



USER'S MANUAL

Frame Change

TMAR-VC

Foreword

Thank you for purchasing the TAJIMA embroidery machine.

Please read this manual thoroughly, understand the contents, and then use the machine.

This manual may contain discrepancies in detailed specifications when compared with the actual product. If you have any question, please ask the distributor for information.

Purpose of This Document

This manual and other documents contain the following information. Refer to the necessary documents depending on the application and purpose. The user's manual and other documents are stored as PDF files on the supplied DVD.

■ USER'S MANUAL

For Safe Use

This manual contains instructions on using the machine safely. Make sure to read the manual before use.

Basics

This manual describes the basic knowledge and procedures that are common to all the models and required to use the machine.

If you are a novice to or unfamiliar with the machine, be sure to read this manual first.

Operation

This manual describes the procedures for operating the machine, performing embroidery, and performing maintenance.

Parameter Setting

This manual describes various parameters.

Frame Change (this document)

This manual describes how to change the frames.
This does not come with some models.

Various Documents

Electrical system diagrams and other technical documents.

■ Other manuals

Quick Guide

This sheet is the Quick reference regarding embroidery methods as well as frequently used functions and their operating procedures.

Keep the Quick Guide handy so that you can reference it quickly.

Optional Device

This manual describes how to set up, operate, and maintain various optional devices.

Safety precautions

To prevent any harm or damage to the person who use this product or other person, we describe items that must be surely followed as below.



Indicates that there is a lot of danger of death or serious injuries [*1] if handled by mistake.




Indicates that there is a likelihood of death or serious injuries [*1] if handled by mistake.





Indicates a potentially hazardous situation which may result in minor or moderate injury [*2] or property damage if handled by mistake.

*1: A condition caused by electric shock, injury, fracture of a bone, etc., that leads to aftereffects, or an injury that necessitates hospitalization or visits to a hospital over a long period.

*2: An injury that does not necessitate hospitalization or visit to a hospital over a long period.

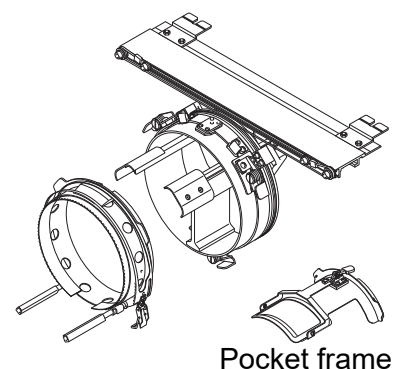
: Prohibited items

: Items that may cause electric shock if not observed

: Items that must be followed carefully to ensure safe operation

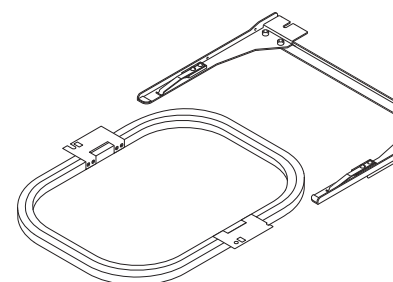
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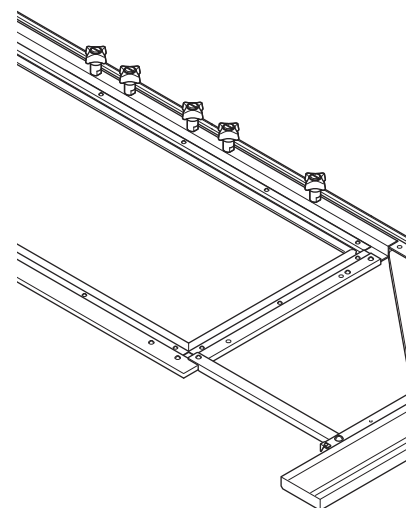
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Chapter 1 Cap frame (Pocket frame)


This machine is available in the following two types depending on the specifications.

- Standard spec.: Supports tubular goods frame and cap frame
- Border frame spec.: Supports tubular goods frame, cap frame, and border frame

The following label comes with the machine. Attach it to the table as necessary so that it serves as a rough guide for the center of embroidery space.



CAUTION

-  Perform the contents described in this chapter with the power switch OFF except for some of the work. Otherwise, you could be injured by unexpected malfunctioning of the machine.

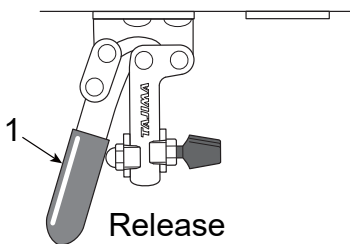
1. To detach frame unit

Refer to the attaching method (described below) of each unit, and detach the existing frame unit in the reverse procedure.

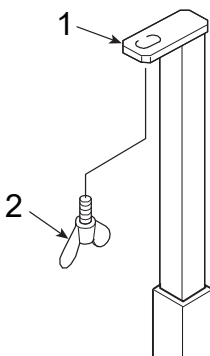
- Tubular goods frame ->“To attach the tubular goods unit”(→ p.17)
- Border frame ->“To attach the border frame unit”(→ p.25)

2. To change the height of table


- (1) Release all toggle clamps 1 positioned at the bottom of the table.

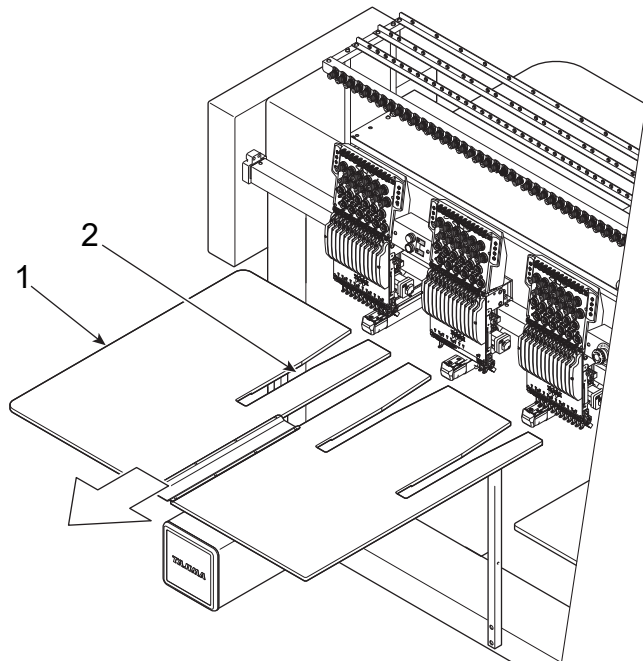
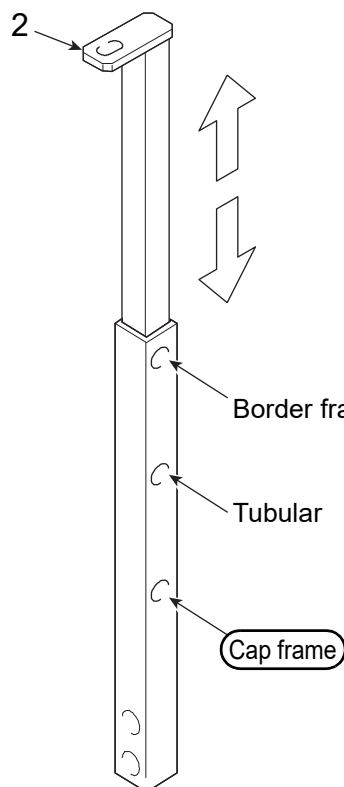


- (2) Remove the screw 2 of the stay 1 under the table.



(3) Detach the table 1.

 Table 1 is for border frame spec. The standard spec. does not have notch 2.

**(4)** Detach the screw 1, and tighten the screw 1 after adjusting the height of the stay 2 to the frame type.

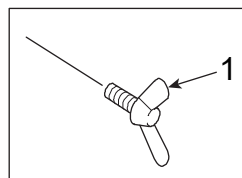
(*1)

For the border frame spec. only, you can raise the stay 2 to the border frame position.

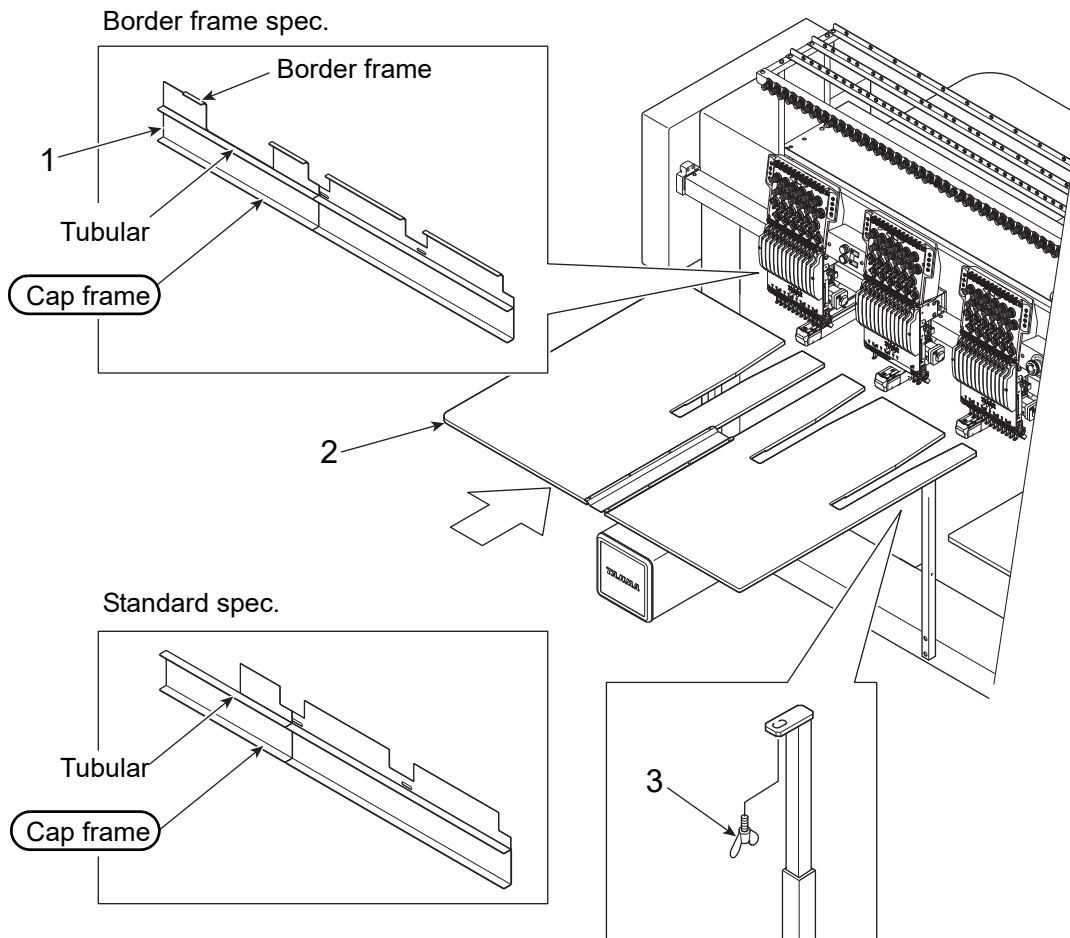
Border frame (*1)

Tubular

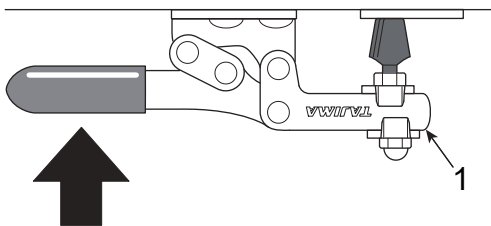
Cap frame




- (5) Place the table 2 on the table holder 1 corresponding to the type of frame, and push it to the back firmly. Then tighten the screw 3.




- (6) Fix all toggle clamps 1.



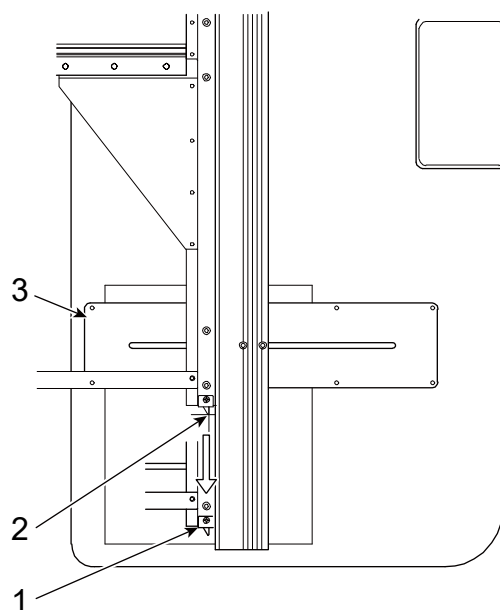
3. To attach cap frame unit

 Attach the cap frame unit even if you use a pocket frame.


(1) Move the frame 1 to front from the center of embroidery space by operation on the operation panel.

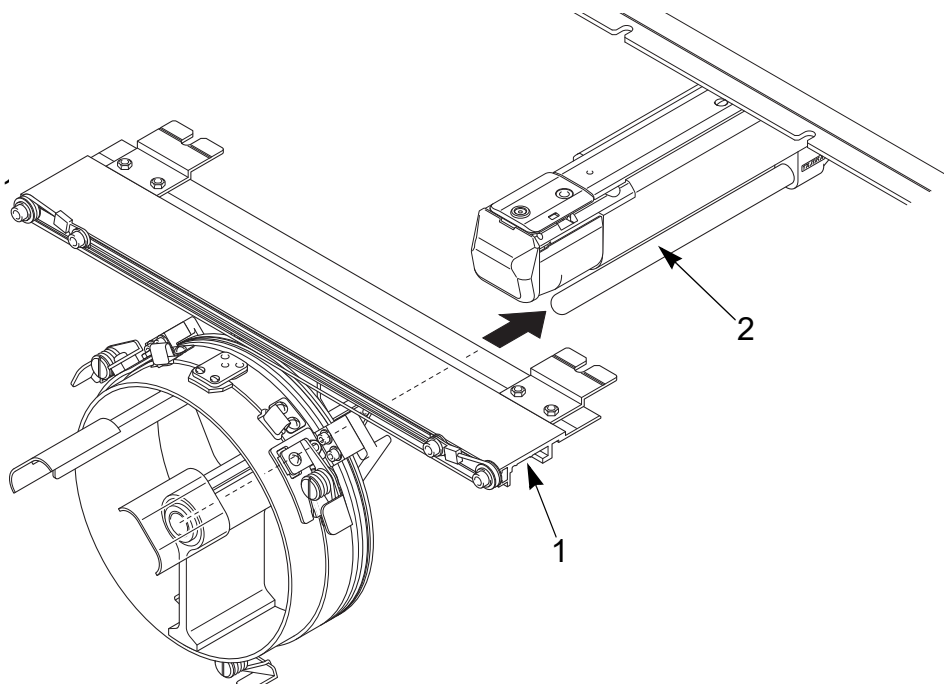
 The border frame spec. is shown below.

For the border frame spec., the mark-off line 2 on the table shows the center of the embroidery space. For the standard spec., the punched mark on the table lid 3 shows the center of the embroidery space.

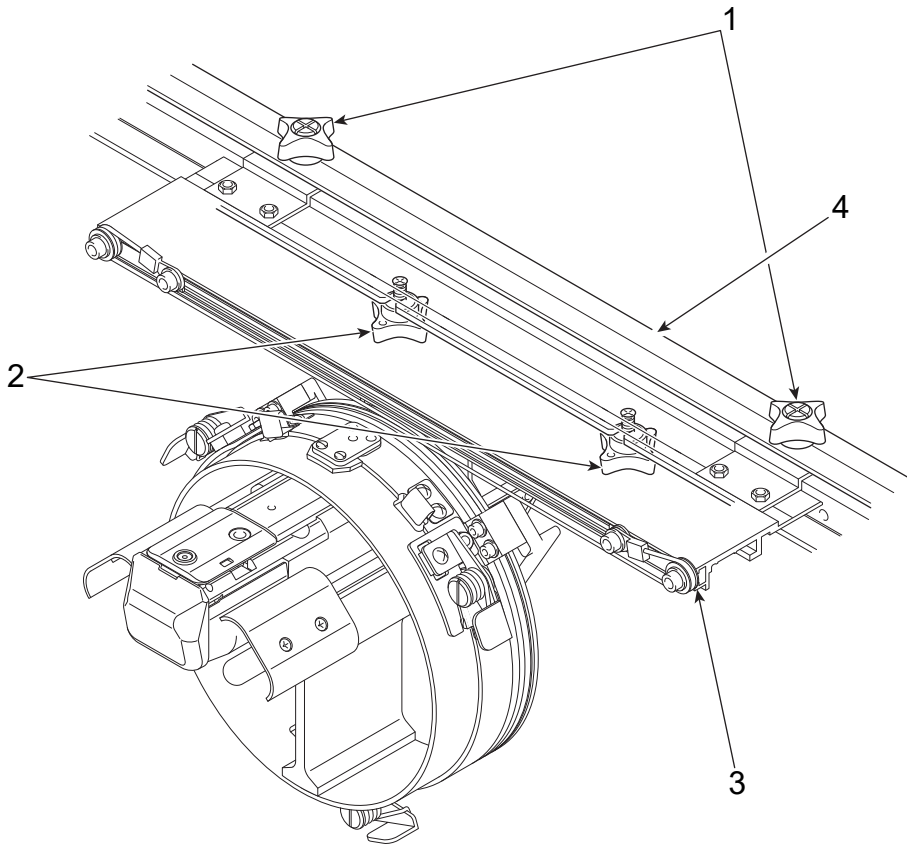


(2) Fit the cap frame unit 1 into the drive ring shaft 2.

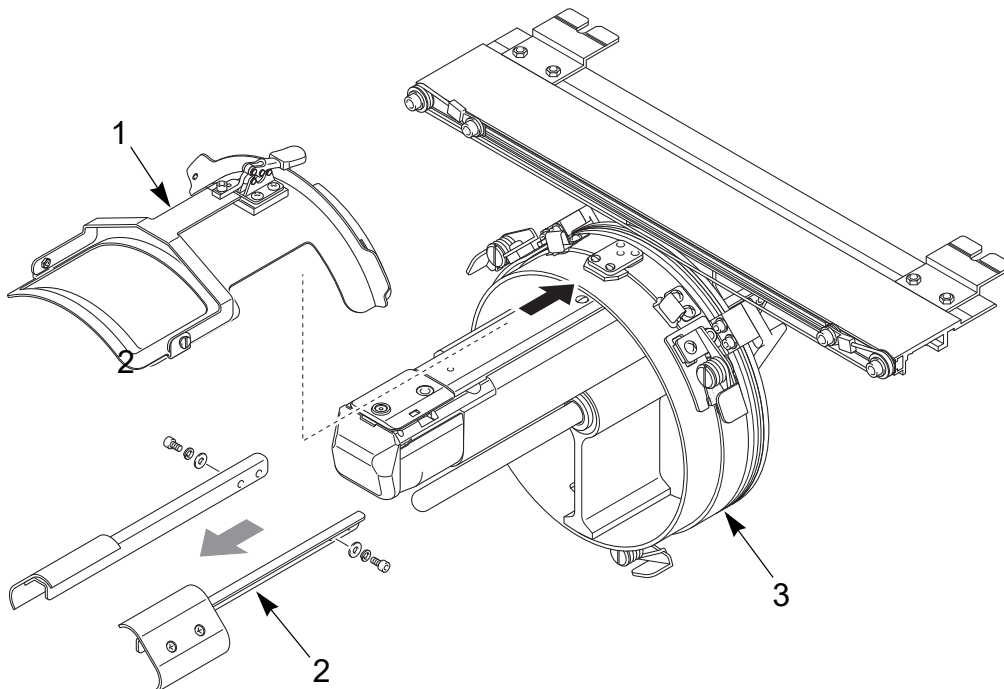
 If the drive ring shaft is not attached, attach it by referring to "To attach the drive ring shaft" (→ p.32)




(3) Connect the cap frame unit 3 and drive section 4 by using the screws 1 and 2.

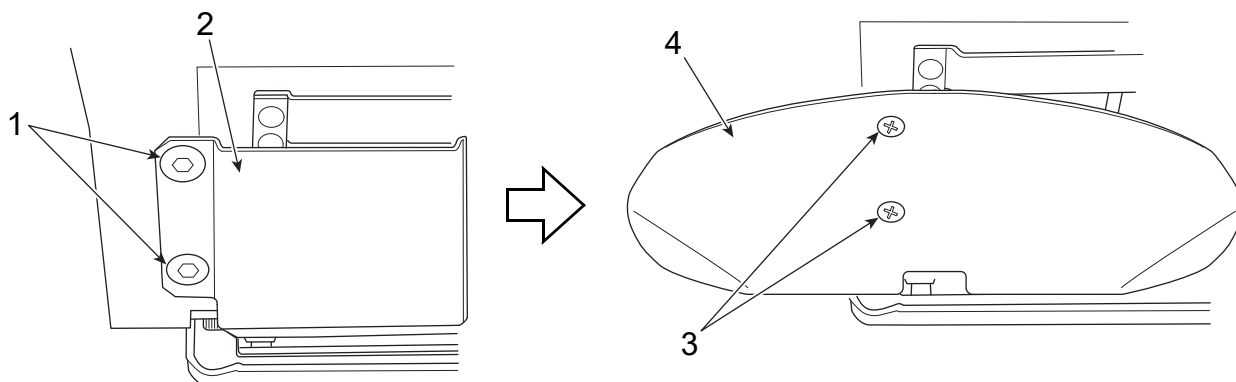


Attach the pocket frame 1 to the drive ring 3 after detaching the needle plate bracket 2.



(4) Detach the hook cover 2 by loosening screws 1, and attach the cap frame guide 4 by tightening screws 3.


 It is not necessary to detach the attached cap frame guide 4. However, only when embroidery work has a trouble, change it to the hook cover 2.



4. To change frame type

When exchanging the frame, change the frame type according to the following procedure. The setting cannot be changed during embroidery.

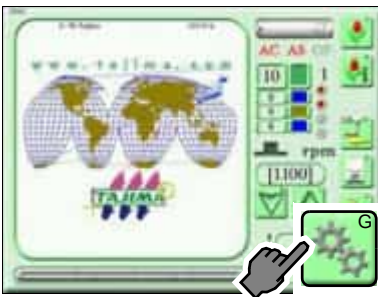
CAUTION

 When performing this operation, do not put your hands etc. around the frame. Moving the frame could injure you.

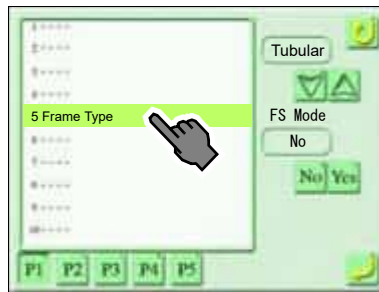
[How to operate]

Example: Change to cap frame.

(1) Icon G

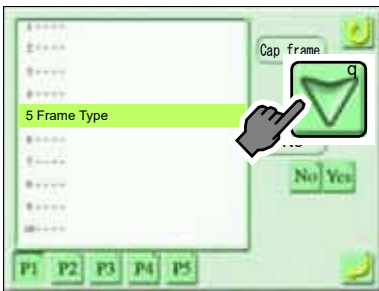


(2) 5 Frame Type

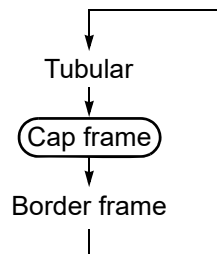


FS Mode is available only for border frame and tubular goods frame. For details of FS Mode, refer to the user's manual for the machine.

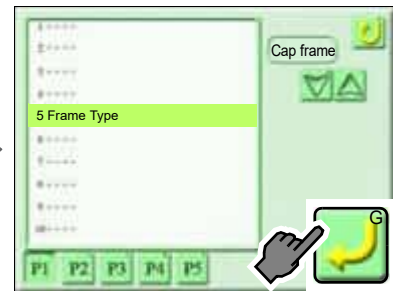
(3) Icon q



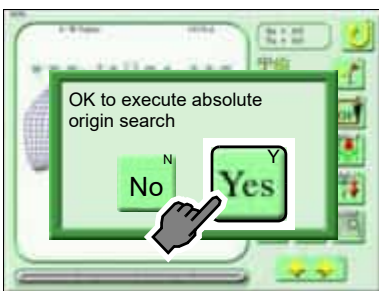
(4) Select cap frame




(5) To set



(6) Yes (Completed)

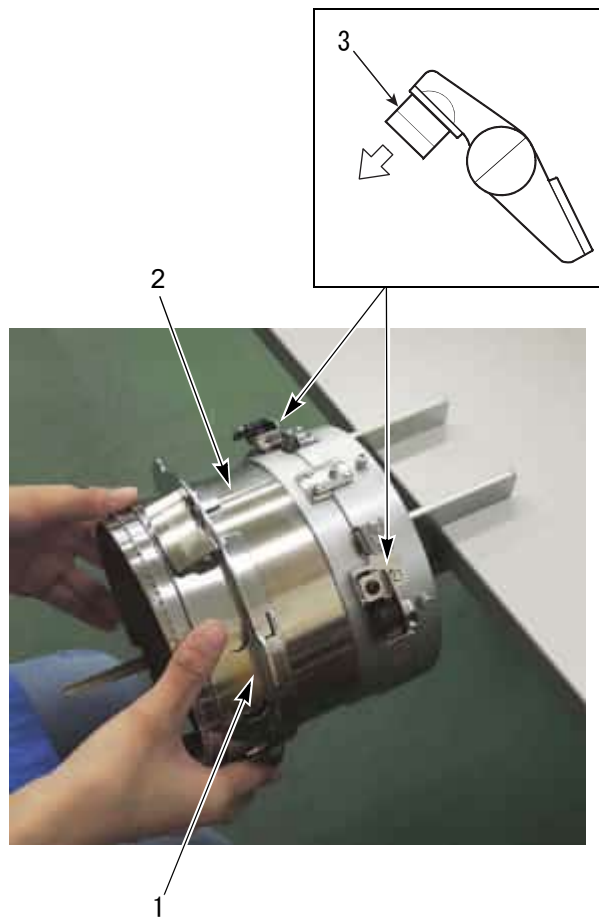


Pressing "Yes" will cause the frame to move (Absolute origin search will be performed).

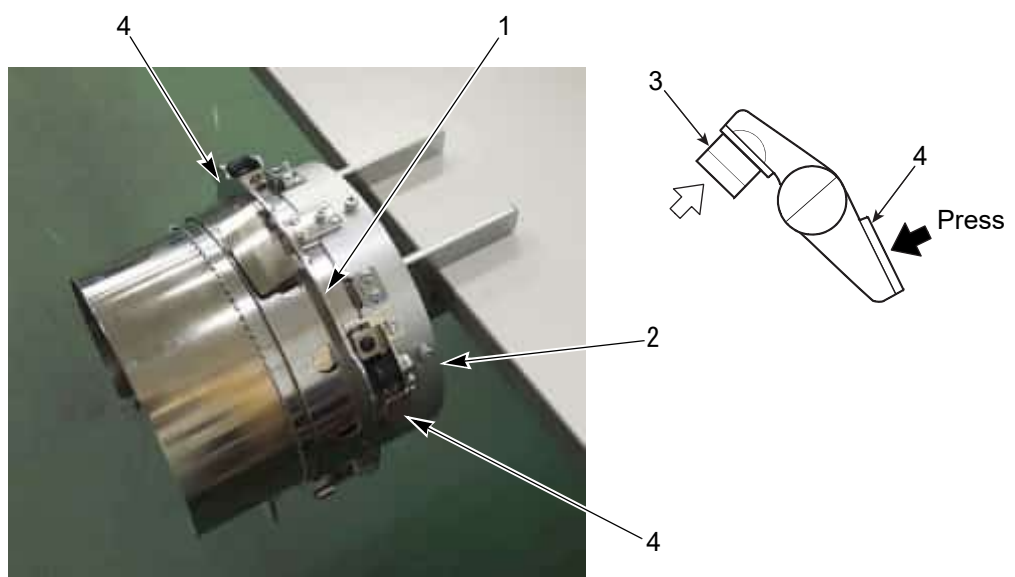
 Without performing the absolute origin search, it is unable to start the machine.

5. To set material

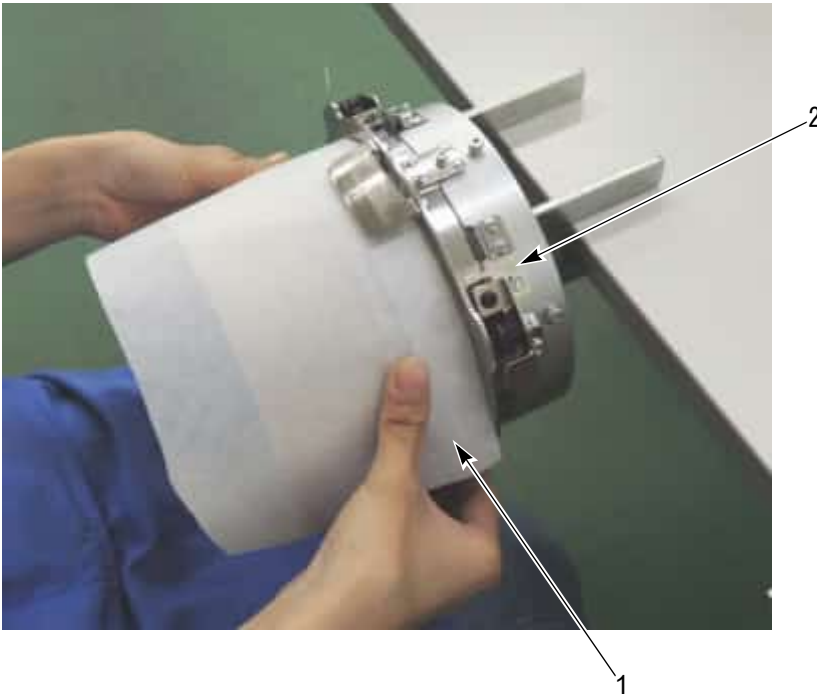
(1) Push the cap frame 1 until it is fixed by the lock pin 3 of the setting frame 2.



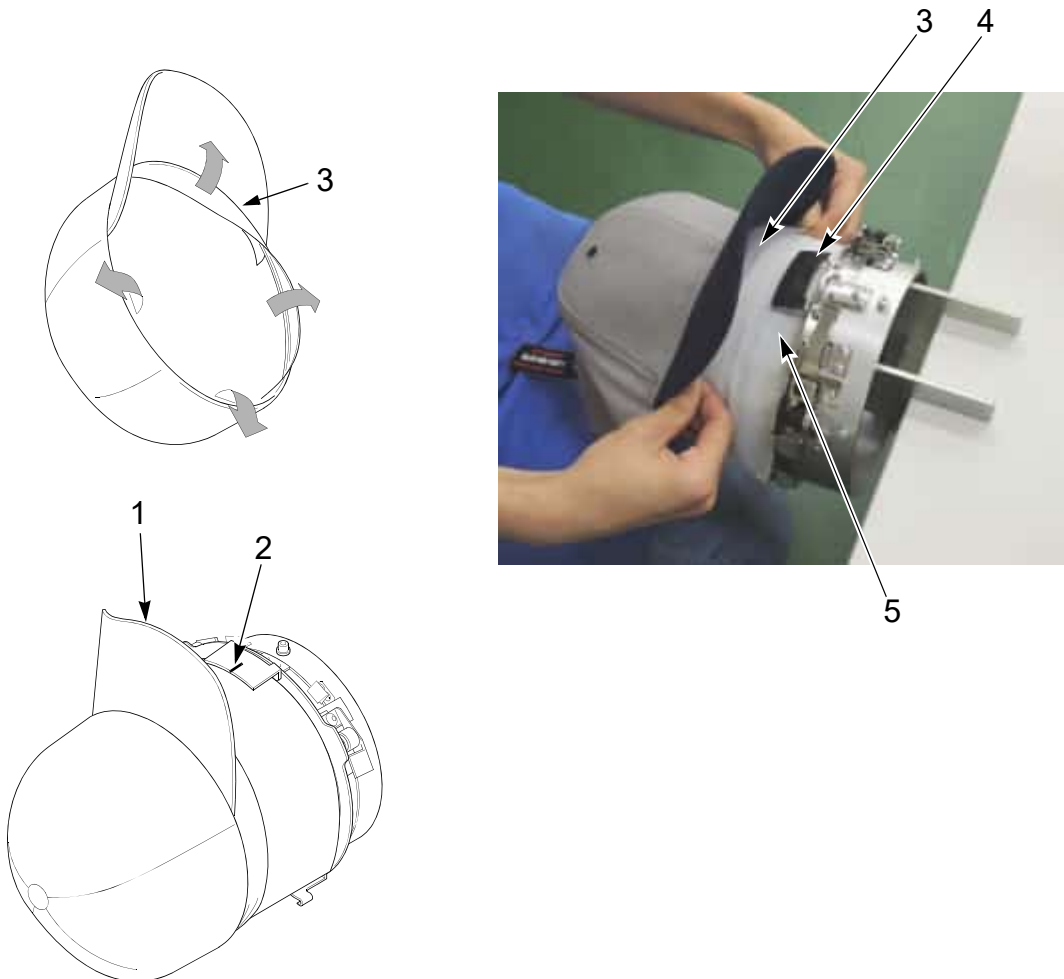
To detach the cap frame 1 from the setting frame 2, push the attach/detach lever 4 in left and right to detach the lock pin 3.



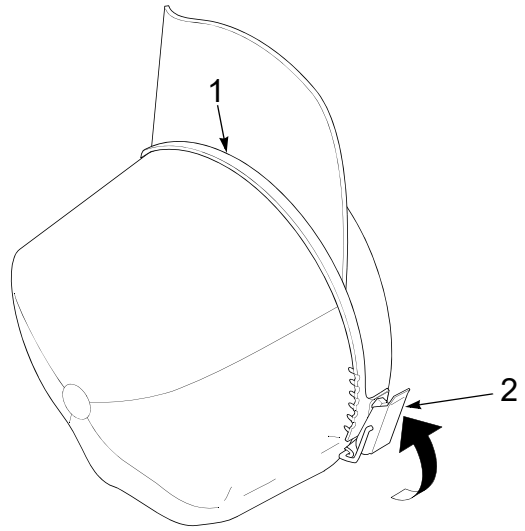
(2) Set the interlining cloth 1 to the cap frame 2.




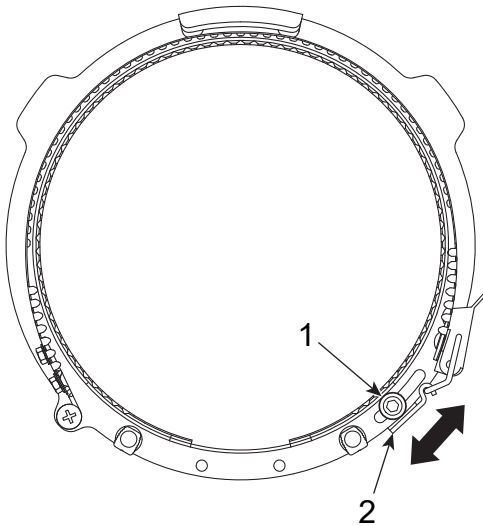
(3) Align the center of cap with the mark-off line 2 so that the visor 1 of cap comes directly above, and pull the sweatband 3 outside, and clip between the holder 4 and the interlining cloth 5.



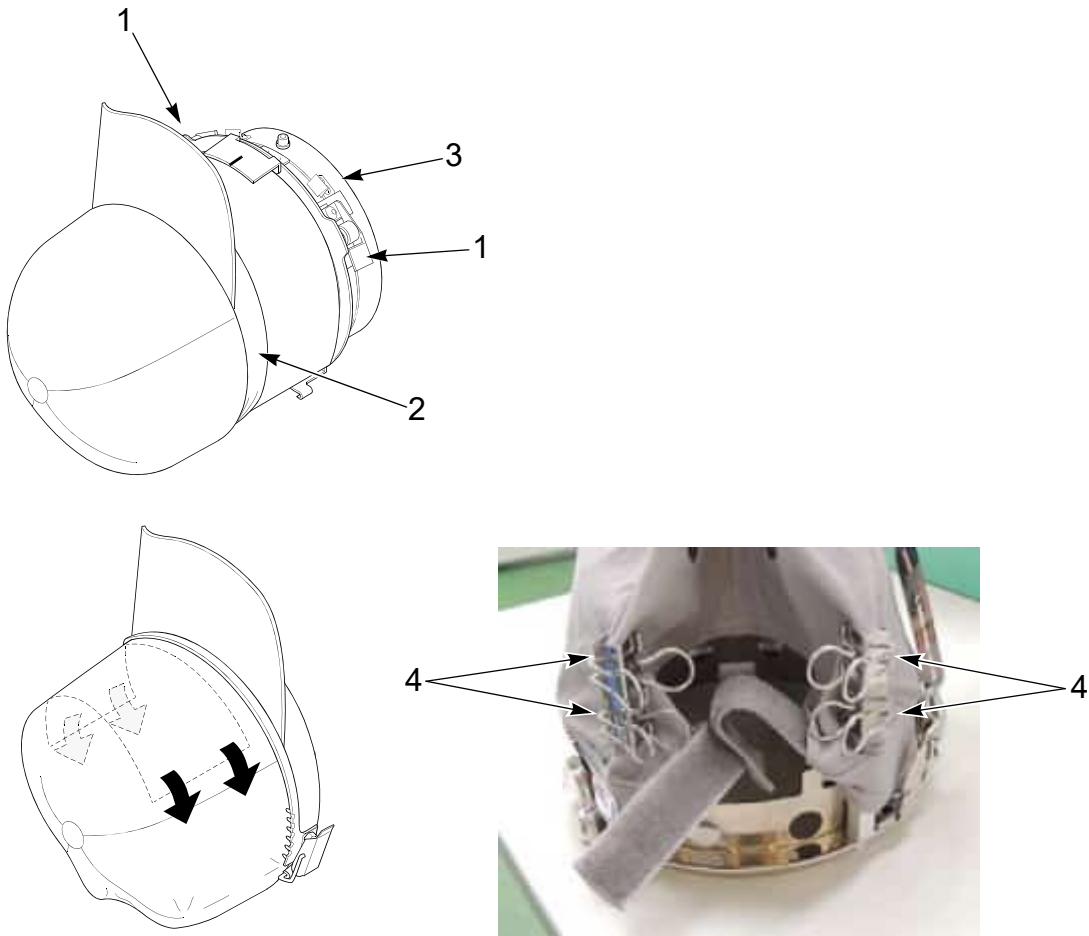
(4) Close the lid frame 1 and fix the cap by the lock 2.




 When the fabric thickness of cap is changed, loosen the screw 1. Then, adjust the position of the lid frame holder 2 in accordance with the fabric thickness of cap.

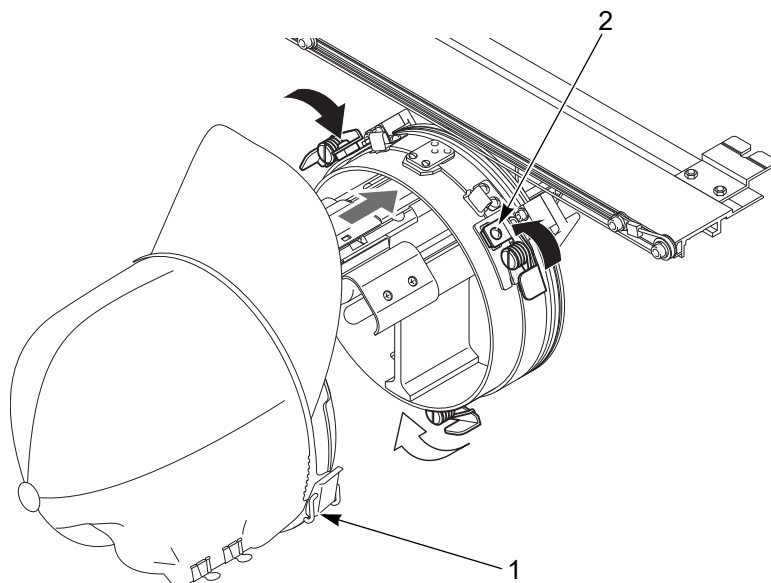



(5) Push the attach/detach lever 1 in left and right to detach the cap frame 2 from the setting frame 3. Stretch the fabric insofar as roundness of the cap does not disappear, then fix the cap by using clips 4.

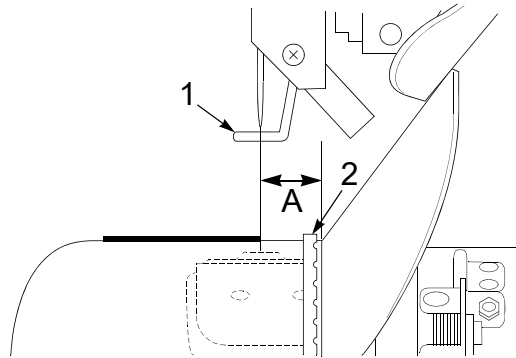



(6) Push the cap frame 1 until it is locked by the lock pin 2.

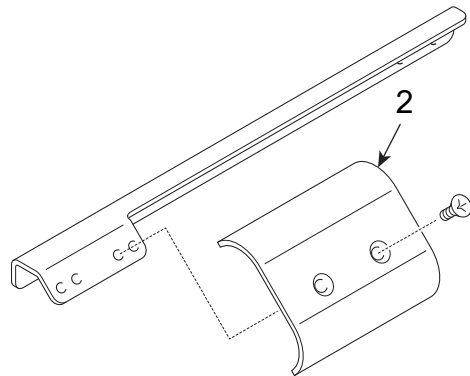
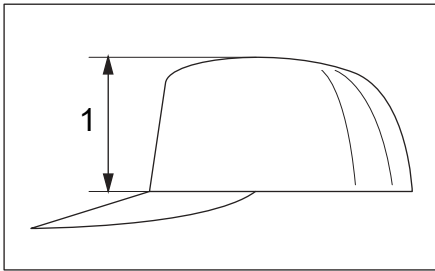
 Lock pin is located to 3 positions, including the bottom face of the drive ring.



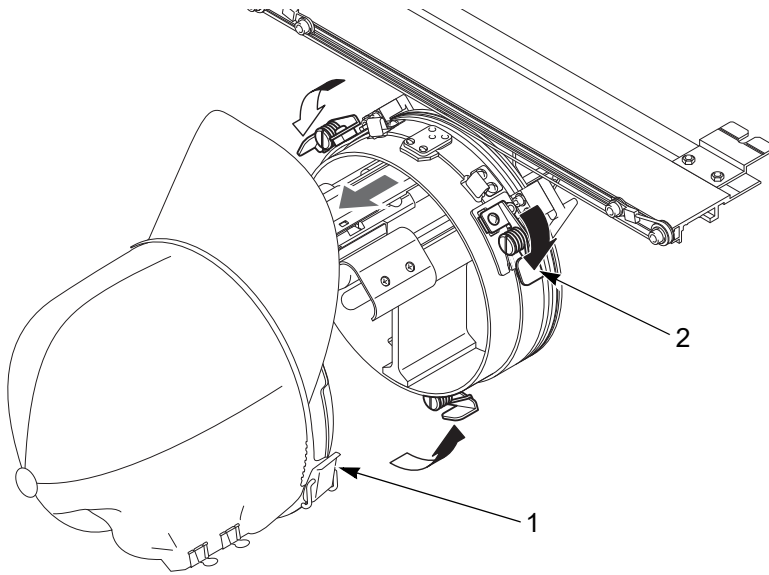
 To prevent the presser foot 1 from hitting the lid frame 2 when embroidering, make a distance 15 mm or more at section A in the figure below.



 When the cap depth 1 is changed, change the attaching position of the needle plate guide 2.




 To detach the cap frame 1, press the lever 2 of lock pin. The 1 is pushed in front by the force of spring.

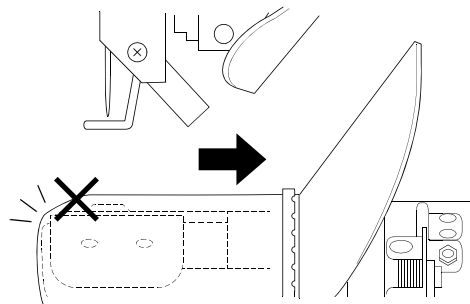


Exchange to the cap frame (pocket frame), and the setting procedure of material are complete now.

If necessary, perform the operation of “Chapter 4 Panel setting”(p.29) and after.

CAUTION

-  Check the embroidery space before starting embroidery. If you embroider a cap around its top, needle plate or rotary hook cover touches the inside of the cap to cause displacement of design.

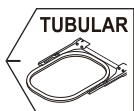


Chapter 2 Tubular goods frame


This machine is available in the following two types depending on the specifications.

- Standard spec.: Supports tubular goods frame and cap frame
- Border frame spec.: Supports tubular goods frame, cap frame, and border frame

The following label comes with the machine. Attach it to the table as necessary so that it serves as a rough guide for the center of embroidery space.



CAUTION

-  Perform the contents described in this chapter with the power switch OFF except for some of the work. Otherwise, you could be injured by unexpected malfunctioning of the machine.

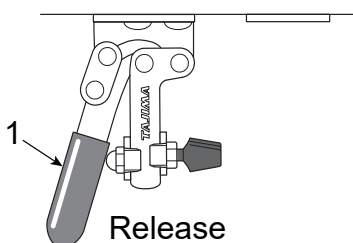
1. To detach frame unit

Refer to the attaching method (described below) of each unit, and detach the existing frame unit in the reverse procedure.

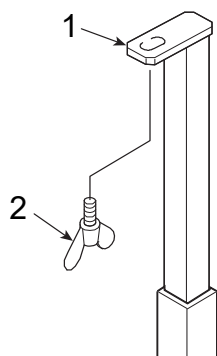
- Cap frame ->“To attach cap frame unit”(→ p.4)
- Border frame ->“To attach the border frame unit”(→ p.25)

2. To change the height of table


(1) Release all toggle clamps 1 positioned at the bottom of the table.

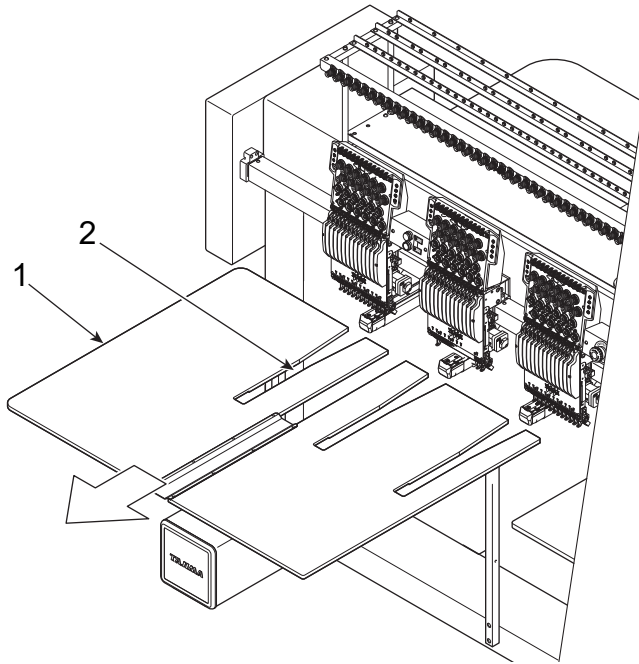


(2) Remove the screw 2 of the stay 1 under the table.

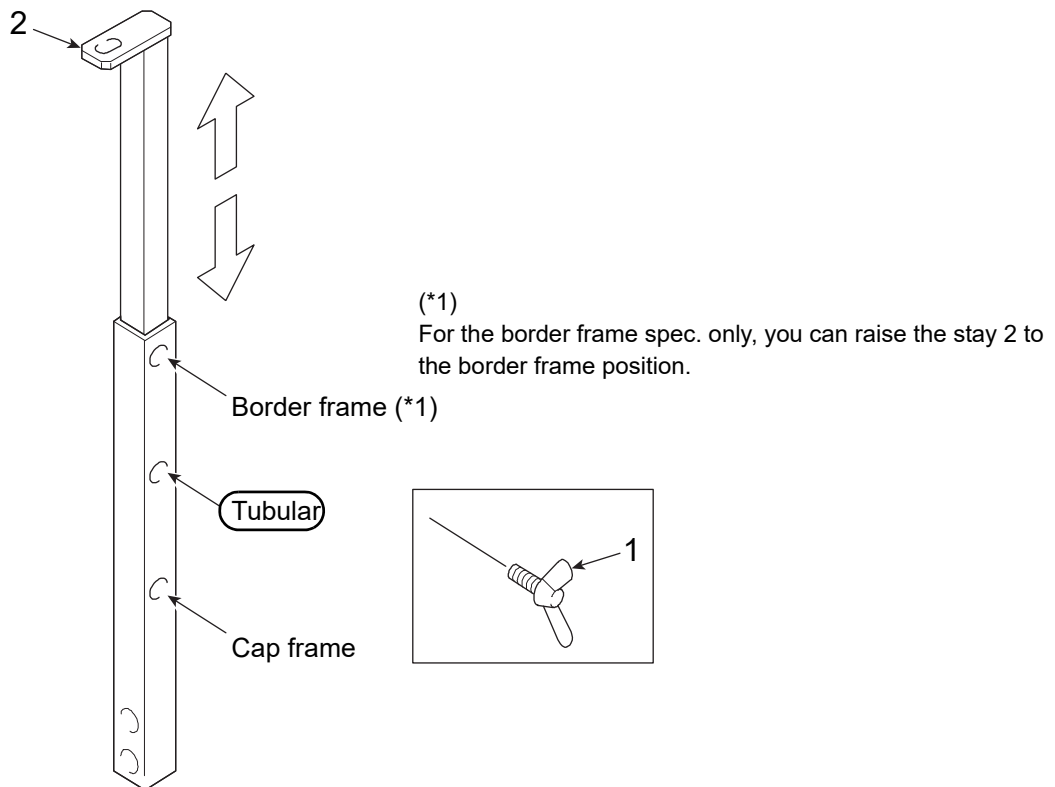


(3) Detach the table 1.

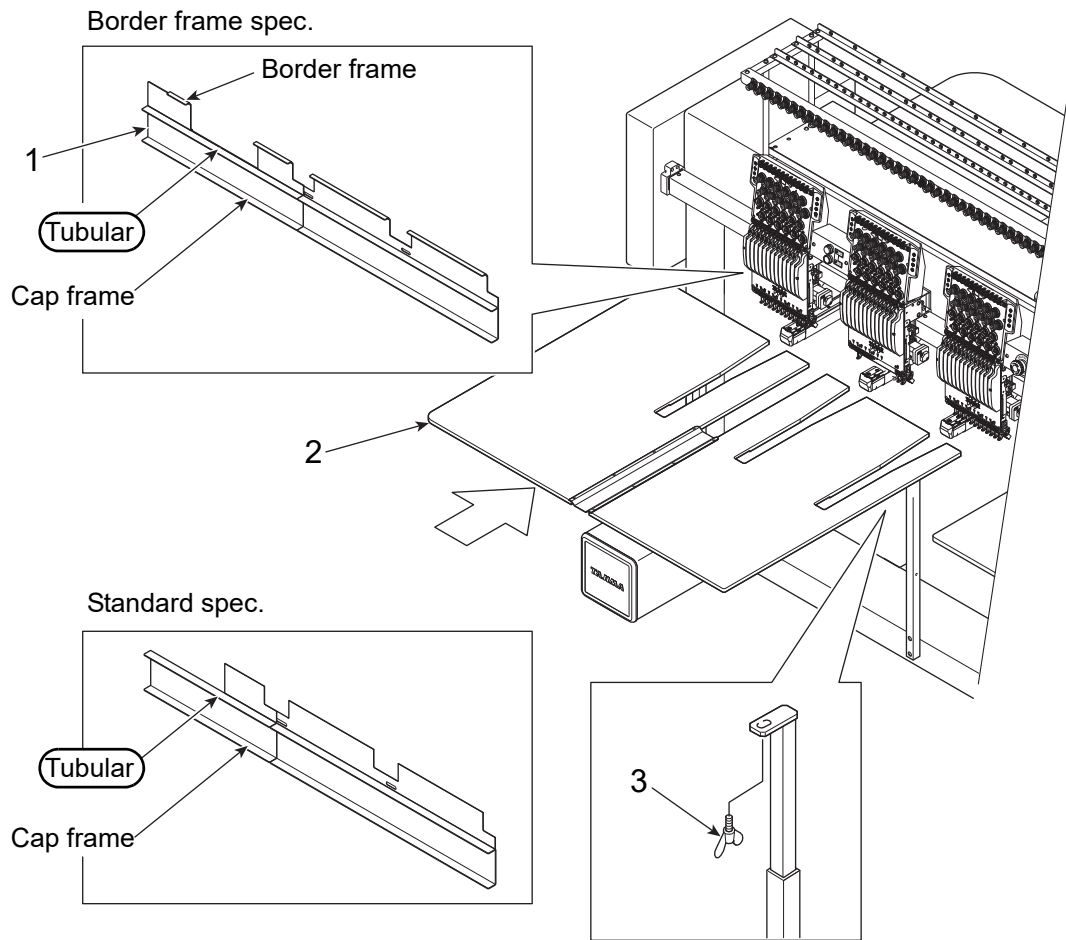
 Table 1 is for border frame spec. The standard spec. does not have notch 2.



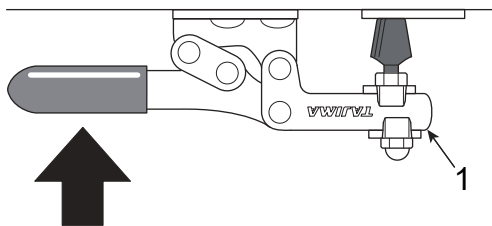
(4) Detach the screw 1, and tighten the screw 1 after adjusting the height of the stay 2 to the frame type.



- (5)** Place the table 2 on the table holder 1 corresponding to the type of frame, and push it to the back firmly. Then tighten the screw 3.

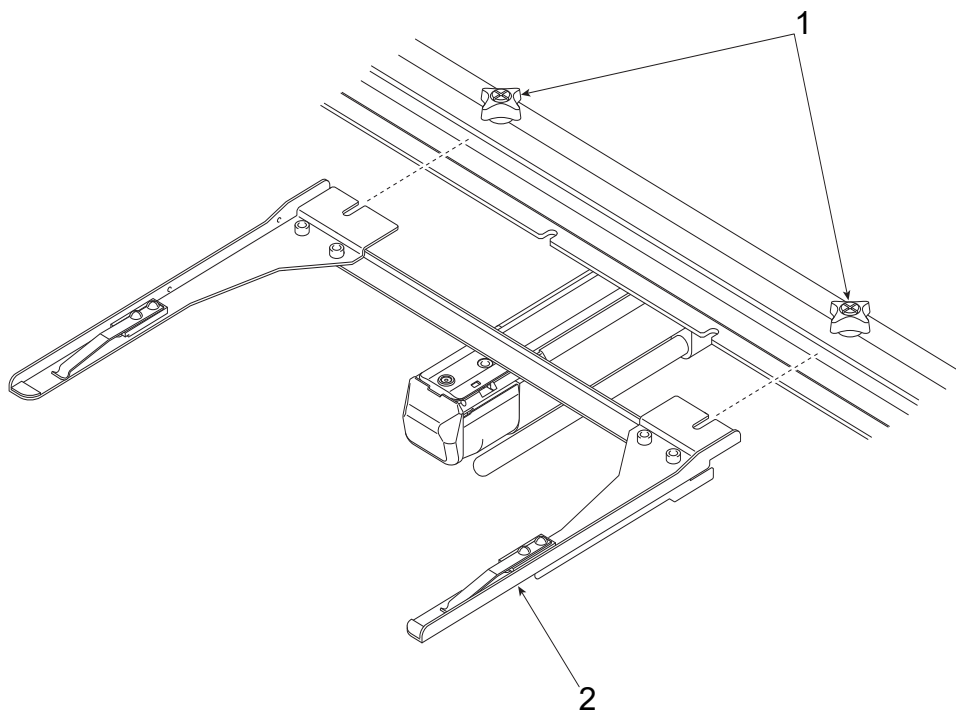


- (6)** Fix all toggle clamps 1.



3. To attach the tubular goods unit

(1) Attach the frame holder 1 by using the screw 2.



4. To change frame type

When exchanging the frame, change the frame type according to the following procedure. The setting cannot be changed during embroidery.

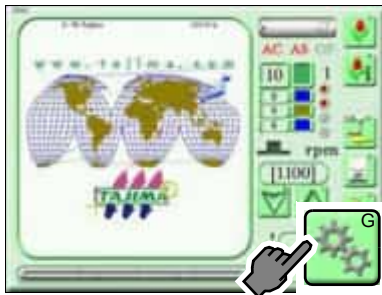
⚠ CAUTION

⊘ When performing this operation, do not put your hands etc. around the frame. Moving the frame could injure you.

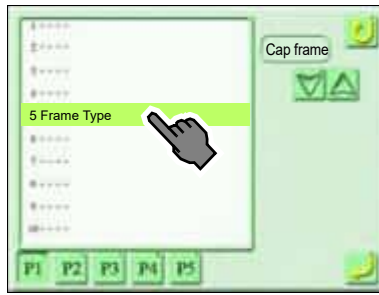
[How to operate]

Example: Change to tubular goods frame.

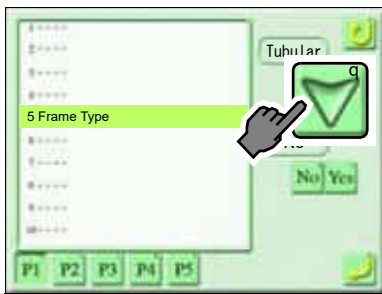
(1) Icon G



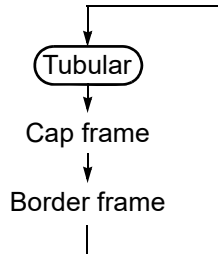
(2) 5 Frame Type



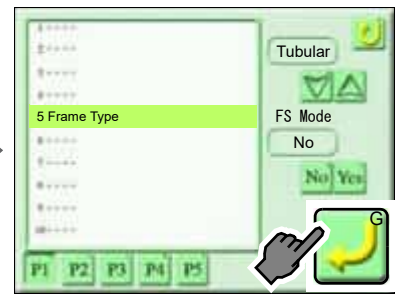
(3) Icon q



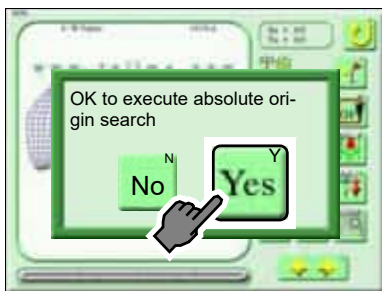
(4) Select tubular goods frame



(5) To set



(6) Yes (Completed)




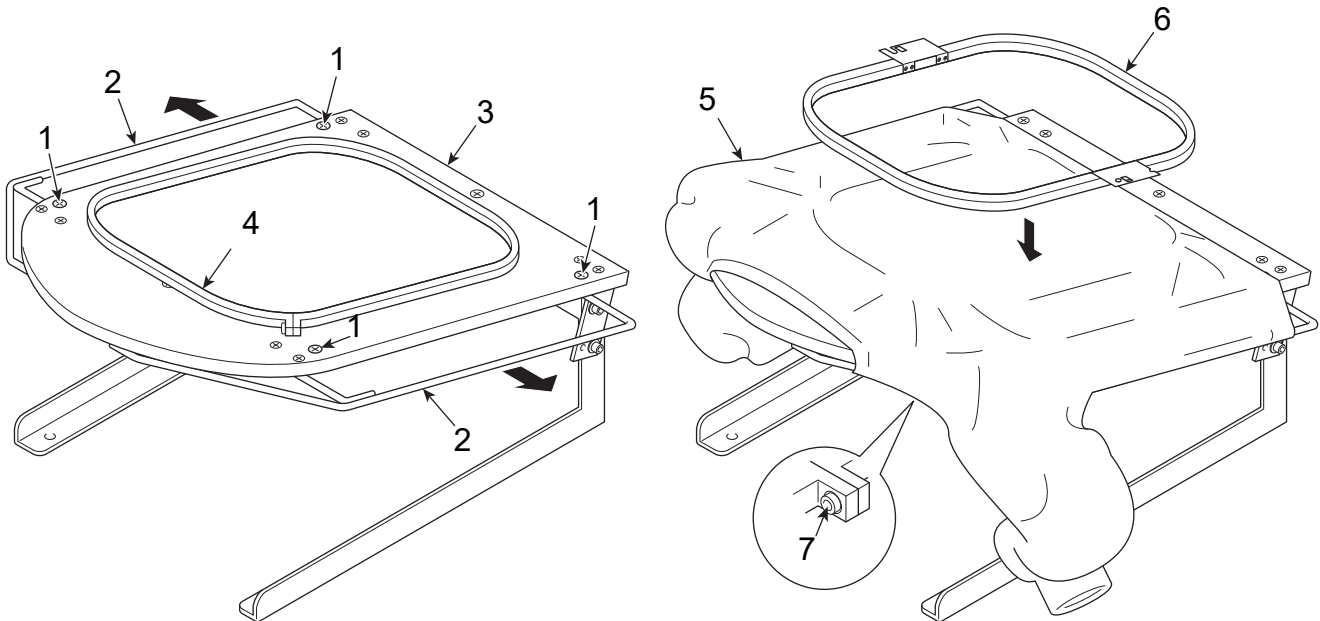
Pressing "Yes" will cause the frame to move (Absolute origin search will be performed).

⚠ Without performing the absolute origin search, it is unable to start the machine.


5. To set material

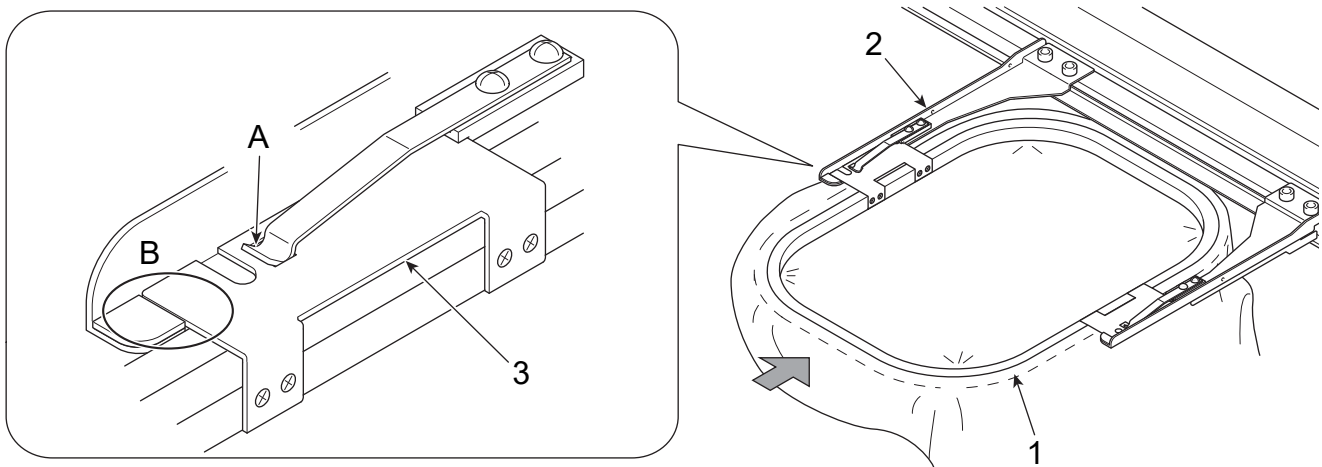
- (1) In order to fit the size of material, loosen the screw 1 to adjust the position of the arm 2.
- (2) Put the outer frame 4 on the gauge frame 3 and cover it with the material 5 (for example, sweat shirt).
- (3) Fit the inner frame 6 into the outer frame 4. At this time, check if the sweat shirt 5 has no shrinkage and evenly stretched.

 Depending on the material thickness, adjust the tightening degree of the outer frame 4 by using the screw 7.




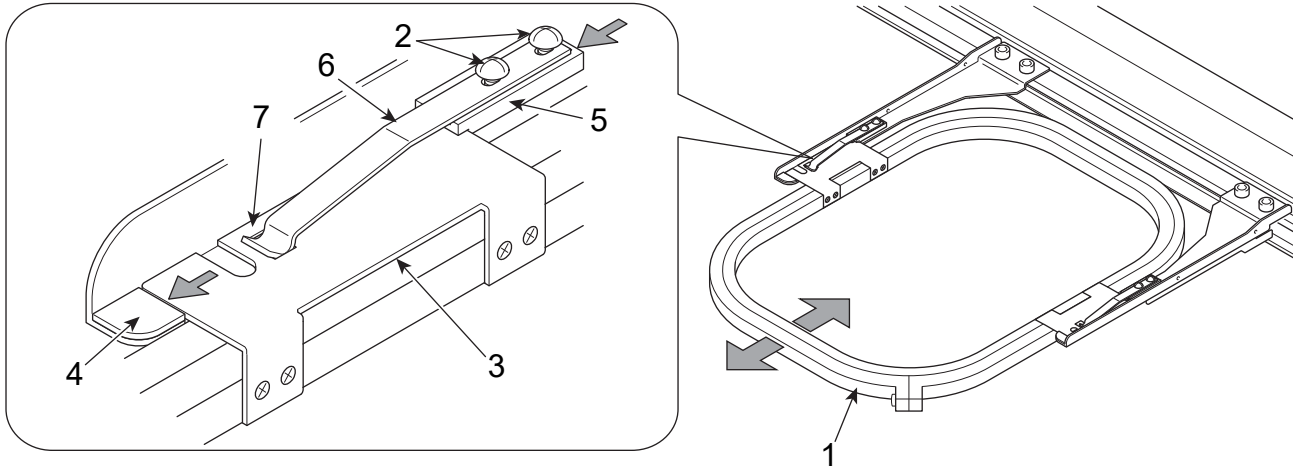
- (4) Set the tubular goods frame 1 to the frame holder 2, and push the 1 into the position (section A) where the arms 3 are locked.

 Check if there is no step or gap at section B.



- (5)** Check if there is no play by moving the set tubular goods frame 1 back and forth.
 When there is a play, loosen the screw 2, and clip the arm 3 between the pawl 4 and the positioning plate 5.
 Then, tighten the screw 2 in the state that the frame presser spring 6 is fitted to the groove 7.

 Shape of the arm 3 differs depending on type of frame.



Replacement of the tubular goods frame, and the setting procedure of material are complete now.

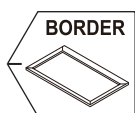
If necessary, perform the operation of "Chapter 4 Panel setting"(p.29) and after.

Chapter 3 Border frame


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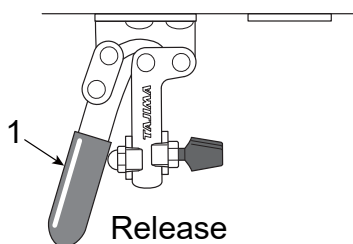
1. To detach frame unit

Refer to the attaching method (described below) of each unit, and detach the existing frame unit in the reverse procedure.

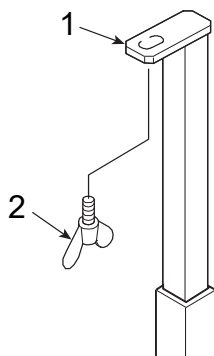
- Cap frame ->“To attach cap frame unit”(→ p.4)
- Tubular goods frame ->“To attach the tubular goods unit”(→ p.17)

2. To change the height of table

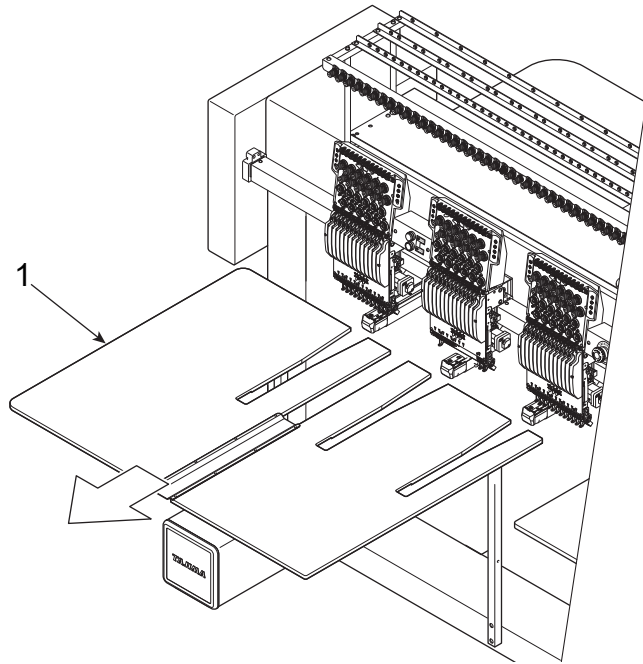
(1) Release all toggle clamps 1 positioned at the bottom of the table.



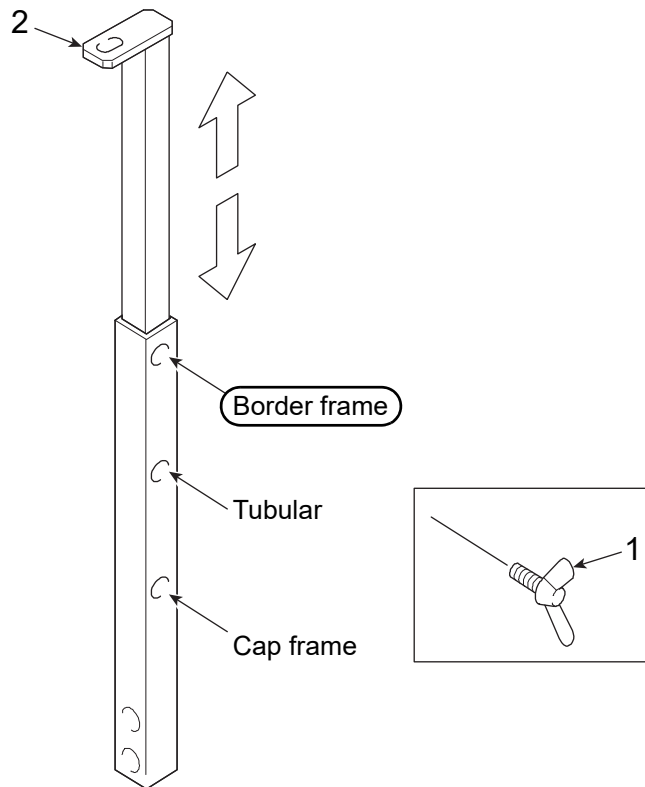
(2) Remove the screw 2 of the stay 1 under the table.



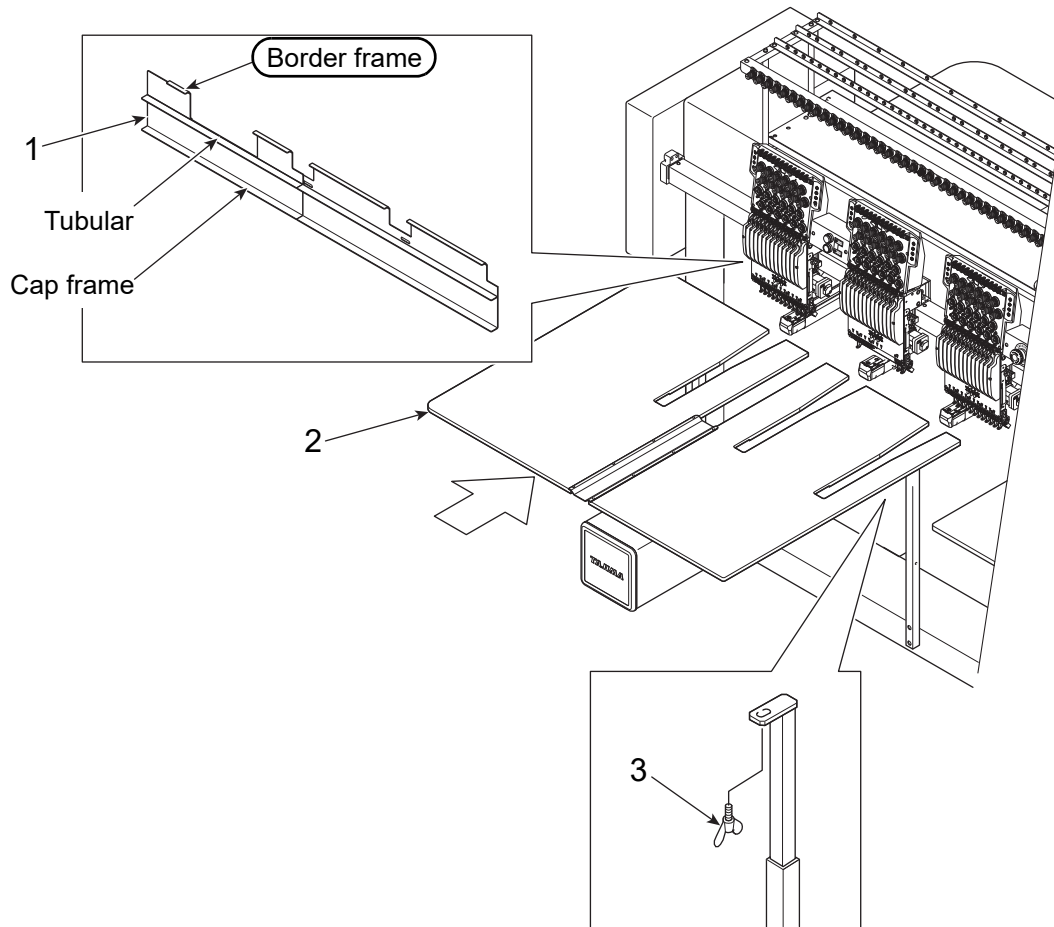
(3) Detach the table 1.



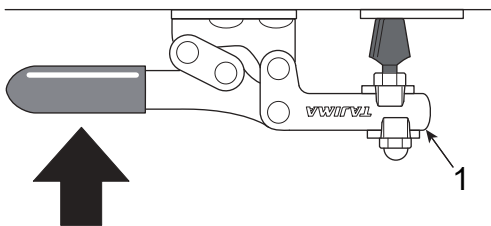
(4) Detach the screw 1, and tighten the screw 1 after adjusting the height of the stay 2 to the frame type.



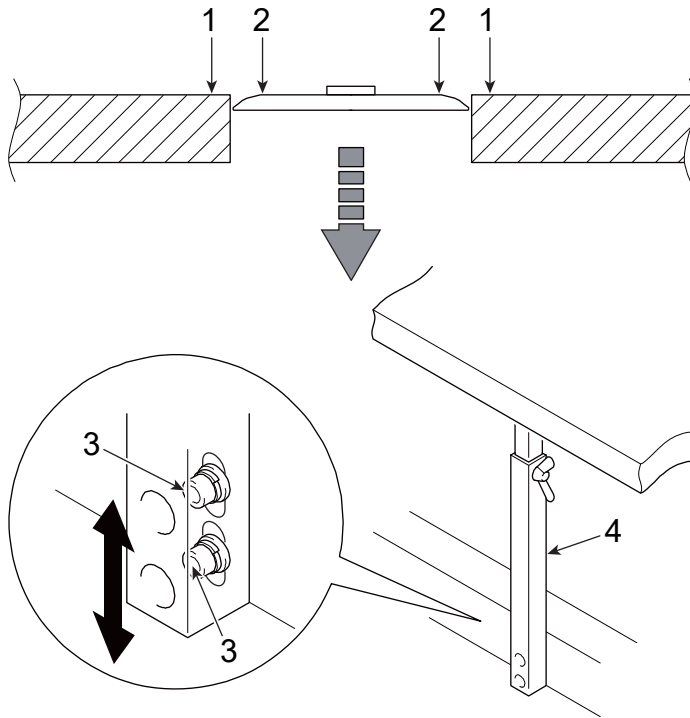
- (5) Place the table 2 on the table holder 1 corresponding to the type of frame, and push it to the back firmly. Then tighten the screw 3.



- (6) Fix all toggle clamps 1.

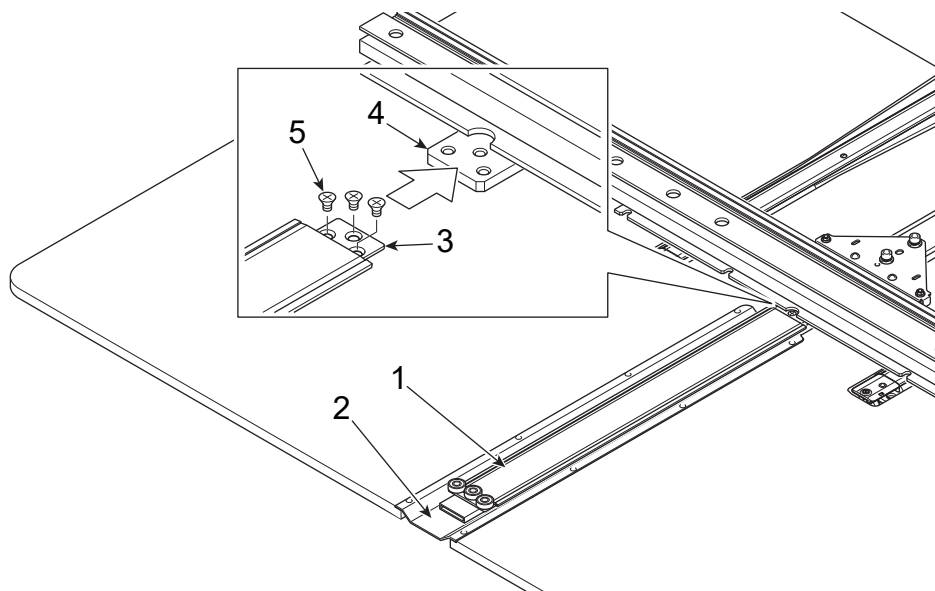


- (7) Check if the top 1 of the table almost accords with the top 2 of the needle plate.
When there is difference of 0.5 mm or more, loosen the screw 3 to adjust the attaching position of the stay holder 4.

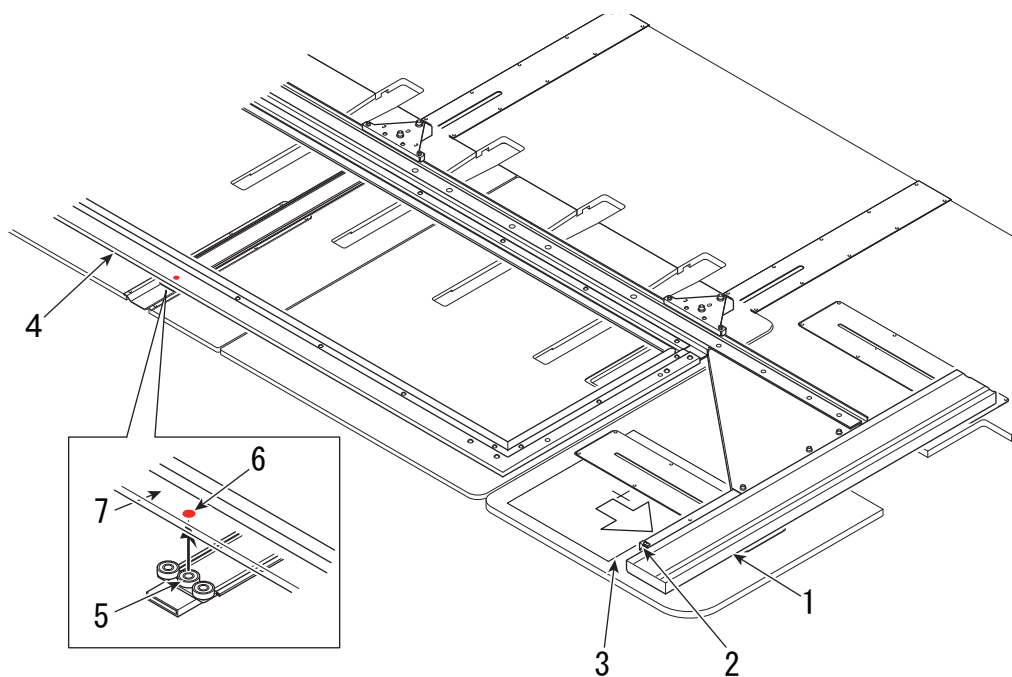


3. To attach the border frame unit

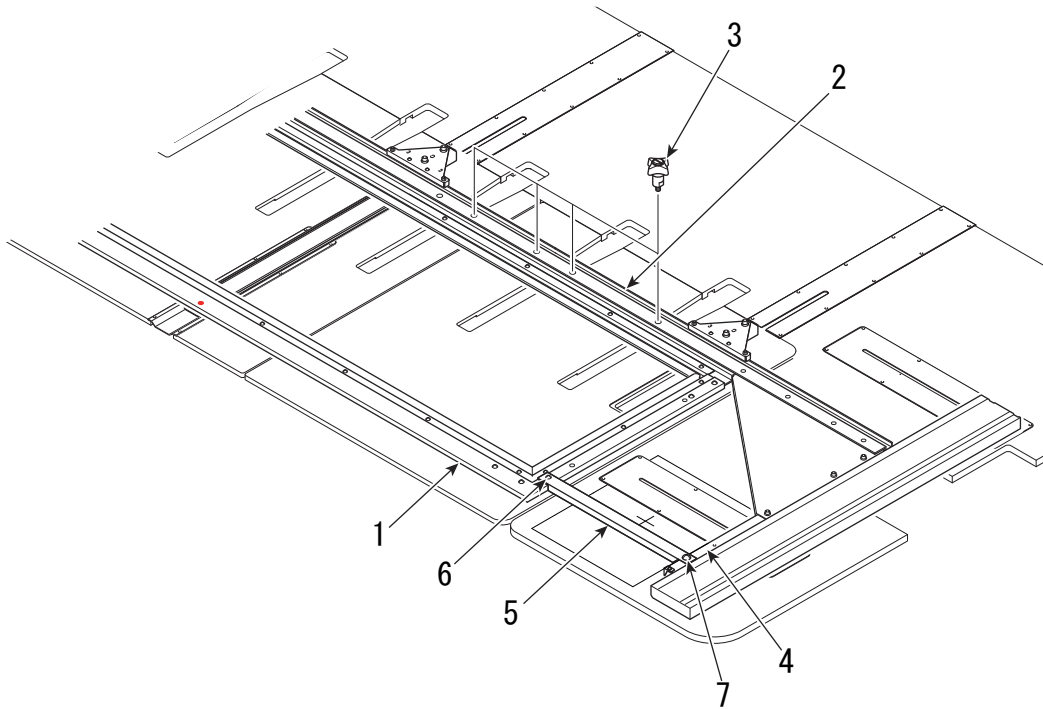
- (1) Place the Y-axis feed connecting plate 1 on the Y-axis feed guide 2. Connect the bracket 3 and the drive system connecting plate 4 using the screws 5 (countersunk head screw M5*8).



- (2) Turn OFF the power switch. Move the frame 1 by hand and align the pointer 2 to the position approximately 2 cm away rightward from the mark-off line 3. Place the border frame 4 on the table. Align the center bearing 5 to the red punched mark 6 on the border frame and fit it into the groove 7.



- (3)** Push the border frame 1 to contact the slide base 2 and tighten the screw with knob 3. Connect the border frame 1 and guide plate 4 with the joint 5. Use the following screws: truss head screw M5*8 (screw 6) and truss head screw M5*12 (screw 7).



4. To change frame type

When exchanging the frame, change the frame type according to the following procedure. The setting cannot be changed during embroidery.

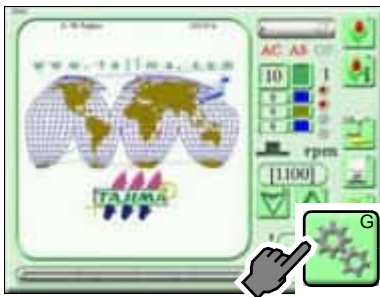
CAUTION

⚠ When performing this operation, do not put your hands etc. around the frame. Moving the frame could injure you.

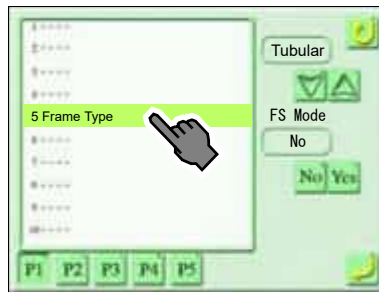
[How to operate]

Example: Change to border frame.

(1) Icon G

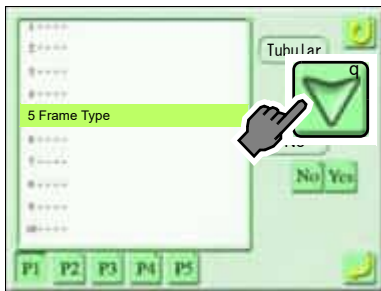


(2) 5 Frame Type

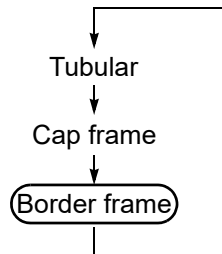


FS Mode is available only for border frame and tubular goods frame. For details of FS Mode, refer to the user's manual for the machine.

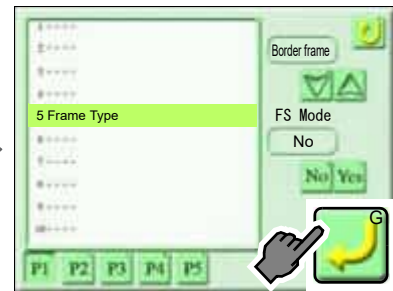
(3) Icon q



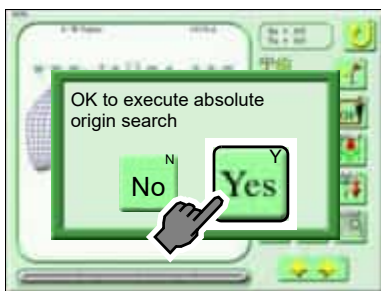
(4) Select border frame



(5) To set



(6) Yes (Completed)

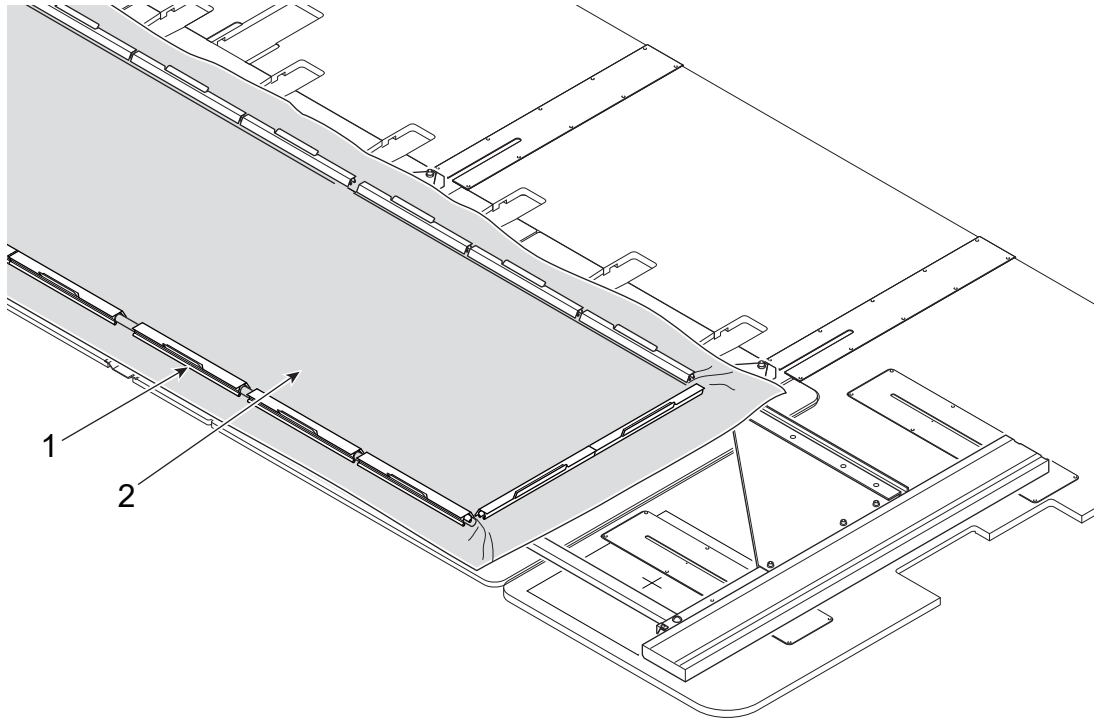



Pressing "Yes" will cause the frame to move (Absolute origin search will be performed).

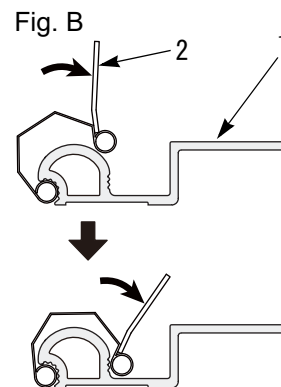
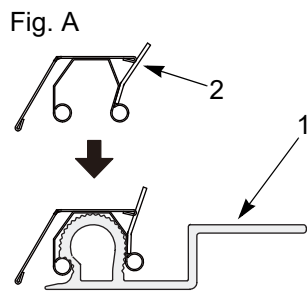
⚠ Without performing the absolute origin search, it is unable to start the machine.

5. To set material

(1) Fit the clip 1 and fix the material 2 to the border frame.



 The type of clip 2 and its clipping method differ depending on the shape of the border frame sash 1. (Figure A, B)




The exchange to border frame, and the setting procedure of the material are complete now.

If necessary, perform the operation of “Chapter 4 Panel setting”(p.29) and after.

Chapter 4 Panel setting

1. To set the height of presser foot

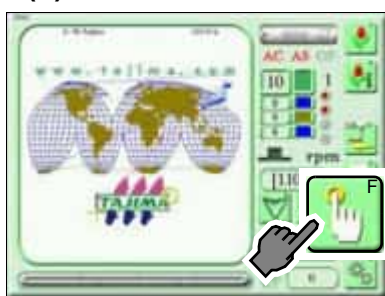
It is the function for registering the height and stroke of presser foot in unit of needle bar or step.

 For the details of presser foot setting screen, refer to "Explanation of presser foot setting screen" (→ p.30)

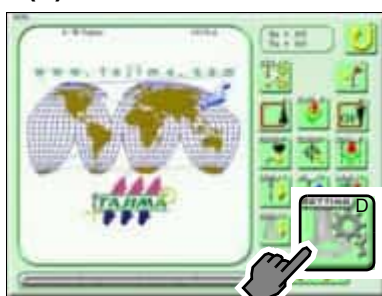
[How to operate]


Example: Set the lower dead point of the presser foot to 1.0 mm, stroke mode to "M" and stroke amount to 15 mm.

(1) Icon F

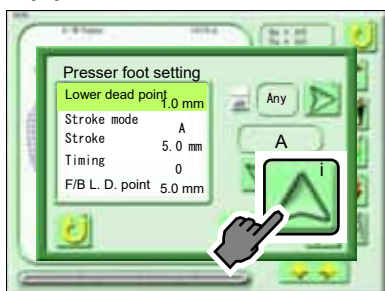


(2) Icon D

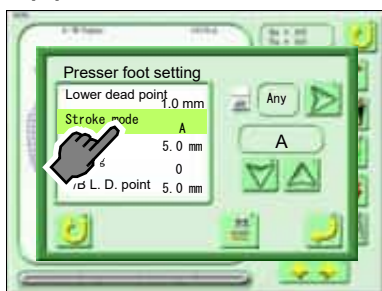


 When Icon D is not displayed, refer to "Parameter P8" in the user's manual, and change the functional limit level.

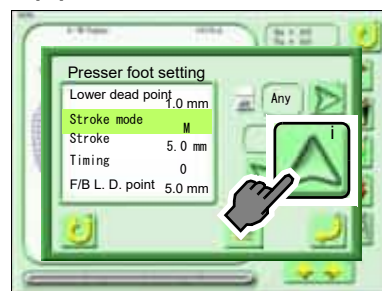
(3) Lower dead point 1.0 (mm)



(4) Stroke mode



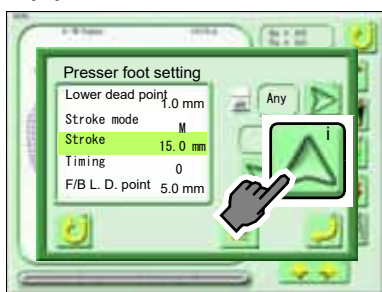
(5) M



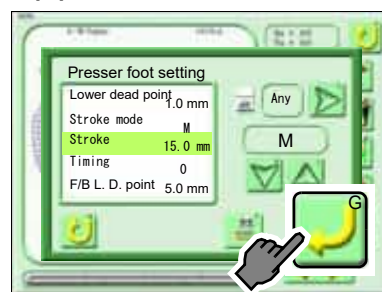
(6) Stroke



(7) 15 (mm)

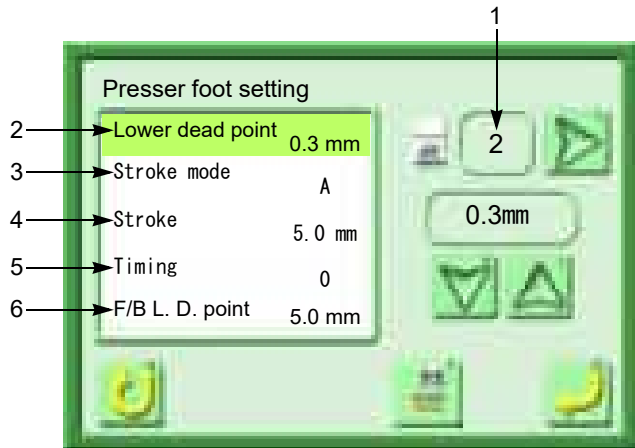


(8) To set (Completed)



1-1. Explanation of presser foot setting screen

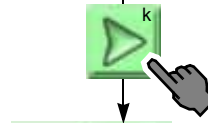
[Presser foot setting screen]



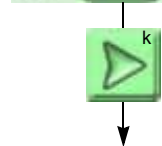
1. Presser foot setting in unit of needle bar or step
 Select one among Needle bar, Any or Step.
 It is possible to set for the current needle bar or step.

In case of the current needle bar 2

Items No. 2 to 6 in the left illustration will be applied to only second needle.



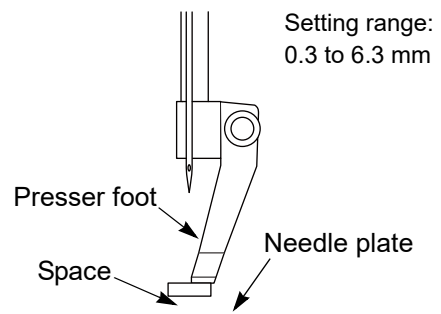
Items No. 2 to 6 in the left illustration will be applied to all needles.

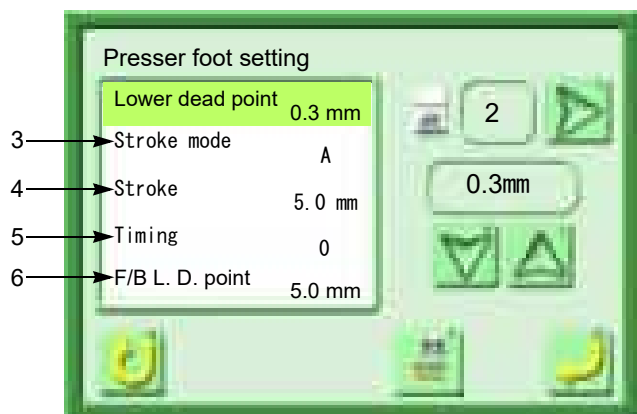


In case of the current Step 1

- Step # 1
 Items No. 2 to 6 in the left illustration will be applied to only Step 1.
 The step setting takes higher priority than the needle bar setting.

2. Distance (mm) between the presser foot and the needle plate when the presser foot moves down to the lower dead point





Stroke means up/down reciprocating motion of the presser foot.

3. Stroke mode of presser foot

A: According to maximum speed of the machine, the presser foot will perform Stroke automatically (usual setting).

M: The maximum speed of the machine is limited depending on stroke amount. (The stroke amount is always fixed.)

Select "M" mainly when embroidering to thick fabric.

4. Stroke amount (mm) of presser foot

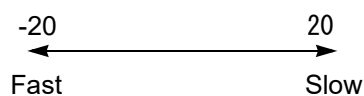
It is effective only when "Stroke mode" is set to "M".

Setting range differs depending on the operation level.

Setting range (mm)	Operation Level
5.0 to 22.0	1
2.0 to 22.0	SEL

5. Timing when presser foot moves down

Setting range: -20 to 20



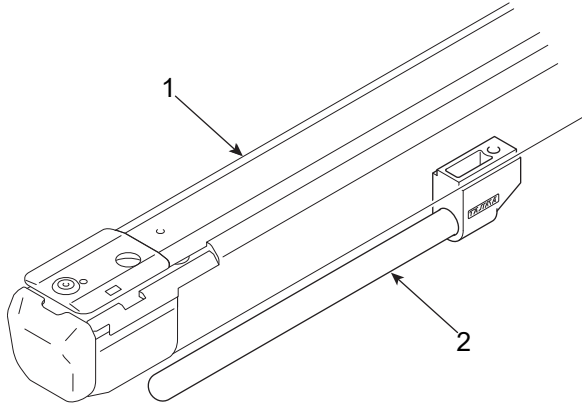
6. Presser foot lower dead point for Frame Back (Refer to 2)

Setting range: 5.0 to 22 mm

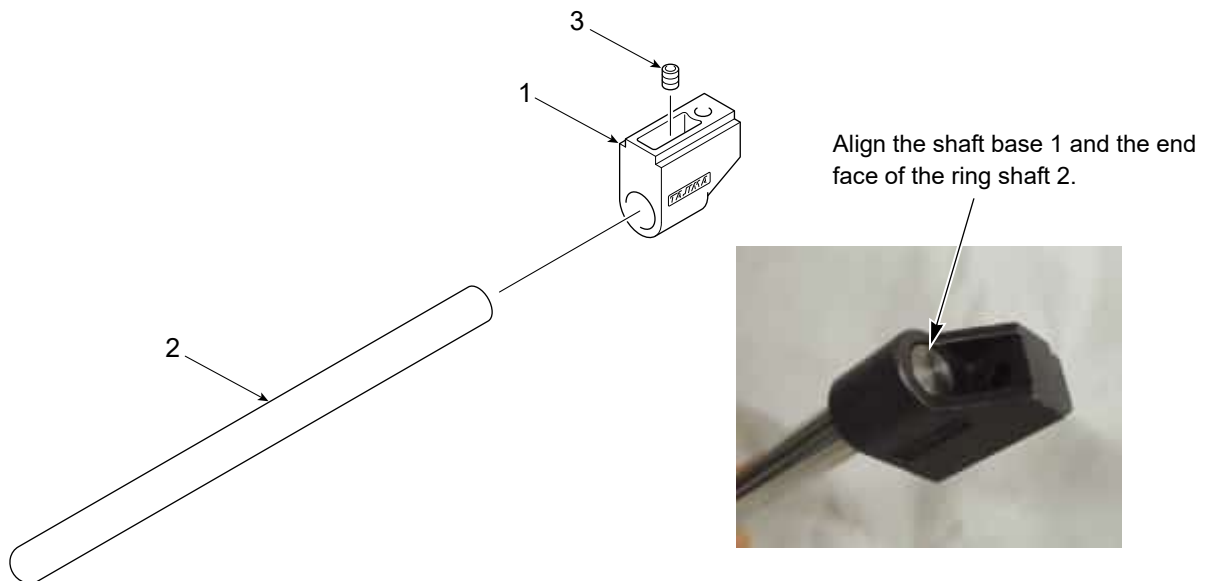
Chapter 5 Adjustment and maintenance

1. To attach the drive ring shaft

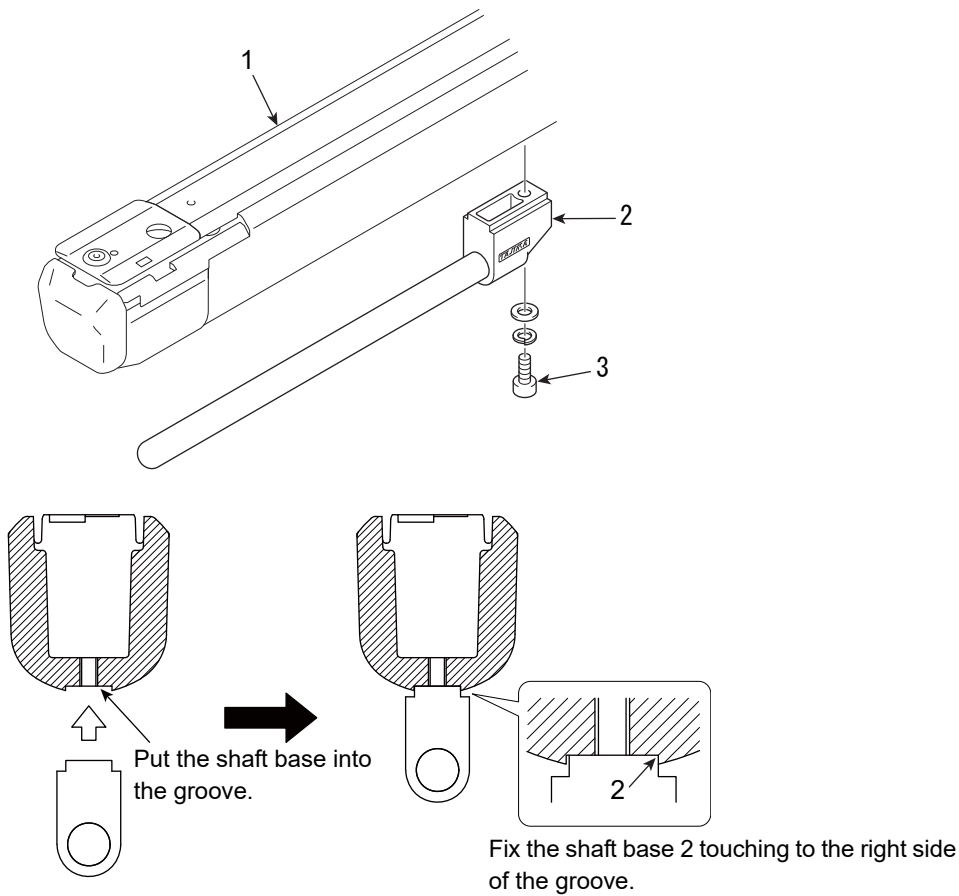
If the drive ring shaft 2 is not attached under the cylinder bed 1, attach in the following procedure.



(1) Attach the drive ring shaft 2 to the shaft base 1 by fixing with the screw 3 (hexagon socket head set screw).




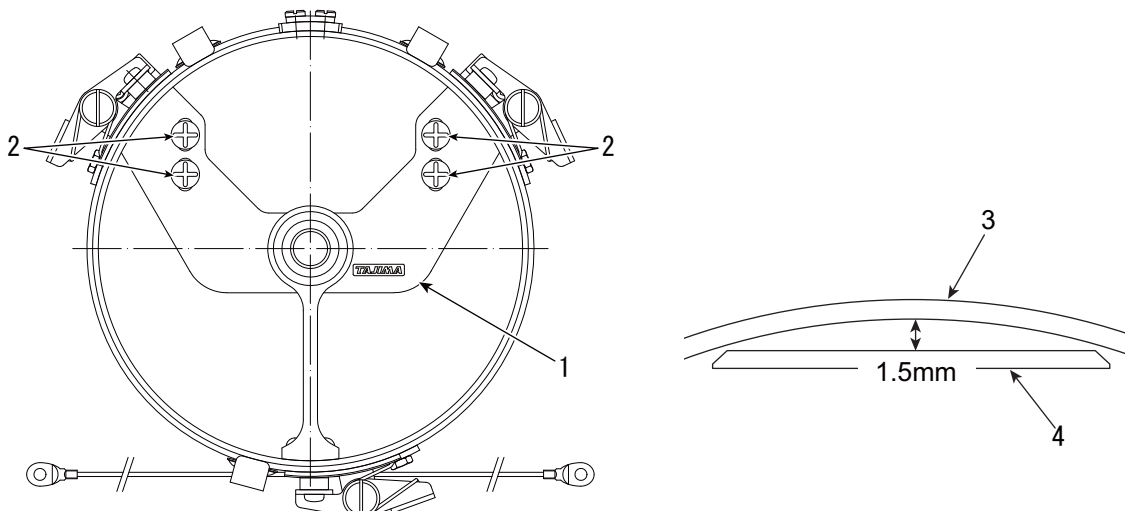
- (2) Attach the shaft base 2 to the bottom face of the cylinder bed 1 with the screw 3 (hexagon socket head cap screw M5*25).



2. To adjust the position of cap frame unit

If the cap frame unit does not move smoothly even if you try to move back and forth, loosen the screw 2, and tighten the screw 2 at the position where the drive ring base becomes level and the cap frame unit moves smoothly.

 At this time, the gap between the drive ring 3 and the cylinder bed cover 4 is 1.5mm.




3. To adjust the tension of drive wire

Perform this work when tension of the drive wire becomes loose and/or the center of cap frame unit is misaligned during storage of the cap frame unit.

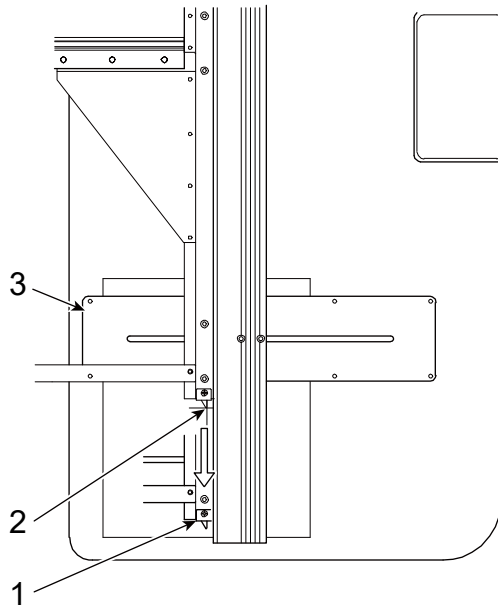
⚠ CAUTION

⚠ Perform the work described in this chapter with the power turned OFF. Otherwise, you could be injured by unexpected malfunctioning of the machine.

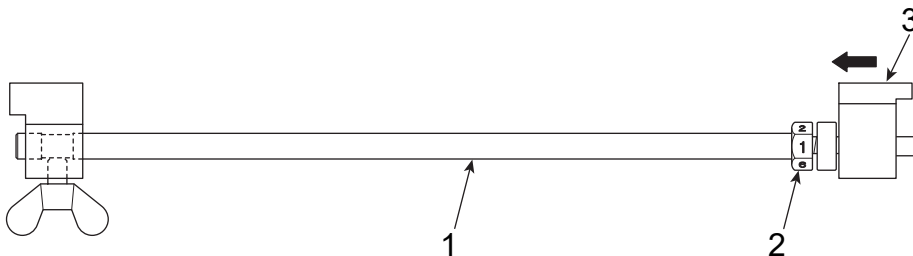
(1) Move the frame 1 to front from the center of embroidery space by operation on the operation panel.

 The border frame spec. is shown below.

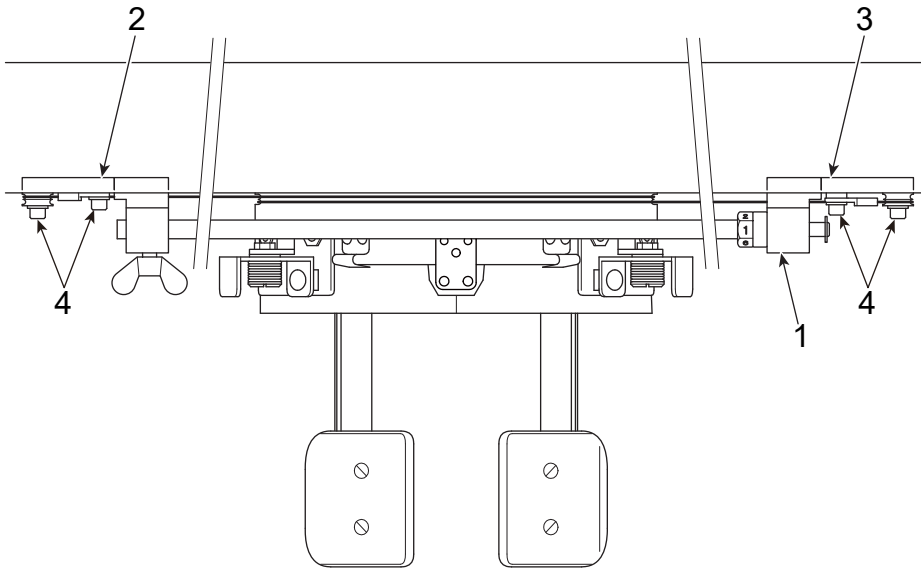
For the border frame spec., the mark-off line 2 on the table shows the center of the embroidery space. For the standard spec., the punched mark on the table lid 3 shows the center of the embroidery space.



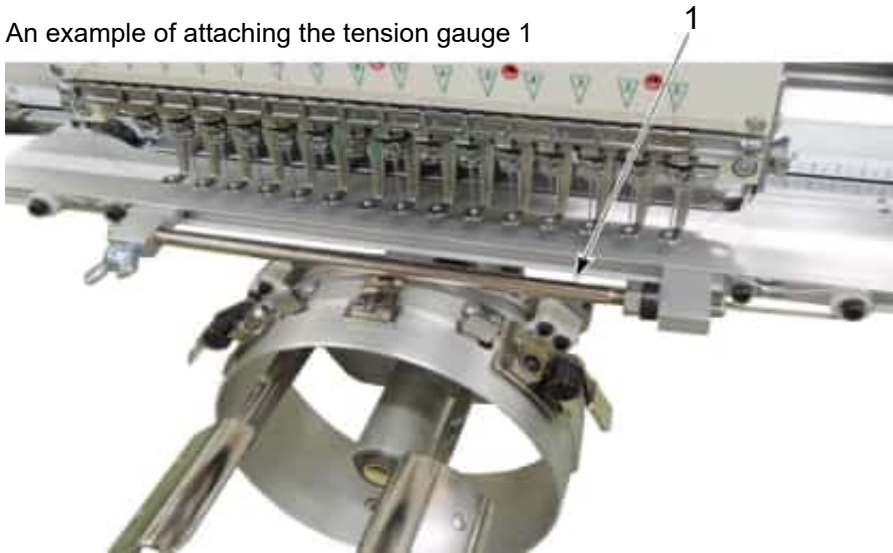
(2) Turn the nut 2 of the tension gauge 1, and move the block 3 to the innermost.




(3) After setting the tension gauge 1 between the plate nut 2 and 3, loosen the screw 4.

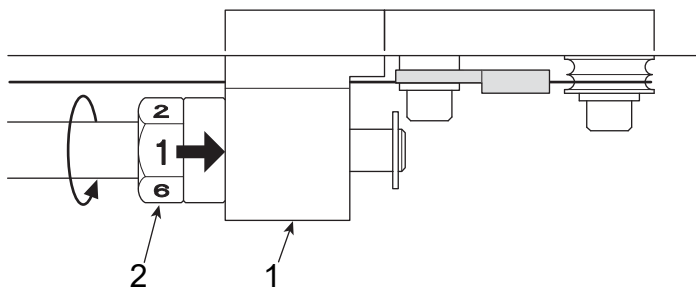


An example of attaching the tension gauge 1

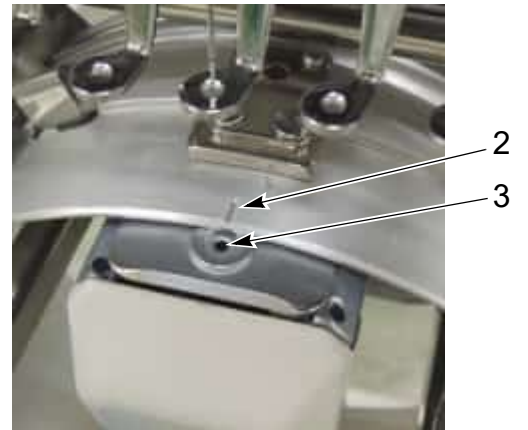
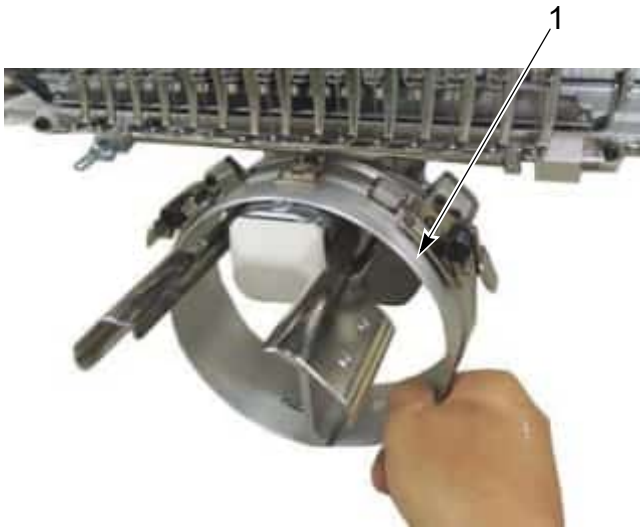
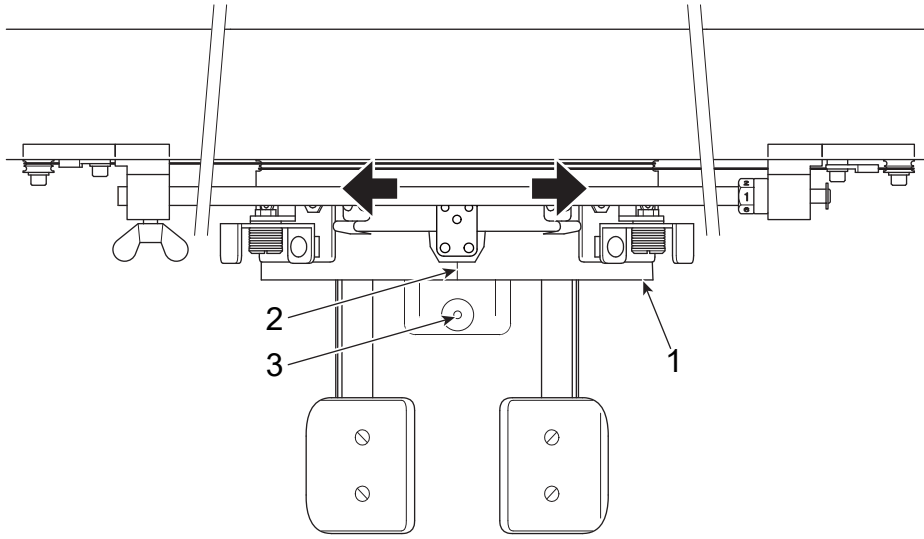


(4) Rotate the nut 2 by hand to the direction where the block 1 moves to the right. Rotate the 2 further by $\frac{4}{6}$ turn using a wrench from the position when it stops.

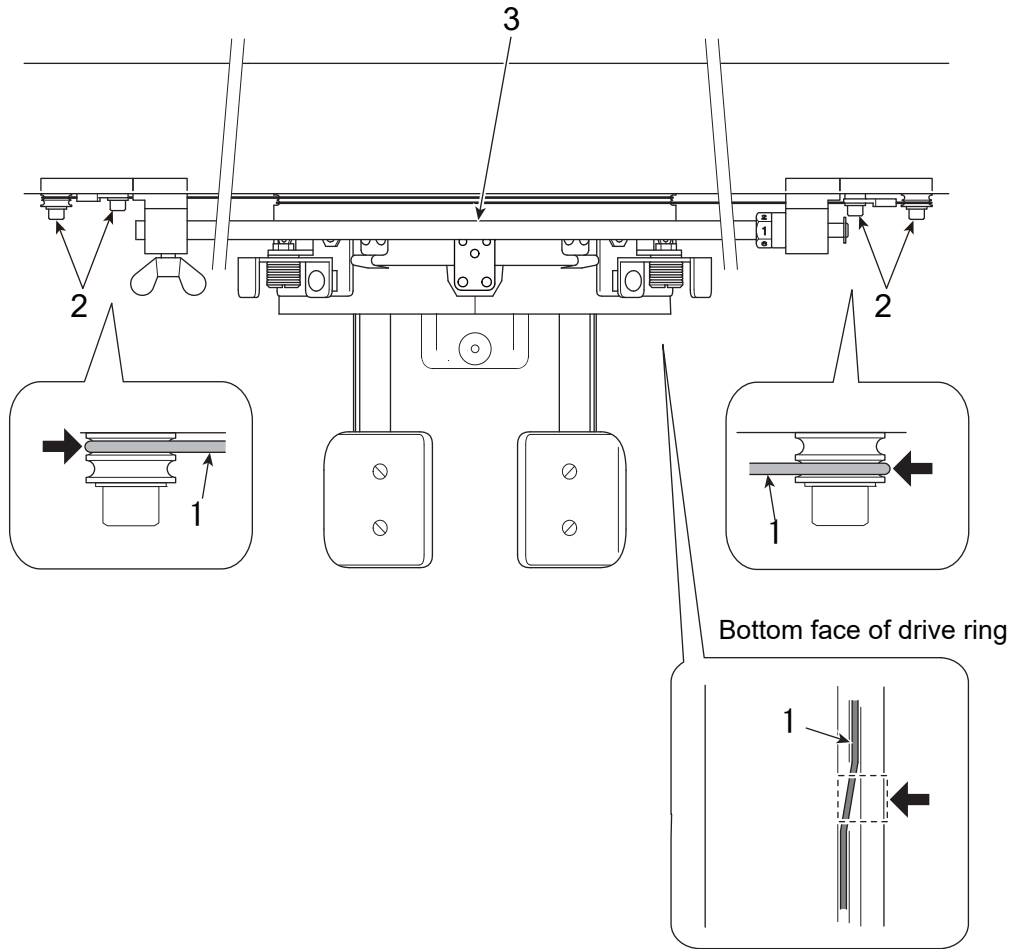
 To rotate the nut 2, take the engraved numbers as rough standard.



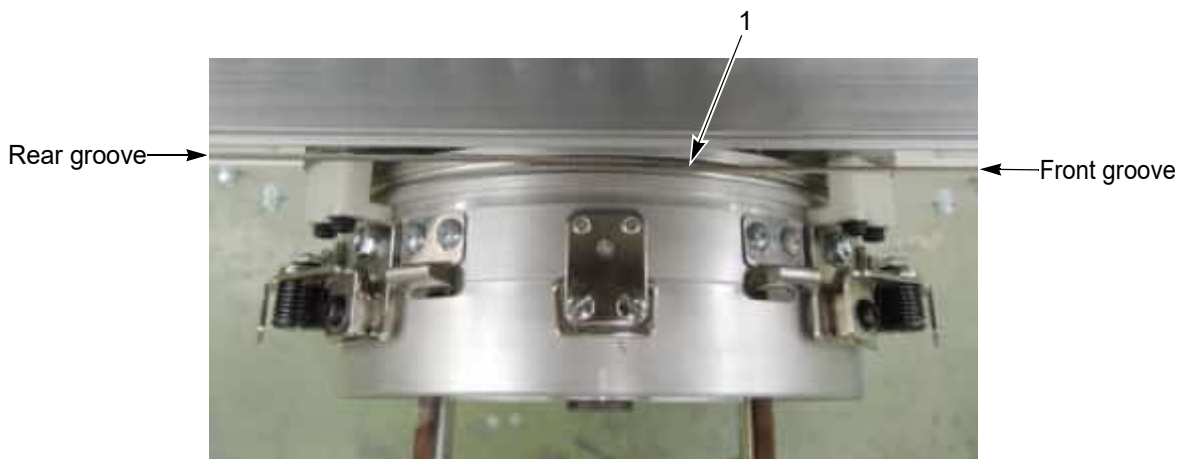
(5) Being careful not to move the drive system in right and left, turn the drive ring 1 by hand to align the center mark 2 with the center 3 of the needle hole.



- (6) Check if the wire 1 does not come off from the groove, and then tighten the screw 2.
- (7) Remove the tension gauge 3.

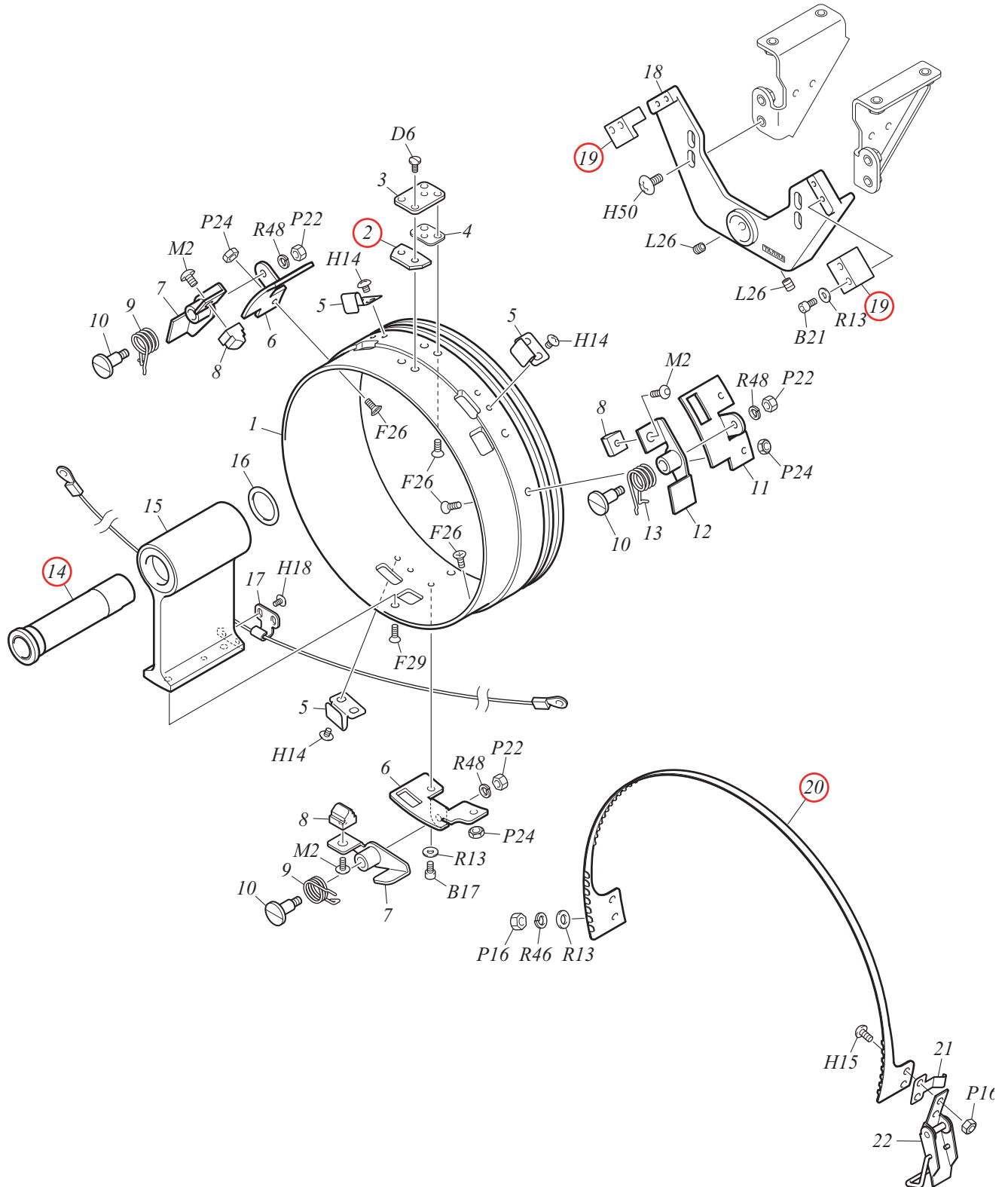


Hang the wire 1 correctly in the groove.



4. Periodic inspection

Perform periodic inspection of the cap frame unit once for three months, and replace if there are worn parts. We recommend early replacement of the parts in red circle because the finishing is affected. For the parts name and parts number, refer to the separate parts list.



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