

Barudan

Model Applied: SH

Instruction manual for SH head

Ver.20130208-3

[Ver.03]

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1. How to replace a take up lever

- **Replacing a take up lever**

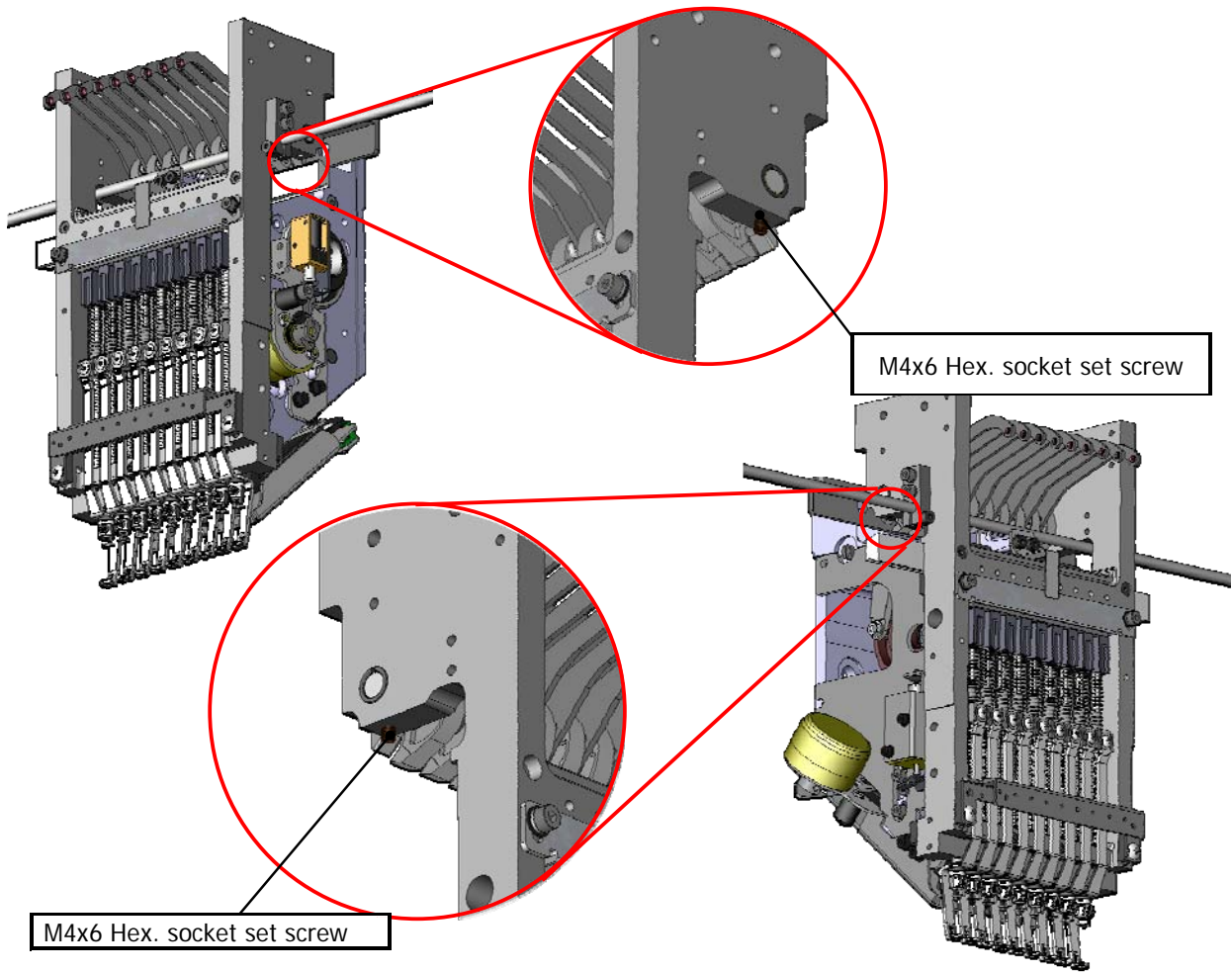
Please use the following procedures to replace a take up lever.

1. Change the color to the center needle.

The center needle is different depending on the machine. Refer to the center needle number as listed below.

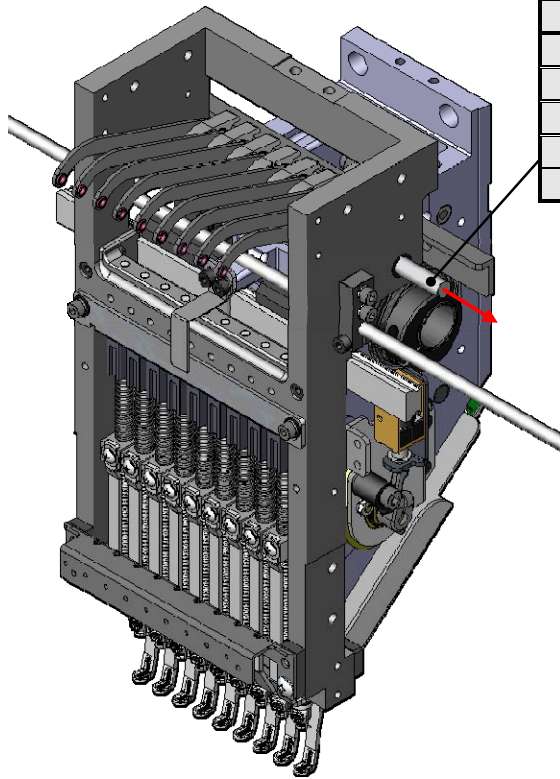
	No of center needle
9 needle head	No.5
15 needle head	No.8

2. Loosen the 2 screws as shown below to pull out the take up lever shaft.



* The position of the fixing screw of the take up lever shaft varies according to the machine model.

3. Pull out the take up lever shaft



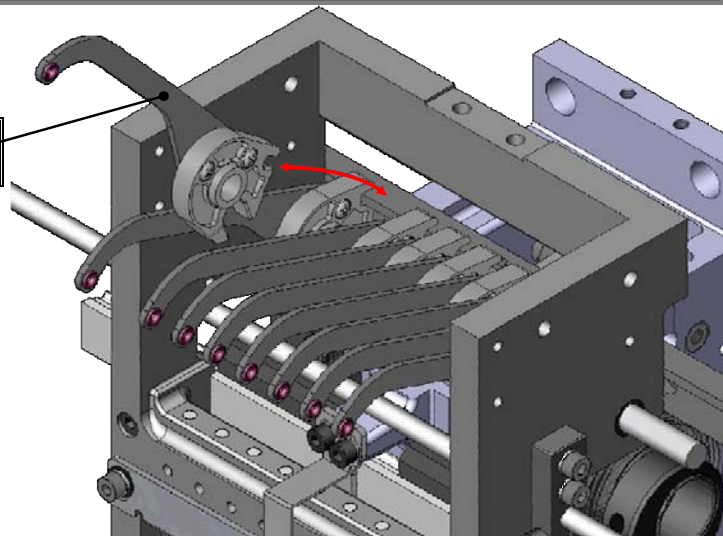
9 Needle	
No	NB0QK230330
Parts	Take up lever shaft (S9)
15 Needle	
No	NB0QK230470
Parts	Take up lever shaft (S15)

【Notice points】

1. Decide which direction to pull out the take up lever shaft according to which take up lever needs to be replaced.
2. You don't need to pull out the take up lever shaft completely. Pull out just enough to remove and replace the take up lever that's of concern.
3. There is a shim ring between each of the take up levers. Pay attention not to drop and loose these shim rings when removing the shaft.

4. Remove the take up lever.

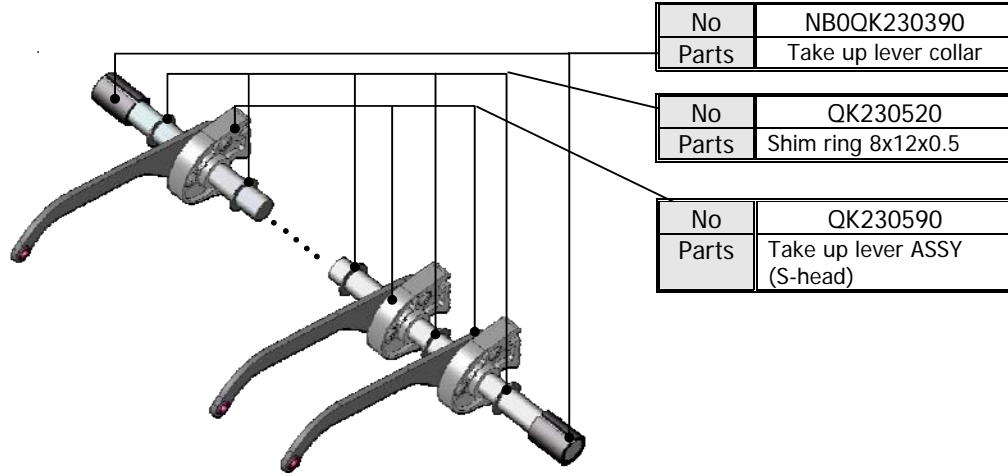
No	QK230590
Parts	Take up lever ASSY(SH)



5. Replacing the take up levers and shaft

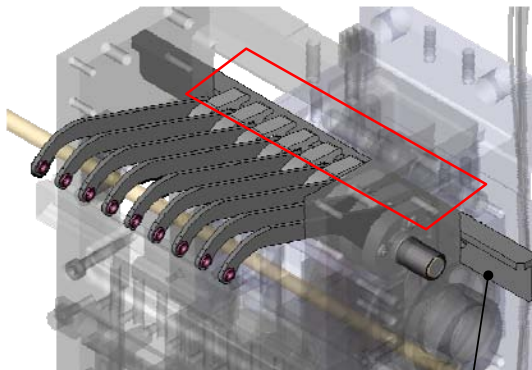
Please pay attention when you re-insert the take up lever shaft back into the head.
The take up levers may be damaged if the installation is done incorrectly.

1. Set the Take up lever ASSY/Shim ring/ Take up lever collar as below

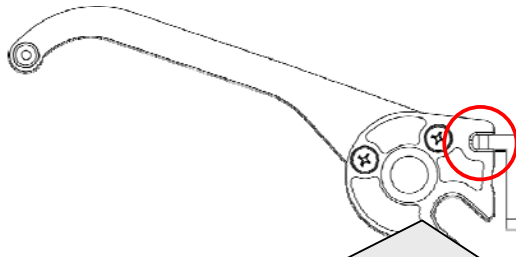


Don't forget the shim ring between each of the take up levers and take up lever collar.

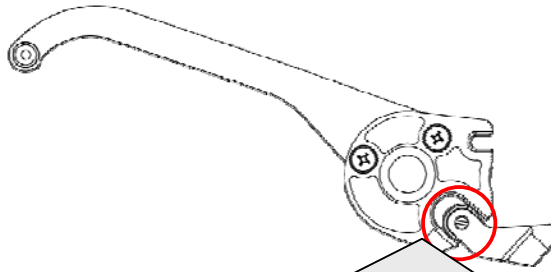
2. Confirm that the take up lever is set properly



9 Needle	
No	NB2QK230430
Parts	Take up lever stocker (S9)
15 Needle	
No	NB2QK230510
Parts	Take up lever stocker (S15)

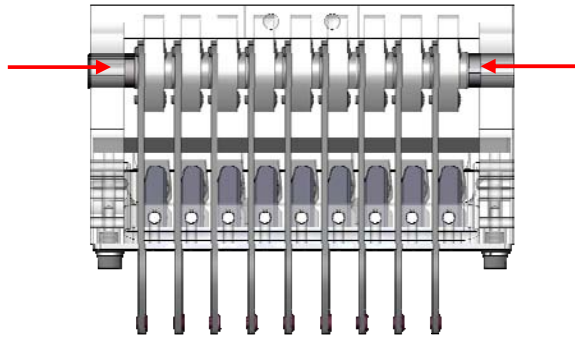


Confirm the stocker is set in the take up lever (Except the center needle)

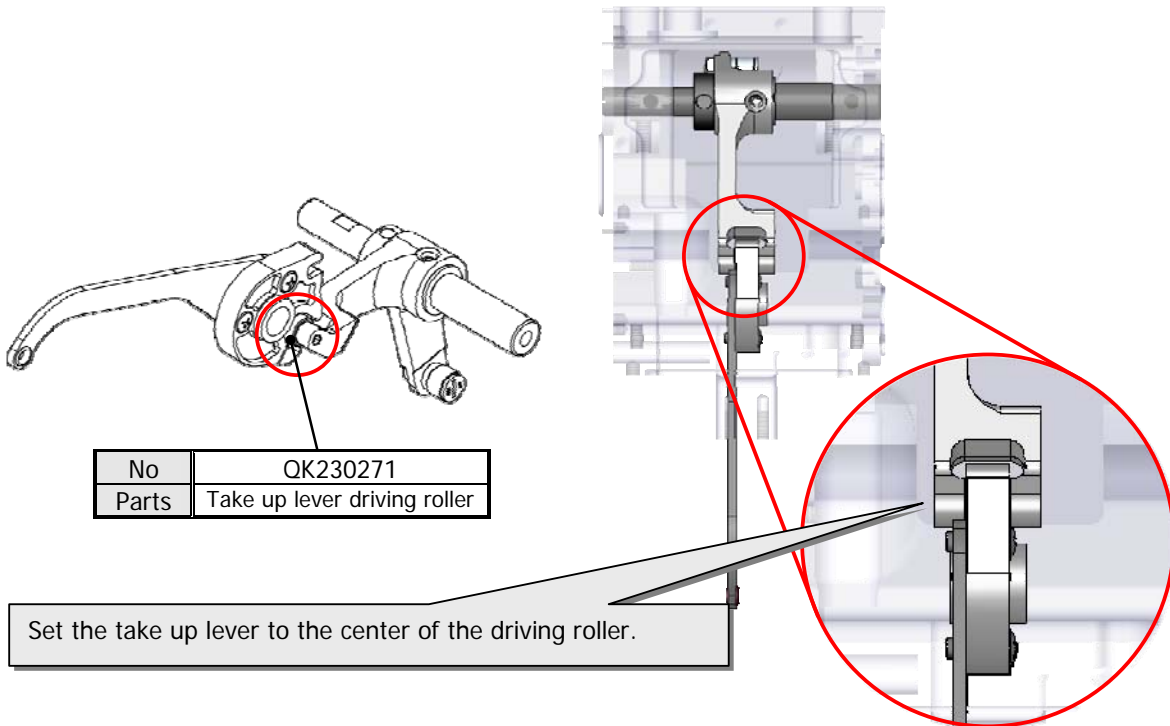


Confirm the driving roller is set in the take up lever (Center needle only)

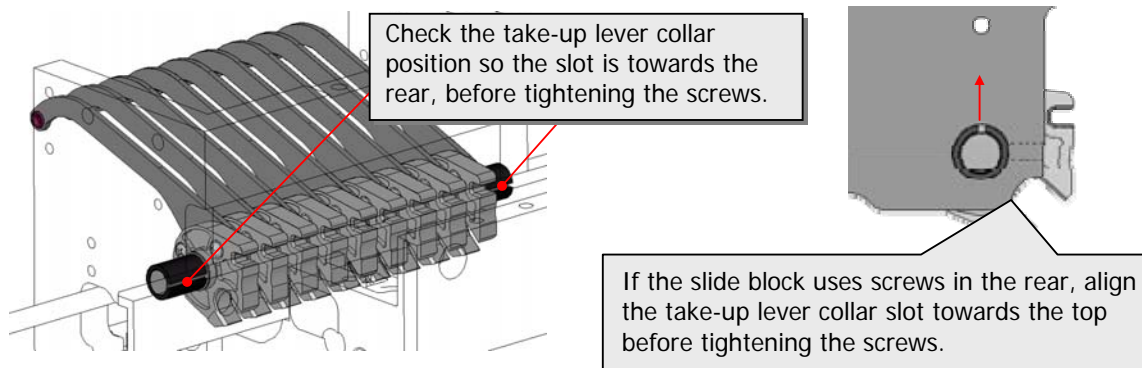
3. Press the collars from both sides to remove gaps between the take up levers



4. Set the take up lever to the center of the driving roller



6. Tighten the shaft in place with the 2 screws that were loosening in procedure [2]



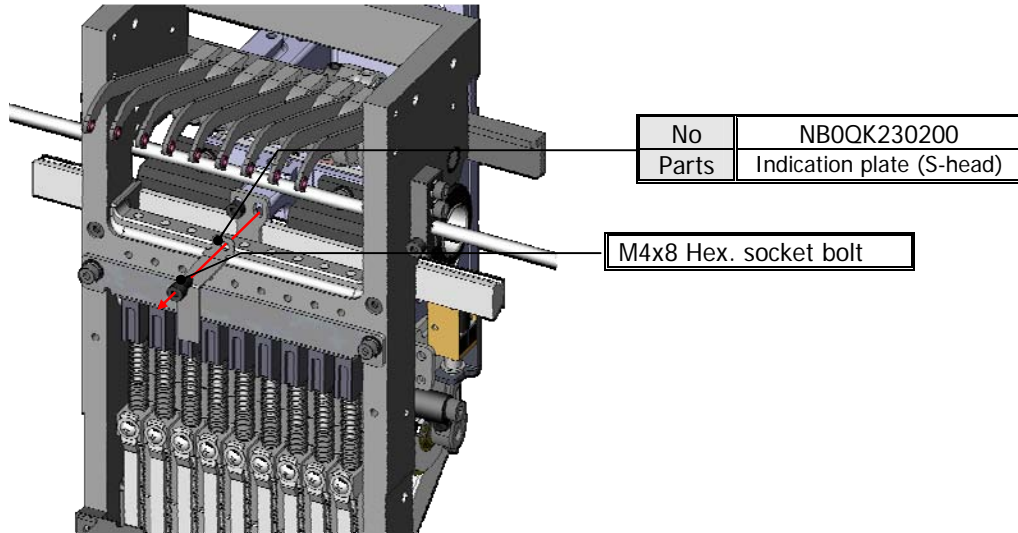
2. How to remove the slide block

- **Removing the slide block**

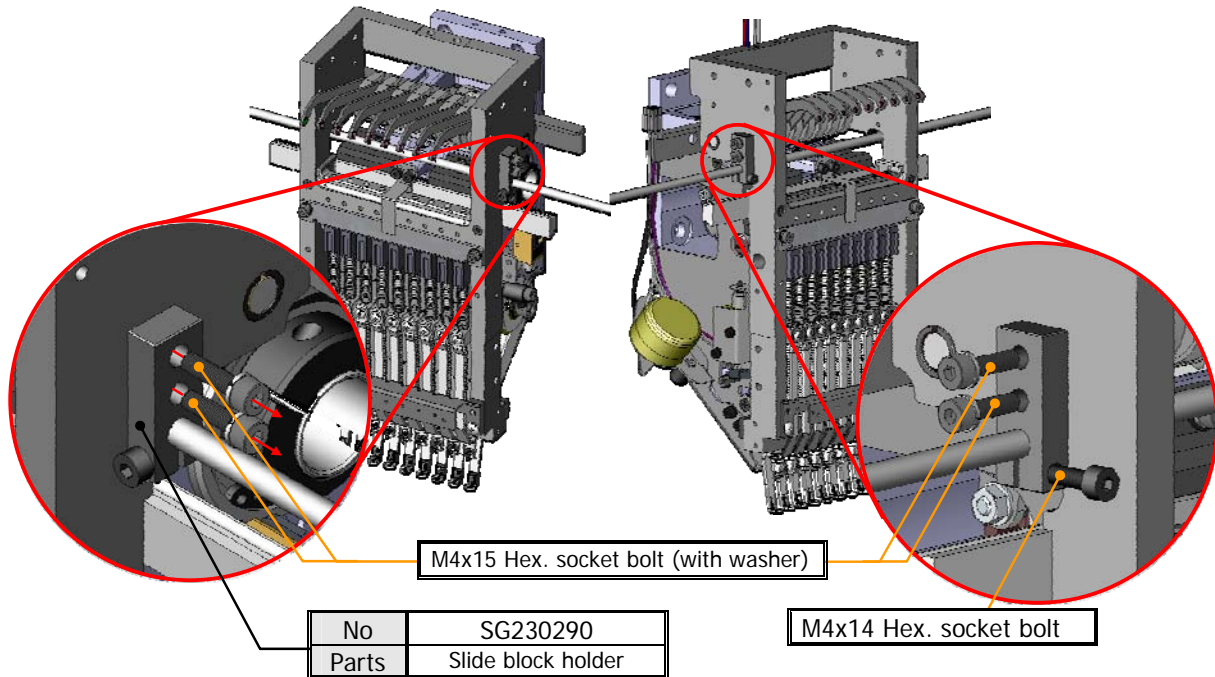
Please use the follow procedures to remove the slide block.

- *Special Notes for Head #1: 1. Remove the Qj330030 Color Sensor Plate.
2. Remove the Laser pointer if it's in the way of removal.

1. Remove the indication plate (S-head).
Unscrew only the right side bolt, as shown below.

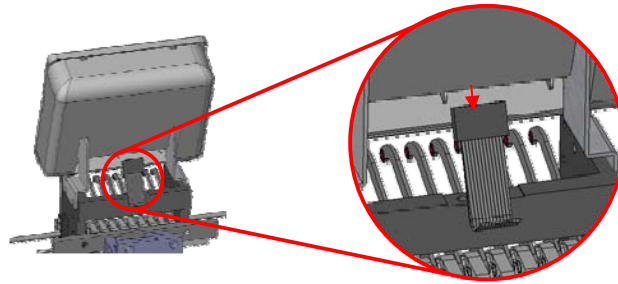


2. Remove the (2) M4x15 Hex. Socket bolts on each side, and loosen the M4x14 Hex. Socket bolt for the slide block holder on the left side to take off the slide block.

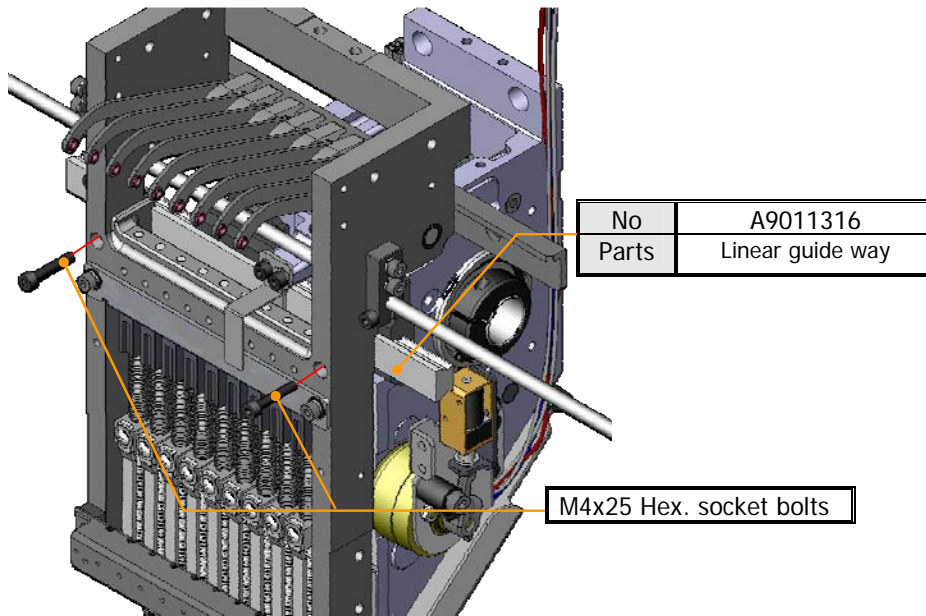


※ Only loosen the M4 x14 Hex. Socket bolt for the slide block holder on one side, in this case the left side. When replacing the slide block. Use the fixed slide block holder on the right side, to set the slide block.

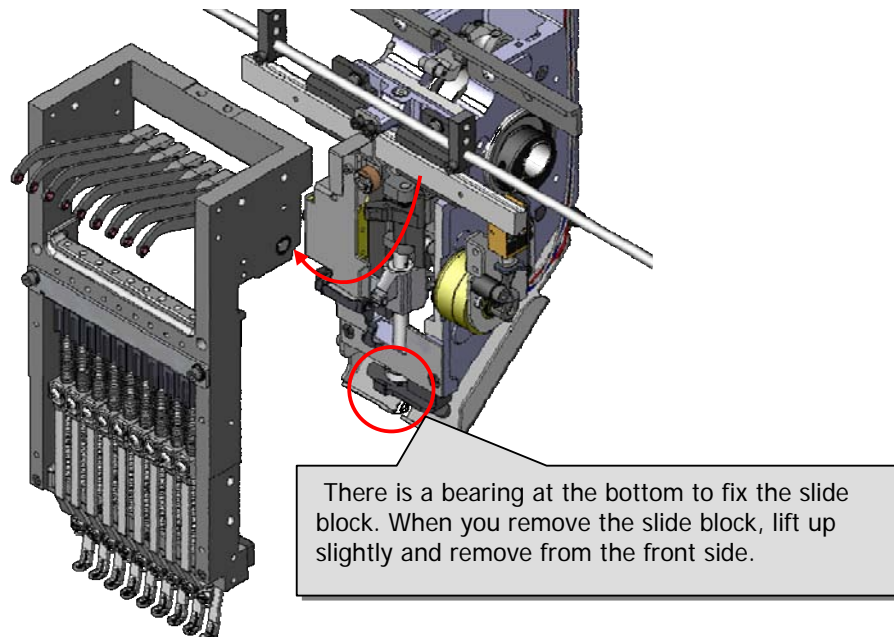
3. Remove the flat cable from the board in the tension base or remove the tension base completely from the slide block



4. Remove the (2) M4x25 Hex. Socket bolts as shown below to remove the slide block.



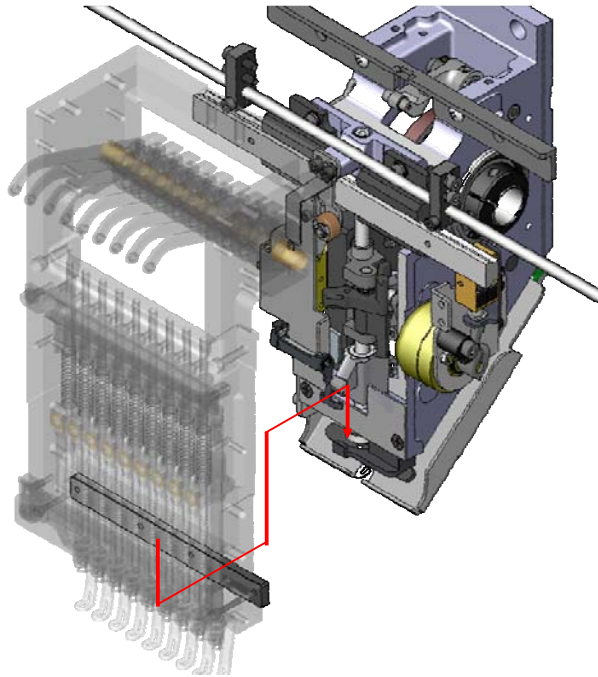
5. Remove the slide block



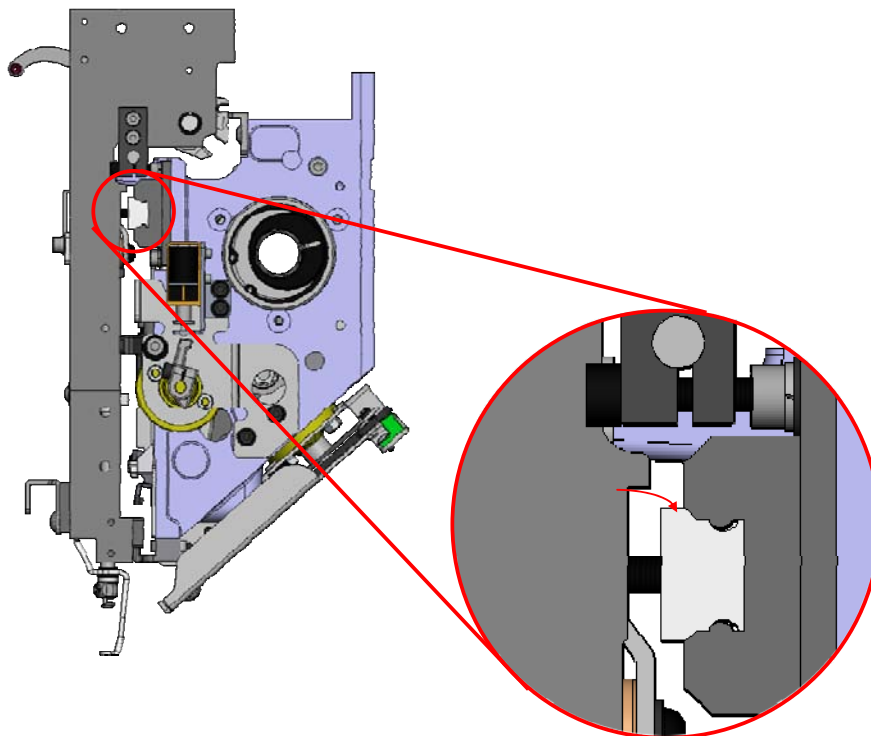
6. Replacing the slide block

Please use the following procedures to replace the slide block.

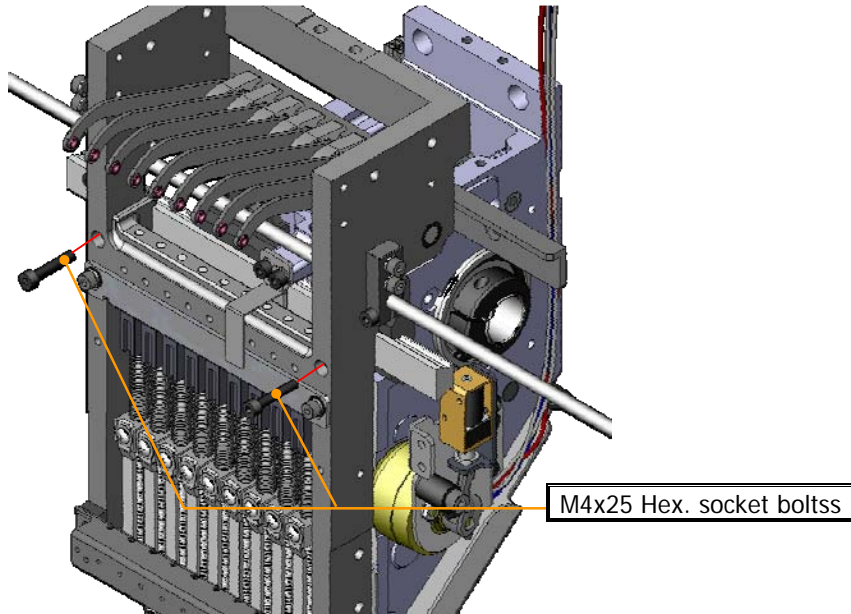
1. When you re-install the slide block, place the bearing plate between the bearing and the slide block guide.



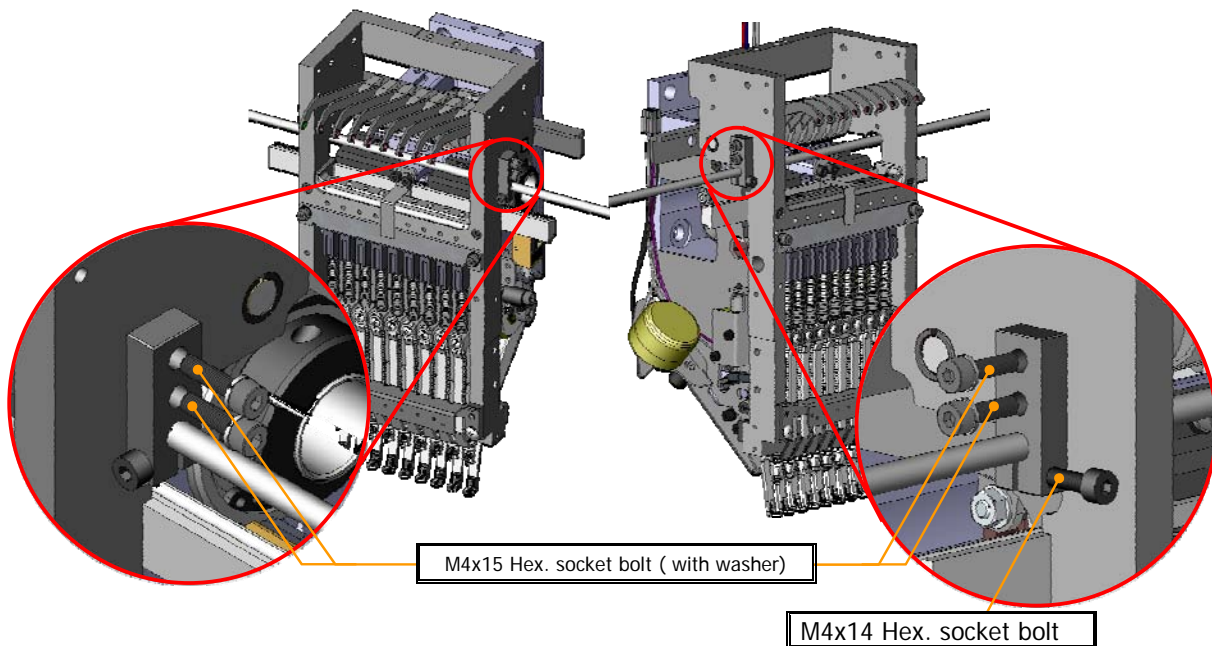
2. Place the upper ledge of the slide block on top of the linear guide way.
At that time please confirm that the take up levers are set on the take up lever stocker.



7. Re-install and tighten the (2) screws for the linear guide way, shown below.



8. a. First, re-install and tighten the (2) M4x15 Hex. Socket bolts for the right side slide block holder. This will align the slide block and needle centers back in place.
b. Then re-install and tighten the (2) bolts for the left side slide block holder.
c. Last, tighten the M4x14 Hex. Socket bolt for the left side slide block holder.



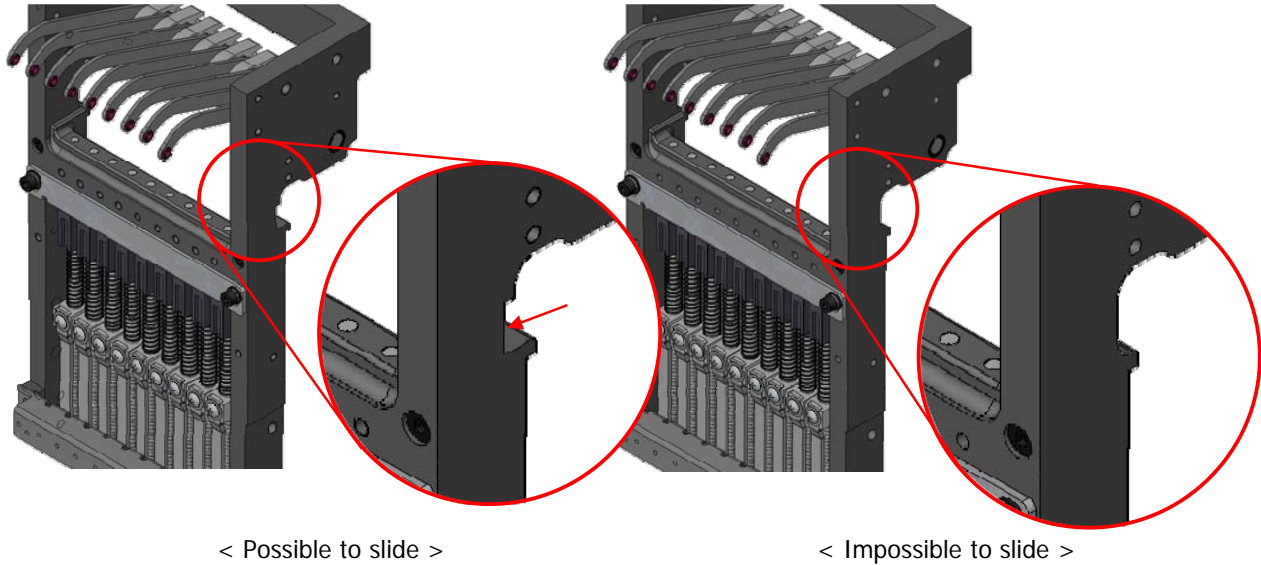
9. Re-install the tension base, or plug the ribbon cable back in.

Reverse the steps in procedure [3] and re-install the tension base or plug the cable back in.

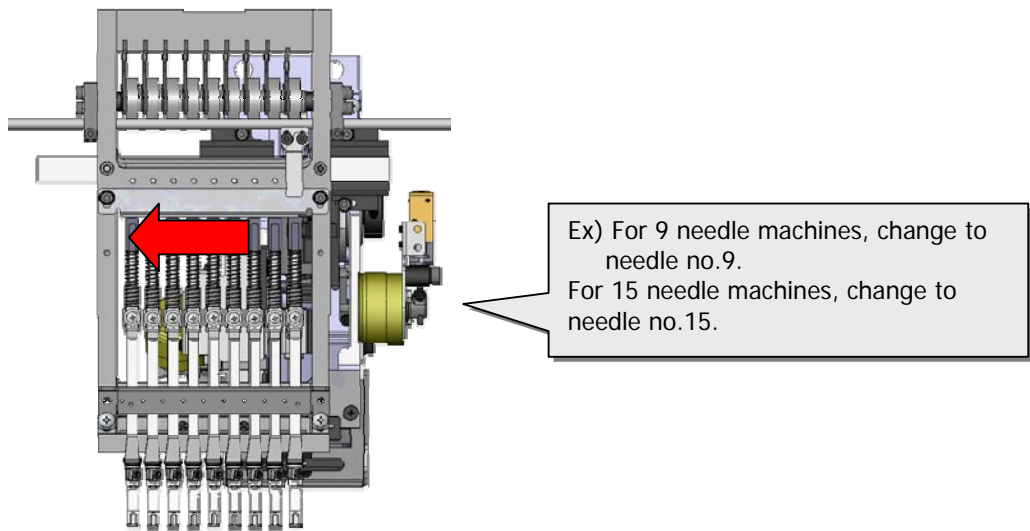
3. How to slide the slide block manually

- These procedures explain how to slide the slide block manually.

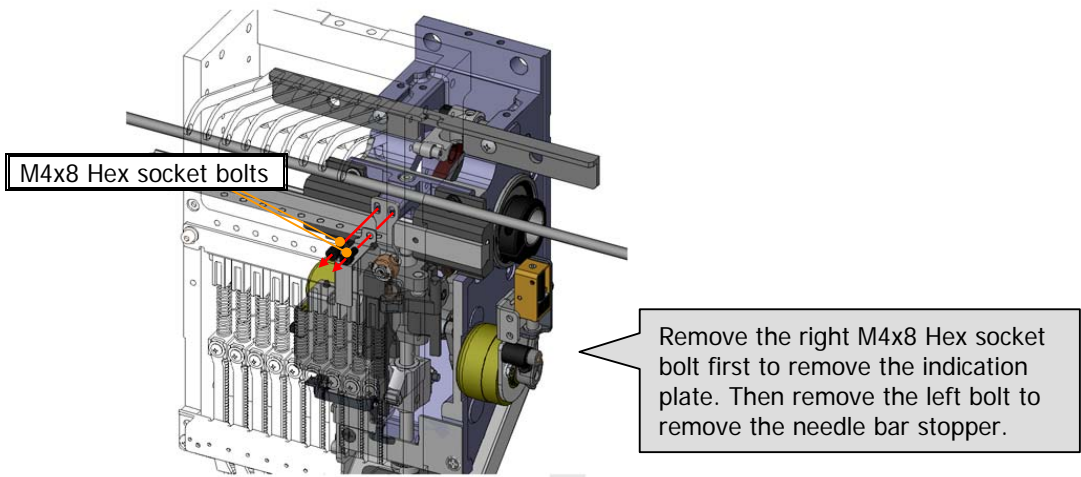
Please check the shape of the slide that is used on your machine.
 The Left type shown below is the type of slide block that's possible to slide.



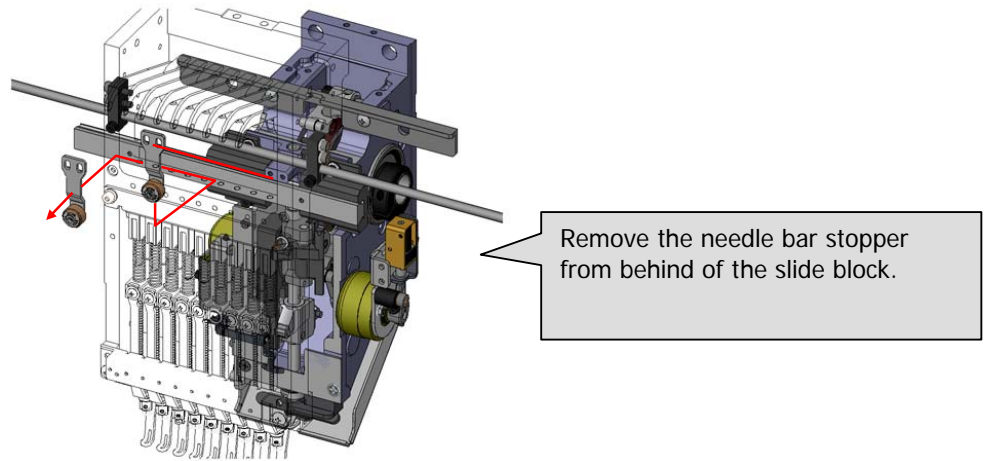
1. Change the color to the last needle.



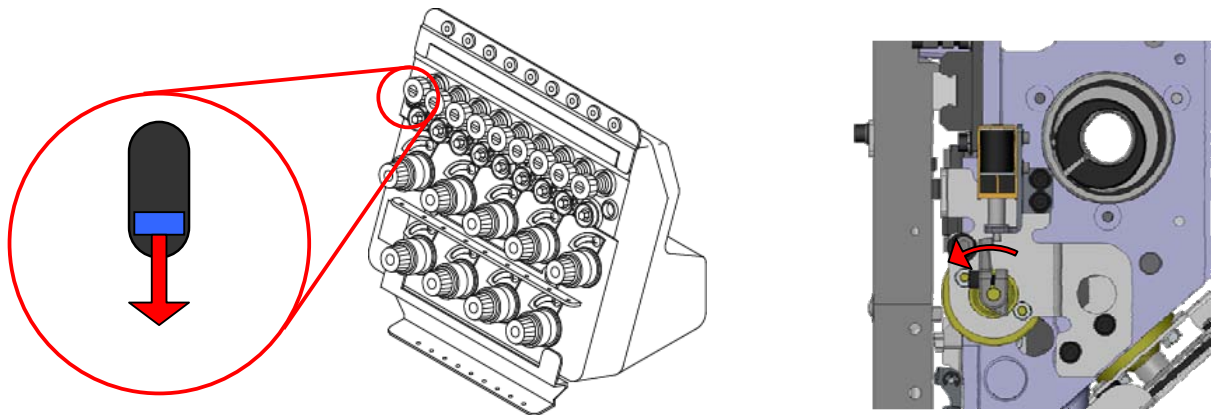
2. Remove the (2) M4x8 Hex socket bolts.



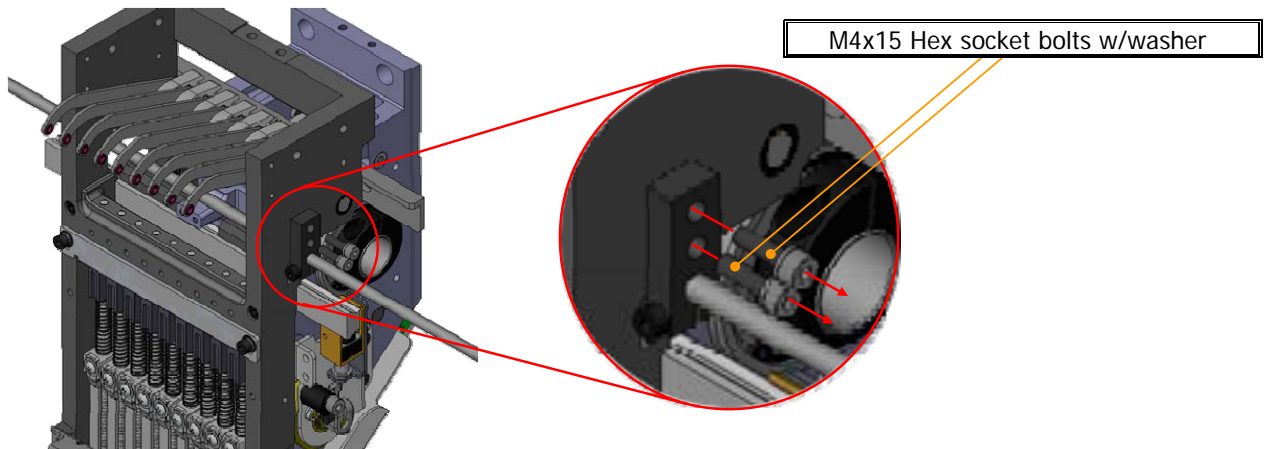
3. Remove the needle bar stopper.



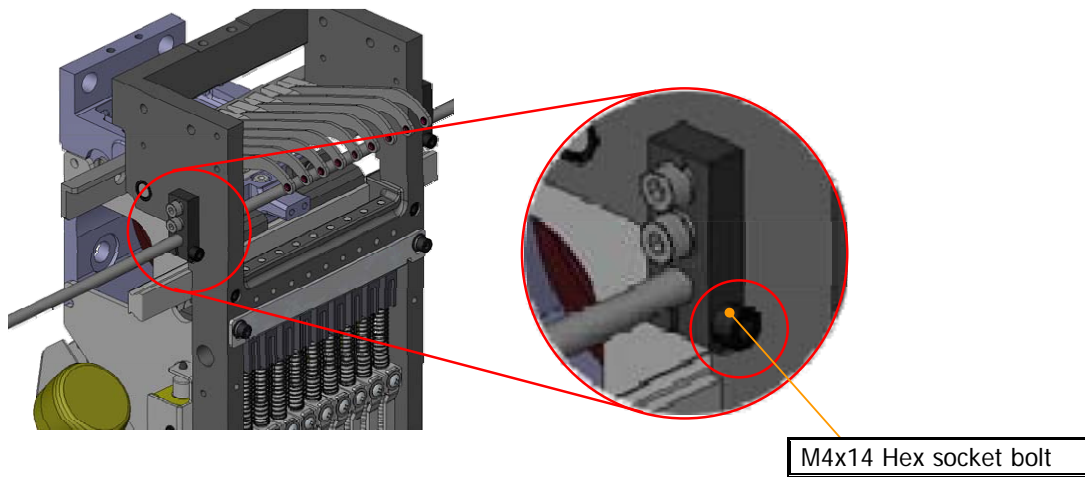
4. Turn the head switch off to cancel the head.



5. Remove and loosen the bolts as shown below to allow the slide block to move on the color change rod.



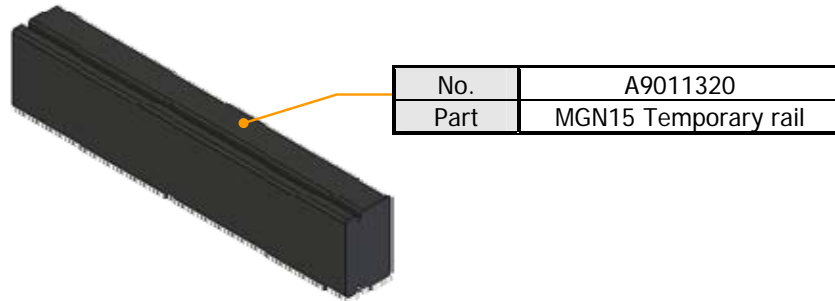
- Remove the (2) M4x15 hex socket bolts with washer as shown above.



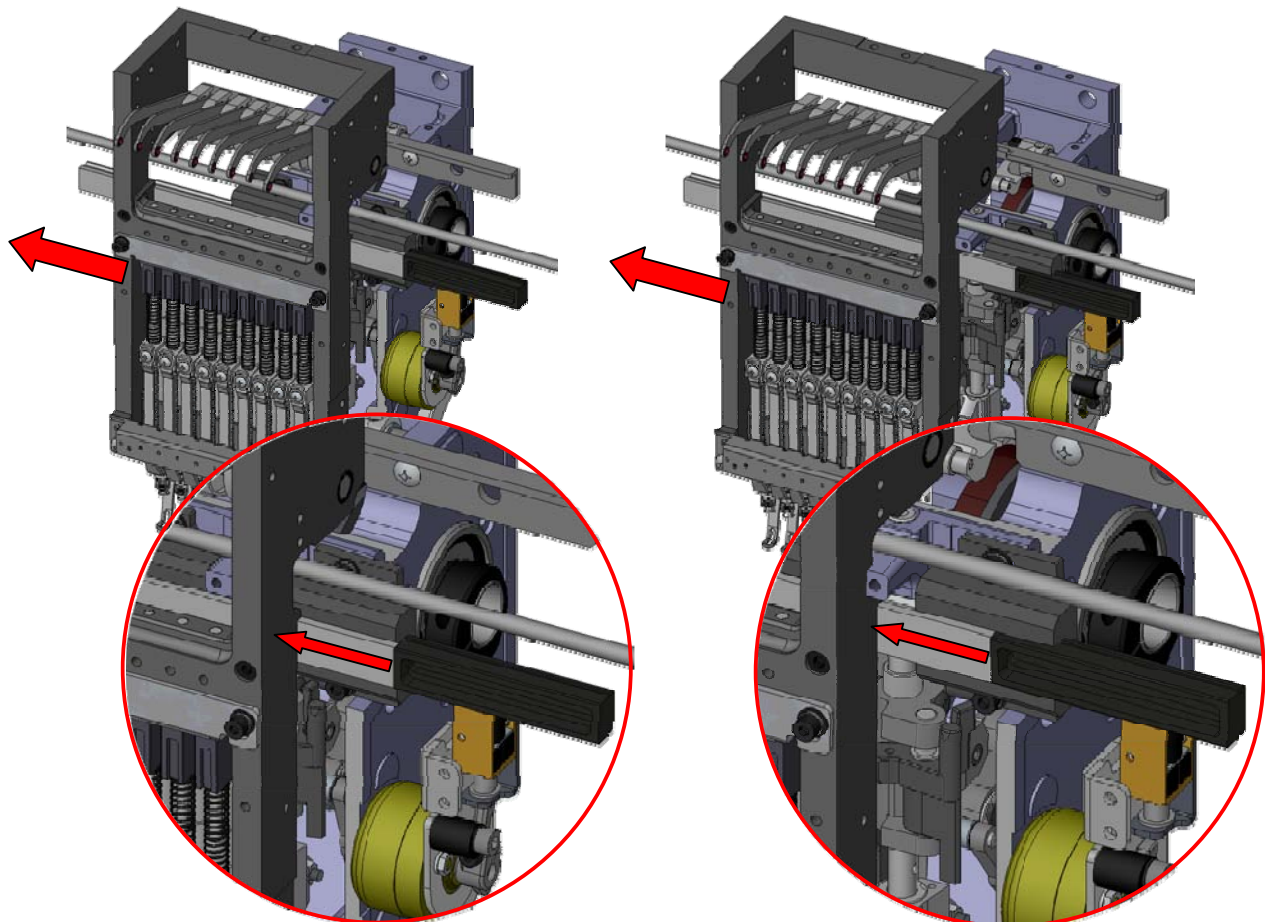
- Loosen the M4x14 hex socket bolt as marked above.

6. Move the slide block to the left side.

When you move the slide block, please use the Temporary Rail using the following procedures. This rail is used to prevent the loss of ball bearings. If this jig is not used, the possibility that ball bearings will fall out of the LM guide block is very high. If ball bearings fall out, the LM guide block must be replaced.

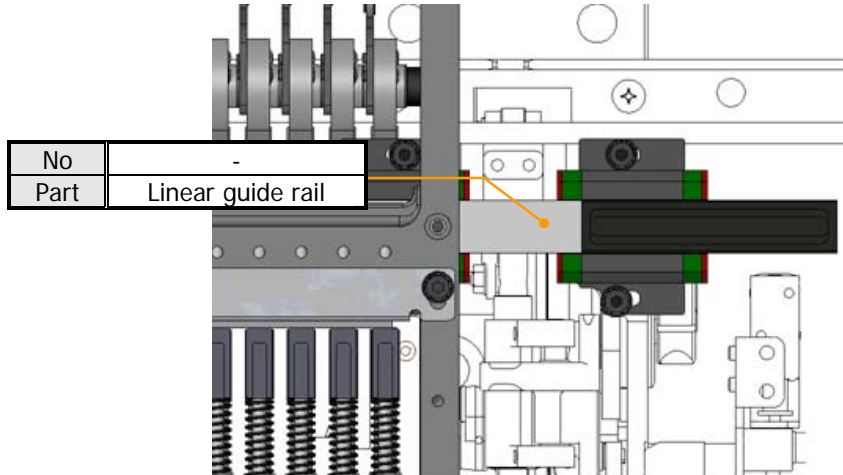


Butt the left side of the MGN15 temporary rail against the right side edge of the linear guide way. Then push the temporary rail and guide way together to the left as shown below.

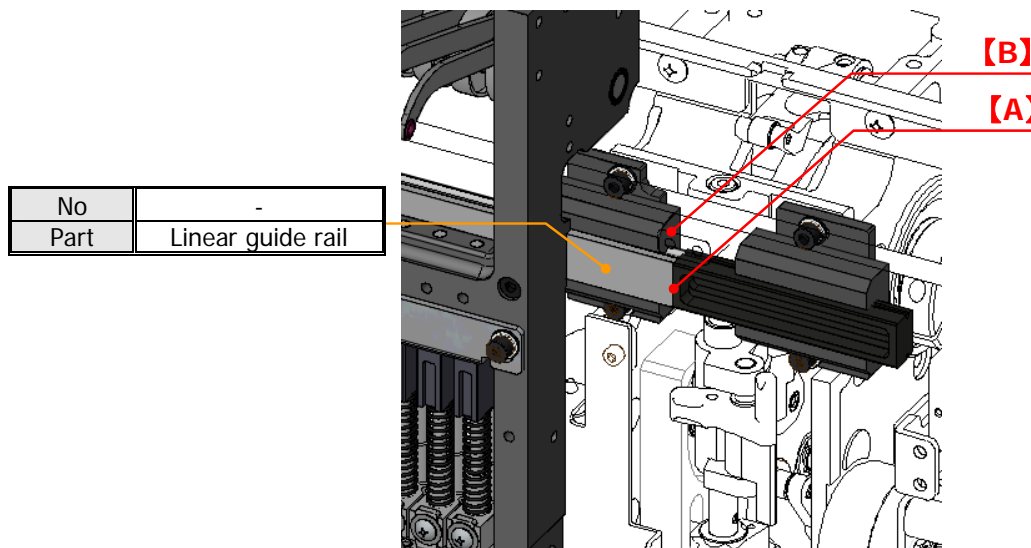


【Attention】

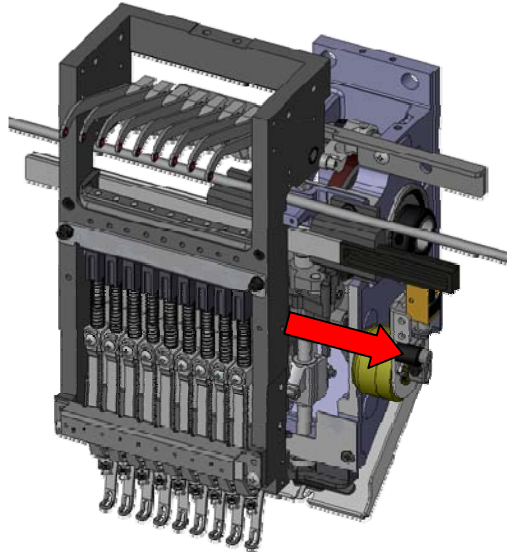
The appropriate distance to move the slide block is until the left side face of the linear guide rail reaches the green point of the linear guide block, as shown below.



The max range to move the slide block is indicated by point "A" (the right side of the linear guide rail) has not reached the left side of point "B" (the second linear guide block). Moving A to the left, past point B may cause damage to the LM guide.



7. Replacing the slide block back to the original position.

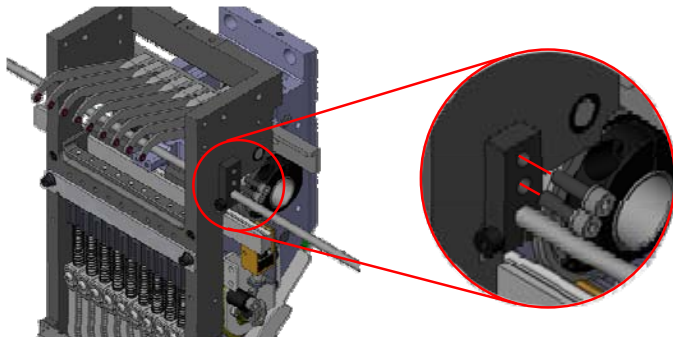


【Attentions to replacing the slide block back to the original position】

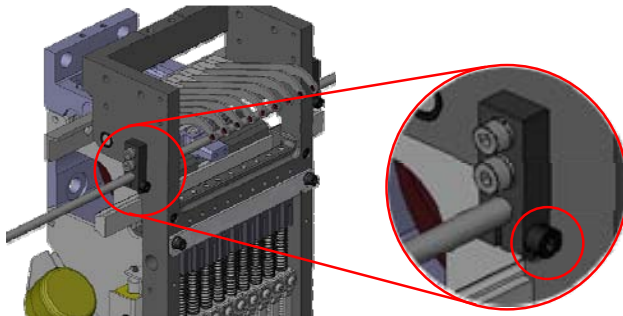
- 1) Pay attention to the take up levers sliding up on the take up lever stocker and into their proper position while moving the block back to the original position.
- 2) If the needle bar driver contacts the slide block, push the needle bar driver backwards out of the way with your finger to allow clearance while moving the slide block back to the original position.

8. Secure the slide block and slide block holder.

- These procedures explain how to secure the slide block and slide block holder.

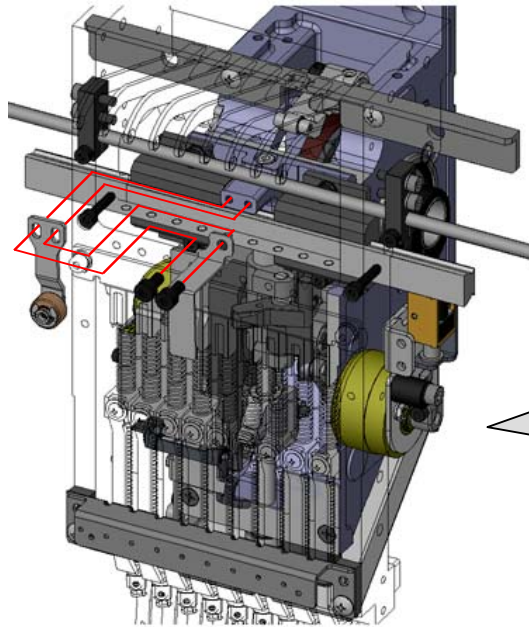


- ① Install and tighten the (2) M4x15 hex socket bolts for the right side slide block holder.



- ② Tighten the M4x14 hex socket bolt to clamp the left slide block holder to the color change rod.

9. Re-installing the needle bar stopper and indication plate.

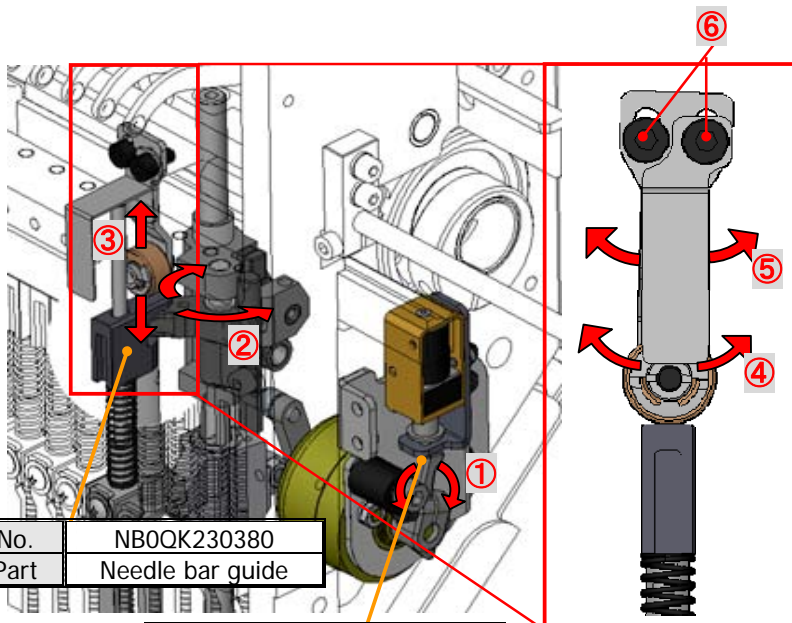


The needle bar stopper is adjusted in the next process.
Tighten the screws temporarily.

10. Set the degree wheel for the main shaft to 185 degrees. This is the top dead center position for the needle bar driver guide block.

11. Adjust the needle bar stopper.

【How to adjust the needle bar stopper】



- ① Rotate the jump stop lever, on and off quickly several times.
- ② See if the needle bar driver moves smoothly in and out of the needle bar guide, without making contact.
- ③ If the needle bar driver contacts the needle bar guide, move the needle bar stopper up or down to adjust to the proper position.
- ④ The needle bar stopper should be adjusted so it is in the center of the needle bar guide.
- ⑤ Check that the indication plate is straight up and down (not tilted).
- ⑥ Tighten the (2) mounting screws.

No.	NB0QK230380
Part	Needle bar guide

No.	NB0QK240020
Part	Jump stop lever

4. How to replace the needle bar driver

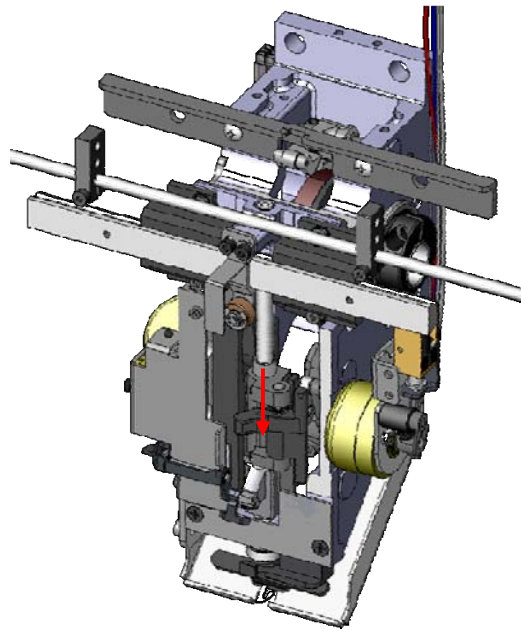
● Replacing the needle bar driver

Please use the following procedures to replace the needle bar driver.

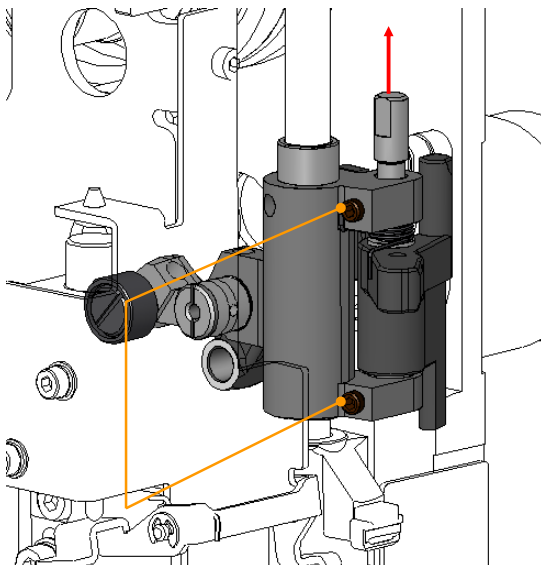
1. Remove the slide block

For instructions, refer to Chapter 2 on page 6.

2. Set the main shaft to 0 degrees so the machine is at the bottom dead point (BDC)



3. Remove the needle bar driver pin by loosening the (2) set screws as shown below.

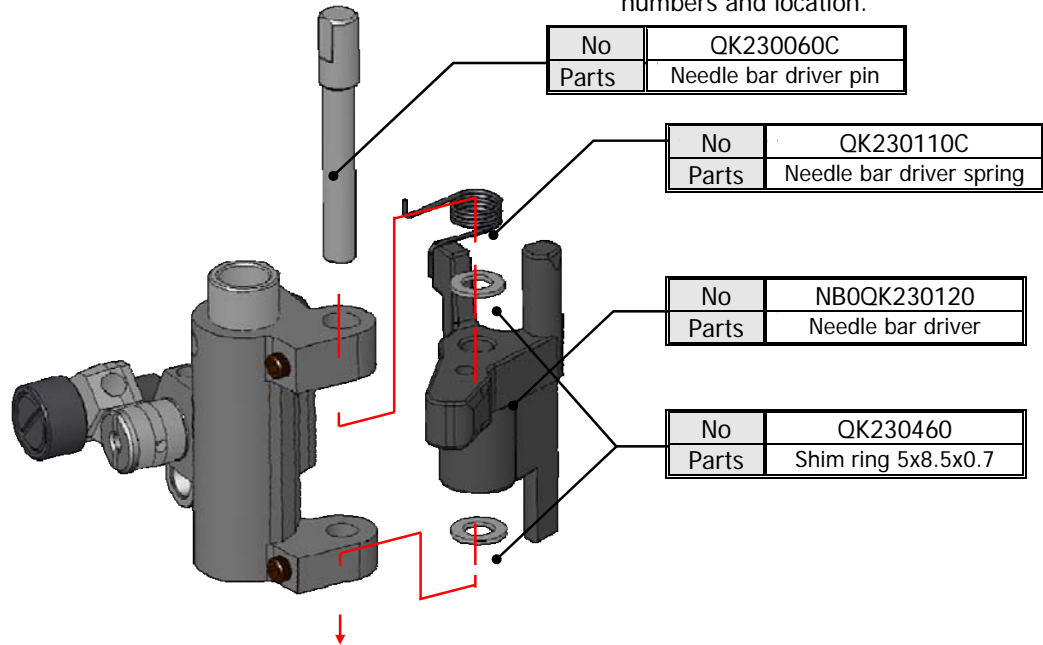


【Notice points for removing the pin】

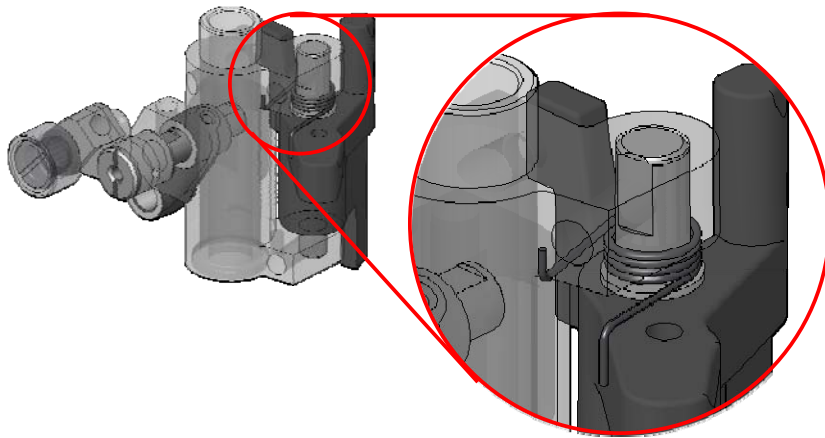
- 1) Pay attention not to lose the needle bar drive spring when pulling the pin out due to the spring tension.
- 2) There is a shim ring on the top and bottom sides of the needle bar driver. When pulling the pin out, pay attention not to drop and lose these shim rings.

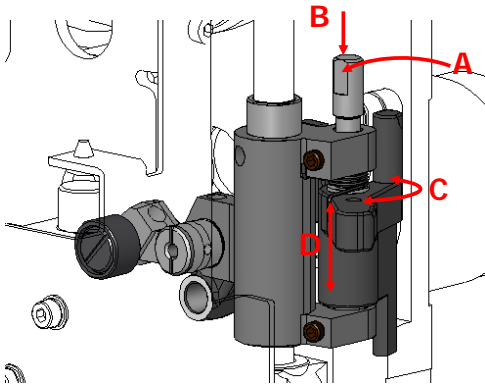
4. Installing the new needle bar driver

Please refer to the figure below for part numbers and location.



Please refer to the figure below about the pin direction and spring setting.



5. Tighten the (2) set screws for the Needle bar drive pin**【Notice points】**

- A. The pin has a flat face (At point A)
Start by tighten the top set screw first and pay attention that the flat face is facing towards the set screw.
- B. When tighten the top set screw, push the pin down in the direction of B.
- C. If the pin pushed down too much, the motion of needle bar driver (C direction) will not be smooth.
Confirm this motion after the installation.
If the motion is not smooth, please loosen the set screw and adjust again.
- D. Confirm the gap of the needle bar driver (in the D direction) after installing the pin.
If there is a gap, loosen the set screw and tighten again by pushing down on the pin in the B direction.

6. Replace the slide block

For instructions, please refer to Chapter 2, procedure 6 on page 8.

5. How to Remove the Driving Shaft

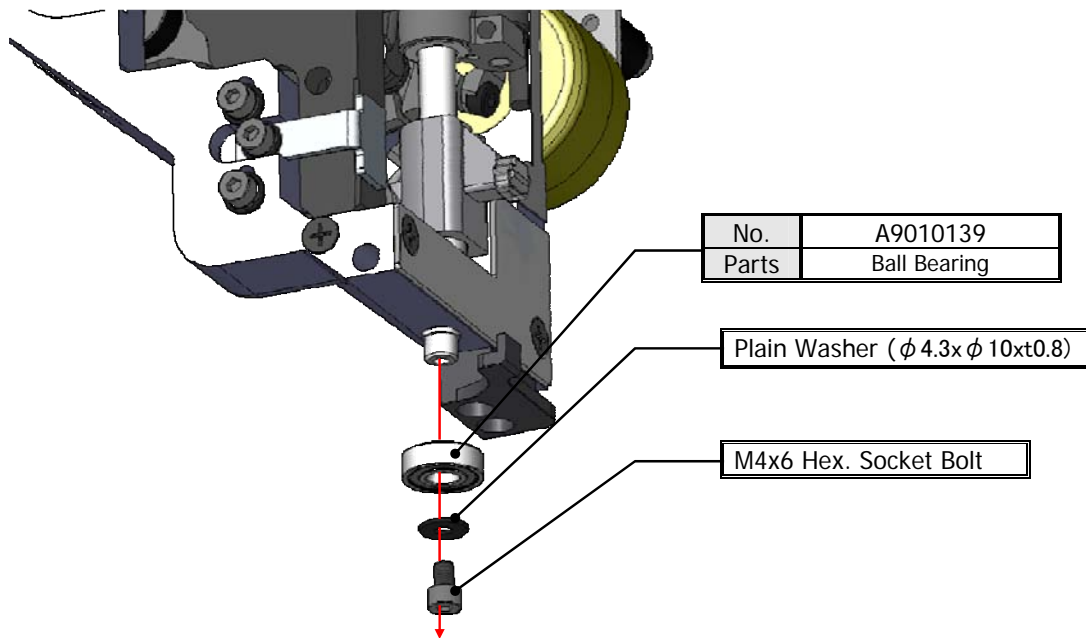
- **Pull out the Driving shaft**

Please use the following procedures to remove the Driving Shaft.

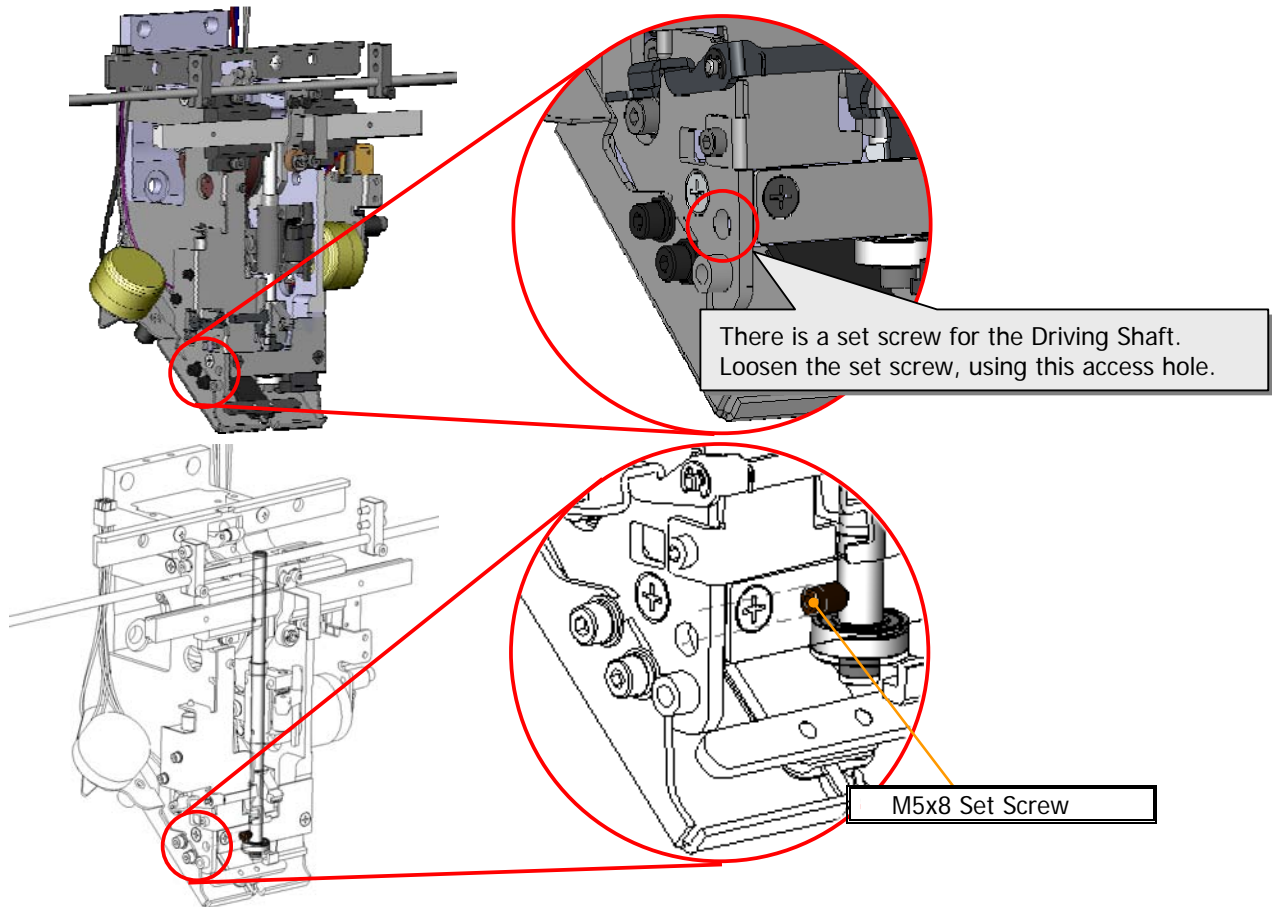
1. Remove the Slide Block from the sewing head.

For instructions, refer to Chapter 2 on page 6.

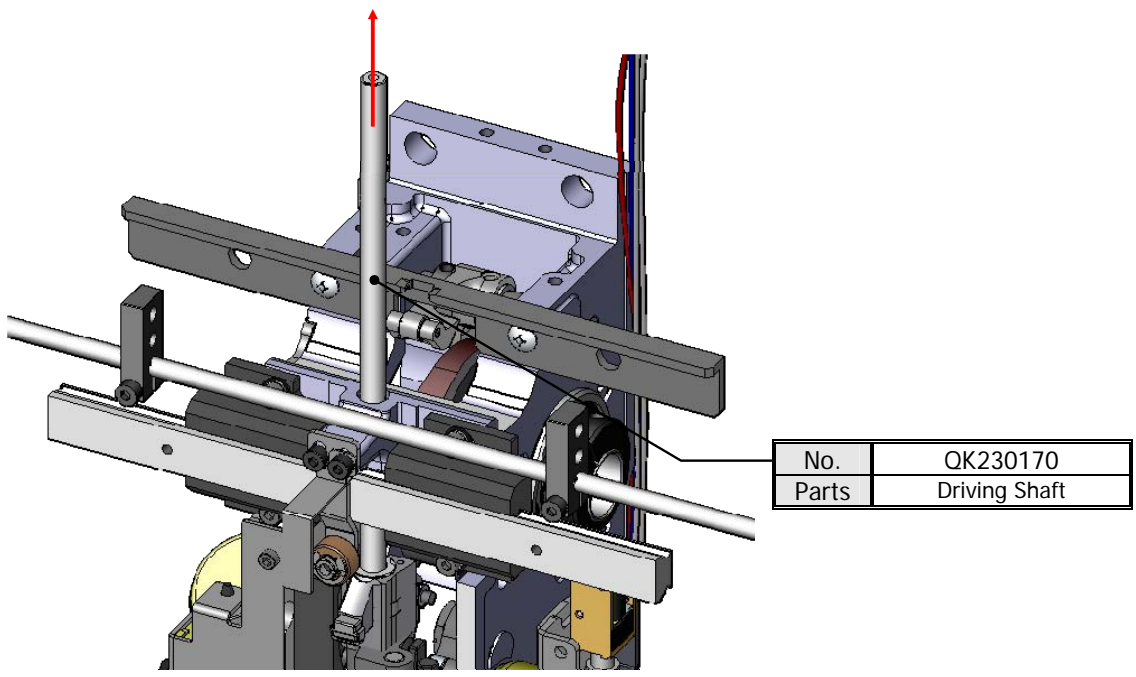
2. Remove the Ball Bearing from the Driving Shaft.



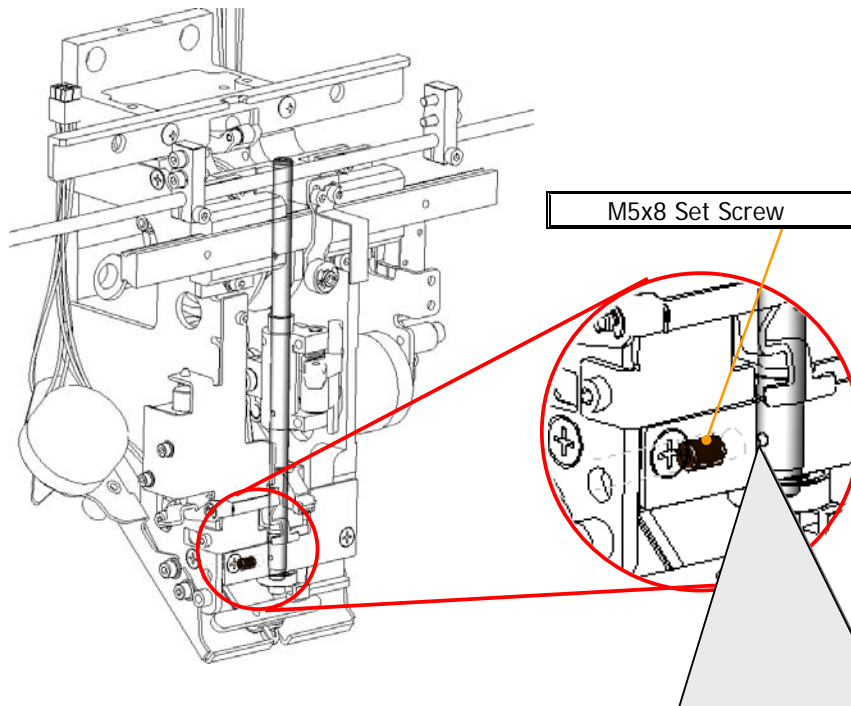
3. Loosen the set screw for the Driving Shaft. (Use a 2.5mm Hex wrench)



4. Pull the Driving Shaft out.

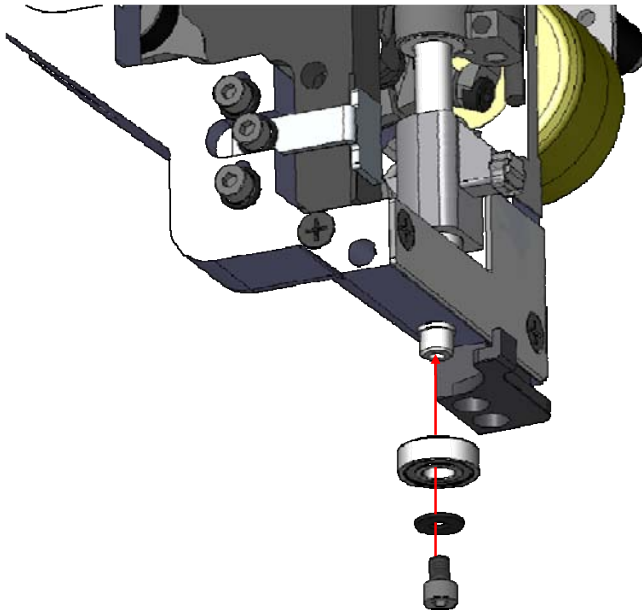


5. Replacing the Driving Shaft.



There is a hollow point in the driving shaft for the set screw. Pay attention to the position of the hollow point when tighten the set screw.

6. Re-install the ball bearing onto the driving shaft.



7. Replace the slide block

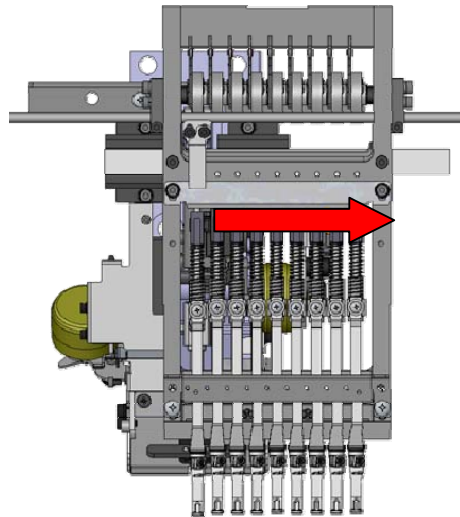
For instructions, please refer to Chapter 2, procedure 6 on page 8.

6. How to adjust the gap between Cloth Hold Support and Cloth Hold Set Clamp

● **Cloth hold support Adjustment**

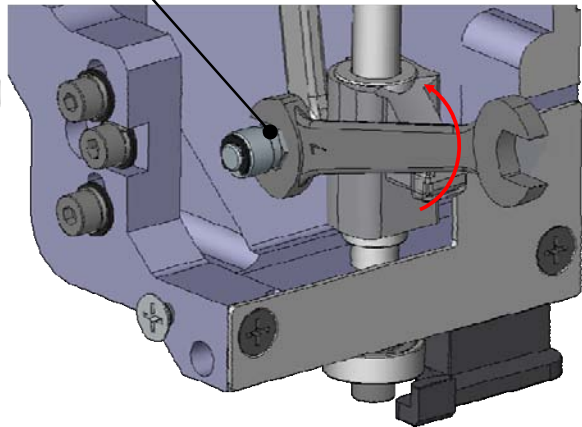
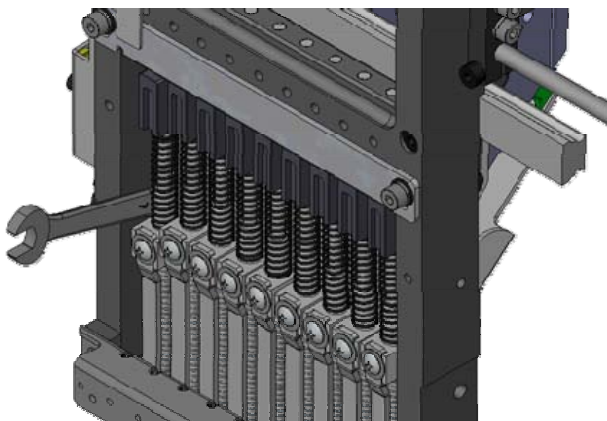
Please use the following procedures to adjust the gap between the cloth hold support and set clamp.

1. Change the color to the needle no.1.



2. Loosen the hex nut for the link roller joint pin

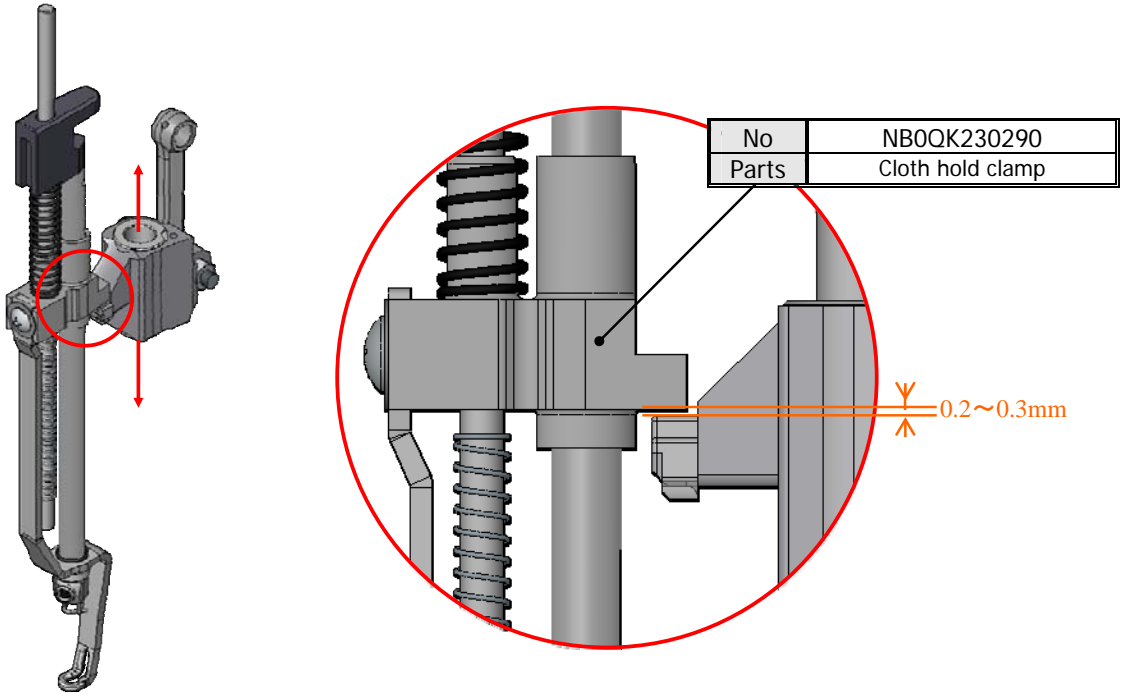
No	SG230180
Parts	Link roller joint pin (Large)



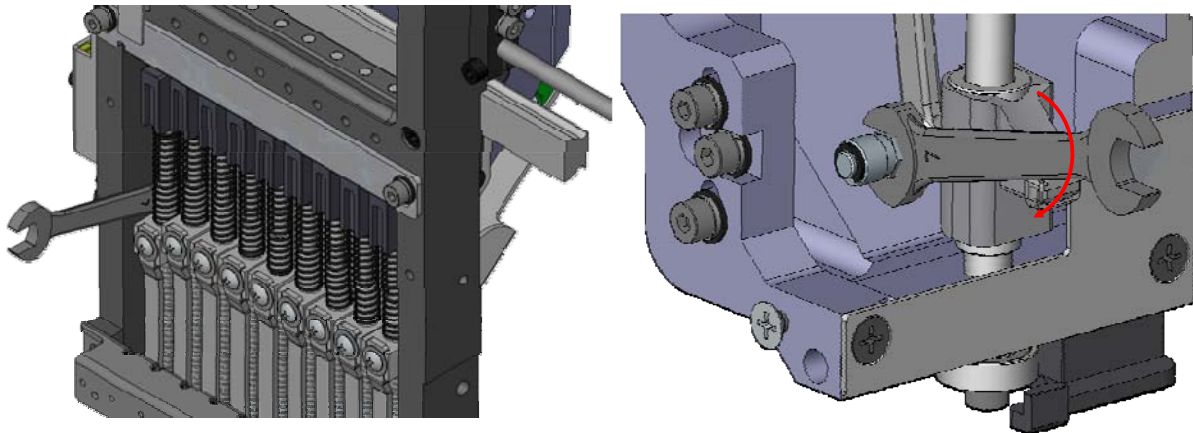
Insert a (7mm) wrench inside the head to the left side of needle no.1

Loosen the hex nut for the link roller joint pin with the (7mm) wrench

3. Turn the main shaft to 185 degrees.
Adjust the cloth hold support slide block manually, up or down, to make a gap between the clamp and the slide block. Gap should be about 0.2~0.3mm.



4. Tighten the hex nut for link roller joint pin when finished.



Insert a (7mm) wrench inside the head to the left side of needle no.1

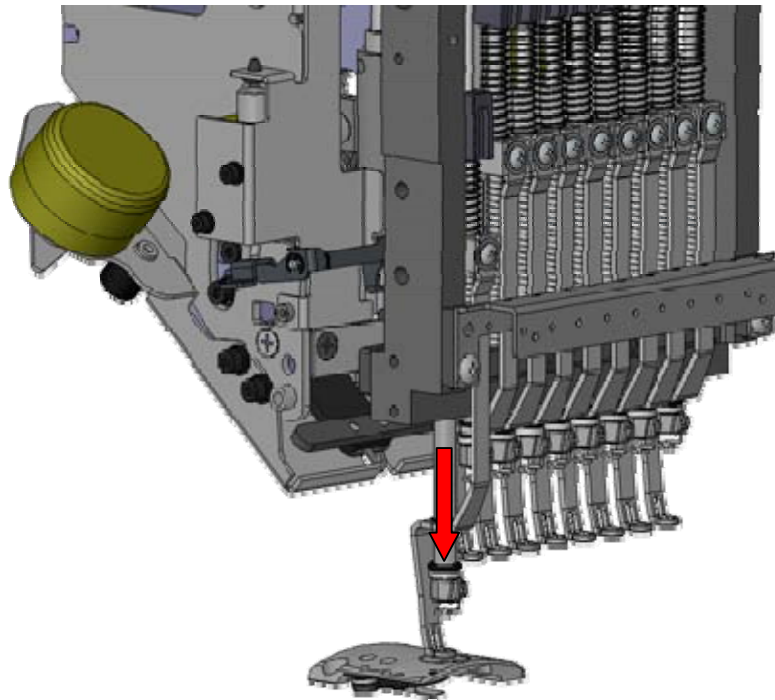
Tighten the hex nut for link roller joint pin with the (7mm) wrench

7. How to adjust the Cloth Hold K4 cam

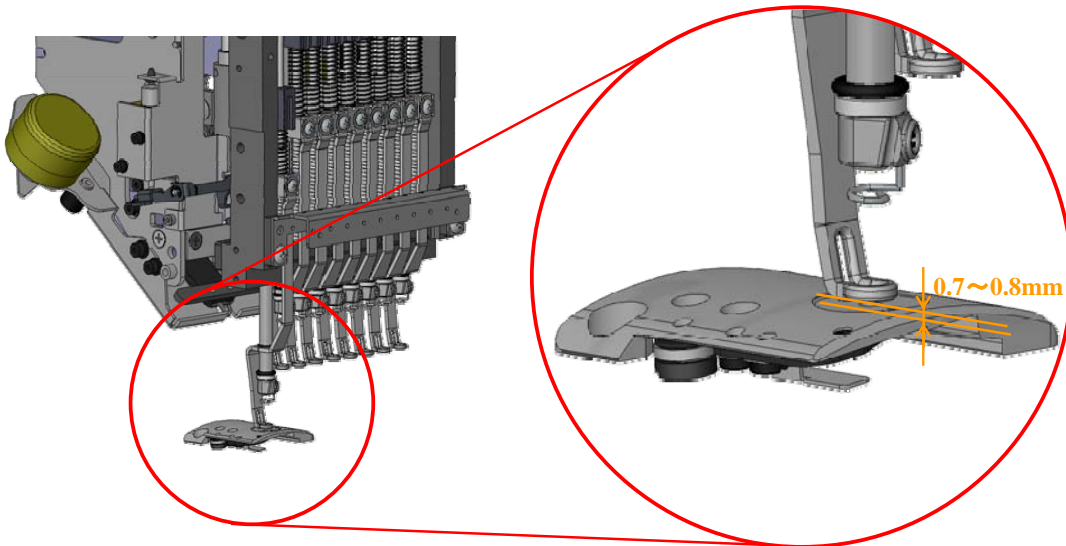
- **Adjust the Cloth Hold K4 cam**

Please use the following procedures to adjust the K4 cam.

1. Turn the main shaft to 0 degrees

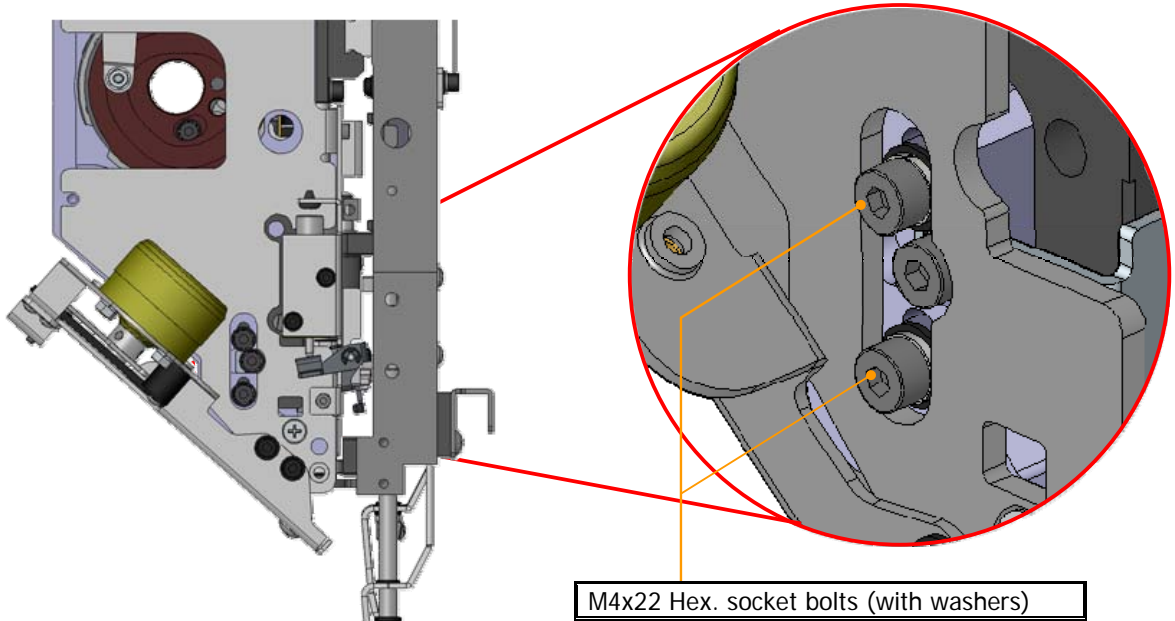


2. Check the gap between the pressure foot and the needle plate.
It should be 0.7~0.8mm. If it doesn't have the proper gap, please adjust the K4 cam using the following procedures.

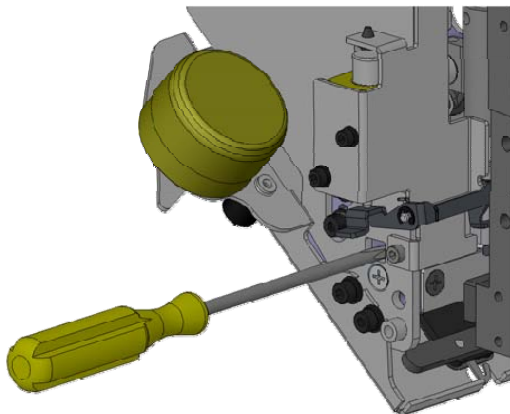


3. Change the Color to needle no. 1.

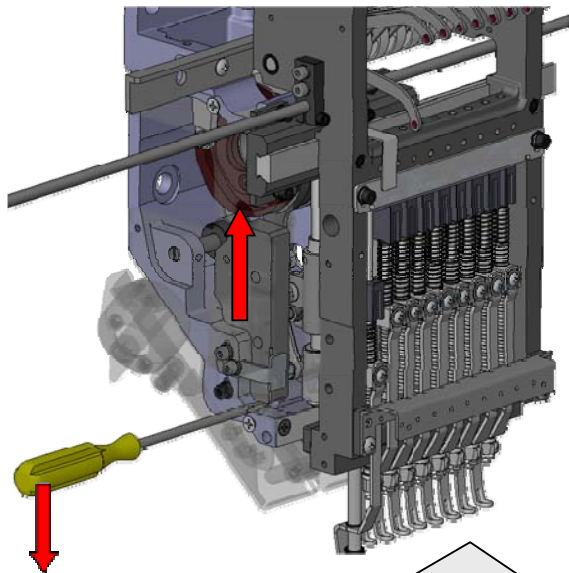
4. Loosen the (2) M4x22 Hex. socket bolts as shown below



5. If the gap between the pressure foot and the needle plate is too small, please follow the procedure below to raise the K4 cam.

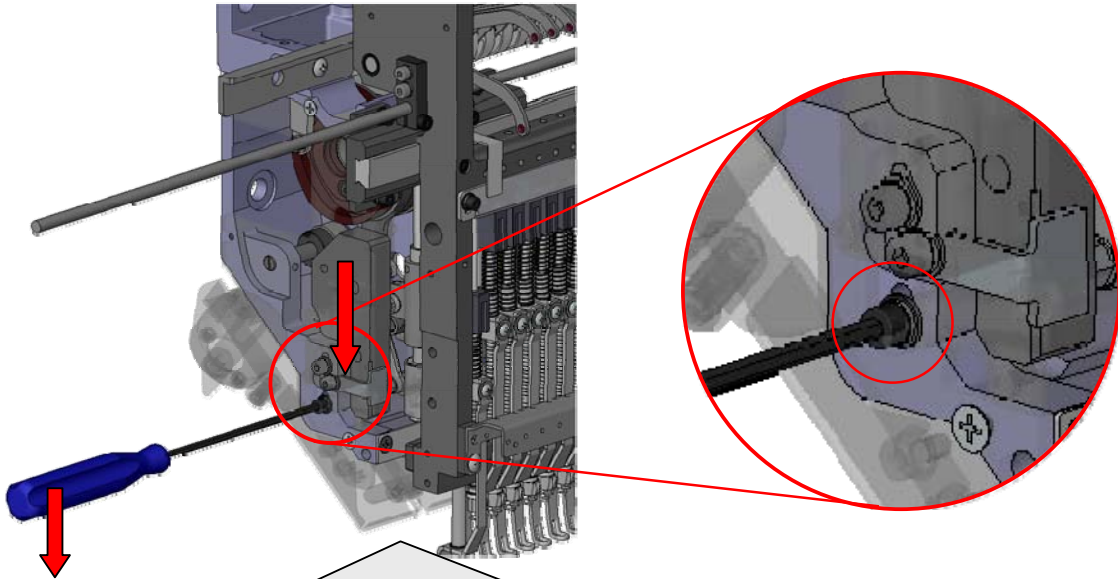


Insert a screwdriver into the service hole in the side of the arm plate.



Using the inserted screwdriver, raise the K4 cam.

6. If the gap between the pressure foot and the needle plate is too big, please follow the procedure below to lower the K4 cam.



Insert a wrench into the mounting screw as shown above. Push down on the wrench, to lower the K4 cam.

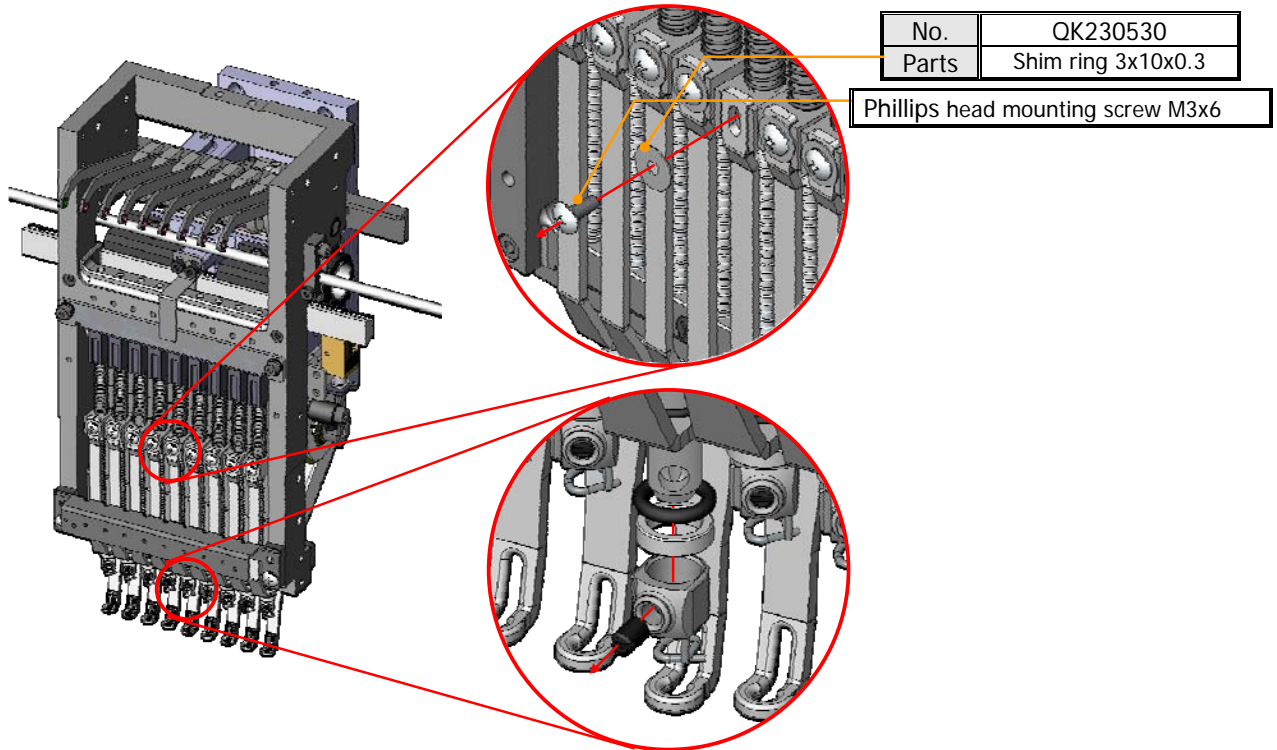
7. After adjustment of the K4 cam, tighten the (2) mounting bolts for the K4 cam to secure it in place.

8. How to replace a presser foot

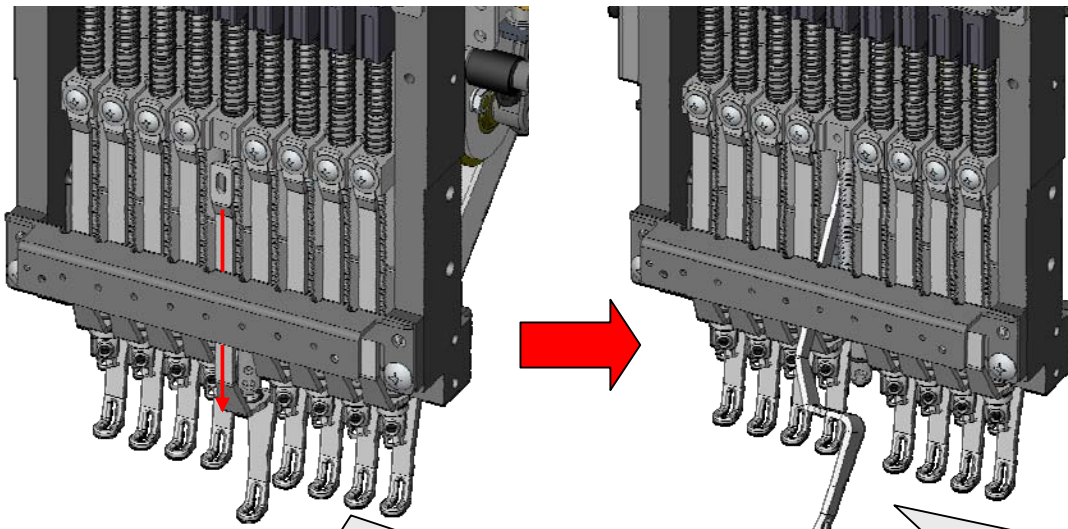
- Replace a presser foot.

Please use the following procedures to replace a presser foot.

1. Remove the needle clamp and the Phillips head mounting screw for the presser foot.



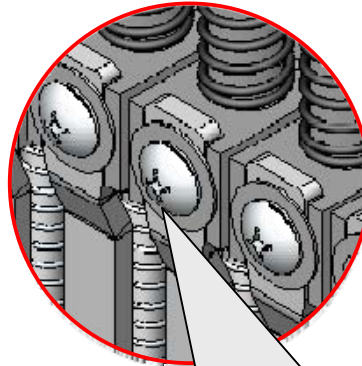
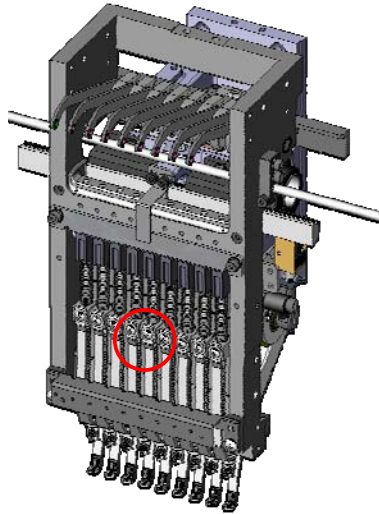
2. Remove the pressure foot



Remove the presser foot, downward

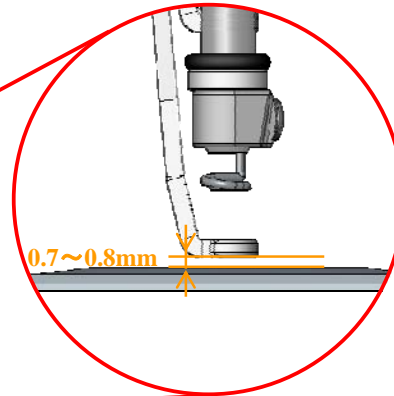
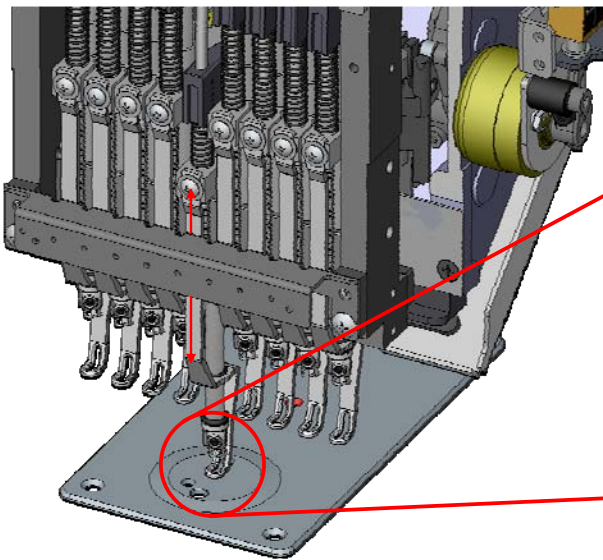
Turn the pressure foot and pull out from the bottom.

3. Replace the presser foot and needle clamp in reverse order of removal



Tighten the screw temporarily for adjustment in the next step.

4. Turn the main shaft to 0 degrees.
Adjust the presser foot height so the gap between the presser foot and throat plate is 0.7~0.8mm. Tighten the presser foot screw when the gap is adjusted properly.

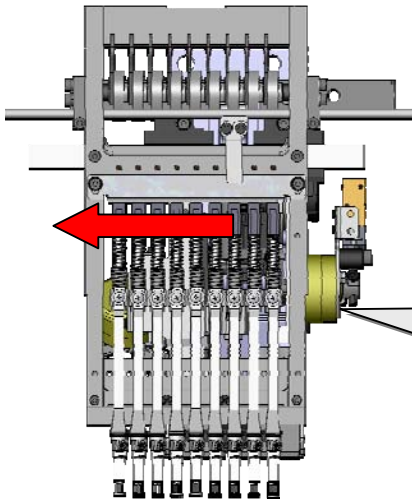


9. How to replace a needle bar

● Replacing a needle bar

Please use the following procedures to replace a needle bar.

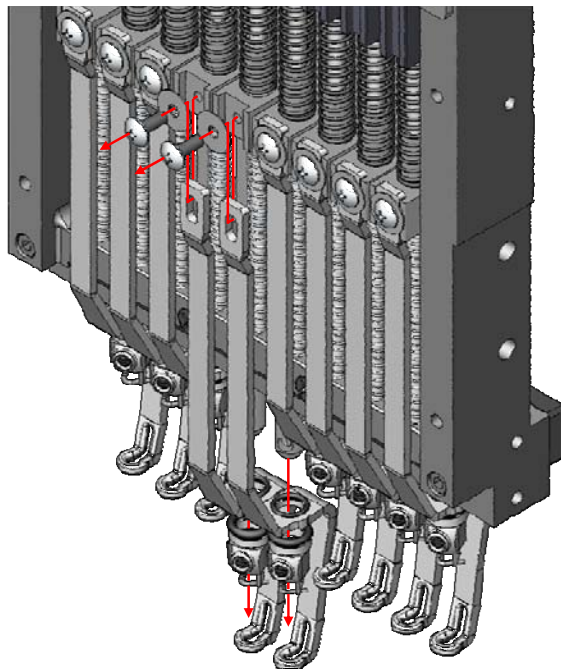
1. Change the color to 2 needle numbers away from the needle that you want to remove.



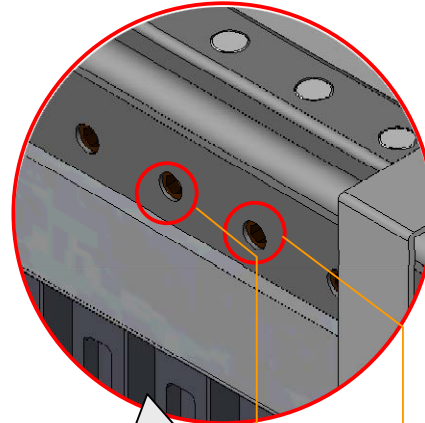
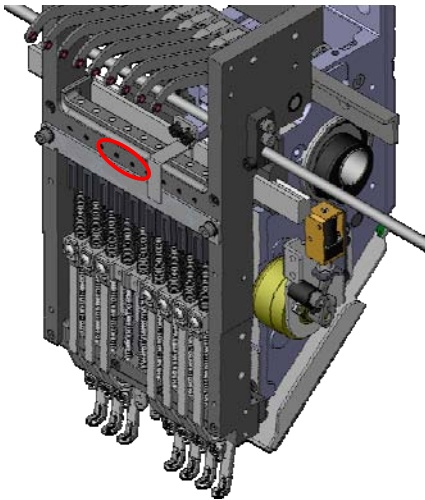
EX) · If you want to replace needle no.1,
please change the color to needle no.3.
· If you want to replace needle no.5,
please change the color to needle 1~3 or 7~15.

※For following example we are replacing needle bar number 5, so change to needle no.7

2. Remove the presser foot from the needle bar you want to replace, plus the needle bar next to it. For this example remove the presser feet for needle no.5 and no.4. For presser foot removal instructions please refer to the chapter 8 (page 28).



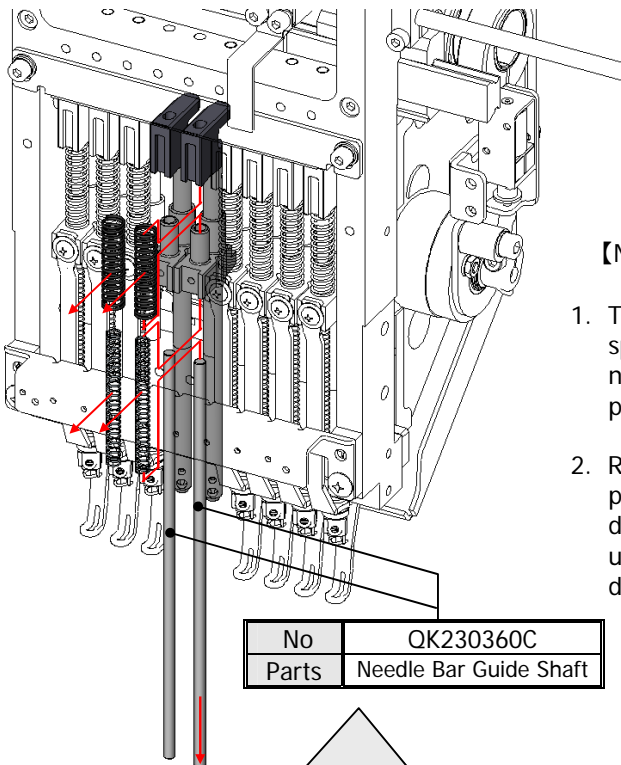
3. Loosen the set screws for the no.5 and no.4 needle bar guide shafts, as shown below.



M4x6 Hex. socket set screw

Loosen the set screws for the no.4 and no.5 needle bar guide shafts.

4. Pull the needle bar guide shafts, downward.



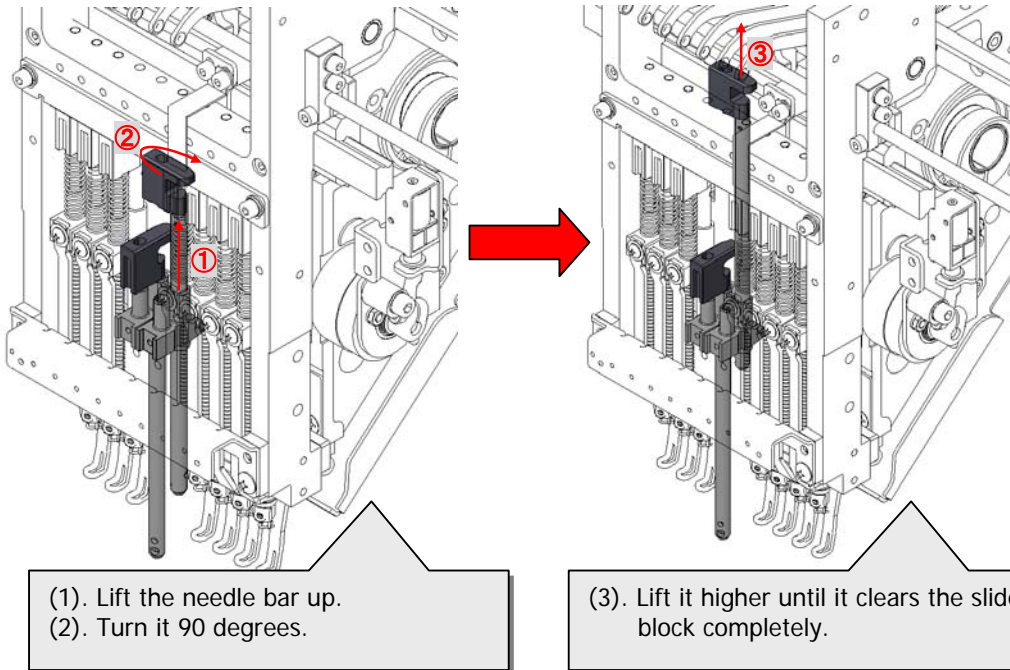
【Notice point】

1. There is pressure on the (lower) needle bar spring. Please be careful when lowering the needle bar guide shaft that the spring doesn't pop out and you lose it.
2. Regarding the needle no, it's not necessary to pull the shaft out completely. Just slide it up or down as much as possible. However, do not use too much force, otherwise it may bend and damage the shaft.

Remove the (upper & lower) needle bar springs when sliding the needle bar guide shafts out.

5. Removing the needle bar.

Please use the following procedure to remove a needle bar.

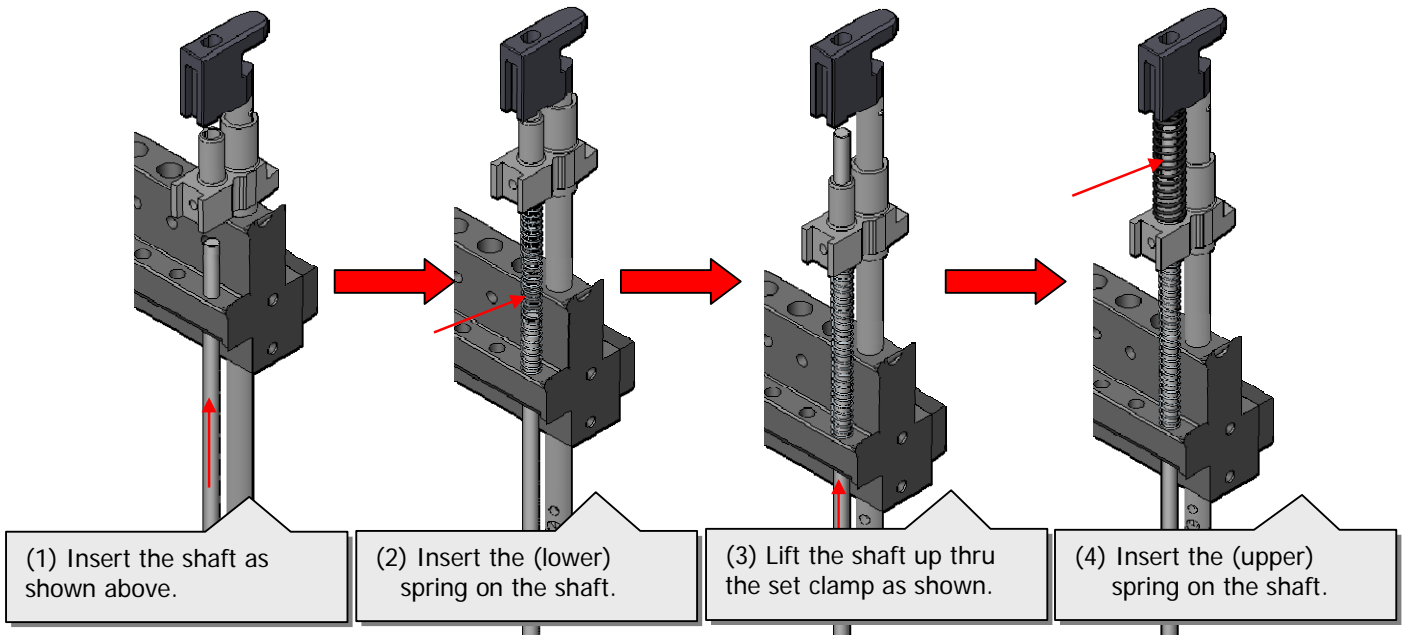


6. Installing the new needle bar.

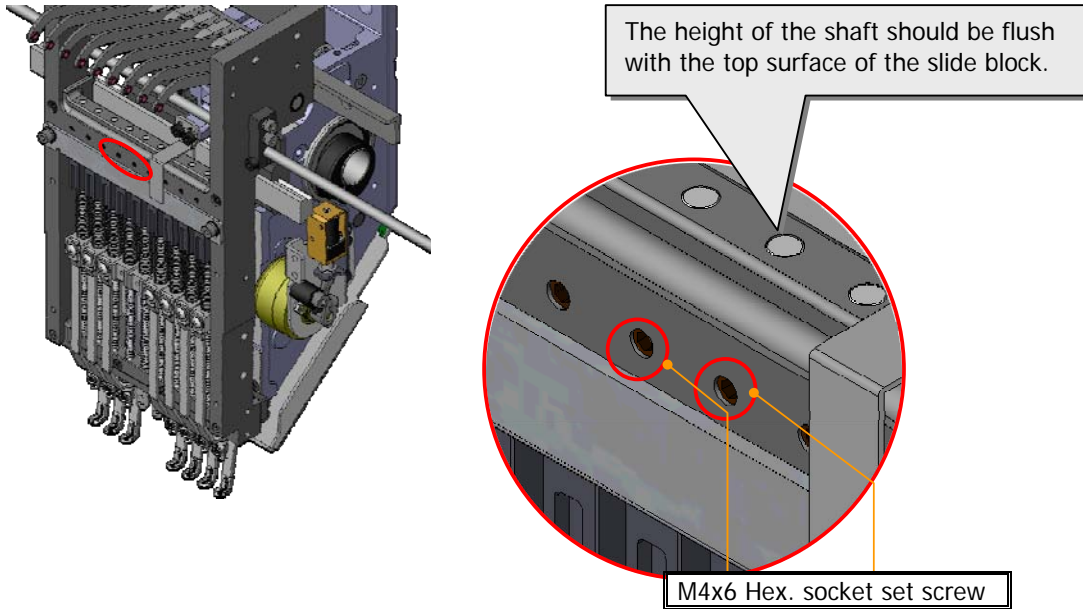
Please install the new needle bar in the reverse order of procedure[5].

7. Re-insert the needle bar guide shafts.

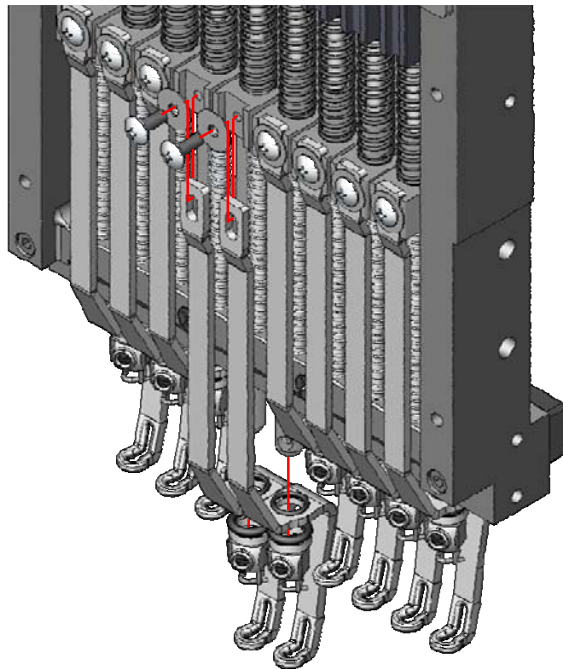
Please use the following procedure to re-install the needle bar guide shafts.



8. Tighten the set screws for the (2) needle bar guide shafts, as loosened in process **[3]**



9. Replace the presser feet.
For instructions, please refer to chapter 8 (page 28).

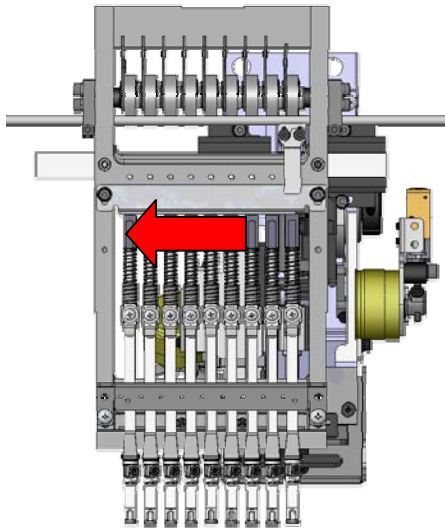


10. How to adjust the Jump and Cancel solenoid

- **Jump and Cancel solenoid adjustment.**

Please use the following procedures to adjust the jump and cancel solenoids.

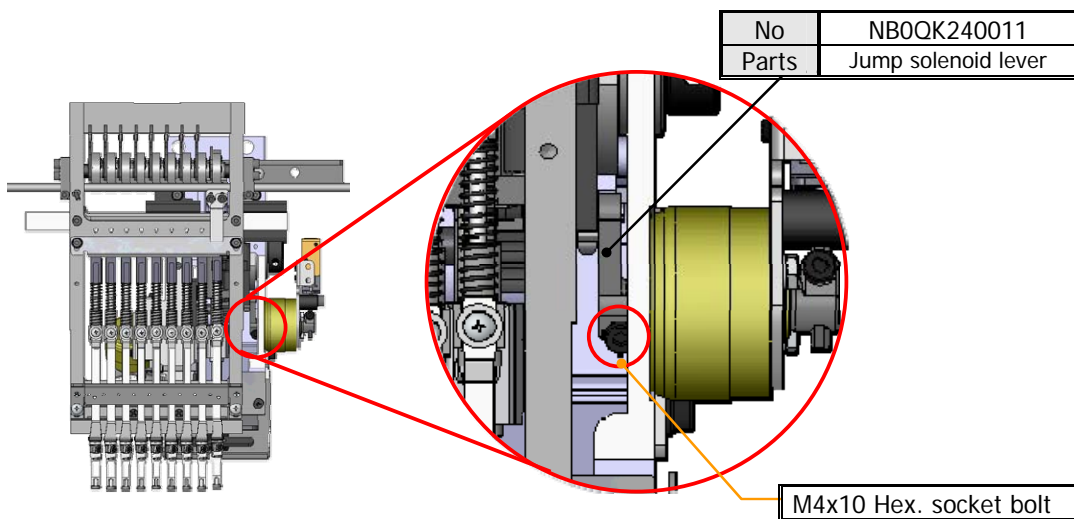
1. Change the color to the last needle.

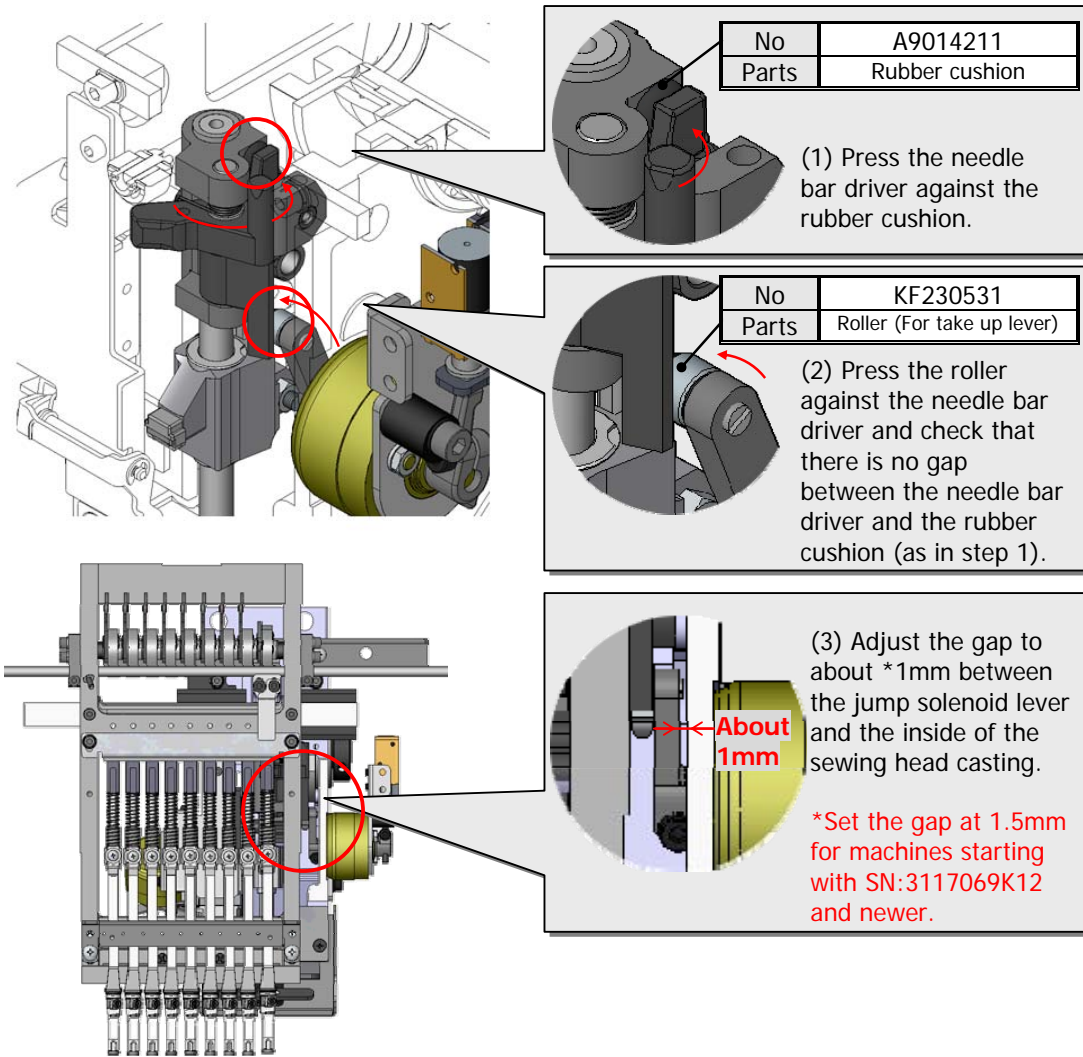


Ex) For 9 needle machines, change to needle no.9.
For 15 needle machines, change to needle no.15.

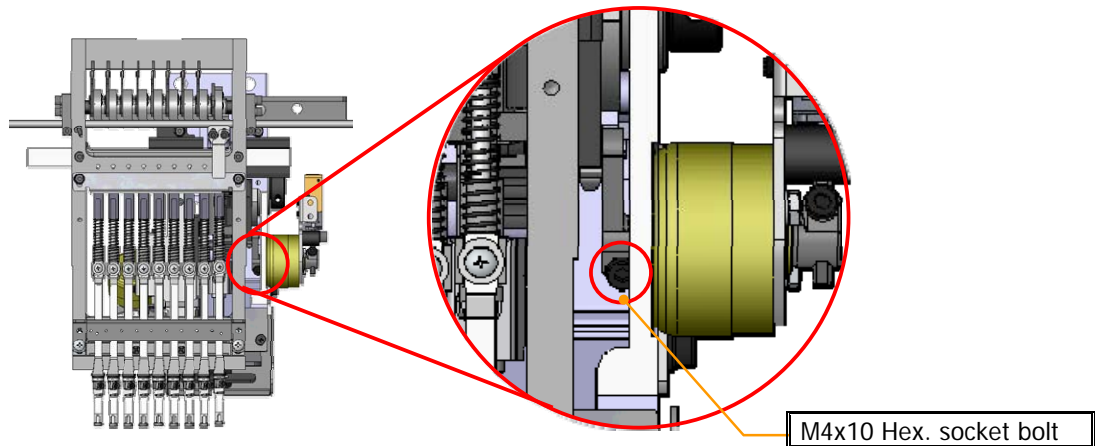
2. Please use the following procedure to adjust the jump solenoid lever.
*These procedures must be done when the Head cancel switch is ON and the needle bar driver is in the needle bar guide.

① Loosen the screw for the jump lever, as shown below



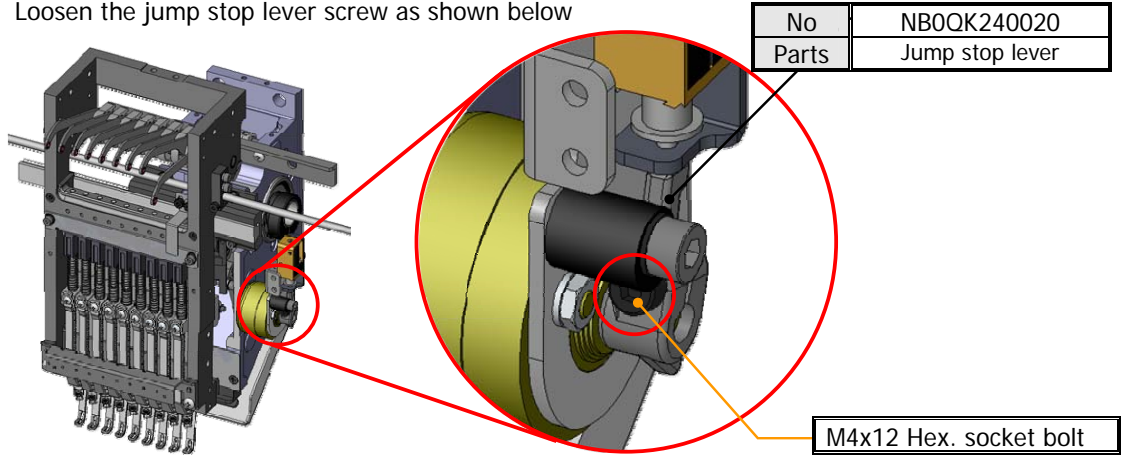


- ② Tighten the screw for the jump solenoid lever, as shown below.
Please be careful when tighten the screw to maintain the *1 mm gap, as shown above.

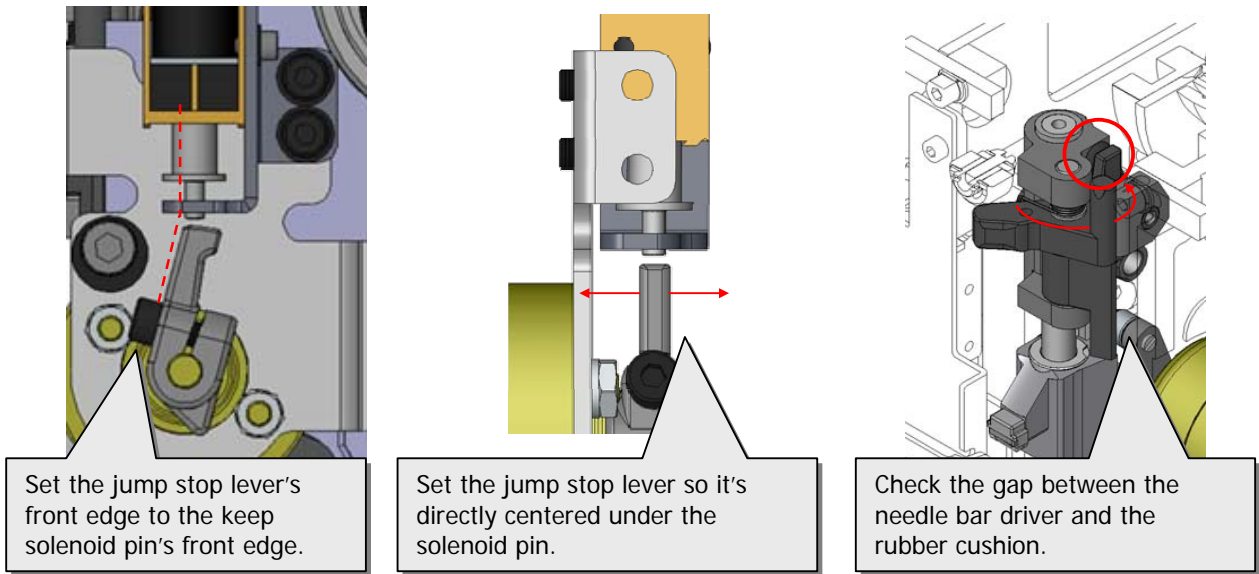


3. Please use the following procedures to adjust the jump solenoid stop lever
 *These procedures must be done when the Head cancel switch is ON and the needle bar driver is in the needle bar guide.

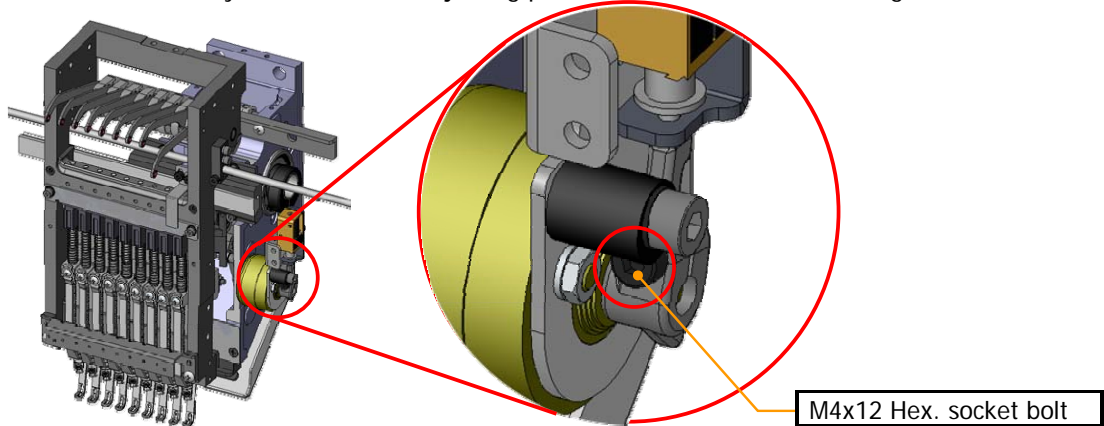
① Loosen the jump stop lever screw as shown below



② Adjust the jump stop lever as shown below.

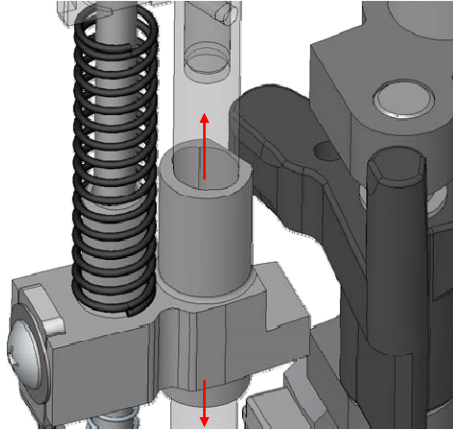


③ Tighten the jump stop lever screw as shown below.
 Please be careful you maintain the adjusting position as shown above when tighten the screw.

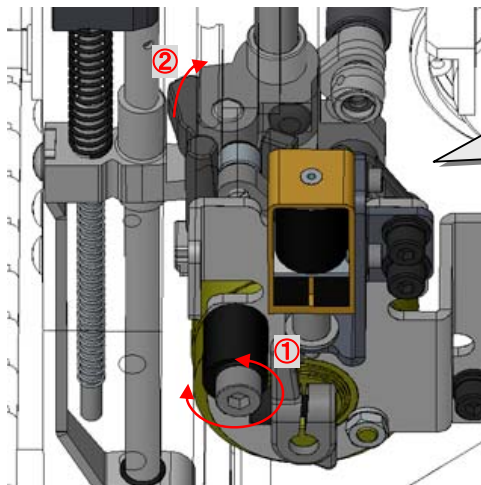


4. Please use the following procedures to adjust the cancel solenoid
※ Turn the head switch OFF

- ① Turn the main shaft to 0 degrees.
- ② Check if the needle bar driver is touching the set clamp, by moving the needle bar.



- ③ If the needle bar driver is touching the cylinder of the set clamp, adjust the stopper eccentric.
 - Secure the gap between the cylinder of clamp and the needle bar driver, by adjusting the stopper eccentric.

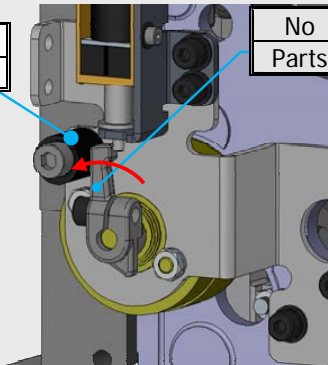


Rotate the stopper eccentric in the direction of ①, where the needle bar driver moves in the direction of ②, so the needle bar driver just clears the cylinder of the set clamp.

5. Please use the following procedure to confirm the adjustment.

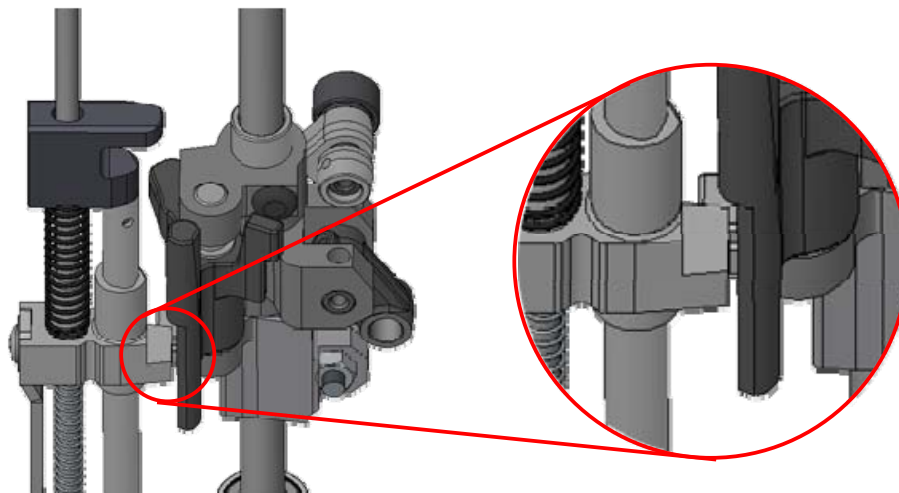
*These procedures must be done when the jump stop lever is touching the stopper eccentric.

No	KN272401
Parts	Stopper eccentric

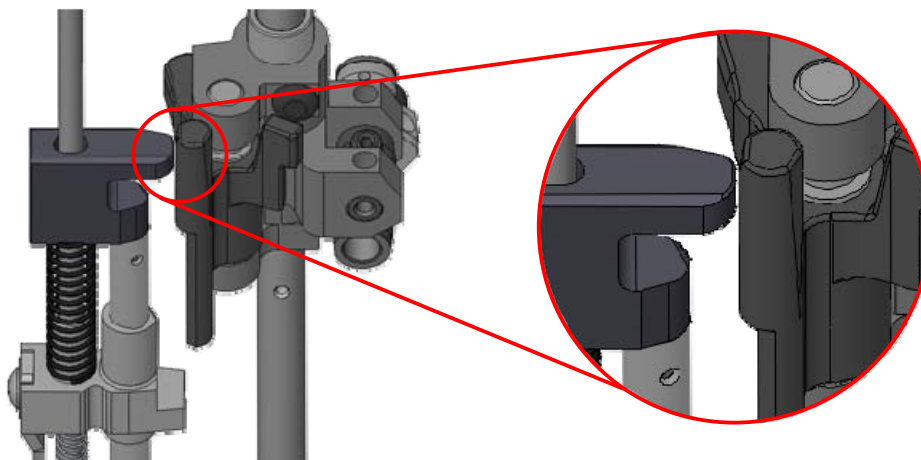


No	NB00K240020
Parts	Jump stop lever

- ① Change the color to the 2nd to last needle number on the sewing head.
- ② Set the angle of the main shaft to 0 degrees so the needle bar is at its lowest position. Check that the presser foot clamp on the last needle number is not touching the needle bar driver. There should be a small gap as shown below.

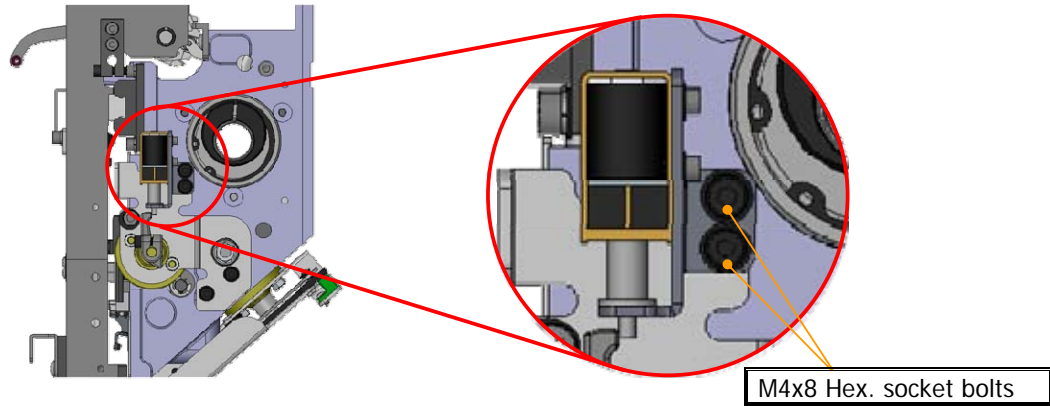


- ③ Set the angle of the main shaft to 240 degrees so the take-up levers are in the top position. Check that the needle bar guide of the last needle number is not touching the needle bar driver.

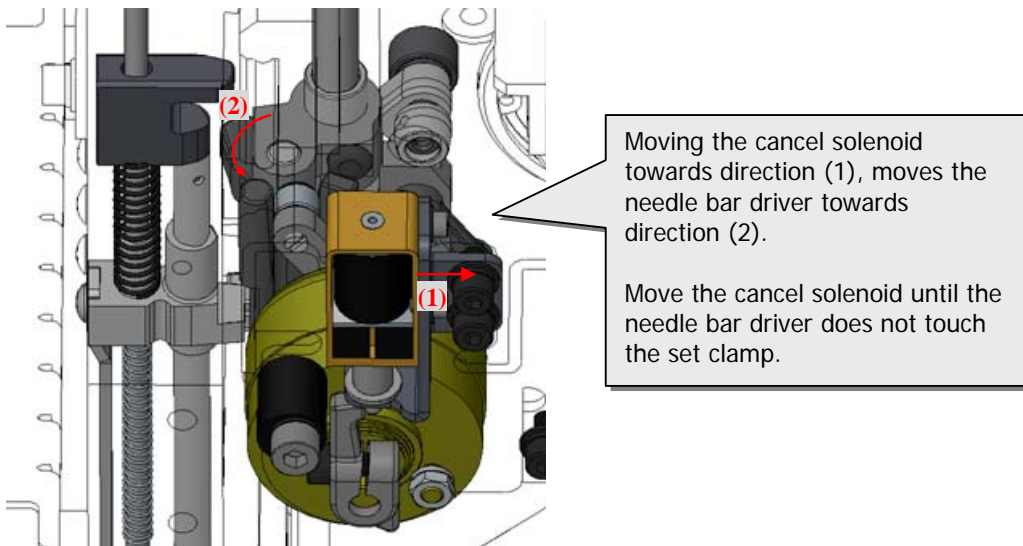


④ If they are touching, adjust the cancel solenoid.

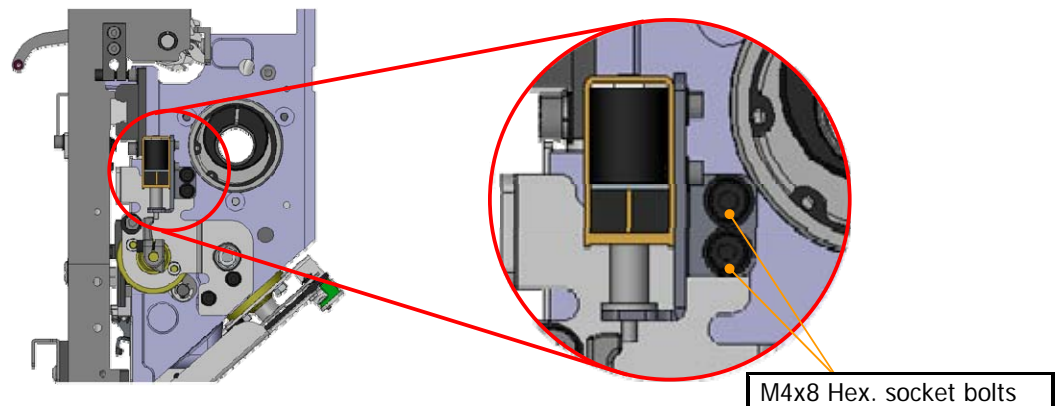
a) Loosen the bolts for the cancel solenoid as shown below.



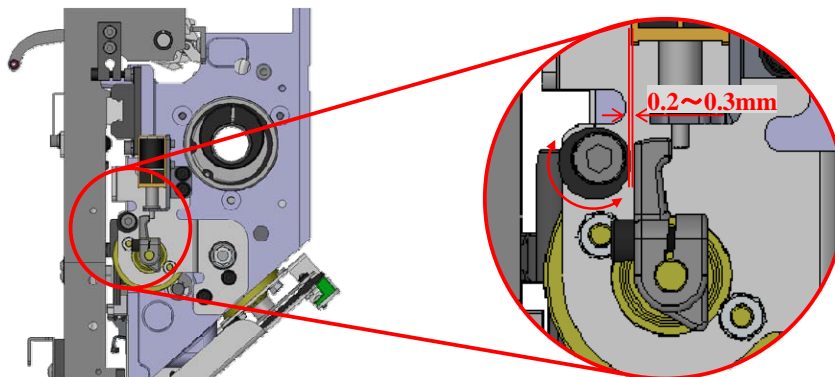
b) Adjust the gap between the set clamp and the needle bar driver by adjusting the solenoid position, back or forward.



c) Tighten the bolts for the cancel solenoid, as loosening in process【a】



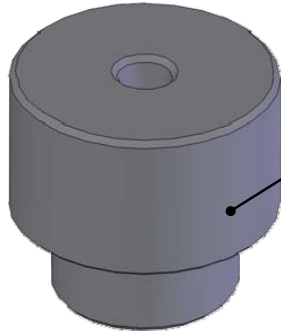
- ⑤ Change the color to the last needle to reconfirm the needle bar driver adjustment as in procedure 4.
- ⑥ Adjust the stopper eccentric so there is a small 0.2 ~ 0.3mm gap, as shown below.



11. How to check and adjust the needle depth

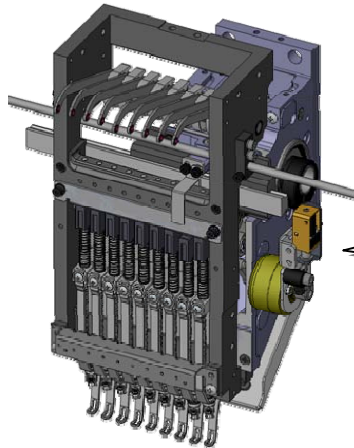
● How to check the needle depth

1. Prepare the jig for checking the needle depth.



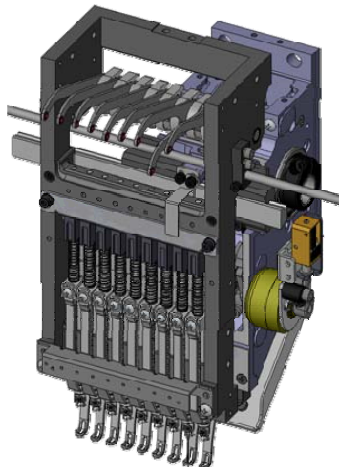
No.	HB220040 / HB220041
Part	Sewing Hook Dead Point Gauge

2. Change colors to the 2nd to last needle number.



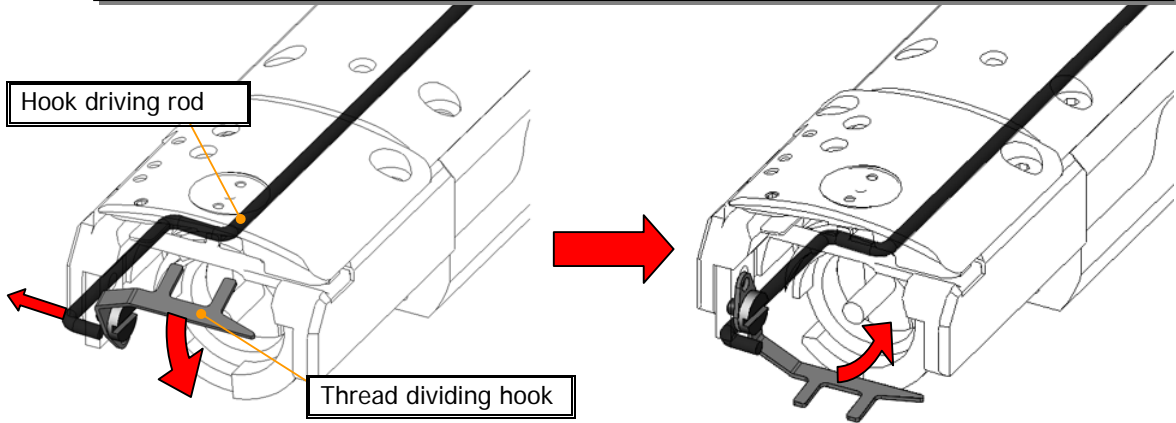
Color change to:
 For 9-needle head : No.8 needle
 For 15-needle head : No.14 needle

3. Cancel the head and rotate the main shaft to 25 degrees.

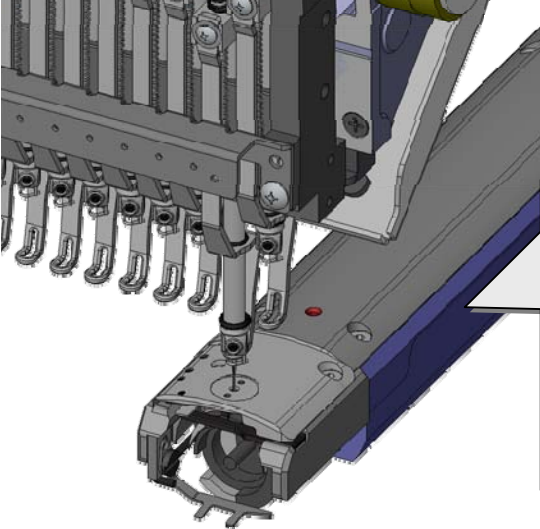


If adjusting a multi-head machine,
 please cancel all of the sewing heads
 and then rotate the main shaft.

4. Un-hook the hook driving rod from the thread dividing hook and lower the thread dividing hook out of the way.



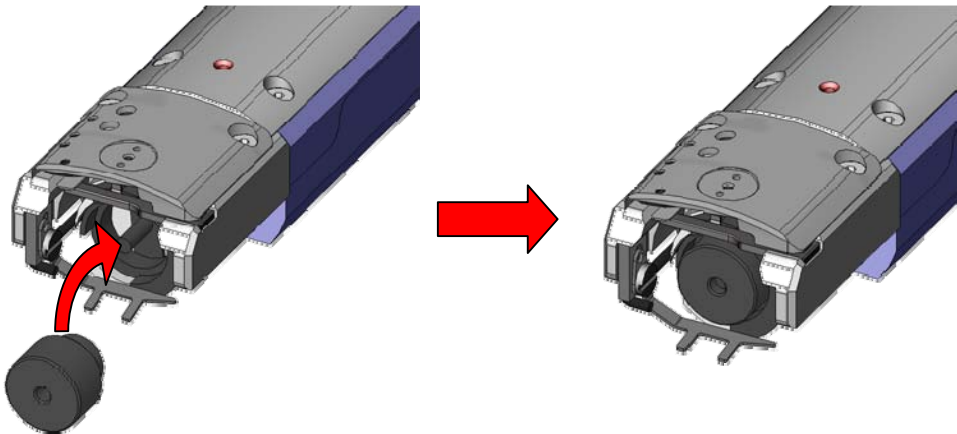
5. Turn the head switch ON and lower the needle bar manually.



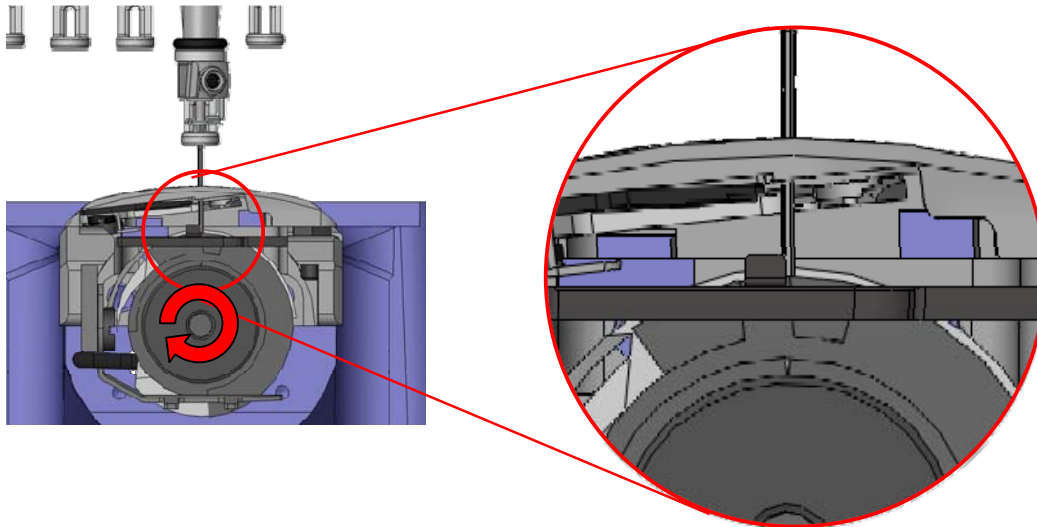
If you lower the needle bar on several heads at the same time on a multi-head machine, the main shaft may move off of the 25 degree mark.

Therefore, only check and adjust one head at a time. Turn all of the other heads OFF except the head you're working on.

6. Take the bobbin out of the hook and insert the needle depth jig into the hook.

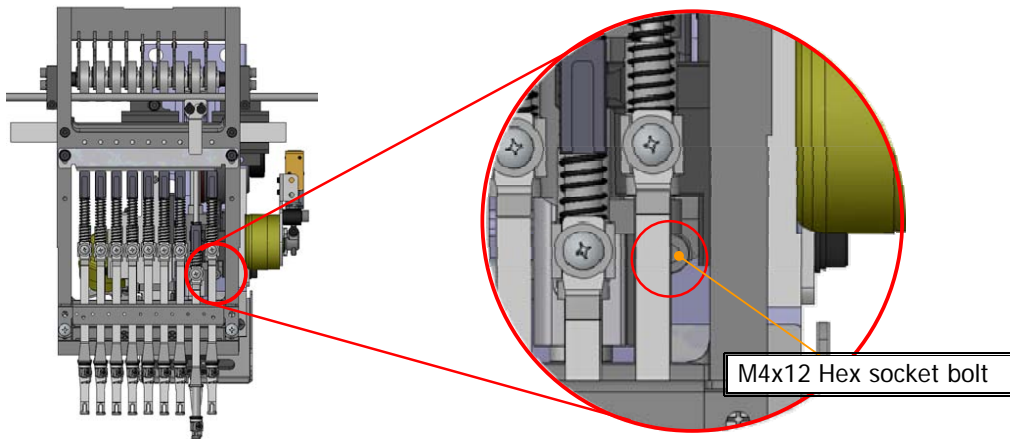


7. Rotate the needle depth jig and check that the tip of the needle is just touching the top of the jig slightly.

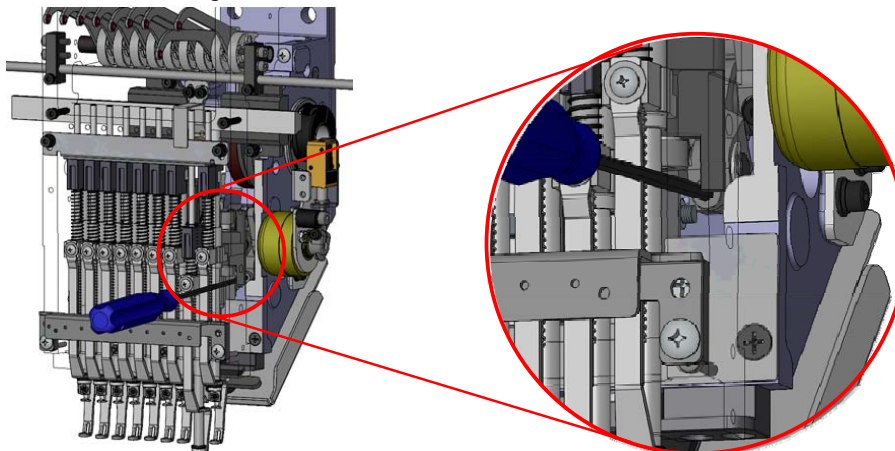


8. If the needle depth was too deep or not deep enough, as checked in procedure 7, adjust the needle depth using the following procedures.

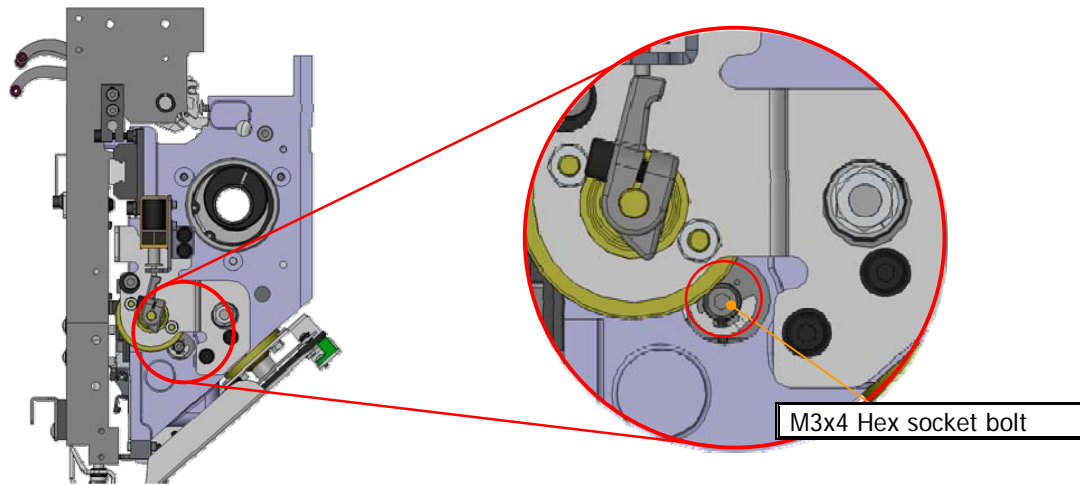
① **Loosen the M4x12 fixing bolt for the needle bar driving lever pin.**



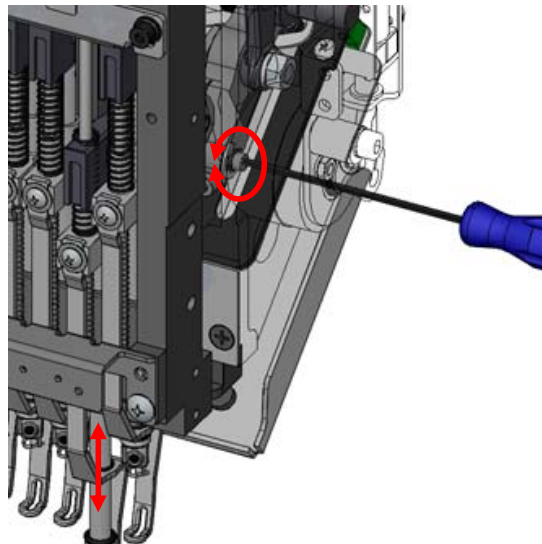
- Insert a 3mm hex wrench between the last needle bar and the slide block and loosen the M4x12 fixing bolt.



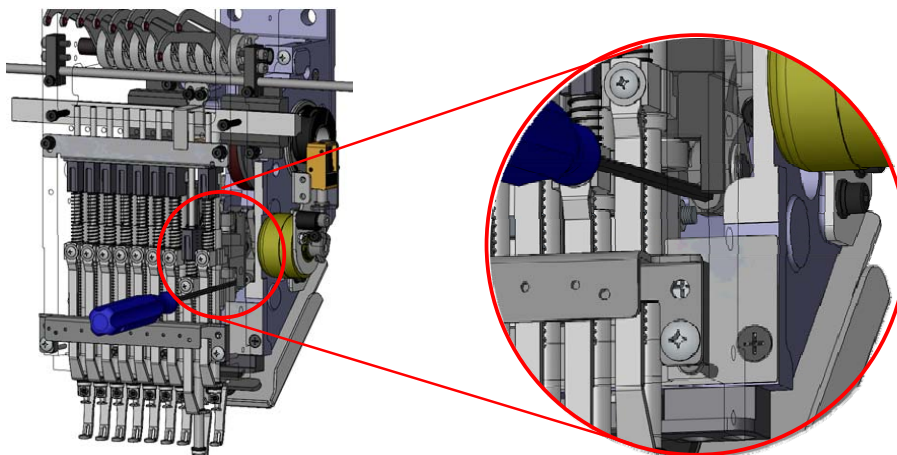
- ② **Rotate the adjusting bolt on the needle bar driving lever pin to change the needle depth.**
Rotate the adjusting bolt to the position where the tip of the needle just slightly touches the jig.
Notice : If the tip of the needle hits the jig too strongly, the tip of the needle might be damaged.



- Insert a 2.5mm Hex wrench into the service hole on the right side of the sewing head and rotate the M3x4 adjusting bolt to adjust the needle depth.



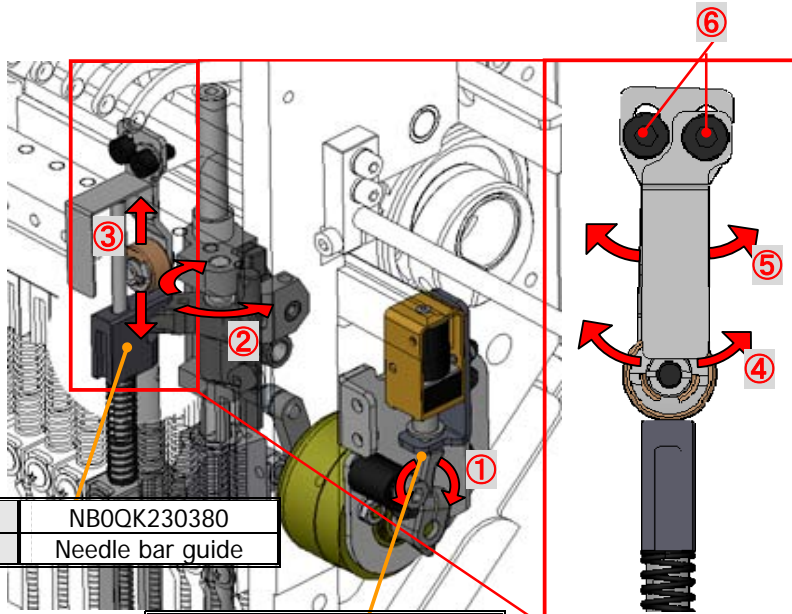
- ③ **Tighten the fixing bolt for the needle bar driving lever pin, when finished.**



9. Set the main shaft to 185 degrees. This is the top dead center position for the needle bar driver guide block.

10. Adjust the needle bar stopper.

【How to adjust the needle bar stopper】



- ① Rotate the jump stop lever, on and off quickly several times.
- ② See if the needle bar driver moves smoothly in and out of the needle bar guide, without making contact.
- ③ If the needle bar driver contacts the needle bar guide, move the needle bar stopper up or down to adjust to the proper position.
- ④ The needle bar stopper should be adjusted so it is in the center of the needle bar guide.
- ⑤ Check that the indication plate is straight up and down (not tilted).
- ⑥ Tighten the (2) mounting screws.

No.	NB0QK230380
Part	Needle bar guide

No.	NB0QK240020
Part	Jump stop lever

11. Adjust the set clamp and presser foot support.

Please refer to Chapter 6 “How to adjust the gap between Cloth Hold Support and Cloth Hold Set Clamp” on Page 23.

End