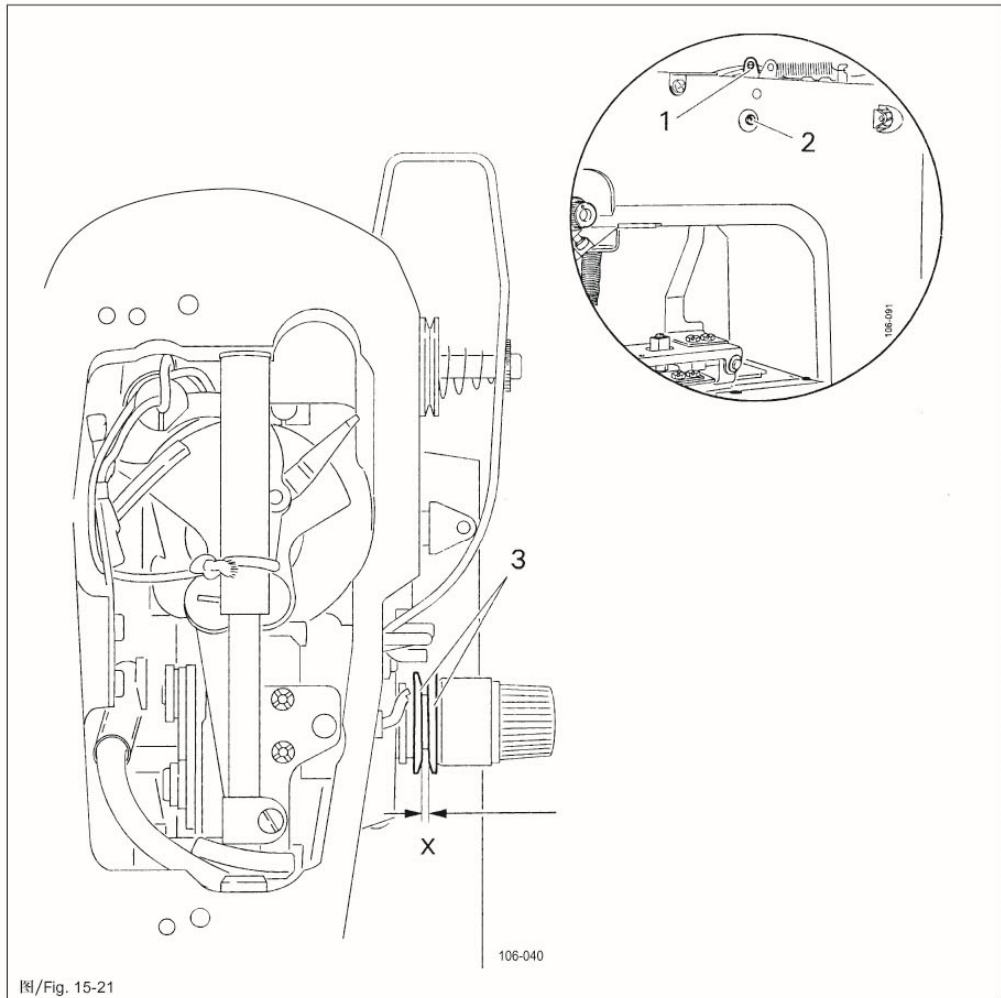


弹簧3只能用相应的工具取下和挂上!
有受伤的危险!

Spring 3 should only be released and attached with suitable tools!
Danger of injury!

15.25 上线夹线片打开
Needle thread tension release

规则 Requirement
 切线完成之后,夹线片3之间的距离X在使用正常缝料时应该为0.6-0.8mm。在使用厚缝料时应该为0.8-1.0mm。
 After thread trimming the distance X between tension discs 3 should be 0.6-0.8mm for normal materials and 0.8-1.0 mm for heavy materials.

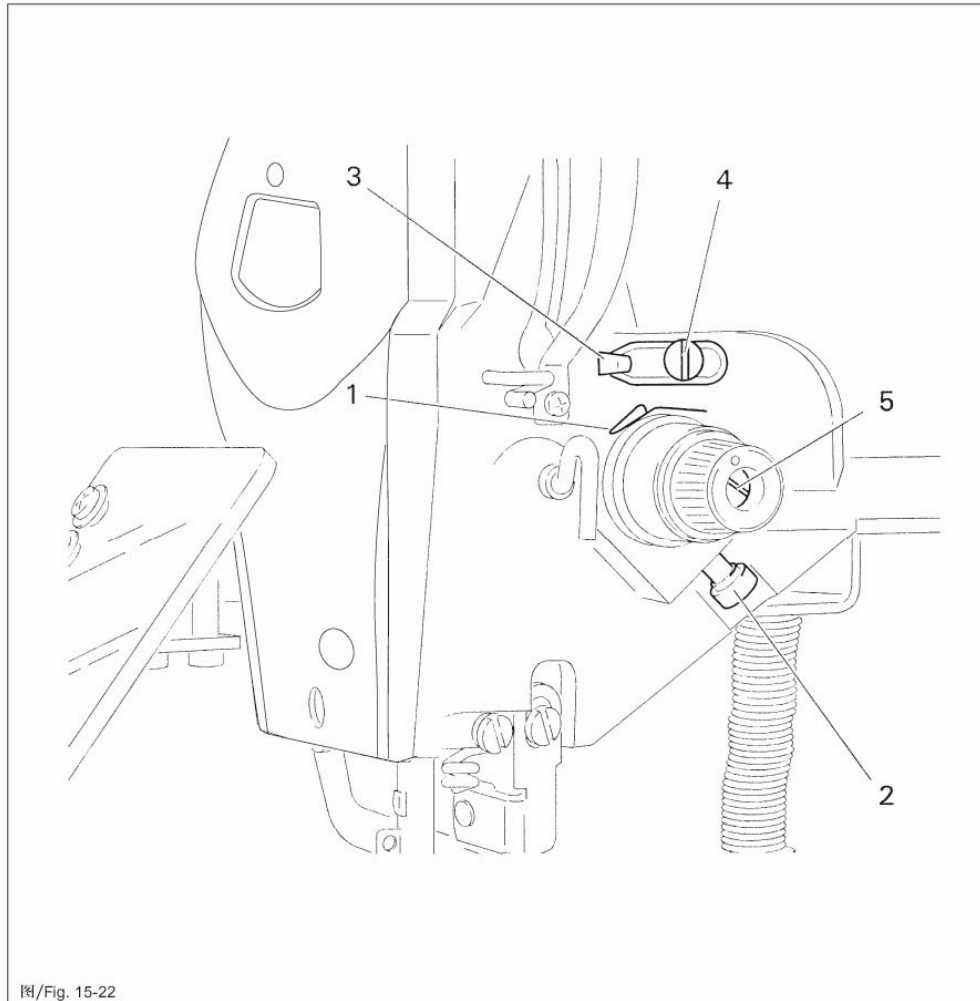


- 用手将机器移动到切线位置。
 Bring the machine into the cutting position by hand.
 按规则相应地移动杆1（螺钉2）。
 Move lever 1(screw 2) in accordance with the requirement.

15.26 夹线簧和调线器
Thread check spring and thread regulator

规则 Requirement

1. 夹线簧1应该运动的距离为6-8mm。
1. The thread check spring 1 should have a 6-8 mm stroke.
2. 螺钉4应该与调线器3的长孔豁口对中。
2. Screw 4 should be positioned in the centre of the slot of thread regulator 3.



图/Fig. 15-22



- 按规则1相应地调节夹线簧1（螺钉2）。
- Adjust thread check spring 1 (screw 2) in accordance with requirement 1.
- 按规则2相应地移动调线器3（螺钉4）。
- Move thread regulator 3(screw 4) in accordance with requirement 2.



线的张紧力通过旋转销5调节。
夹线簧1和调线器3的所有设置都决于缝料，
因此，在需要时，必须根据缝纫结果对它们进行修正。

Turn pin 5 to adjust the thread spring resistance. All settings of the thread check spring 1 depend on the material and might have to be corrected to achieve the desired result.

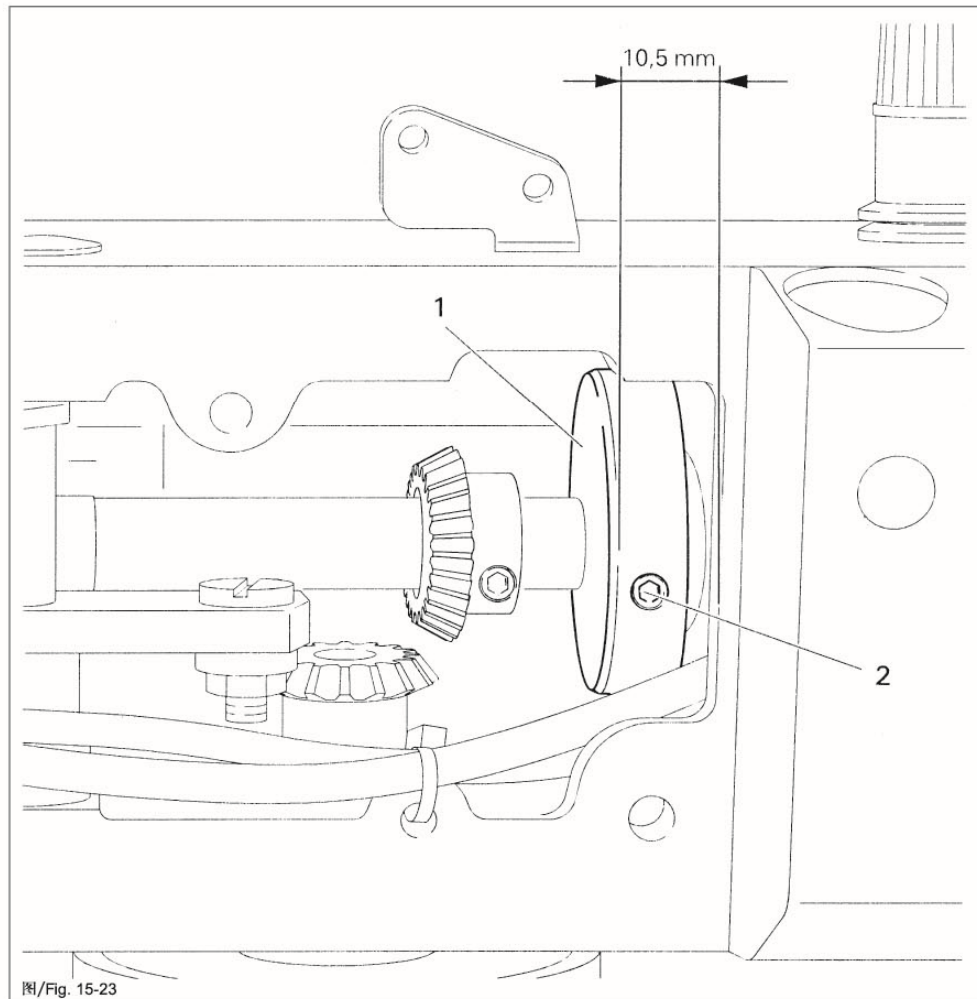
15.27

绕线器驱动轮

Bobbin winder drive wheel

规则 Requirement

1. 在驱动轮1和机壳铸铁边沿之间应该有一个约10.5mm的距离。
1.The should be a distance of approx. 10.5 mm between drive wheel 1 and the metal edge of the machine case.
2. 在绕线器起动时，绕线器的摩擦轮应该由驱动轮1驱动。在绕线器关闭时，驱动轮1与绕线器的摩擦轮之间不许有接触。
2.When the bobbin winder is switched on , its friction wheel should be driven by drive wheel 1. When the bobbin winder is switched off, drive wheel 1 must not touch the friction wheel of the bobbin winder.



图/ Fig. 15-23



- 按规则相应地移动驱动轮1（螺钉2）。
Adjust drive wheel 1 (screw 2) in accordance with the requirements.

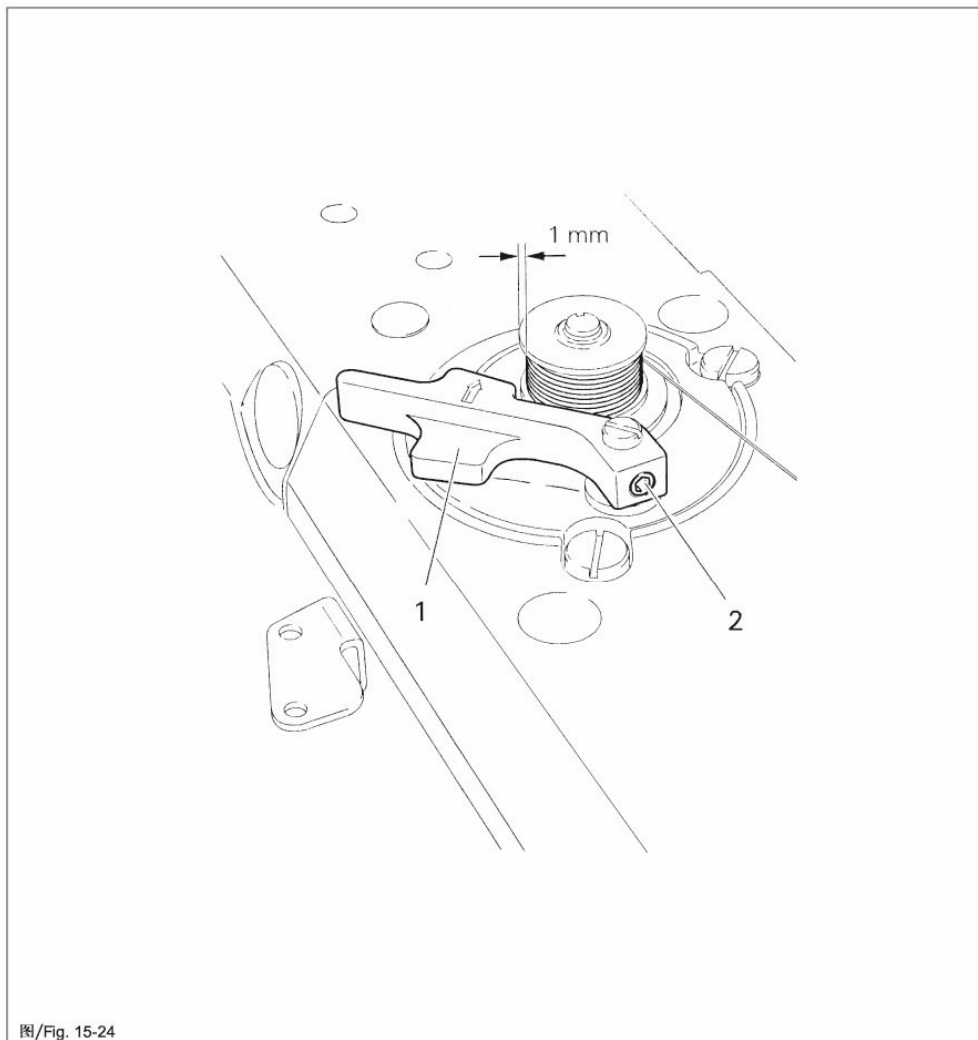
15.28

绕线器
Bobbin winder

规则 Requirement

当梭心绕线到还差1mm到梭心边沿时，绕线器应该自动关闭。

The bobbin winder should switch off automatically, when the thread level is about 1 mm from the edge of the bobbin.



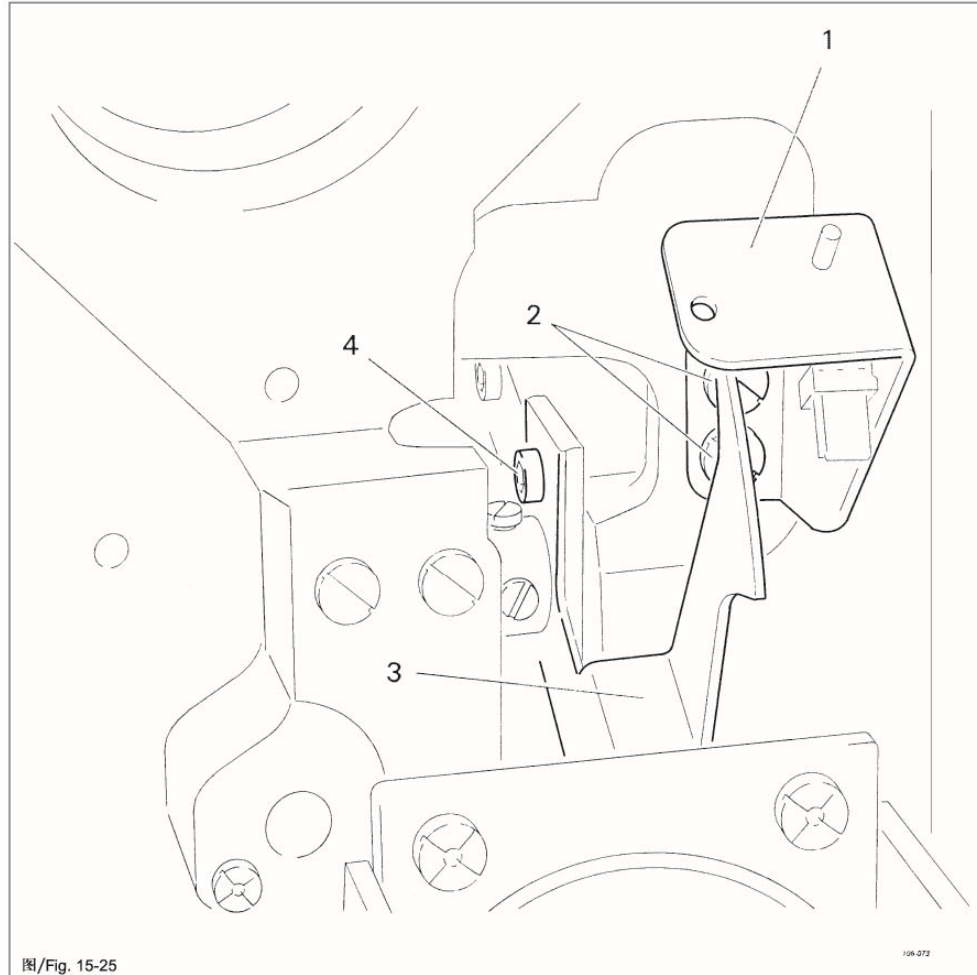
- 按规则相应地转动手柄1（螺钉2）。
Turn lever 1 (screw 2) in accordance with the requirement.

15.29

钮夹临界开关
Button clamp initiator

规则 Requirement

落下的钮夹应该操作临界开关（参数"601"的 输入"3"处在"Off"）。
When the button clamp is lowered, the initiator should be actuated (input"3" parameter "601" is in the "off " position).



图/ Fig. 15-25



- 起动机器。
Switch on the machine.
- 在操作方式输入下，调用参数"601"，见使用说明11.03章，参数输入。
In the input mode, select parameter "601", see Chapter 11.03 Parameter input in the instruction manual.



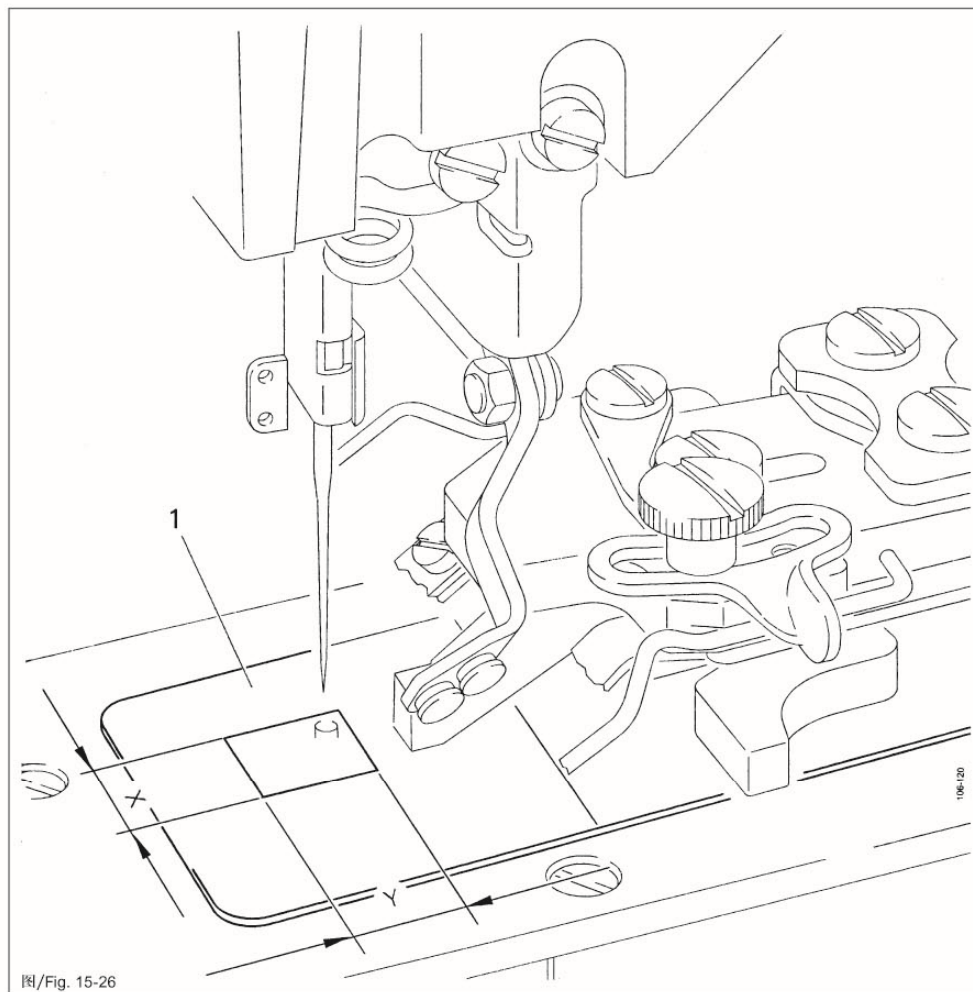
- 用相应的正/负键选取输入"3"。
Select input "3" with the corresponding plus /minus key.

- 在需要时，输入操作密码，见使用说明11.05.01章，操作密码输入。
If necessary, enter the access code, see Chapter 11.05.01 Entering the access code in the instruction manual.
- 按规则相应地调节支架1（螺钉2）和开关角铁3（螺钉4）。
Adjust bracked 1 (screws 2) and switch lug 3 (screws 4) in accordance with the requirement.
- 关闭机器。
Switch off the machine.

15.30

推料器和钮夹卡爪的更换

Changing the feeder and the jaws of the button clamp



图/ Fig. 15-26



- 在X和Y方向上测量新推料器的开口和设置缝纫区尺寸，见使用说明9.07章，钮夹和缝纫区尺寸。
Measure the cutout of the new feeder in X-and Y-direction and adjust the sewing area size, see Chapter 9.07 Button clamp and sewing area size of the instruction manual.
- 安装和调整新钮夹卡爪，见15.07章，钮夹调整。
Fit and align the new button clamp jaws, see Chapter 15.07 Aligning the button clamp.
- 调用与钮夹相匹配的缝纫程序，见使用说明9.06章，缝纫程序的说明。
Select the seam program to match the button clamp, see chapter 9.06 Selecting a seam program of the instruction manual.
- 节拍运行缝纫程序，并且同时进行检查，见使用说明7.05.03章，功能键。
Check the seam program by tacting through it ,see Chapter 7.05.03 Function keys of the instruction manual.



如果实际的缝纫区尺寸与给定的缝纫区尺寸不符，可能会导致机器的严重损坏！

If the actual size of the sewing area differs from the size entered, serious damage can be caused to the machine!

15.31 冷启动
Cold start



在执行冷启动时，线缝图50-99及所有已更改的参数设置都被删除！机器返回到供货时的状态，机器的零点被保留。

When a cold start is carried out, the seam patterns 50-99 and all altered parameter settings are deleted! The machine is reset to its condition on delivery, the machine's zero points remain unaffected.

- 启动机器。
Switch on the machine



- 用相应的正/负键选取参数"607"。
Select parameter"607" with the corresponding plus/minus keys.



- 需要时，输入操作密码，见使用说明11.04.01章，操作密码输入。
If necessary, enter the code, see Chapter 11.05.01 Entering the access code in the instruction manual.

- 用相应的正/负键执行冷启动。
With the corresponding Plus/minuskey carry out the reset operatton.
- 关闭机器，并在约3秒后重新启动。
Switch the machine off and on again after approx. 3 seconds.

