ENGLISH

PLC-2710NM, 2710NM-7, 2760NM, 2760NM-7 INSTRUCTION MANUAL

CONTENTS

⚠ CAUTION

This Instruction Manual for the PLC-2710NM,2710NM-7,2760NM,2760NM-7 only describes their differences from the standard models (PLC-2710-7,2760,2760-7,2760L).
For safety-related information, carefully read and fully understand "Safety precautions" described in the Instruction Manual for the standard models before using your sewing machine.

1. Specifications

No.	Item	Application	
1	Model	PLC-2710NM	PLC-2760NM
2	Model name	1-needle, post-bed, unison-feed, lockstitch machine with vertical-axis hook	2-needle, post-bed, unison-feed, lockstitch machine with vertical-axis hook
3	Application	Medium- to heavy-weight materials, car seat, furniture	
4	Sewing speed	Max. 2,500 sti/min (Refer to **"6. SEWING SPEED TABLE"** in the Instruction Manual for the standard model.)	
5	Needle	GROTZ BECKERT 135 x 17 (Nm 100 to Nm 180) (Standard : Nm 140)	
6	Applicable thread size for sewing	# 30 to # 5 (Europe 60 / 3 to 20 / 3)	
7	Applicable thread size to be cut		
8	Stitch length	Max. 12 mm (forward/reverse feed) However, the machine is shipped with its stitch length restricted to 7 mm.	
9	Stitch length dial	1-pitch dial	
10	Presser foot lift	Hand lifter : 10 mm Knee lifter : 20 mm	
11	Stitch length adjusting mechanism	By dial	
12	Reverse stitch adjusting method	By lever	
13	Thread take-up	Link thread take-up	
14	Needle bar stroke	40 mm	
15	Amount of the alternate vertical movement	1 mm to 9 mm (Alternate vertical dial adjustment type) However, the machine is shipped with its stitch length restricted to 6.5 mm.	
16	Hook	Full-rotary vertical-axis 1.6-fold hook (Latch type)	
17	Feed mechanism	Box feed	
18	Drive system/Top and bottom feed actuation mechanism	V-belt driven type/Timing belt	
19	Thread trimming method		
20	Lubrication	Automatic lubrication by semi-dry head plunger pump (with oil gauge)	
21	Lubricating oil	JUKI New Defrix Oil No. 1 (equivalent to ISO standard VG7) or JUKI MACHINE OIL No. 7	
22	Bed size	643 mm × 178 mm	
23	Space under the arm	347 mm × 298 mm	
24	Hand wheel size	V-belt effective diameter : ø76.0 mm Outer diameter : ø140 mm	
25	Motor/Control box	M51N 750W / SC-922A	
26	Machine head weight	76 kg	79 kg
27	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation: A-weighted value of 84.0 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 2,500 sti/min. - Sound power level (L_{WA}); A-weighted value of 86.0 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 3744 GR2 at 2,500 sti/min.	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation: A-weighted value of 84.5 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 2,000 sti/min. - Sound power level (L_{WA}); A-weighted value of 93.5 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 3744 GR2 at 2,000 sti/min.

No.	Item	Application	
1	Model	PLC-2710NM-7	PLC-2760NM-7
2	Model name	1-needle, post-bed, unison-feed, lockstitch machine with vertical-axis hook, with thread trimmer	2-needle, post-bed, unison-feed, lockstitch machine with vertical-axis hook, with thread trimmer
3	Application	Medium- to heavy-weight materials, car seat, furniture	
4	Sewing speed	Max. 2,500 sti/min (Refer to **"6. SEWING SPEED TABLE"** in the Instruction Manual for the standard model.) ***1**	
5	Needle	GROTZ BECKERT 135 x 17 (Nm 100 to Nm 180) (Standard : Nm 140)	
6	Applicable thread size for sewing	# 30 to # 5 (Europe 60 / 3 to 20 / 3)	
7	Applicable thread size to be cut	# 30 to # 5 (Europe 60 / 3 to 20 / 3)	
8	Stitch length	Max. 12 mm (forward/reverse feed) However, the machine is shipped with its stitch length restricted to 7 mm.	
9	Stitch length dial	2-pitch dial	
10	Presser foot lift	Hand lifter : 10 mm Automatic presser foot lifter : 20 mm	
11	Stitch length adjusting mechanism	By dial	
12	Reverse stitch adjusting method	Air cylinder type (with touch-back switch)	
13	Thread take-up	Link thread take-up	
14	Needle bar stroke	40 mm	
15	Amount of the alternate vertical movement	1 mm to 9 mm (Alternate vertical dial adjustment type) However, the machine is shipped with its stitch length restricted to 6.5 mm.	
16	Hook	Full-rotary vertical-axis 1.6-fold hook (Latch type)	
17	Feed mechanism	Box feed	
18	Top and bottom feed actuation mechanism	Main shaft direct drive system/Timing belt	
19	Thread trimming method	Cam-driven scissors type	
20	Lubrication	Automatic lubrication by semi-dry head plunger pump (with oil gauge)	
21	Lubricating oil	JUKI New Defrix Oil No. 1 (equivalent to ISO standard VG7) or JUKI MACHINE OIL No. 7	
22	Bed size	643 mm × 178 mm	
23	Space under the arm	347 mm × 298 mm	
24	Hand wheel size	Outer diameter : ø123 mm	
25	Motor/Control box	550W AC servomotor / SC-922B	
26	Machine head weight	81 kg	84 kg
27	Rated power consumption	193VA	
28	Noise	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation: A-weighted value of 79.5 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 2,500 sti/min.	- Equivalent continuous emission sound pressure level (L_{pA}) at the workstation: A-weighted value of 84.0 dB; (Includes K_{pA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 11204 GR2 at 2,500 sti/min. - Sound power level (L_{WA}); A-weighted value of 86.0 dB; (Includes K_{WA} = 2.5 dB); according to ISO 10821- C.6.2 - ISO 3744 GR2 at 2,500 sti/min.

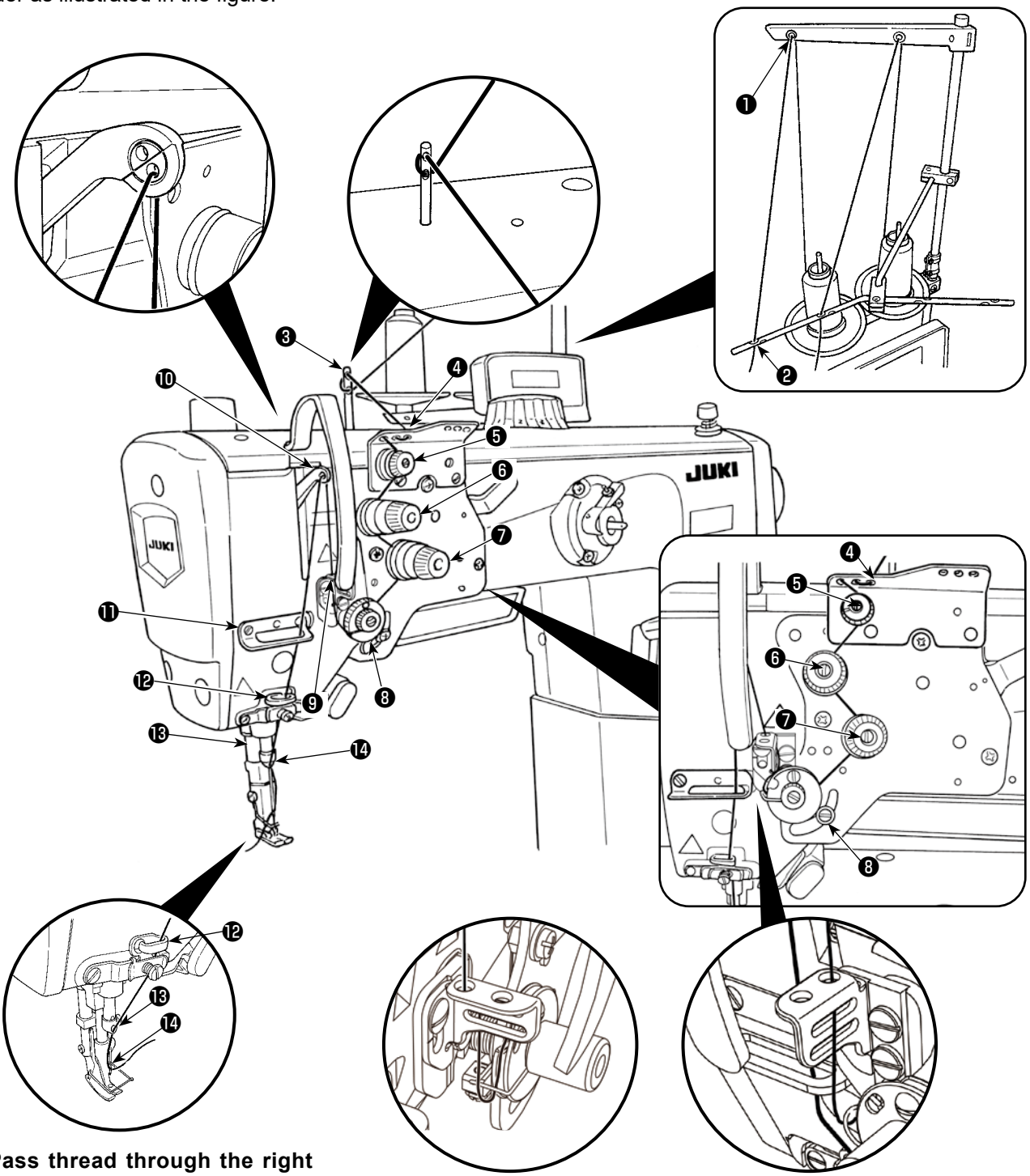
***1 The speed setting according to the amount of the alternating vertical movement of the walking foot and presser foot is automatically carried out.**

2. Threading the machine head

[PLC-2710NM, 2710NM-7]

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

Thread the machine head following the order as illustrated in the figure.

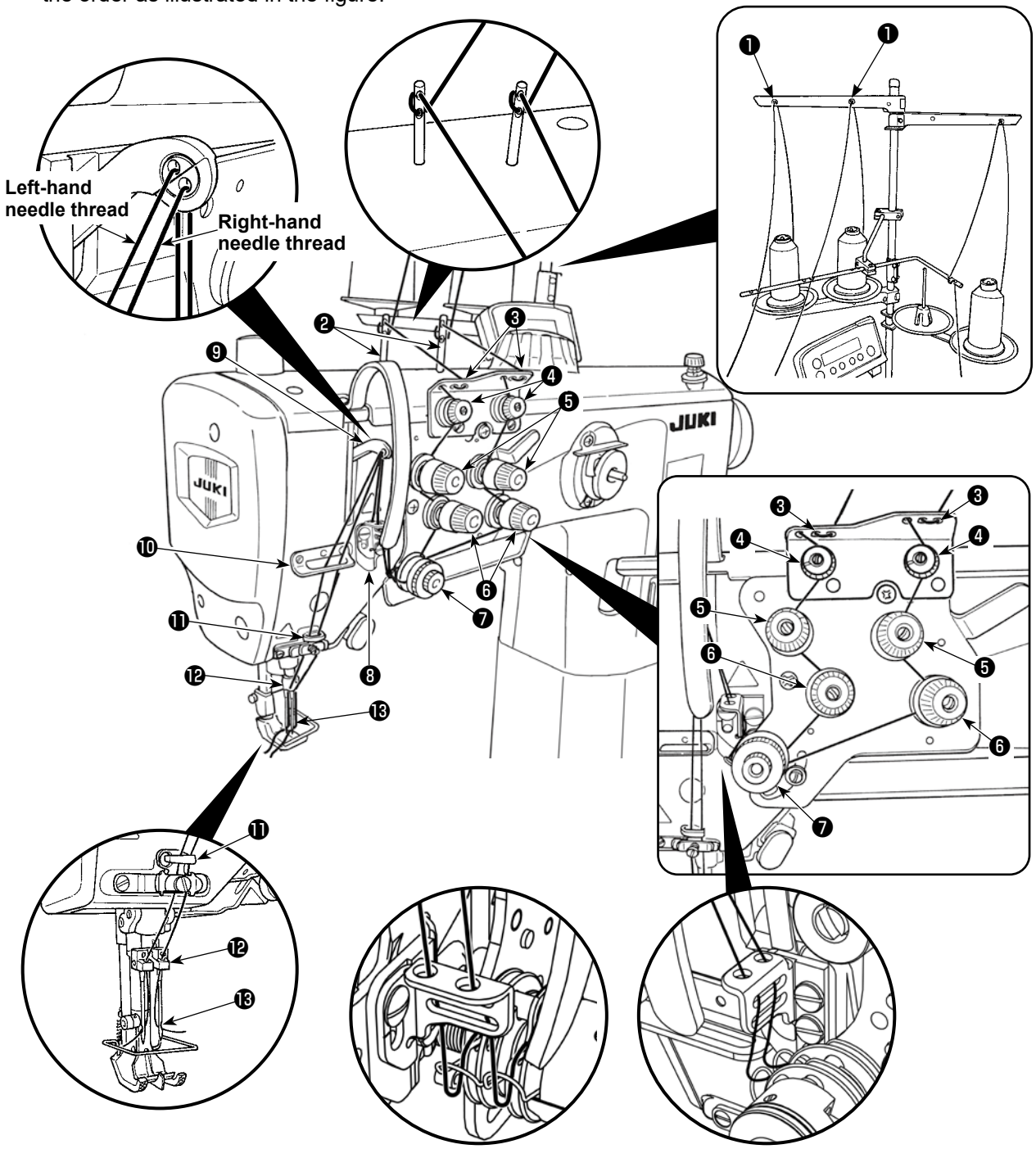


*** Pass thread through the right side of thread guide ⓬ .**

[PLC-2760NM, 2760NM-7]

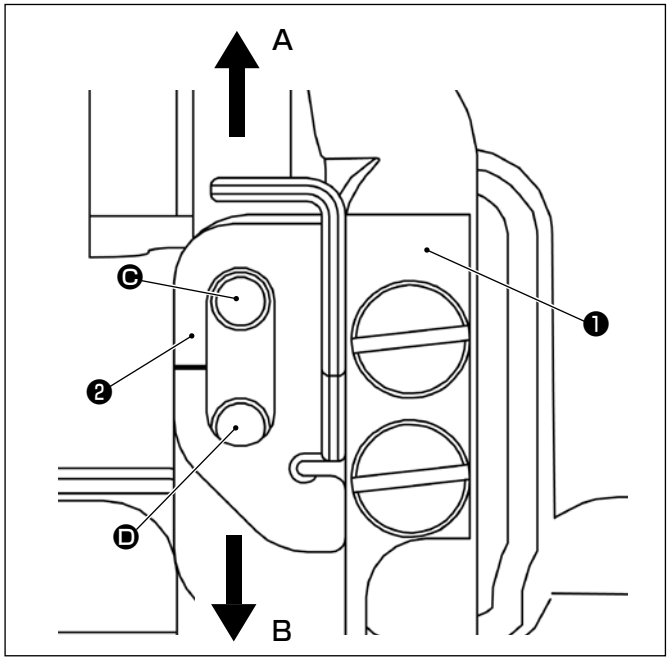
WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

Thread the machine head following the order as illustrated in the figure.



3. Take-up thread guide

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



If you want to change the feed amount of thread fed from the thread take-up lever, loosen the setscrew of take-up thread guide ❷ and move take-up thread guide ❷ appropriately.

Move the take-up thread guide in direction **A** to decrease the thread feed amount.

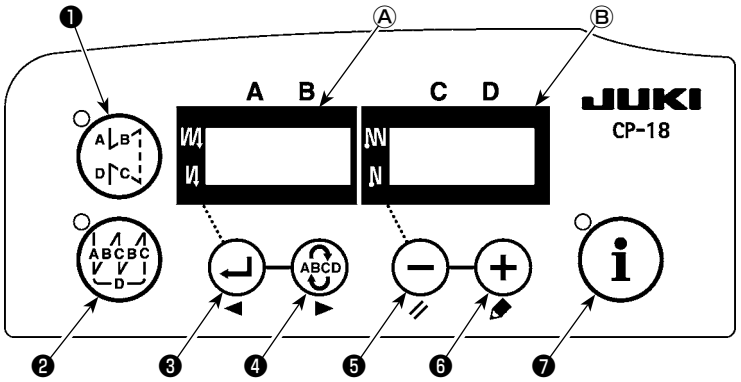
Move the take-up thread guide in direction **B** to increase the thread feed amount.

* Standard position of the take-up thread guide

The position where take-up thread guide ❷ is at its lower end while the setscrew is fitted in the upper tapped hole (Ⓒ) in the thread guide mounting plate ❶ (See the figure on the left.)

If you want to move the take-up thread guide in direction **B** from its standard position, insert the setscrew of take-up thread guide ❷ into the lower tapped hole (Ⓓ) in thread guide mounting plate ❶ .

4. Setting the pneumatic center guide (PLC-2760NM,2760NM-7)



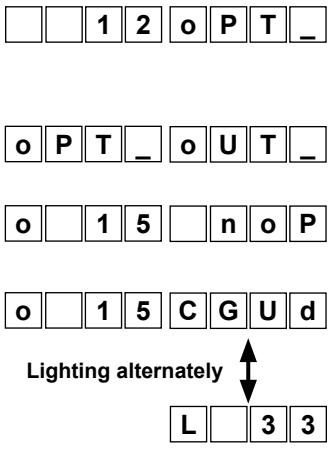
4-1. Selection of the optional input function

1. While holding down (i) switch ❼ , turn the power ON. (The display items that have been changed in the previous operation will be displayed.)

* If the screen display does not change, start over the operation again from the beginning.

12oPT_	2. Press (ABCD) switch ❹ to advance the setting number to select the function No. 12. If you want to return the setting number, press (↵) switch ❸ to return it.
	(Caution) When you advance (return) the setting number, the previous (or next) content is confirmed. It is necessary, therefore, to be very careful when you have changed the content (i.e., touched the (−)(+) switch).
oPT_in__	3. Select the item of "in" with keys ❺ and ❻ .
i06 noP	4. Select i06 with key ❹ .
i06CGUd	5. Select the "CGUd" center guide switch input function with keys ❺ and ❻ .
Lighting alternately ↕	
L 29	6. Determine the "CGUd" center guide switch input function with key ❹ .
i06L 29 ↕ H 29	7. Set the ACTIVE of the signal with keys ❺ and ❻ . Set the display to "L" if the operation is carried out when the signal is "Low". Set the display to "H" if the operation is carried out when the signal is "High".
i07 noP	8. Determine the aforementioned function with key ❹ .
⋮	
oPT_ in	9. Finish the optional input with key ❹ .
End	10. Select the item of "End" with keys ❺ and ❻ to return to the function setting mode.

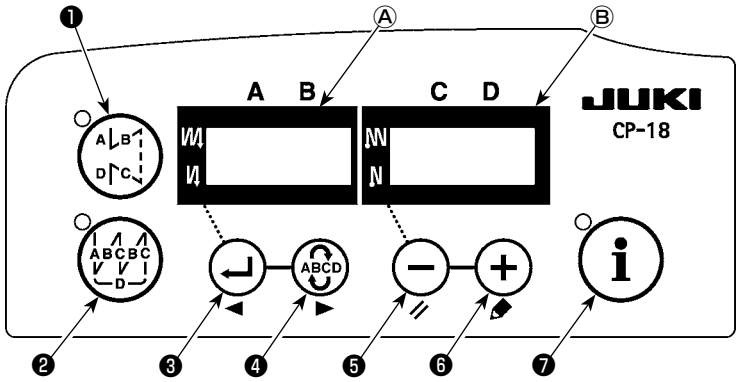
4-2. Selection of the optional output function



1. Select the function No. 12 with the operating procedure of the optional input setting procedures 1 and 2.
2. Select the item of "oUT" with keys ❺ and ❻ .
3. Select o13/o15 with key ❹ . *1
4. Select the "CGUd" center guide switch input function with keys ❺ and ❻ .
5. Determine the "CGUd" center guide switch input function with key ❹ .
6. Set the ACTIVE of the signal with keys ❺ and ❻ .
   Set the display to "L" if the operation is carried out when the signal is "Low". Set the display to "H" if the operation is carried out when the signal is "High".
7. Determine the aforementioned function with key ❹ .
8. Finish the optional output with key ❹ .
9. Select the item of "End" with keys ❺ and ❻ to return to the function setting mode.

***1 Item to be selected differs with the model.**
o13 : PLC-2760NM
o15 : PLC-2760NM-7

4-3. Setting the ancillary device (PLC-2760NM)

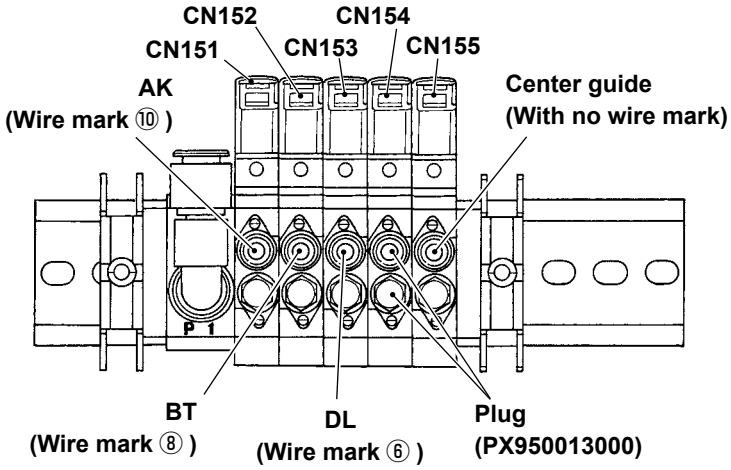


1. While holding down (i) switch ❼ , turn the power ON.
   If you keep the switch held pressed for three seconds or more, the buzzer will sound to allow you to set the functions that are available under the Service mode.

□141FUn_	2.	Select the function No.141 with keys ❸ and ❹ .
Fun__End	3.	Select the items of "_End", "UT1_", and "UT2_" with keys ❺ and ❻ .
UT1_		
UT2_		
U1□0 ⇕ U*****	4.	If you have selected the UT1 or UT2, "U1 0" or "U2 0" will be displayed on display unit Ⓐ . Then, specify the ancillary device setting item number with key ❸ and ❹ .
	5.	Select the parameter you want to set from the following with keys ❺ and ❻ and input it.

CG01	**PLC center guide (Interlocked with the BT/FL)**
CG02	**PLC center guide (Interlocked with the BT/DL/Initialization of the FL)**
CG03	**PLC center guide (Interlocked with the BT/DL/FL)**
CG04	**PLC center guide (Interlocked with the BT)**

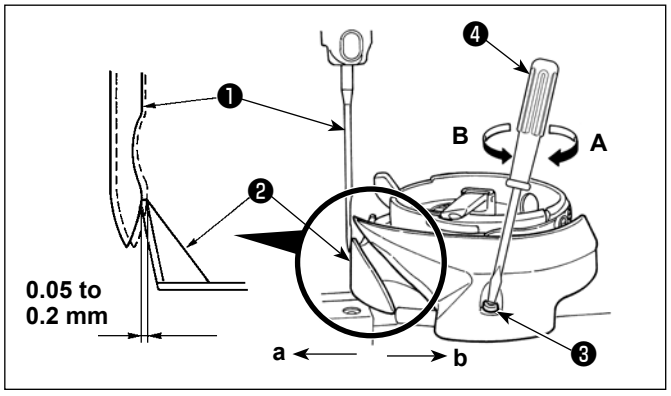
4-4. Piping of the air (PLC-2760NM)



Connect the air hose coming from the machine head to the position shown above while matching the number of the air hose and the number of the port.
Insert the plug into the half union of the CN154.

5. Adjusting the hook needle guard

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



When a hook has been replaced, be sure to check the position of the hook needle guard.

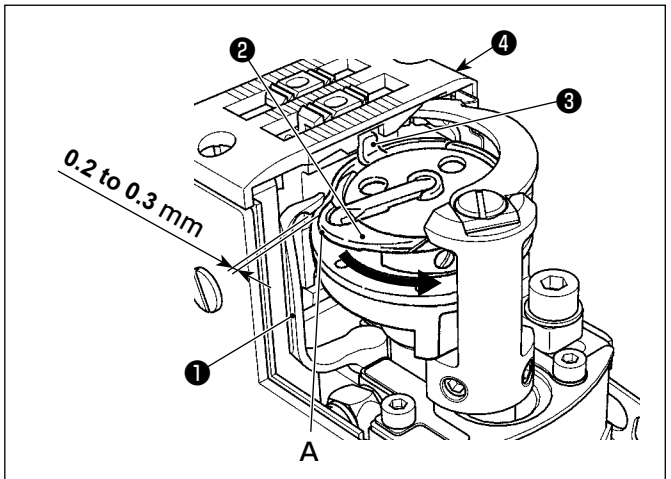
As the standard position of the hook needle guard, hook needle guard ❷ must push the side face of needle ❶ to lean the needle by 0.05 to 0.2 mm away from its straight position.

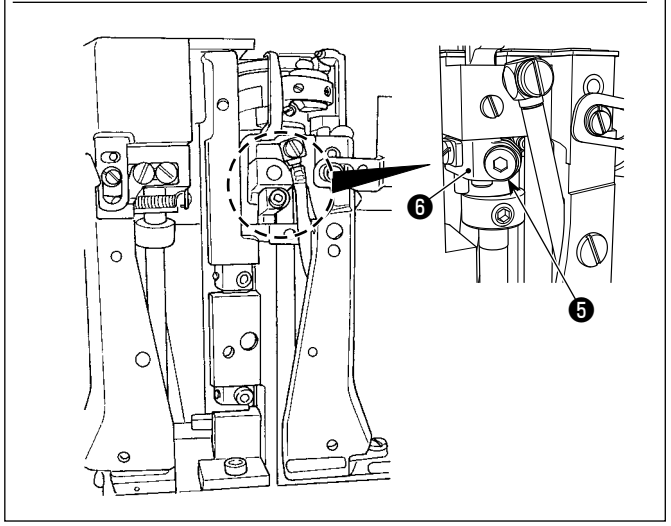
If the aforementioned standard state is not achieved, insert a screwdriver (small) ❹ into needle guard adjustment screw ❸ and adjust the position of the needle guard.

1) To bend the hook needle guard in direction **a**, turn the needle guard adjusting screw in direction **A**.
2) To bend the hook needle guard in direction **b**, turn the needle guard adjusting screw in direction **B**.

6. Adjusting the bobbin case opening lever

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



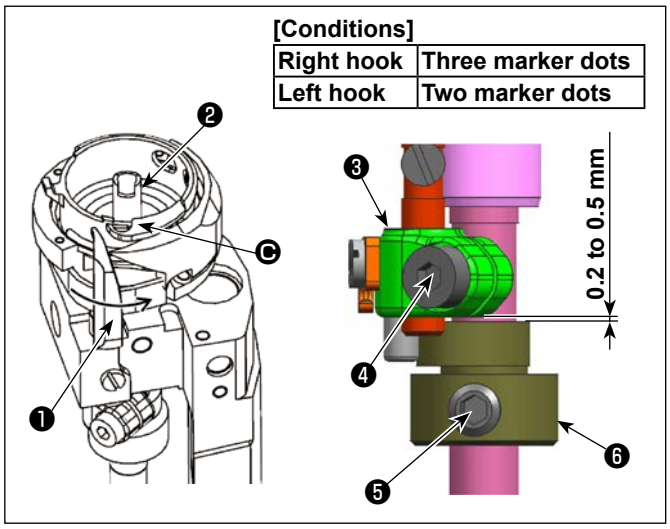


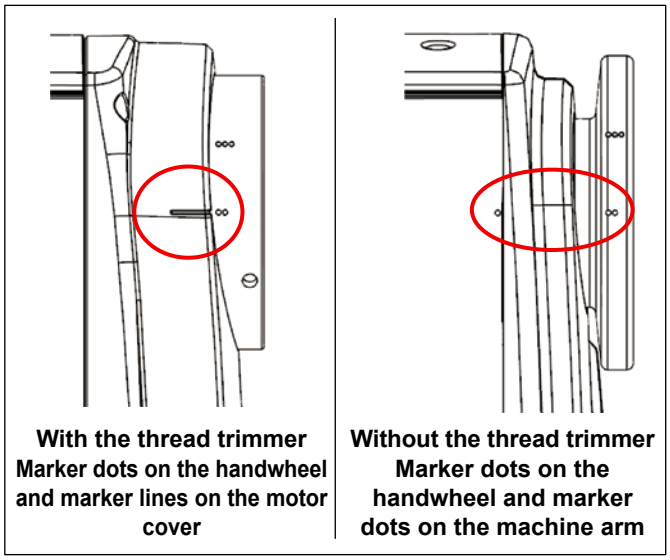
1) Open the hook cover. (How to open : move the hook cover to the right or left after lifting it right above.)
2) Turn the handwheel in its normal rotational direction to bring bobbin case opening lever ❶ to its back end position.
3) Turn inner hook ❷ in the direction of the arrow until stopper ❸ is pressed against the slits in throat plate ❹ .
4) Loosen bobbin case opening lever crank setscrew ❺ . Adjust the clearance between the bobbin case opening lever and protruding portion **A** of the bobbin case to 0.2 to 0.3 mm.
5) Tighten setscrew ❺ while pressing down bobbin case opening lever crank ❻ .
6) Move inner hook guide ❶ up and down to make sure that there is not play in the thrust direction.

Caution **In case of 2-needle machine, perform the same adjustment to the right and left hooks.**

7. Adjusting the timing of the opener

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

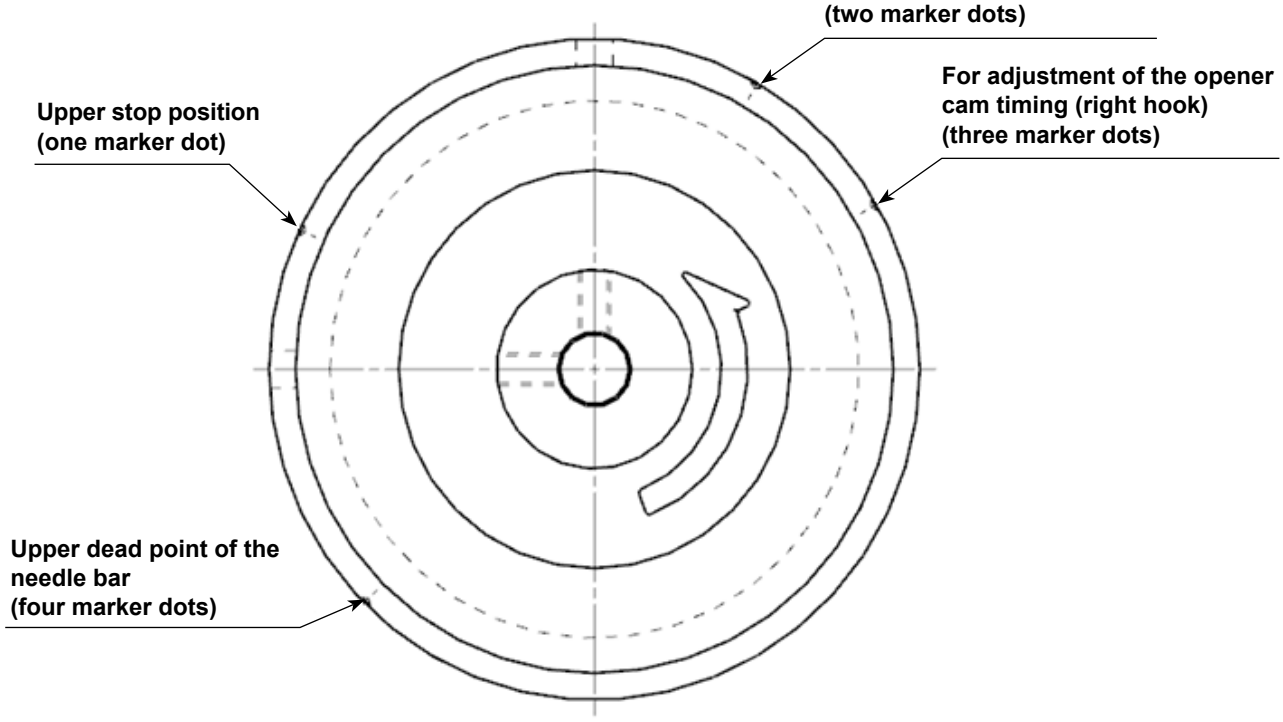




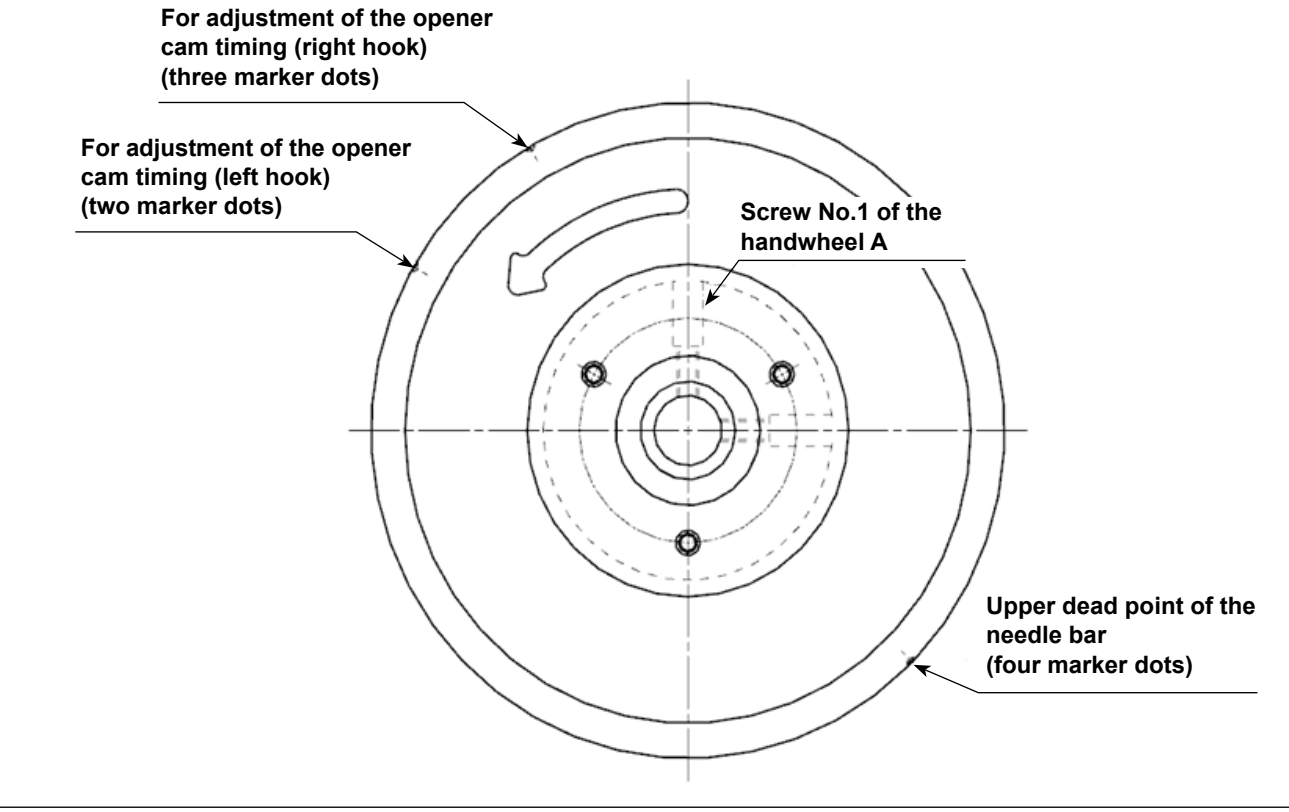
1) For the right hook, loosen the setscrew in the side cover on the operator's side to remove the side cover.
(For the left hook, remove the side cover on the opposite side of the operator.)
2) Loosen opener cam setscrew ❺ .
3) Turn the handwheel until the marker dots on the handwheel, as shown in the table, are aligned with the marker dots (without the thread trimmer) on the machine arm or with the marker lines (with the thread trimmer) on the motor cover. At this time, tighten opener cam setscrew ❺ at the position where opener ❶ starts to move from the position that is farthest from the protruding portion C of inner hook ❷ .
At this time, tighten opener cam setscrew ❺ in such a way that a clearance of 0.2 to 0.5 mm is provided between the top surface of opener cam ❻ and the undersurface of opener arm ❼ .
4) Install the side cover with the side cover setscrew.

Caution
Check to make sure that the marker dots (four) on the handwheel are aligned with the marker dots (without the thread trimmer) on the machine arm or with the marker lines (with the thread trimmer) on the motor cover when the needle bar is at its upper dead point.
In the case of the 2-needle sewing machine, opener arm clamping screw ❹ of the left hook is located on the opposite side of the operator.

Marker dots on the handwheel (PLC-2700NM-7)

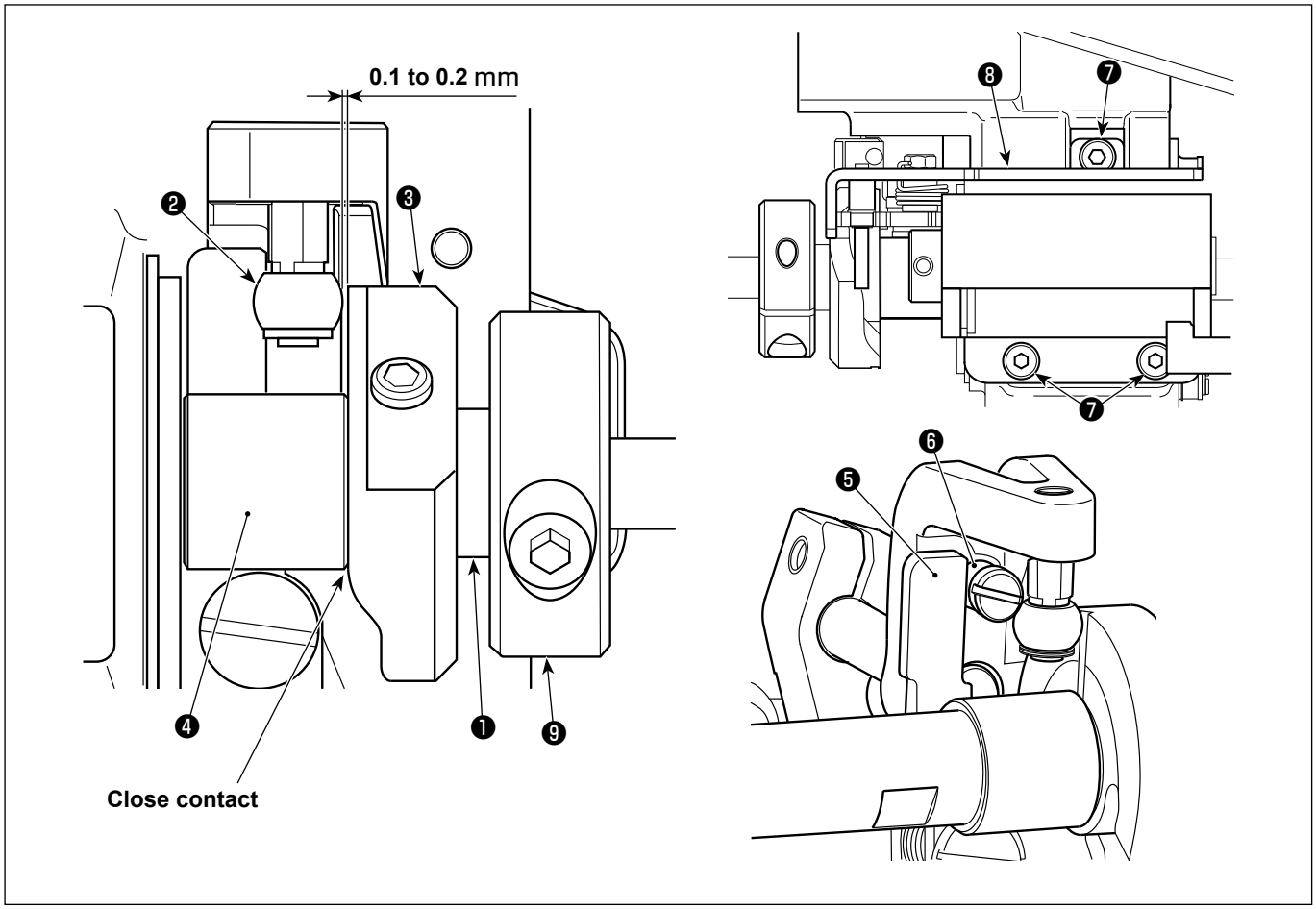


Marker dots on the handwheel (PLC-2700NM)



8. Position of the thread trimmer cam

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



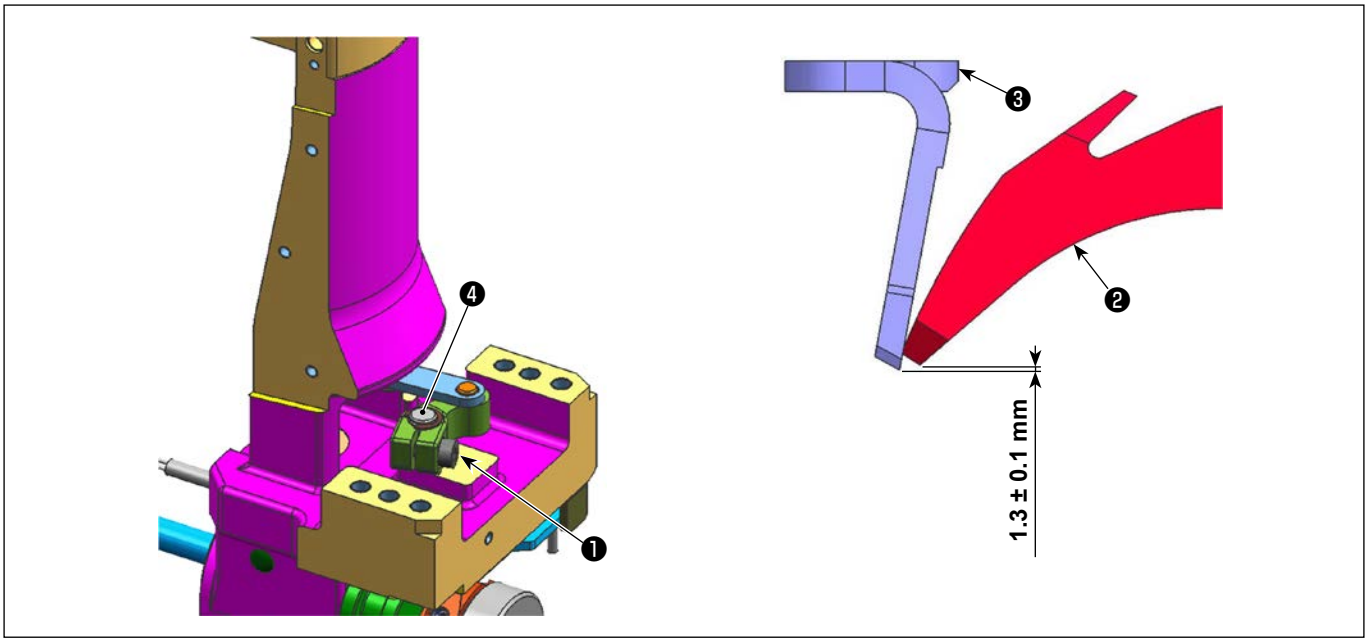
[Position of the thread trimmer cam]

1. Let the sewing machine fall down.
2. Set the thread trimmer solenoid to initial position.
3. Loosen three setscrews ❼ of the thread trimmer solenoid mounting plate. Adjust the thread trimmer solenoid mounting plate ❽ so that the clearance between the thread trimmer cam roller ❷ and the dwell section of thread trimmer cam ❸ is 0.1 to 0.2 mm in the state that the moving knife driving arm link ❺ is in contact with the roller ❻ . Then tighten three setscrews ❼ of the thread trimmer solenoid mounting plate.
4. Raise the sewing machine.

Check that the end face of thread trimmer cam ❸ comes in close contact with the end face of collar ❹ . Fix the lower shaft set collar ❾ in a position so that the end face of lower shaft set collar ❾ is almost aligned with the end face of lower shaft ❶ .

9. Adjusting the position of the moving knife

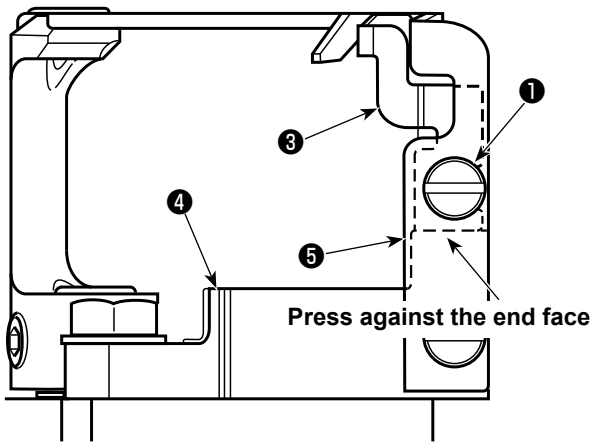
WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



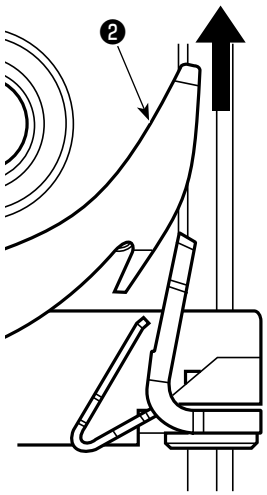
1) Loosen the bed cover setscrews (1-needle machine: Two pieces; 2-needle machine: Four pieces) to remove the bed cover.
2) Loosen clamping screw(s) ❶ (1-needle machine: One piece; 2-needle machine: Two pieces) of the moving knife shaft connecting arm A.
3) In the state where the flat surface of the thread trimming cam and the cam roller come in contact with each other, adjust the distance between the tip of counter knife ❸ and the tip of moving knife ❷ to 1.3 ± 0.1mm.
4) Tighten clamping screw(s) ❶ (1-needle machine: One piece; 2-needle machine: Two pieces) of the moving knife shaft connecting arm A in such a way that there is no thrust play in moving knife driving shaft ❹ .

10. Adjusting the position of the clamp spring

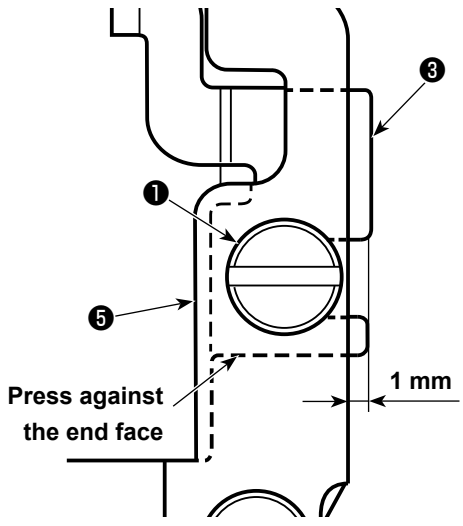
WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



1) Loosen clamp spring setscrew ❶ .



2) Move moving knife ❷ to the position where it does not come in contact with clamp spring ❸ .



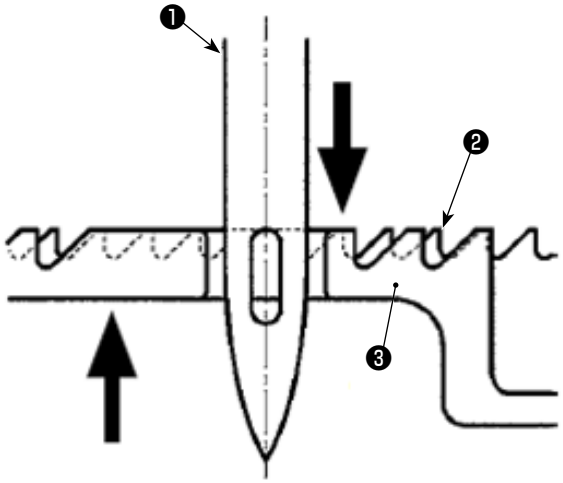
3) Slide clamp spring ❸ while keeping it pressed against the end face of counter knife base ❹ .
4) Adjust clamp spring ❸ so that it protrudes 1 mm from the end face of counter knife ❺ .
5) Tighten clamp spring setscrew ❶ .
6) Return moving knife ❷ to its initial position. Then, check that it comes in light contact with clamp spring ❸ .

11. How to adjust the cam timing

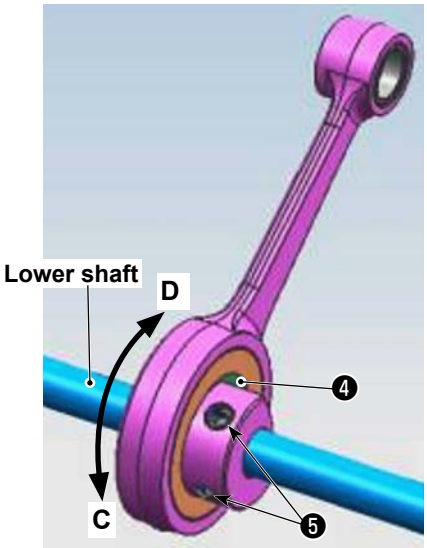
11-1. Timing of the vertical feed cam

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

[Conditions]
- **Amount of feed: 6 mm**
- **Alternating vertical movement amount: 3 mm**
- **When the needle comes down and the feed dog goes up**



Top end of the eyelet of needle ❶ , top surface of throat plate ❷ and top surface of feed dog ❸ are aligned

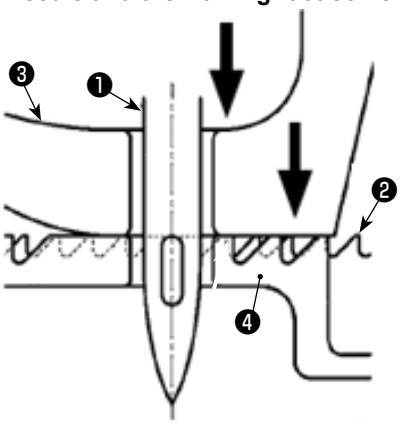


1) Set the stitch dial to "6".
2) Set the alternating vertical movement dial to "3".
3) Tilt the machine head.
4) Loosen vertical feed cam setscrews ❺ (two pieces).
5) Turn vertical feed cam ❹ in such a way that needle ❶ , throat plate ❷ and feed dog ❸ are positioned as shown in the figure on the left.
6) Tighten vertical feed cam setscrews ❺ (two pieces).
7) Raise the machine head.

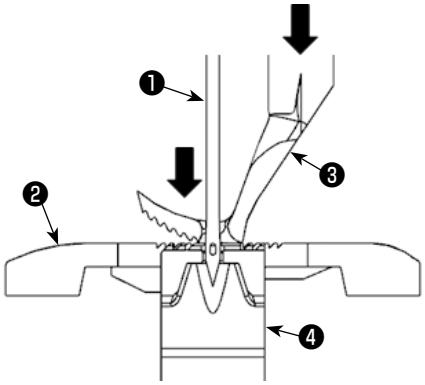
11-2. Top feed cam timing

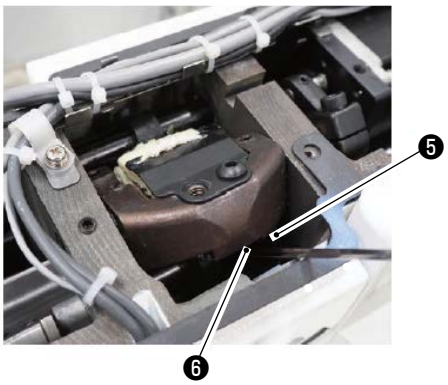
WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

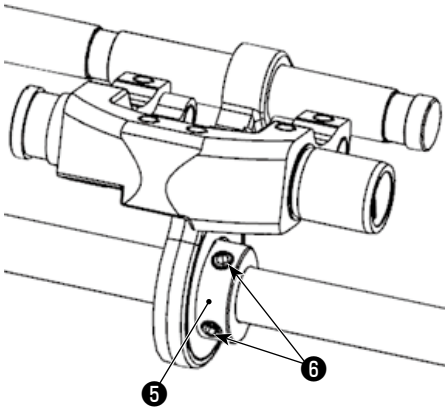
[Conditions]
- **Amount of feed: 6 mm**
- **Alternating vertical movement amount: 3 mm**
- **When the needle and the walking foot come down**



Top end of the eyelet of needle ❶ , top surface of throat plate ❷ , undersurface of walking foot ❸ and top surface of feed dog ❹ are aligned.



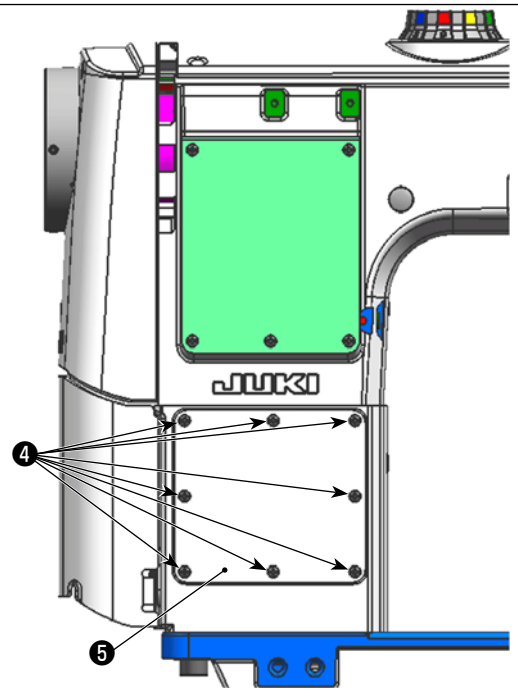


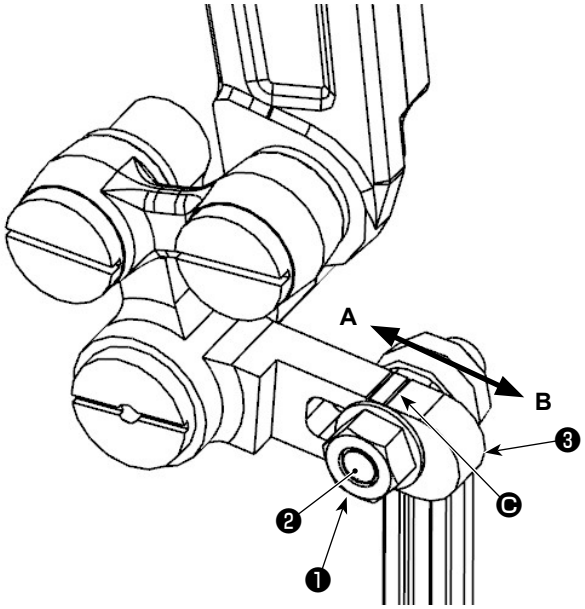


1) Set the stitch dial to "6".
2) Set the alternate vertical dial to "3".
3) Remove the top cover.
4) Loosen top feed cam setscrews ❻ (two pieces).
5) On the condition that the amount of the alternating vertical movement of the walking foot and presser foot is uniform, turn top feed cam ❺ in such a way that needle ❶ , throat plate ❷ , walking foot ❸ and feed dog ❹ are positioned as shown in the figure on the left.
6) Tighten top feed cam setscrews ❻ (two pieces).
7) Attach the top cover in place.

12. Needle sway (Adjusting the bottom feed amount)

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.





1) Loosen eight setscrews ❹ of the post window plate to remove the post window plate ❺ .
2) Set the stitch dial to “6”.
3) Loosen hinge screw nut ❶ of the horizontal feed rear arm.
4) Tighten hinge screw nut ❶ of the horizontal feed rear arm at the position where the center of hinge screw ❷ of the horizontal feed rear arm aligns with the marker line Ⓒ of bottom feed connecting triangle lever ❸ .
5) Attach the post window plate ❺ using eight setscrews ❹ of the post window plate.

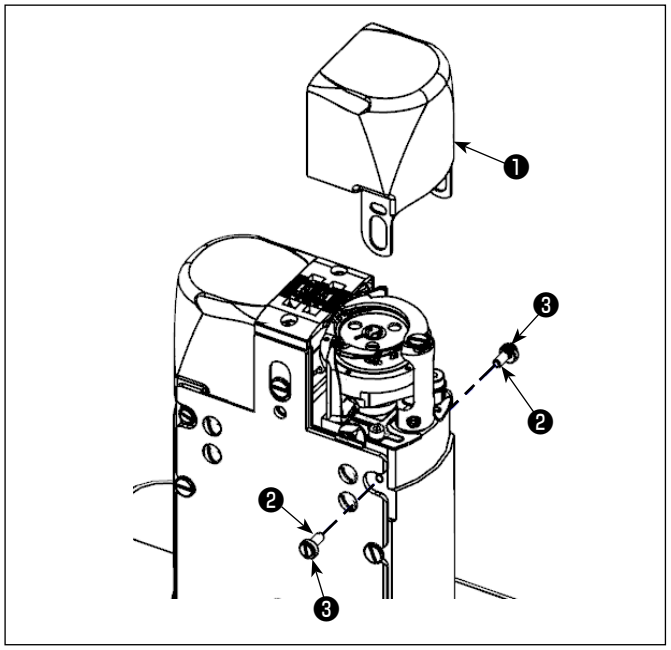
(Standard) When Adjust the position of hinge screw nut ❶ of the horizontal feed rear arm in the direction of arrow A, the bottom feed amount is decreased. When Adjust the position of hinge screw nut ❶ of the horizontal feed rear arm in the direction of arrow B, the bottom feed amount is increased.

When you change the bottom feed amount, re-adjust since a change in the longitudinal position of the needle entry.

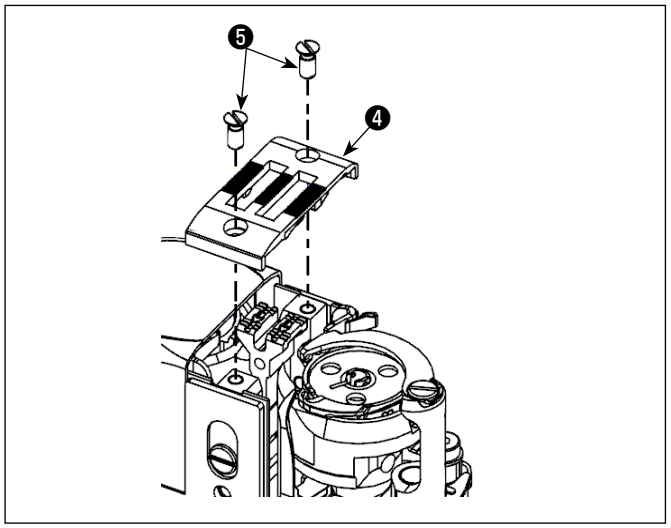
13. How to replace the hook cover

WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

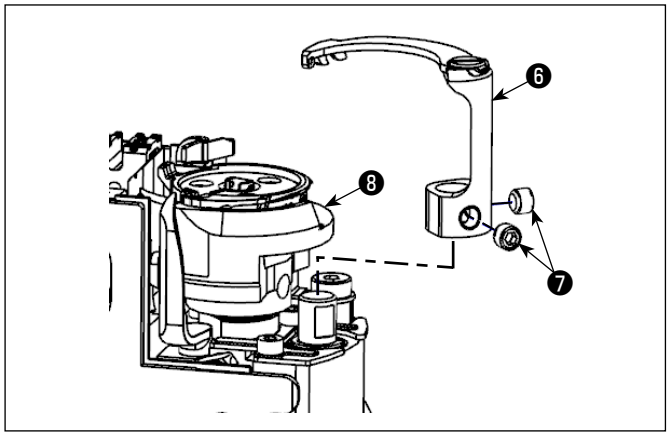
Handling of the material on the sewing machine can be improved by changing the standard hook cover with the hook cover for the sewing machine without thread trimmer.
*** Thread trimming function will be disabled.**



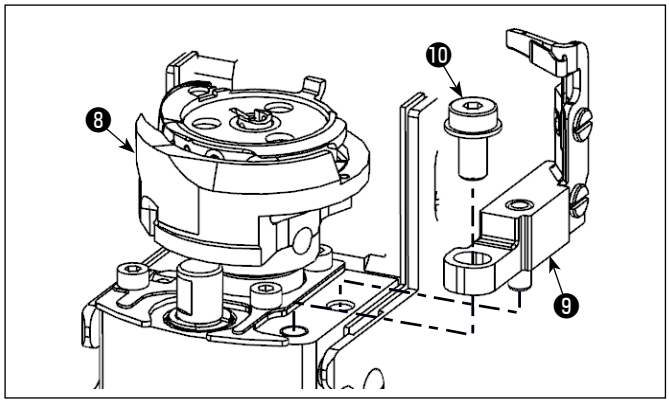
1) Remove hook cover screws ❷ and eccentric rollers ❸ to remove hook cover ❶ .



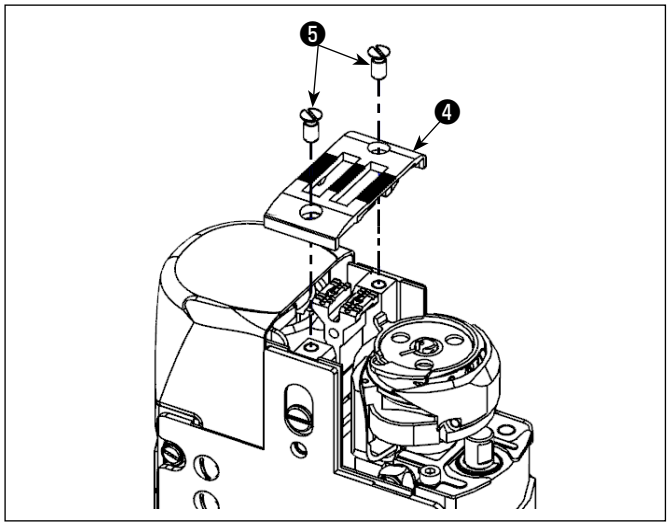
2) Remove throat plate setscrews ❺ to remove throat plate ❹ .



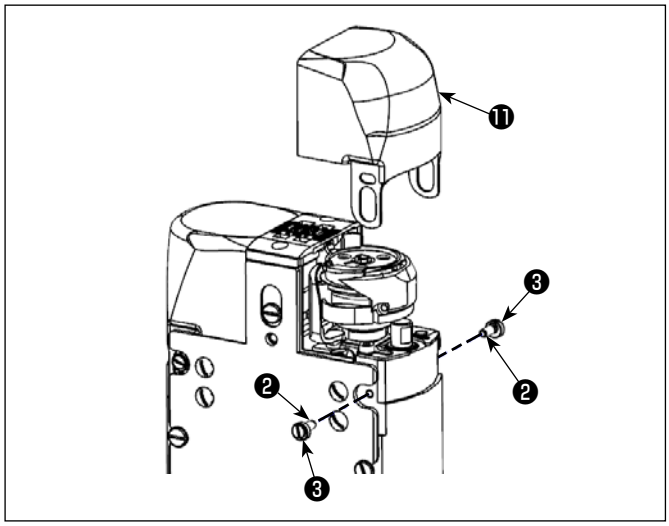
3) Loosen moving knife base setscrews ❼ to remove moving knife base ❻ .
When removing moving knife base ❻ , turn the handwheel to bring hook ❽ to the position shown in the figure beforehand.



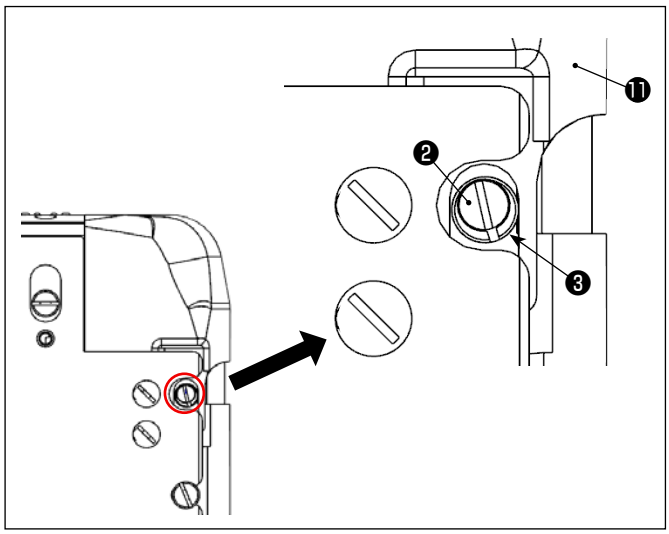
4) Loosen counter knife base setscrew ❿ to remove counter knife base ❾ .
When removing counter knife base ❾ , turn the handwheel to bring hook ❽ to the position shown in the figure beforehand.



5) Attach throat plate ❹ in place. Tighten throat plate setscrews ❺ .



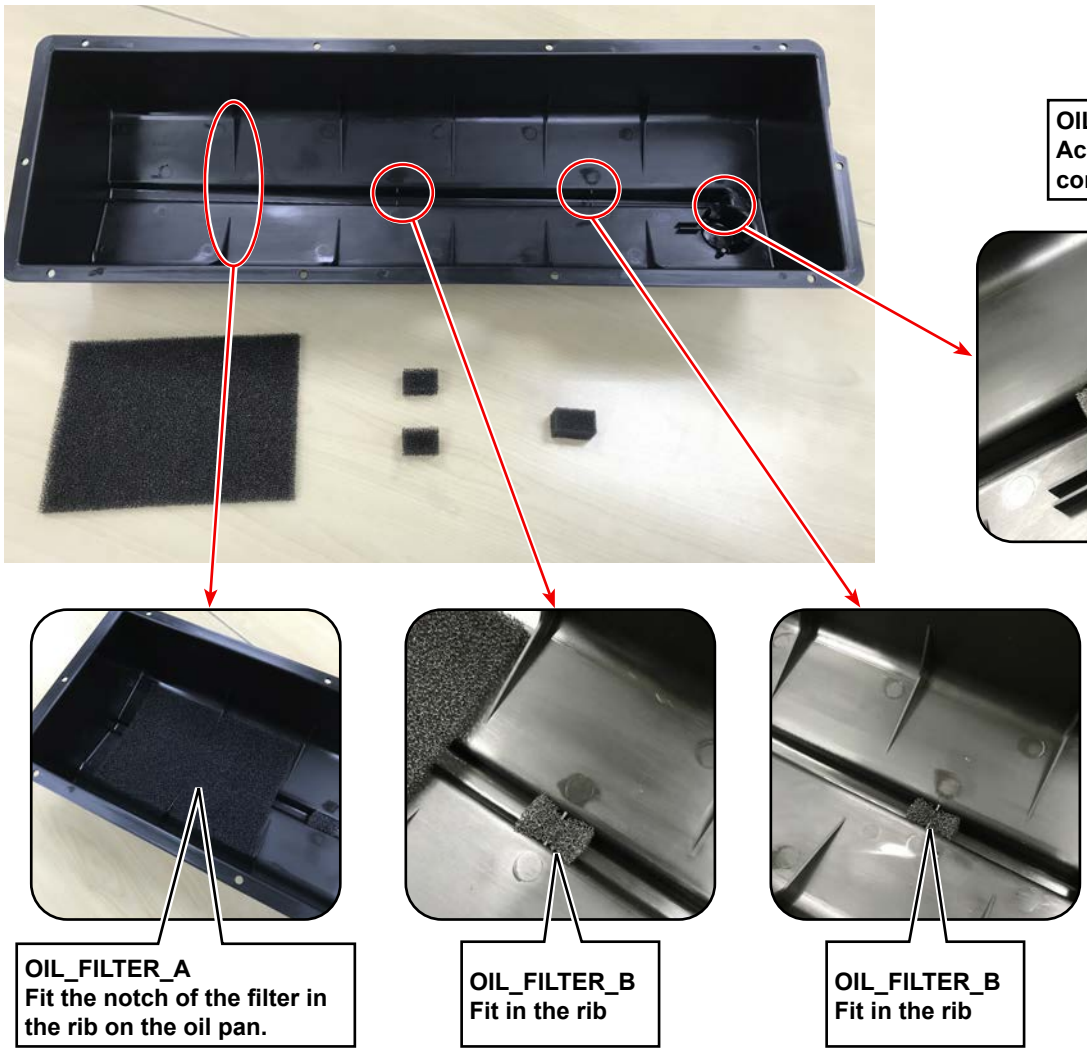
6) Install hook cover for the sewing machine without thread trimmer ⓫ and temporarily fix hook cover screws ❷ and eccentric rollers ❸ .

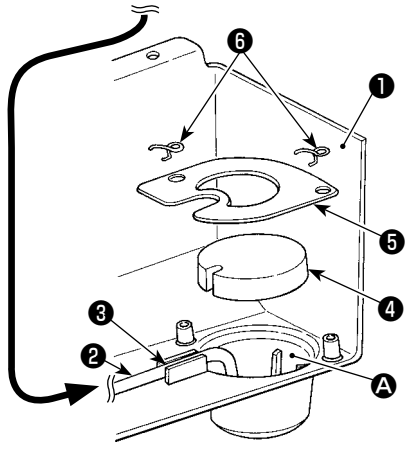


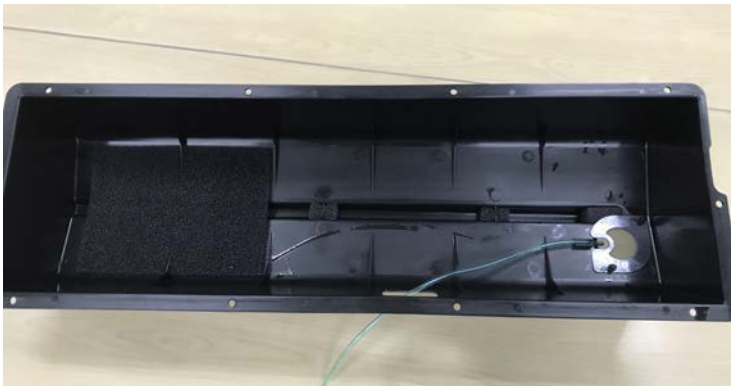
7) Tighten hook cover screws ❷ at the position where there is no backlash in the hook cover for the sewing machine without thread trimmer ⓫ does not rattle when you turn eccentric rollers ❸ .

* Adjust eccentric rollers ❸ on both the front and back sides.

14. How to install the oil filter







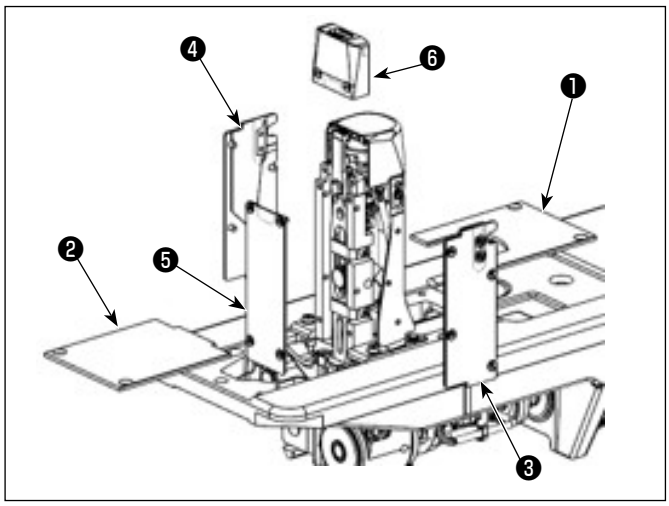
1) Put reflux pipe ❷ in the oil reservoir Ⓐ of oil pan ❶ and secure it in groove ❸ .

Secure reflux pipe ❷ as shown in the figure.

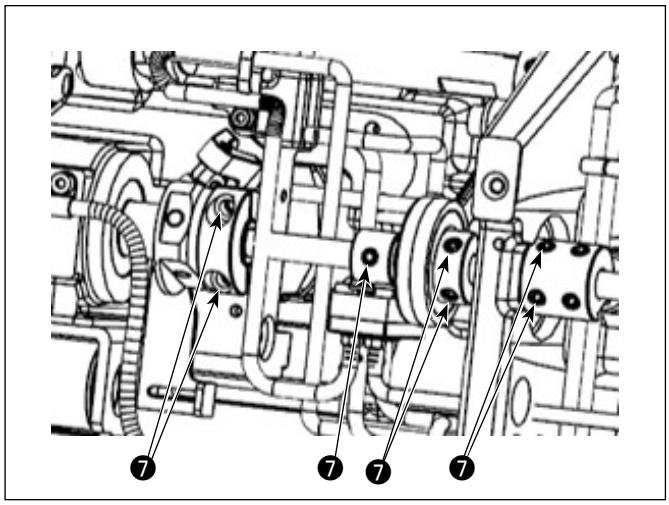
2) Secure filter ❹ and filter holder ❺ with metal fittings ❻ .

15. How to replace the right hook with the left hook for the 1-needle sewing machine

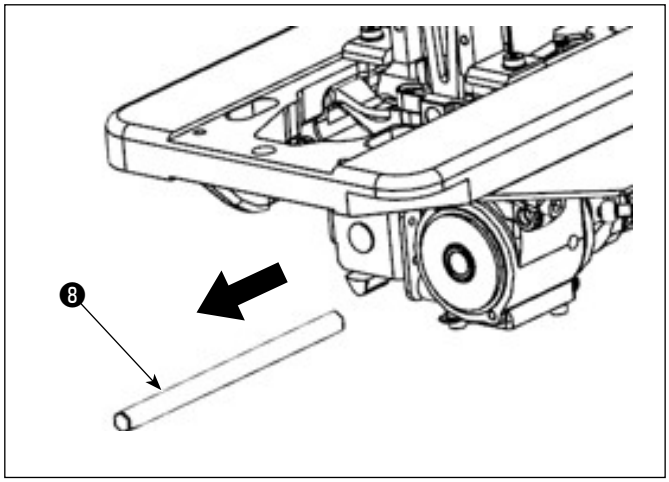
WARNING :
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



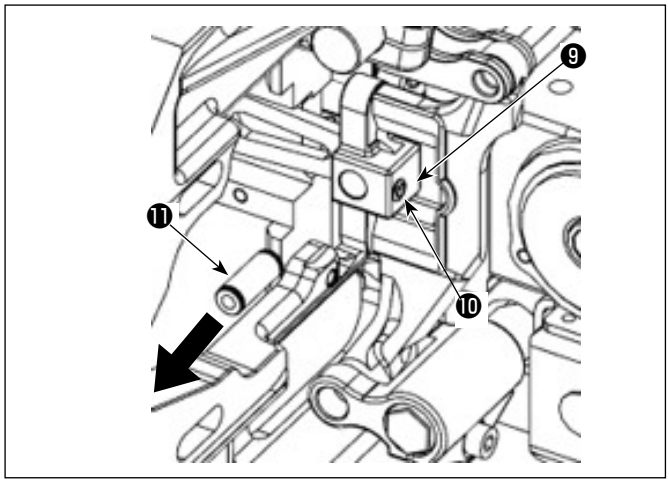
1) Remove bed cover A ❶ , bed cover B ❷ , side cover A ❸ , side cover F ❹ , feed lever base cover ❺ and throat plate ❻ .



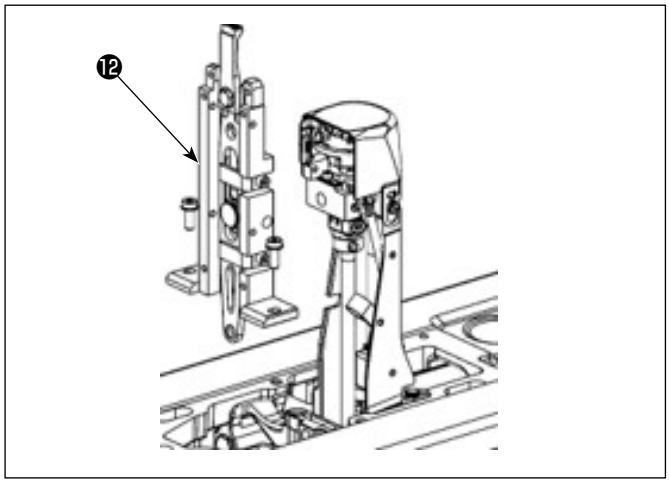
2) Loosen setscrews ❼ of the lower shaft connecting bushing, vertical feed rod, lower shaft set collar and plunger eccentric cam (at seven locations).



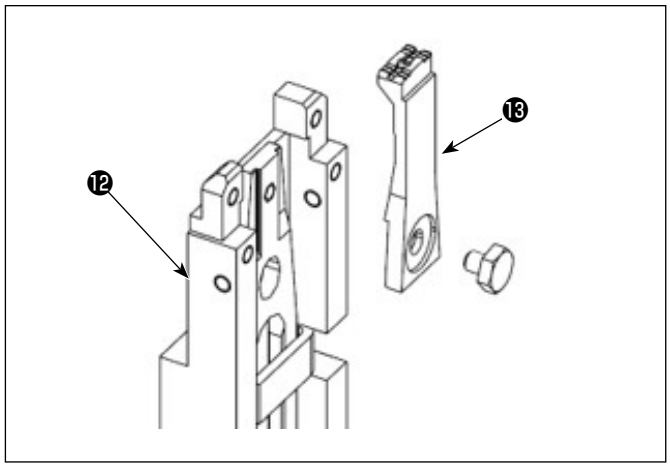
3) Pull out lower shaft B ❽ .



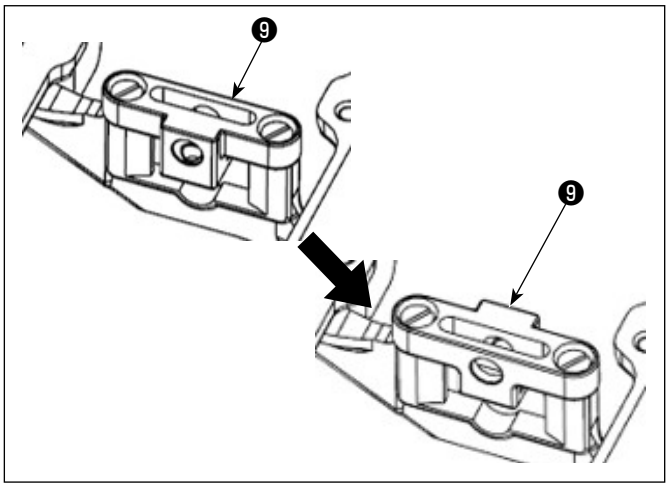
4) Loosen shaft setscrew ❿ located on the lower side of feed lever support ❾ to pull out connecting link pin A ❶❶ .



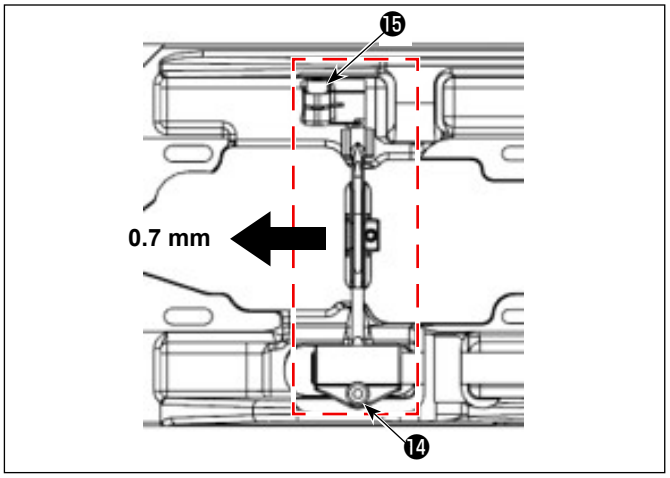
5) Remove feed lever base ❶❷ .



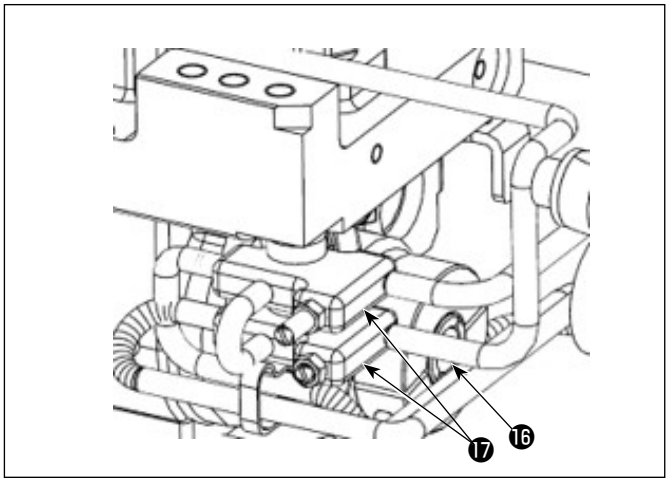
6) Replace feed dog of feed lever base ❶❷ with feed dog ❶❸ for the left hook.



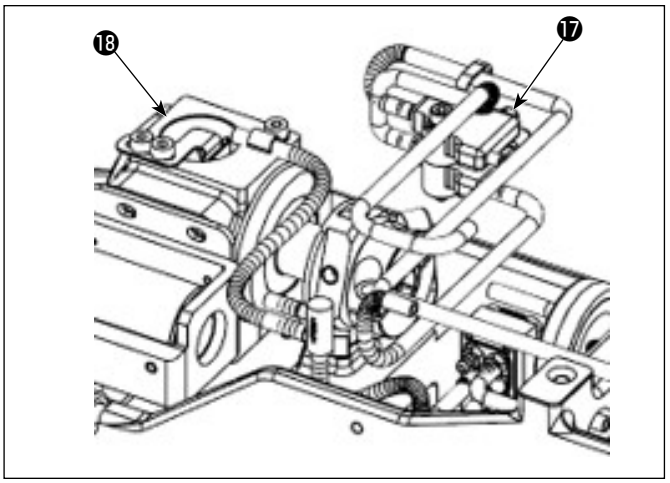
7) Invert feed lever support ❾ and fix it to the feed base.



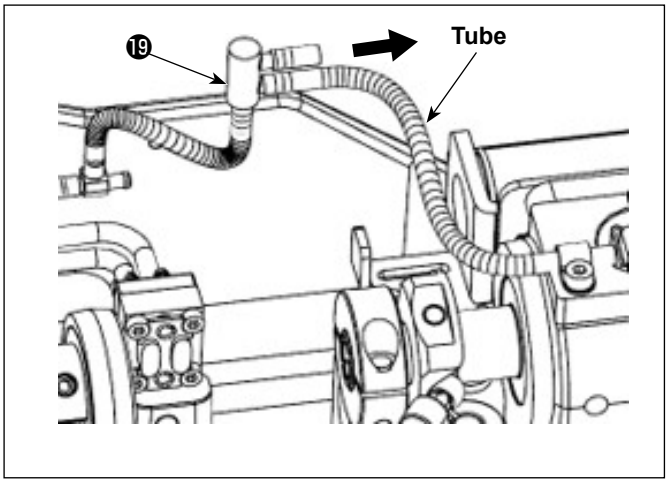
8) Loosen clamping screw ⓮ of the feed base arm and clamping screw ⓯ of the vertical feed front arm. Then, move the feed base toward the frame side by 0.7 mm.
Temporarily tighten clamping screw ⓮ of the feed base arm and clamping screw ⓯ of the vertical feed front arm.



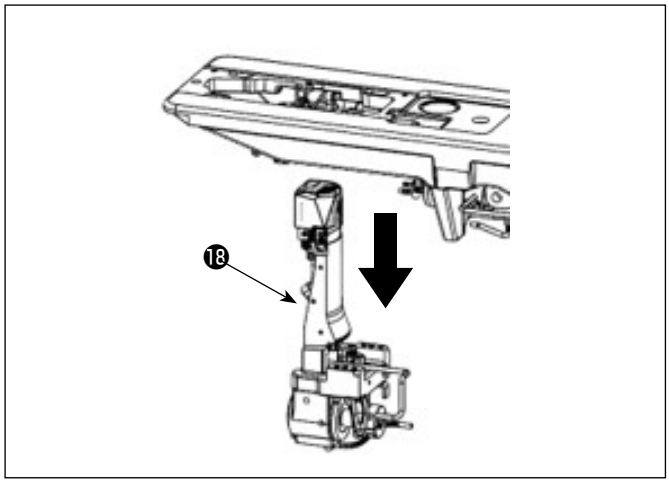
9) Detach tube ⓰ that supplies oil to the hook shaft from distributor ⓱ .



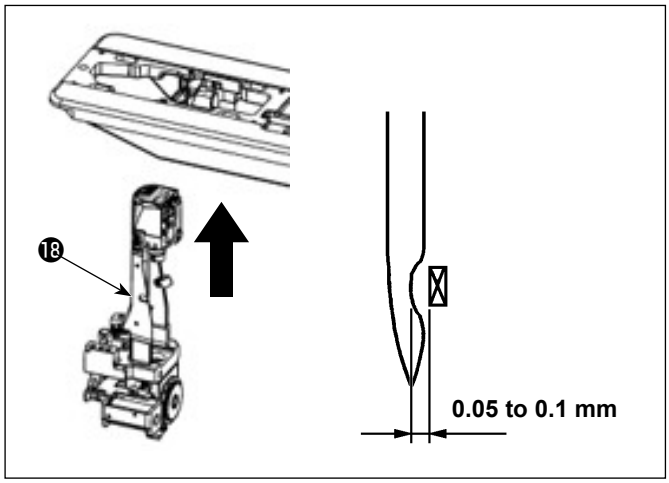
10) Detach distributor ⓱ from hook shaft base ⓲ .



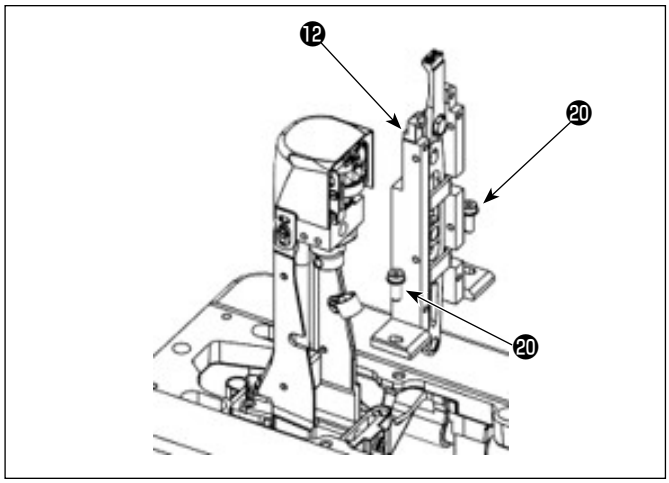
11) Detach the tube from distributor A ⓳ .



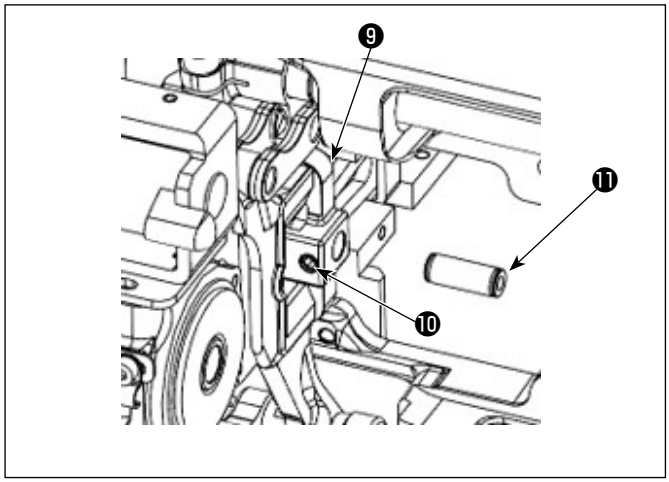
12) Detach hook shaft base ⓲ from the bed.



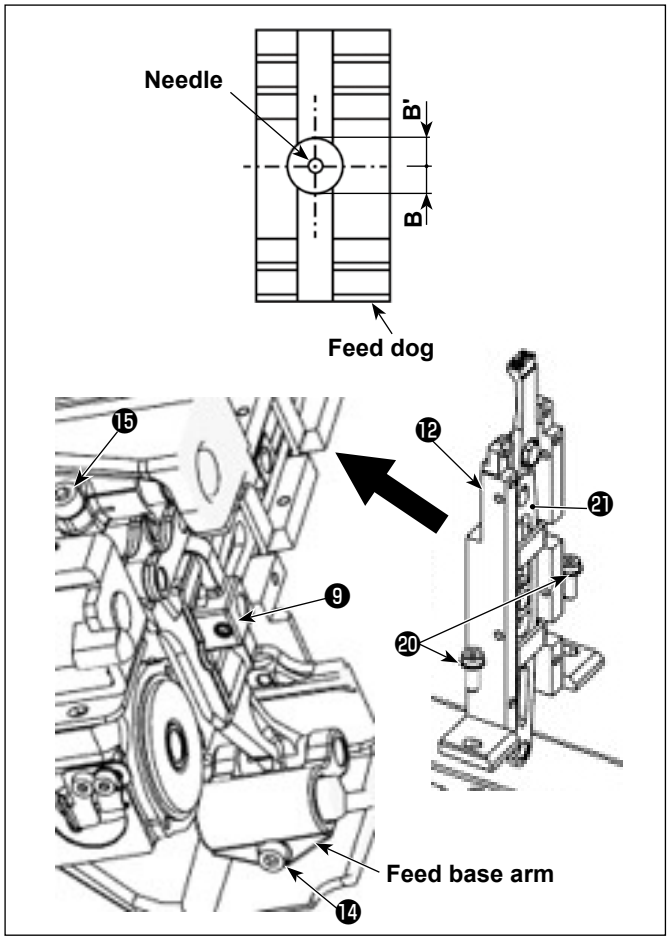
13) Attach hook shaft base ⓲ to the left side of the bed and temporarily secure it.
Adjust the position of the hook shaft base ⓲ so that a clearance of 0.05 to 0.1 mm is provided between the blade point of the hook and the needle. Then, secure hook shaft base ⓲ .



14) Attach feed lever base ⓬ in place and temporarily tighten setscrew ⓴ .

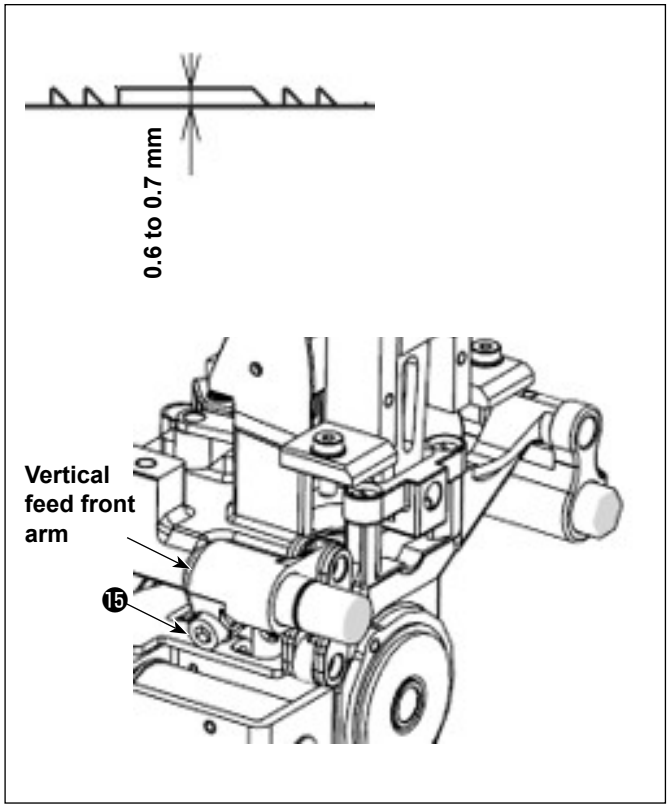


15) Insert connecting link pin A ⓫ into the hole in the shaft and tighten shaft setscrew ⓾ located on the lower side of feed lever support ❾ .



16) Adjust so that the needle is aligned with the center of the needle hole in the feed dog.
Adjust so that the needle enters the center of the needle hole in the feed dog. (**B=B'**)
Condition: Needle bar is at its lower dead point; the feed amount is 0 mm

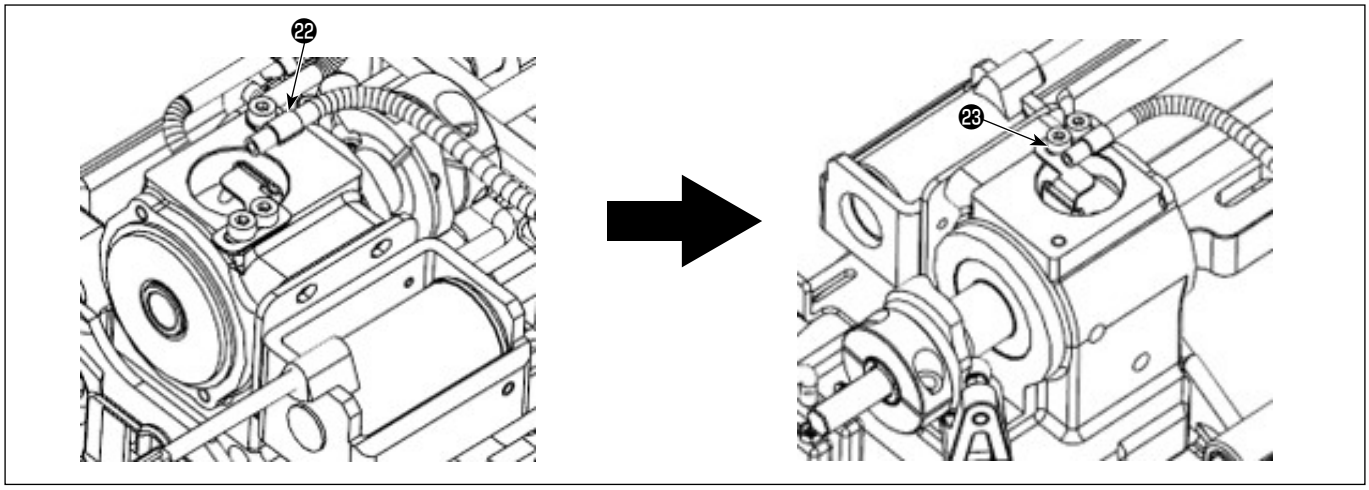
[Lateral position]
Move feed lever base ⓬ to adjust its lateral position. Then, tighten feed lever base setscrew ⑳ .
Where necessary, loosen clamping screw ⓮ of the feed base arm and clamping screw ⓯ of the vertical feed front arm to adjust the lateral position of the feed base.
At this time, check to make sure that feed lever ㉑ does not come in contact with feed lever support ⑨ .
[Longitudinal position]
Move the feed base arm to adjust its longitudinal position. Then, tighten the clamping screw ⓮ of the feed base arm.



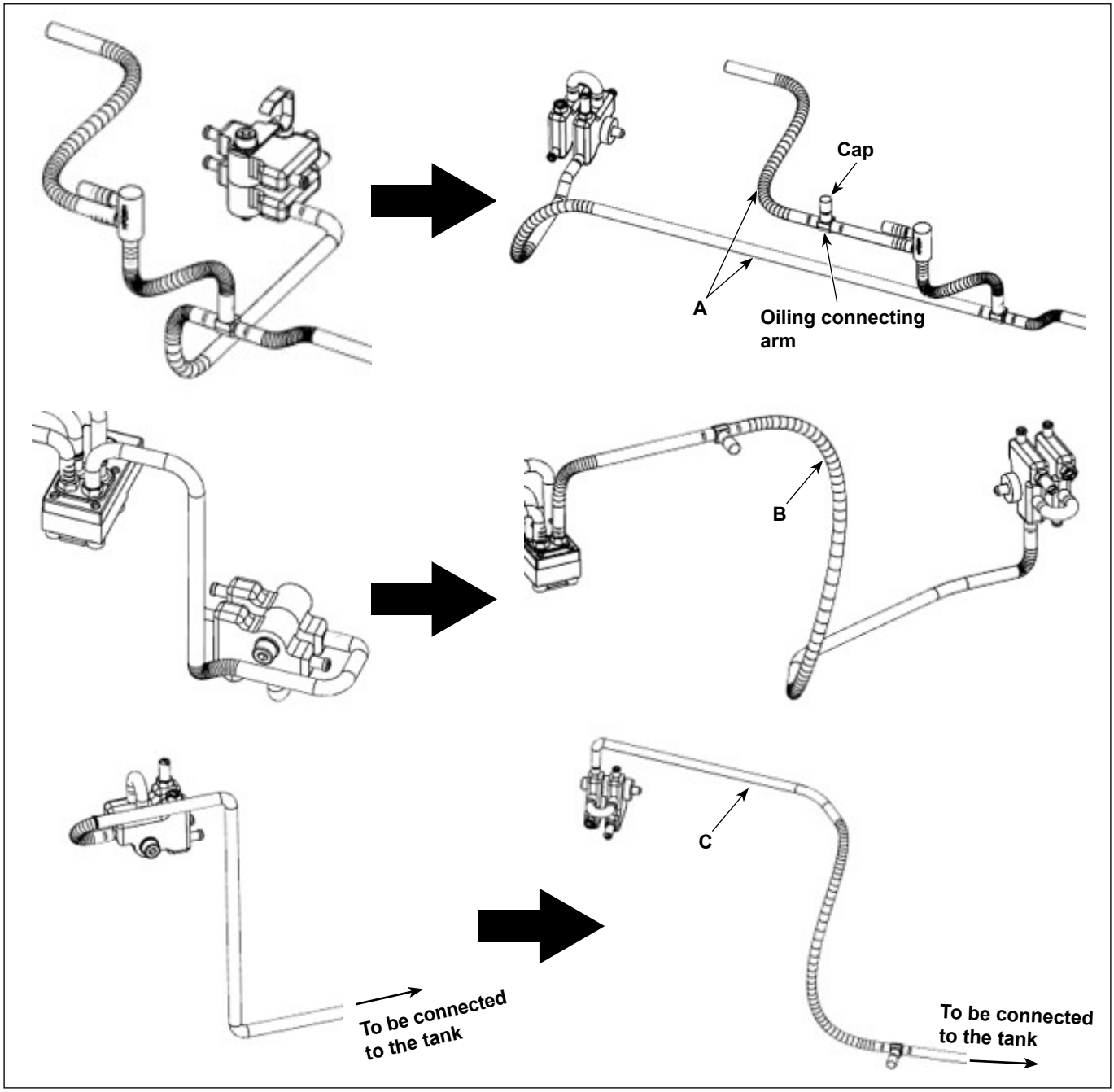
17) Adjusting the height of the feed dog
Condition: Feed dog is at its highest position; the feed amount is 0 mm.

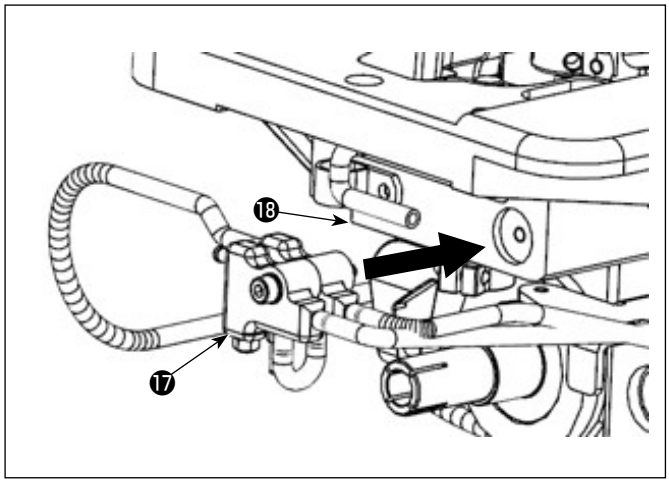
Turn the handwheel to bring the feed dog to its highest position.
Loosen clamping screw ⓯ of the vertical feed front arm.
Turn the vertical feed front arm to adjust the feed dog height to 0.6 to 0.7 mm above the top surface of the throat plate. Then, tighten clamping screw ⓯ .

18）Detach tube holder ㉒ of the tube that supplies oil to the bevel gear and tighten it together with setscrew ㉓ of the Vilene holder.

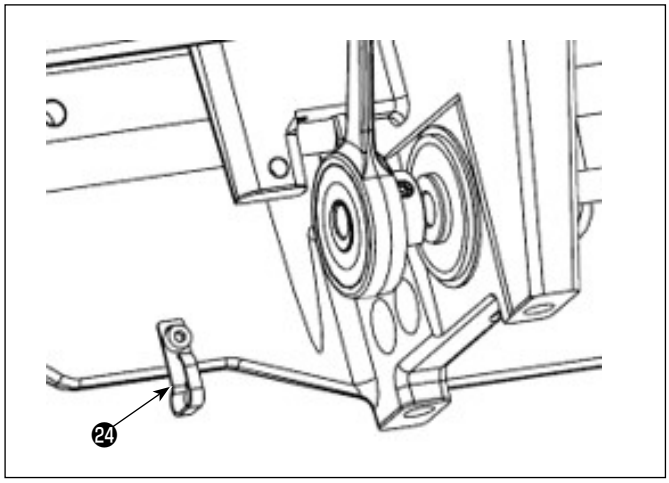


19）Change or extend the tubes connected to the distributor (**ABC**).
To extend the tubes, use the oiling connecting arms and caps.

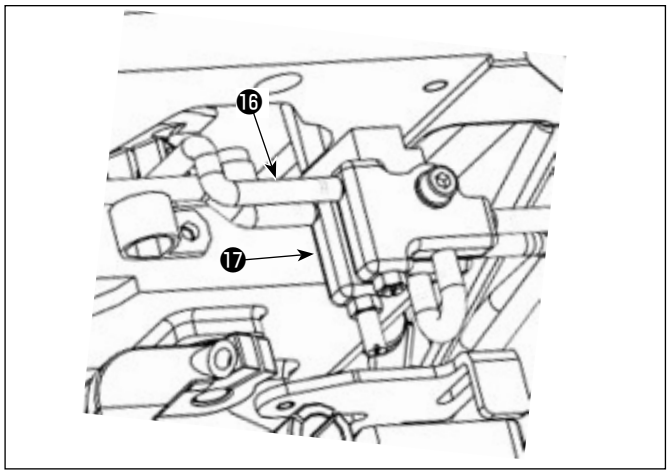




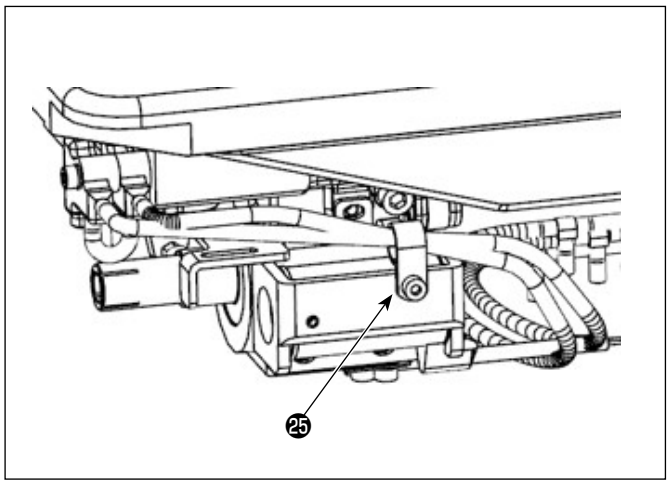
20) Secure distributor ⓱ to the hook shaft base ⓲ .



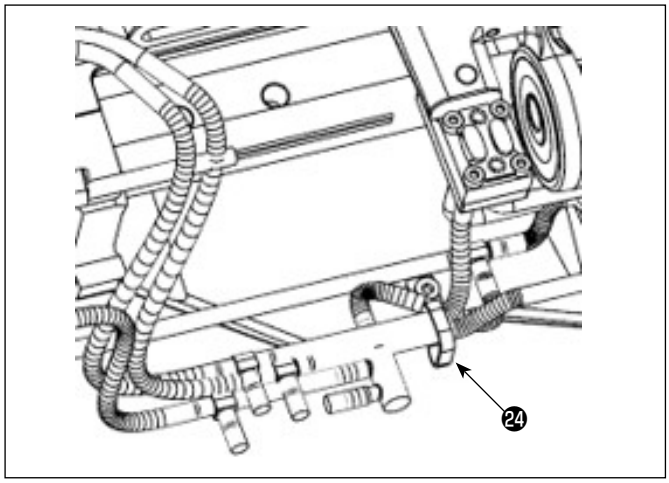
21) Attach cord holder ㉔ that has been attached to distributor ⓱ to the bed.



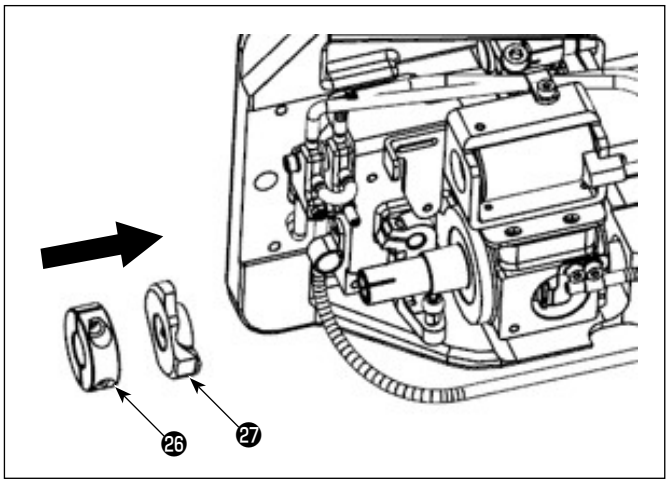
22) Connect tube ⓰ that supplies oil to the hook shaft to distributor ⓱ .



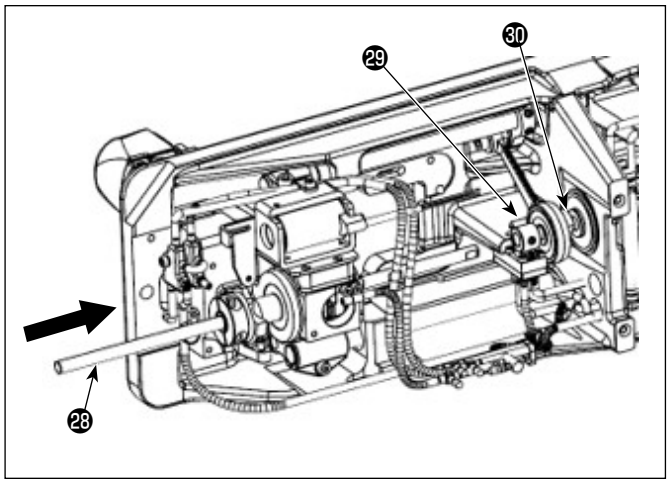
23) Attach cord clamp ㉕ to the thread trimming solenoid to secure the tubes.



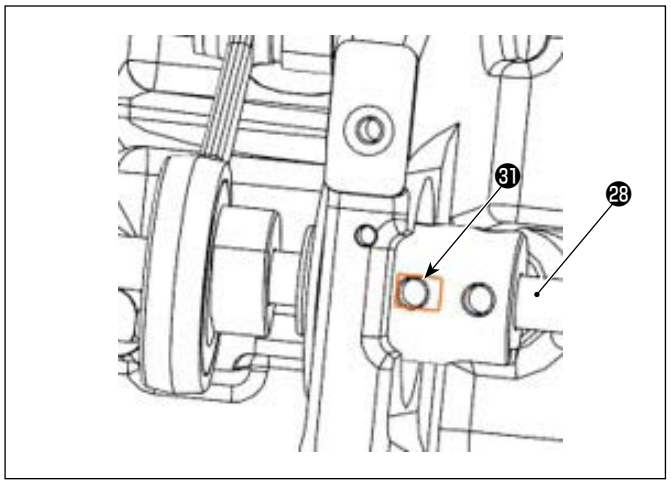
24) Bundle the tubes with cord holder ㉔ mounted to the bed. Secure the tubes to the thread trimming solenoid cord with a cable clip band where necessary.



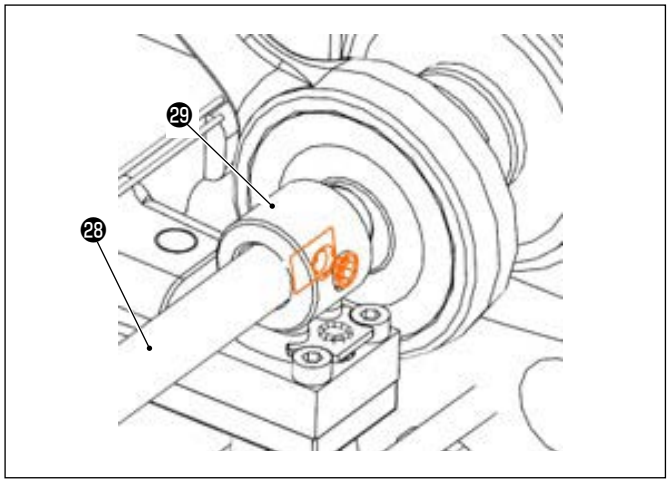
25) Detach the lower shaft set collar and the thread trimming cam (right).
Replace the thread trimming cam (right) with the thread trimming cam (left). Attach lower shaft set collar ㉖ and thread trimming cam (left) ㉗ in place.



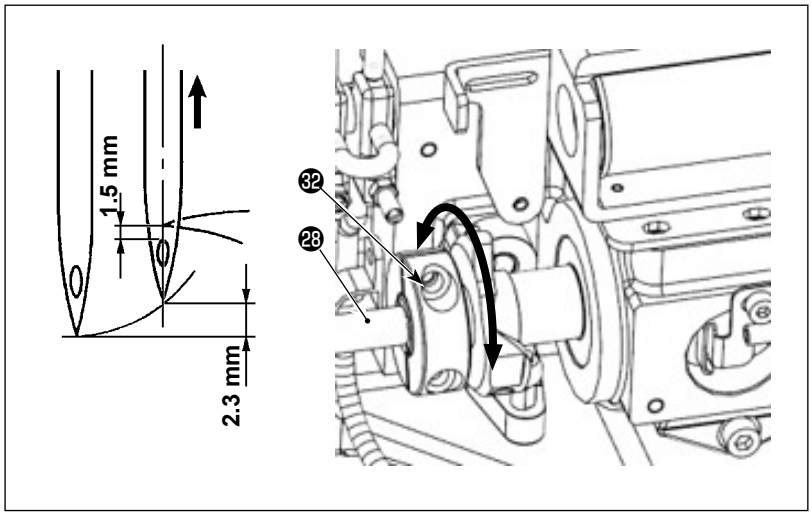
26) Replace lower shaft B ❽ with lower shaft C ㉘ and attach the latter in place.
When you attach the lower shaft C, also pass lower shaft C ㉘ through holes in plunger eccentric cam ㉙ and vertical feed rod cam ㉚ .



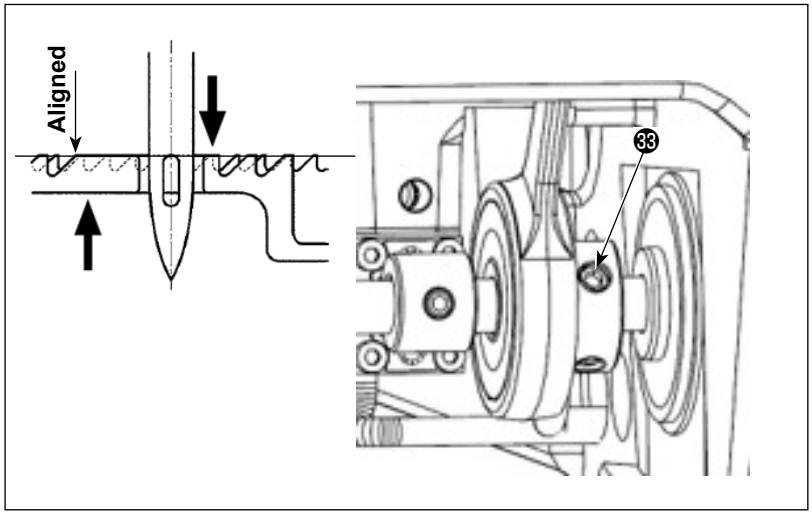
27) Tighten the screw No. 1 while aligning the flat part of lower shaft C ㉘ with screw No. 1 ㉛ of the lower shaft connecting bushing. Then, tighten the screw No. 2.



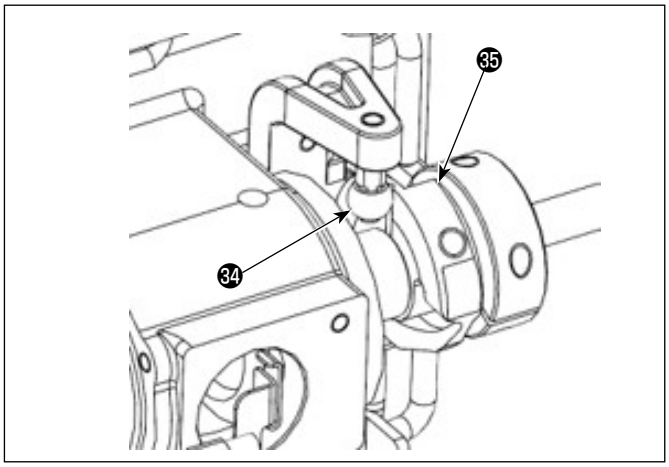
28) Secure plunger eccentric cam ㉙ with aligned with the flat part of lower shaft C ㉘ .



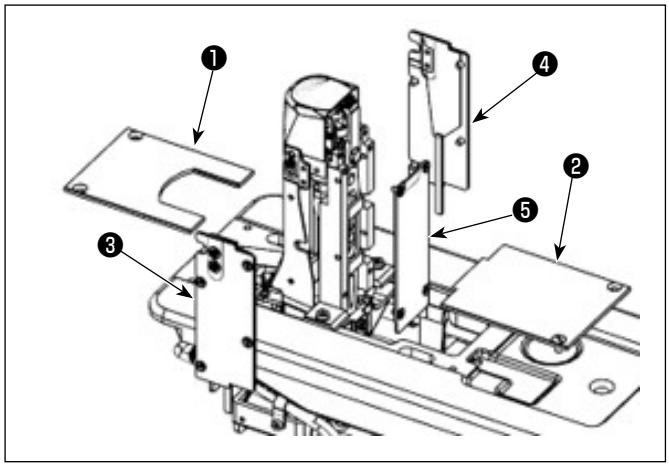
29) Turn lower shaft C ㉘ (hollow) to adjust so that the blade point of the hook is aligned with the center of the needle when the needle bar goes up from its lower dead point by 2.3 mm. Then, tighten lower shaft set collar screws ㉜ (two locations).



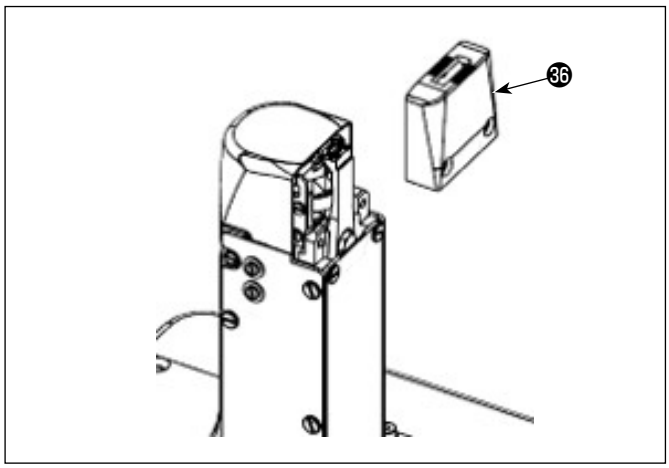
30) At the timing when the top end of the eyelet in the descending needle is aligned with the top surface of the throat plate and also the top surface of the ascending feed dog is aligned with the top surface of the throat plate, tighten screws ㉝ (two locations) of the vertical feed rod.



31) At the timing when thread trimming cam roller ㉞ is aligned with the marker line on thread trimming cam ㉟ with the needle bar at its lower dead point, tighten the thread trimming cam screw.



32) Attach bed cover A ❶ , bed cover B ❷ , side cover A ❸ , side cover F ❹ and feed lever base cover ❺ in place.



33) Replace the current throat plate with throat plate for left hook ㊱ and attach the latter in place.

Part number	Part name	Quantity
40271636	Gauge set for the left hook	1
40271621	Throat plate (left hook)	(1)
40271622	Feed dog (left hook)	(1)
40250798	Walking foot (asm.)	(1)
40017286	Presser foot (asm.)	(1)
40237089	Float case cap	3
13765607	Oiling connecting arm	3
23630007	Tube	0.04m
23630007	Tube	0.35m
23630007	Tube	0.35m
23630007	Tube	0.35m
EA9500B0100	Cable clip band	5
HX00150000D	Cable clip	1
SM6040602TP	Hexagon socket head cap screw	1

Part number	Part name	Quantity
40271639	12-mm pitch gauge set for the left hook	1
40271634	Throat plate (left hook) P12	(1)
40271622	Feed dog (left hook)	(1)
40250798	Walking foot (asm.)	(1)
40017286	Presser foot (asm.)	(1)

Part number	Part name	Quantity
40271637	Small-curve gauge set for the left hook	1
40271623	Throat plate (left hook) ST	(1)
40271624	Feed dog (left hook) ST	(1)
40277897	Walking foot ST (asm.)	(1)
40161454	Presser foot (left-hand presser) asm.	(1)