

ENGLISH

**Bird's nest prevention type
DDL-9000C-FMS-WB-PBN
INSTRUCTION MANUAL**

* This Instruction Manual only provides the explanation of items that are specific to the DDL-9000C-FMS-WB-PBN.
Refer to the Instruction Manual for the DDL-9000C-F for other items.
Be sure to refer to the Instruction Manual for the DDL-9000C-F for the descriptions of part(s) that are not covered in this Instruction Manual.

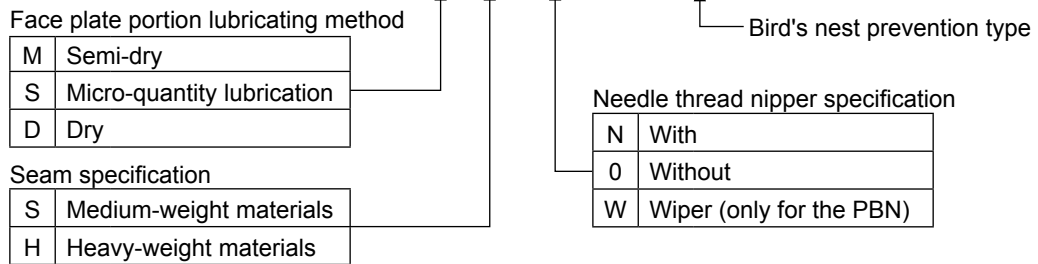
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1. Specifications

1-1. Specifications of the sewing machine head

DDL-9000C-F△△-△B - PBN



| | DDL-9000C-FMS | DDL-9000C-FSH | DDL-9000C-FDS | DDL-9000C-FMS-WB-PBN |
|------------------------------------|---|---|---|---|
| Max. sewing speed (standard locus) | Stitch length 0 to 4.00 : 5,000 sti/min Stitch length 4.05 to 5.00 : 4,000 sti/min | Stitch length 0 to 4.00 : 4,500 sti/min Stitch length 4.05 to 5.00 : 4,000 sti/min | Stitch length 0 to 5.00 : 4,000 sti/min | Stitch length 0 to 4.00 : 4,000 sti/min |
| Stitch length | 5 mm | | | 4 mm |
| Presser foot pressure control | Electronic control | | | |
| Needle *1 | 1738 Nm65 to 110 (DB×1 #9 to 18) 134 Nm65 to 110 (DP×5 #9 to 18) | 1738 Nm125 to 160 (DB×1 #20 to 23) 134 Nm125 to 160 (DP×5 #20 to 23) | 1738 Nm65 to 110 (DB×1 #9 to 18) 134 Nm65 to 110 (DP×5 #9 to 18) | |
| Lubricating oil | JUKI NEW DEFRIX OIL No. 1 or JUKI CORPORATION GENUINE OIL 7 | | - | JUKI NEW DEFRIX OIL No. 1 or JUKI CORPORATION GENUINE OIL 7 |
| Motor | AC servo motor | | | |
| Horizontal feed control | Electronic control | | | |
| Vertical feed control | Electronic control | | | |
| Number of patterns | Sewing pattern99 patterns (For the polygonal shape sewing, as many as 10 patterns can be registered.) Cycle sewing pattern9 patterns Custom-pitch pattern20 patterns Condensation custom pattern9 patterns | | | |
| Noise | FMS ; - Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 81.5 dBA ; (Includes K _{pA} = 2.5 dBA) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 5,000 sti/min. FSH ; - Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 77.5 dBA ; (Includes K _{pA} = 2.5 dBA) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,500 sti/min. FDS ; - Equivalent continuous emission sound pressure level (L _{pA}) at the workstation: A-weighted value of 78.0 dBA ; (Includes K _{pA} = 2.5 dBA) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 4,000 sti/min. | | | |

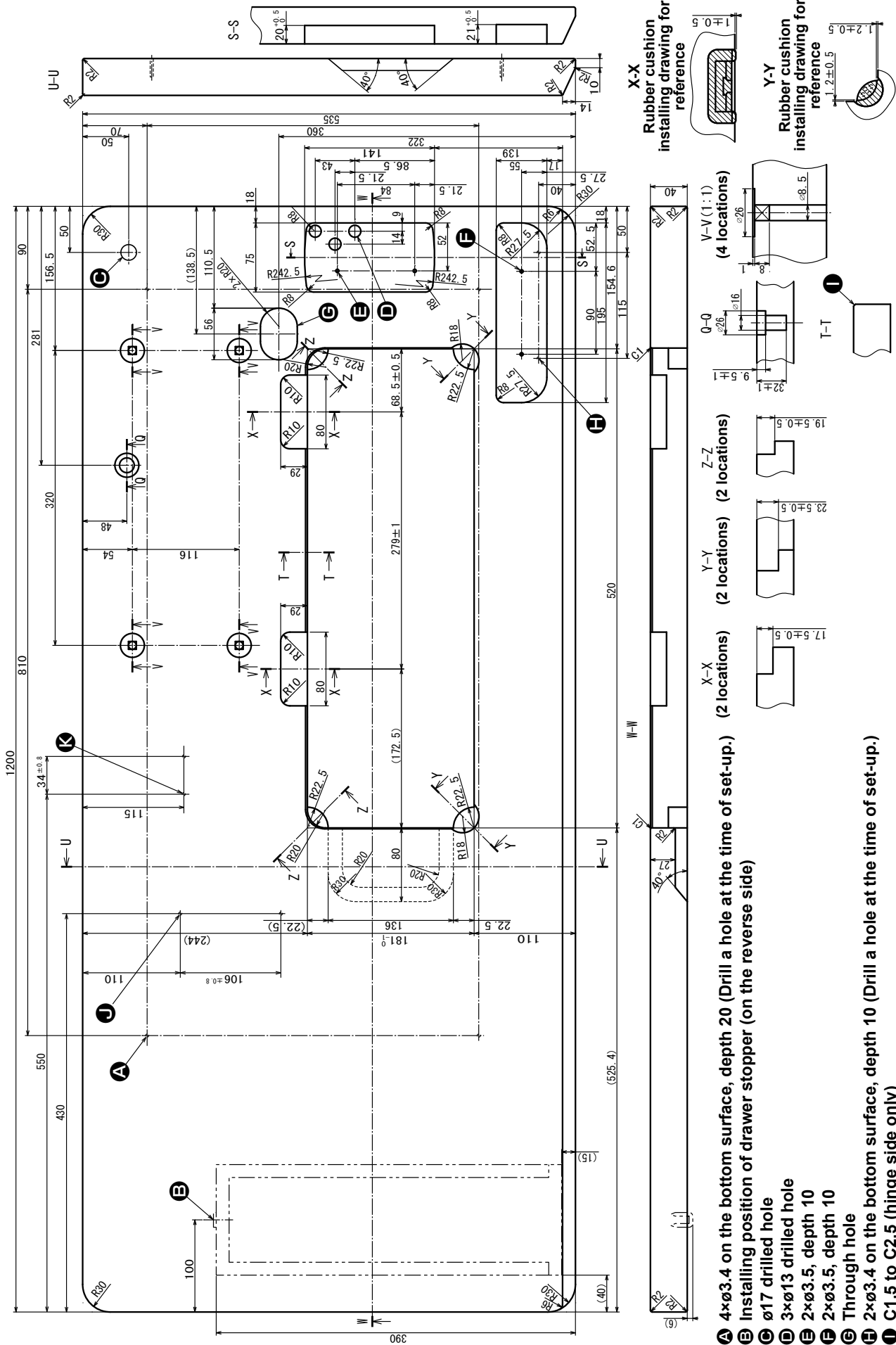
• The sewing speed will vary depending on the sewing conditions. The sewing speed preset at the time of shipping is 4,000 sti/min.

*1 : Needle used depends on the destination.

1-2. Specifications of the control box

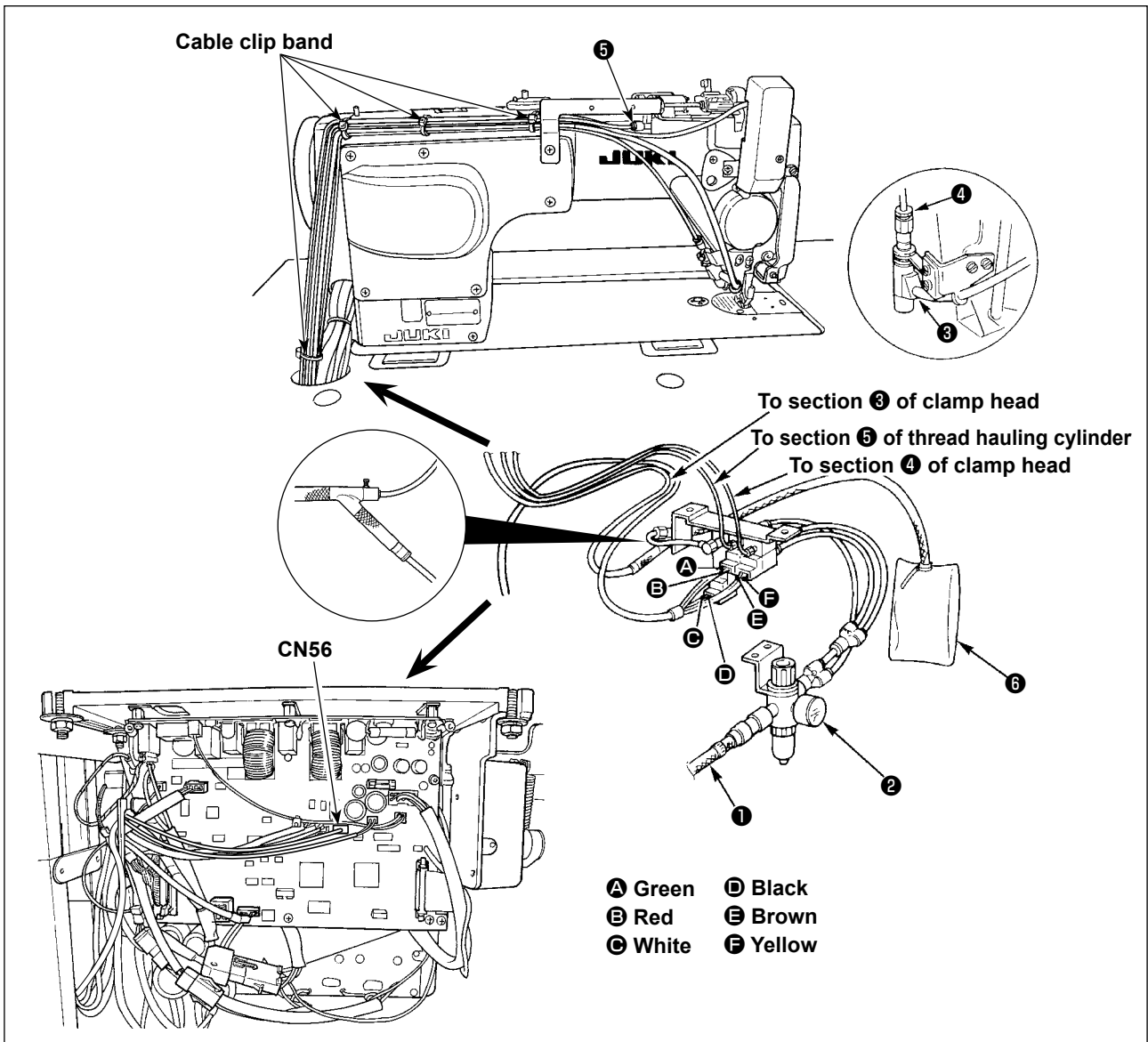
| | Single phase | 3-phase | Single phase | Single phase |
|-----------------------|---|---|---|---|
| Supply voltage | 100 to 120V | 200 to 240V | 220 to 240V | 220 to 240V CE |
| Frequency | 50Hz/60Hz | 50Hz/60Hz | 50Hz/60Hz | 50Hz/60Hz |
| Operating environment | Temperature : 0 to 35°C Humidity : 90% or less | Temperature : 0 to 35°C Humidity : 90% or less | Temperature : 0 to 35°C Humidity : 90% or less | Temperature : 0 to 35°C Humidity : 90% or less |
| Input | 520VA | 520VA | 520VA | 350VA |

2. Drawing of table



- A** 4× $\phi 3.4$ on the bottom surface, depth 20 (Drill a hole at the time of set-up.)
- B** Installing position of drawer stopper (on the reverse side)
- C** $\phi 17$ drilled hole
- D** 3× $\phi 13$ drilled hole
- E** 2× $\phi 3.5$, depth 10
- F** 2× $\phi 3.5$, depth 10
- G** Through hole
- H** 2× $\phi 3.4$ on the bottom surface, depth 10 (Drill a hole at the time of set-up.)
- I** C1.5 to C2.5 (hinge side only)
- J** 2× $\phi 2^{+1}_0$ on the bottom surface, depth 10 (Mounting position of the solenoid valve for the PBN)
- K** 2× $\phi 2^{+1}_0$ on the bottom surface, depth 10 (Mounting position of the air filter for the PBN)

3. Piping the pneumatic components

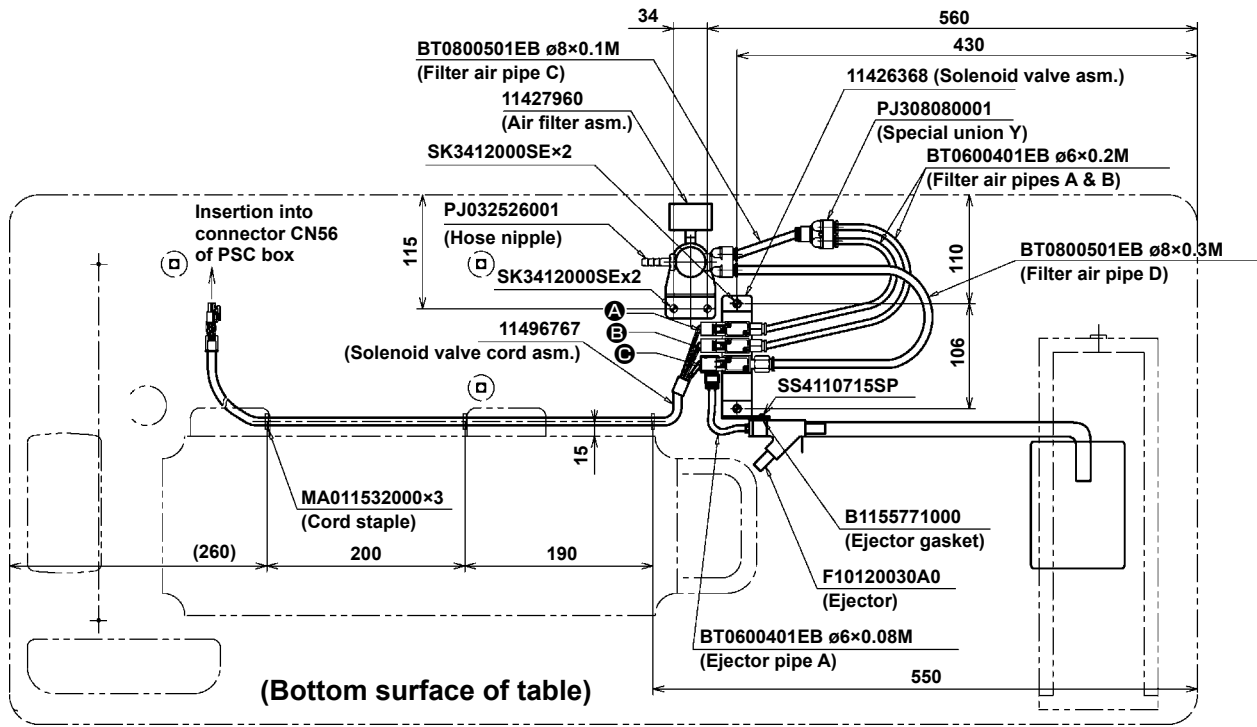


Carry out piping referring to the figure given above.

Take the following cautions when piping the pneumatic components.

- 1) If air pipe ① that is connected to the regulator has a very small diameter, the air pressure will drop by a large margin when the machine is in operation, resulting in failed clamping of the needle thread. So, it is necessary to use a pipe of which diameter is as large as possible. (The adequate inside diameter of the pipe is 8 mm or more.)
- 2) Set the operating air pressure to 0.45 MPa using filter regulator ②. (The adequate operating air pressure is 0.4 to 0.5 MPa. If the pressure drops to 0.3 MPa or less, set it to a higher value so that the operating air pressure does not drop lower than 0.3 MPa even when minimizing it.)
- 3) Be sure to securely insert pipe ③ of the clamp head in place until it will go no further.
- 4) Securely fix dust bag ⑥ onto the pipe with a cable clip. If the top end of the pipe is inserted extremely deep in place, suction force of the pipe will be impaired. So, insert the pipe until the top end reaches about one-third of the entire depth of the connection.

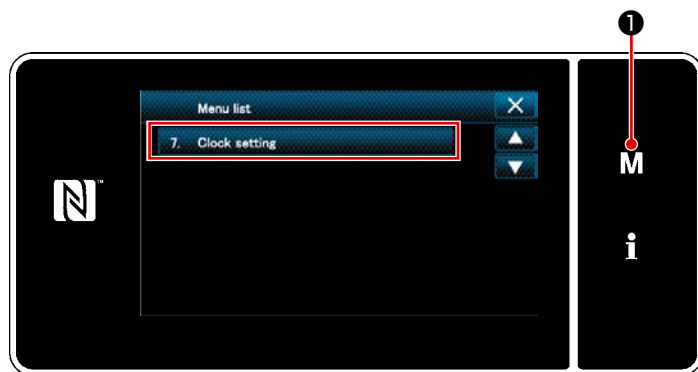
Reference diagram of installation at the bottom surface of table



- Ⓐ Brown, Yellow
- Ⓑ Green, Red
- Ⓒ White, Black

4. How to use the operation panel

① Setting the clock



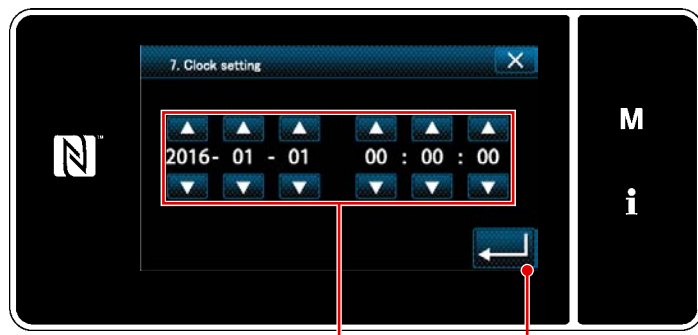
<Mode screen>

1) Press **M** ①.

The "mode screen" is displayed.

2) Select the "7. Clock setting".

The "clock setting screen" is displayed.




<Clock setting screen>

3) Enter year/month/day/hour/minute/second

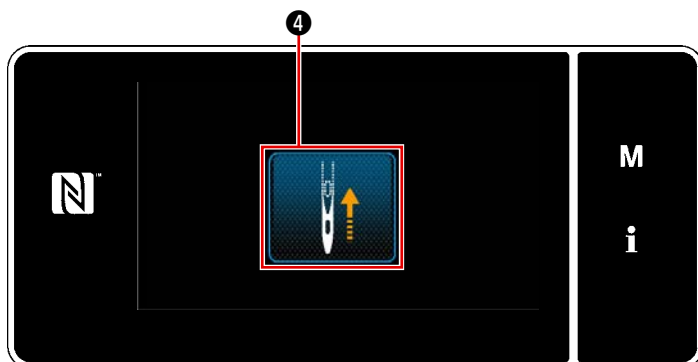
with  ②.

The time entered is displayed in 24-hour notation.

4) Press  ③ to confirm the clock setting.

Then, the current screen returns to the previous screen.

② Retrieval of the origin



<Origin retrieval screen>

Press ④ to bring the origin retrieval needle bar to its upper position.

* In the case "U090 Initial operation upper position stop function" is set to "1", the screen shown on the left is not displayed, but the needle bar automatically goes up to its upper position.

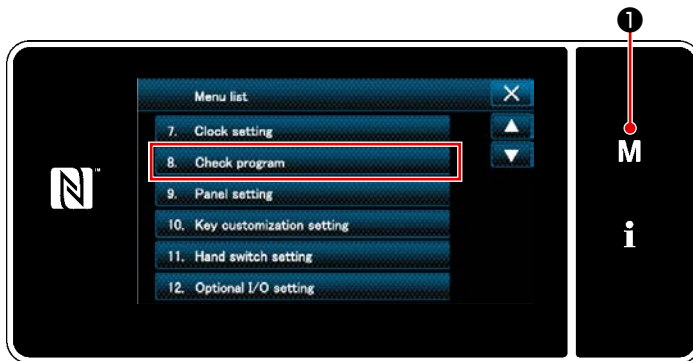
5. Selection of the machine head



WARNING :

Do not perform switch operations other than those described in the following explanations.

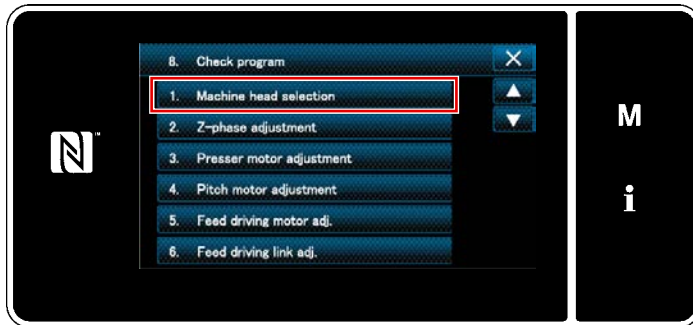
The DDL-9000C-FMS-WB-PBN uses the exclusive program software. If the bird's nest prevention wiper, thread hauler and thread retaining device fail to operate, check to make sure that the "DDL-9000C FMS WB PBN" (for JE, the "DDL-9000C FMS WB PBN CE") is selected as the machine head.



1) Turn the power ON while keeping **M** ^①

held pressed.

When "8. Check program" is selected, the check program selection screen is displayed.



2) Select "1. Machine head selection" to check the selected machine head.

For the "DDL-9000C FMS WB PBN" (for JE, the "DDL-9000C-FMS-WB-PBN-CE"), two different types of setting are provided; i.e., "Upper limits setting" (Table 1) and "Initial setting" (Table 2).

The set values under the "Initial setting" (Table 2) can be changed according to the material to be sewn and the thread to be used.

If you have changed any set value, it is necessary to carry out trial stitching to check the finished seam.

Refer to "4. HOW TO USE THE OPERATION PANEL" and "8. HOW TO USE THE OPERATION PANEL (APPLICATION)" in the Instruction Manual for the DDL-9000C-F for how to change the set values.


Table 1. Upper limits setting

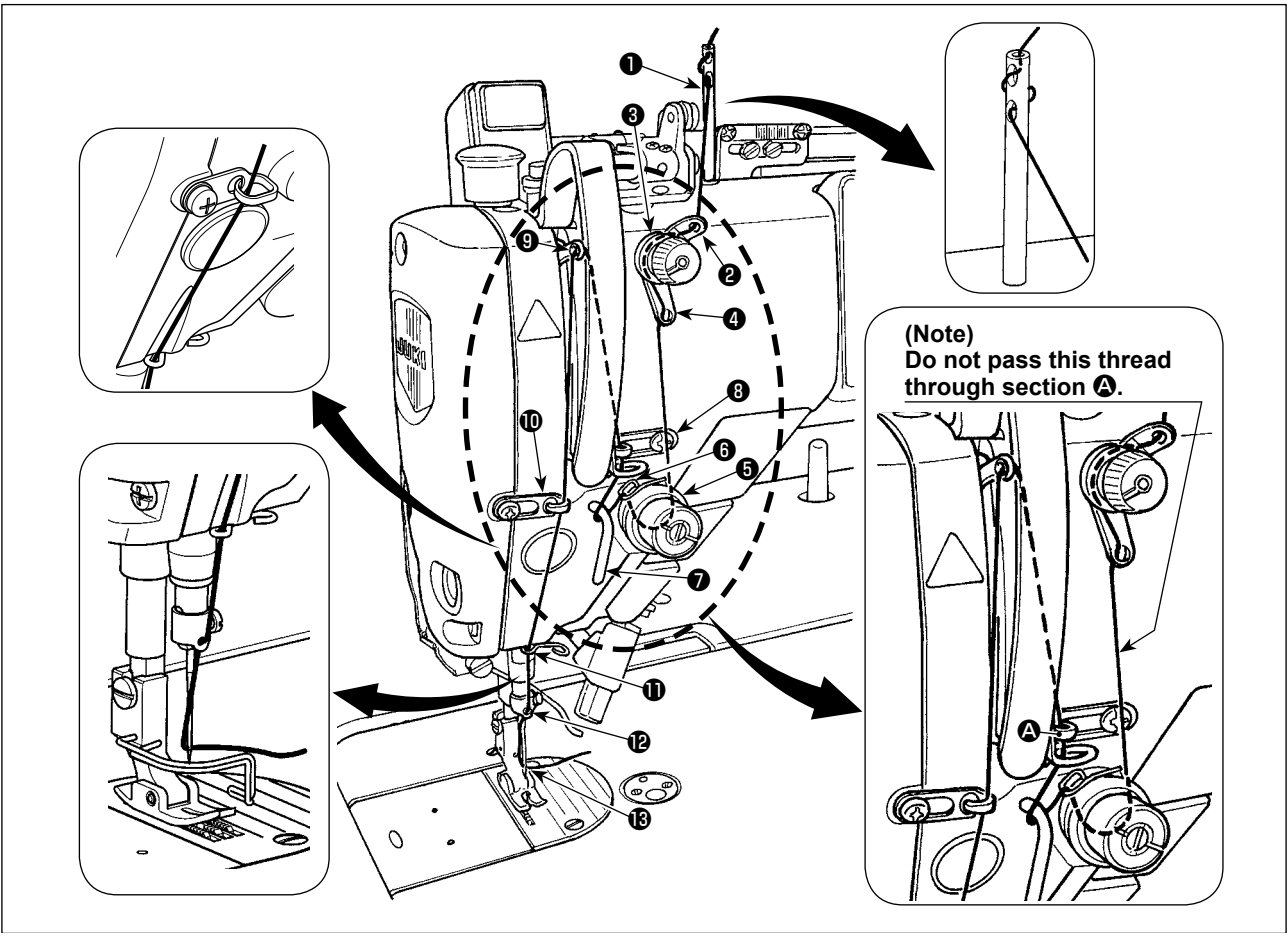
| | |
|---------------------------------|---------------|
| Upper limit of the sewing speed | 4,000 sti/min |
| Upper limit of the stitch pitch | 4.0 mm |

Table 2. Initial setting

| Table 2. Initial setting | | Memory switch numbers and data numbers |
|--------------------------|---------------|--|
| Sewing speed | 4,000 sti/min | U096 |
| Stitch pitch | 2.5 mm | S003 |
| Soft-start function | 1 stitch | U001 |
| Condensation pitch | 0.35 mm | U281 |
| Thread trimming speed | 180 sti/min | U036 |

6. Threading the machine head

 **WARNING :**
Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

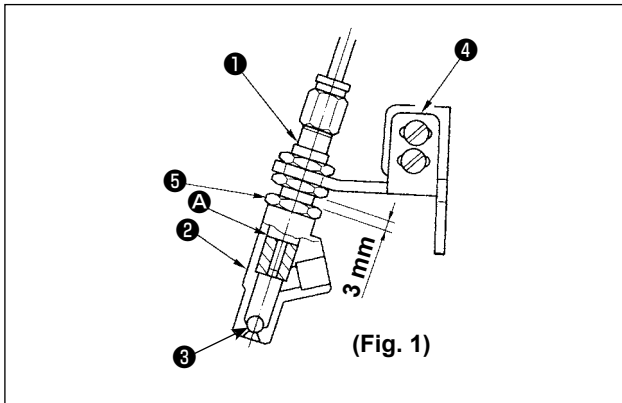


7. Adjusting the thread clamping mechanism



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

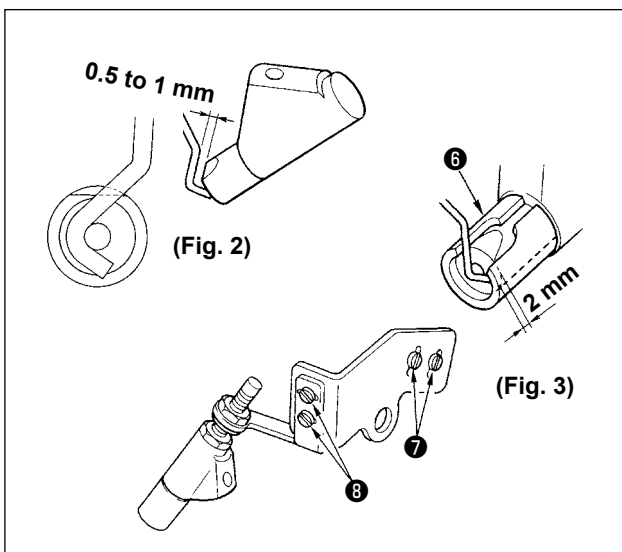


(1) Adjusting the position of the clamp cylinder

1) To install clamp cylinder ① and clamp head ②, screw in them until A section lightly hits against the deepest end and fix them with nut ⑤.

* Clamp ball ③ (Part No. : 11428505) is a consumable part.

2) Adjust so that a clearance approximately of 3 mm is provided between the attaching nut of clamp base B ④ and the nut ⑤ as illustrated in Fig. 1.



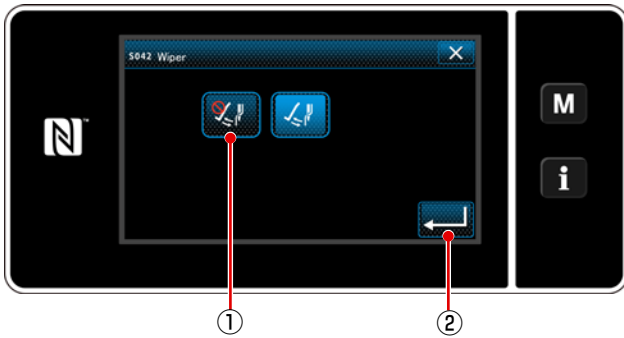
(2) Adjusting the position of the clamp head

1) Remove clamp head cover ⑥, and adjust so that the top end of wiper is positioned as shown in Fig. 2 using the screws in clamp base A ⑦ and B ⑧.

2) After the completion of the adjustment, attach the clamp head cover as illustrated in Fig. 3.

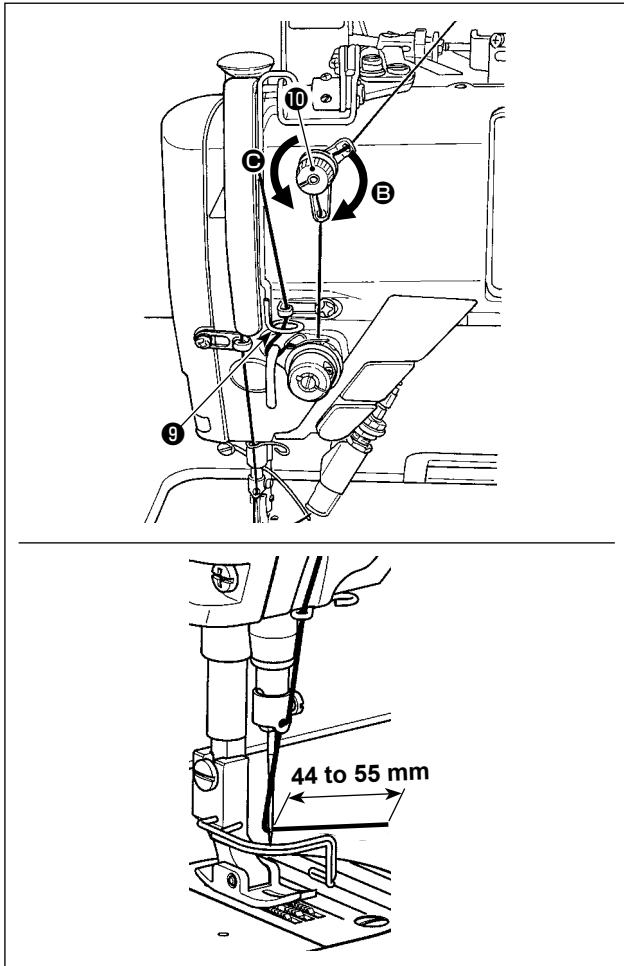


Carefully perform the adjustment since this adjustment exceedingly affects the clamping failure.





①

②



(3) Adjusting the length of needle thread remaining after thread trimming

1) Turn OFF the wiper switch.

(Press  ① . Then, press  ② .)

Adjust the thread tension controller No. 1 so that the needle thread length becomes 44 to 55 mm in when thread trimming is carried out without threading thread guide section ⑨ of the thread hauler.

2) If the needle thread remaining after thread trimming is too short, the thread may not reach the clamp head. If it is too long, the thread may fail to come off the material.

3) Turn tension nut No. 1 ⑩ toward ③ (clockwise) from the position shown in the figure on the left to shorten the needle thread trailing from the needle eyelet after thread trimming. Turn the tension nut No. 1 toward ④ (counterclockwise) to lengthen it.

(4) Checking the thread clamp mechanism

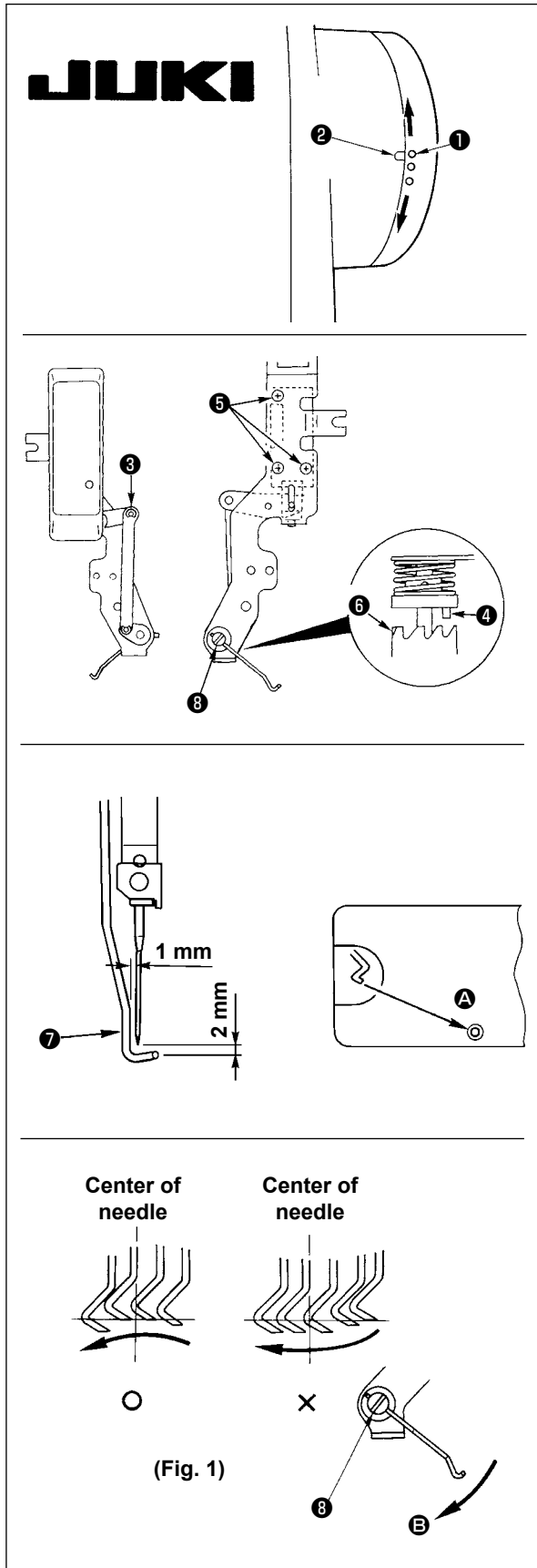
After the completion of the aforementioned adjustments, thread the machine head normally and confirm that the needle thread on the clamp head is securely clamped after thread trimming.

8. Adjusting the wiper



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



* Perform the adjustment of the wiper in the state that white engraved marker dot ① on the hand-wheel is aligned with engraved marker dot ② on the machine arm.

(1) Adjusting the stroke of the wiper

Loosen screws ⑤ in the wiper solenoid, and adjust so that wiper link A ③ stops, when wiper link A ③ is pressed down with fingers until follower pin ④ goes beyond ratchet ⑥, at the position reached after the follower pin passes ratchet ⑥ and drops from it. The higher the solenoid is positioned, the larger the wiper stroke will become. If wiper link A ③ keeps rotating, when wiper link A ③ is pressed down with fingers until the follower pin goes beyond ratchet ⑥, the stroke of the wiper while it is in operation will be larger. As a result, the top end of the wiper will interfere with your fingers, impairing ease of operation.

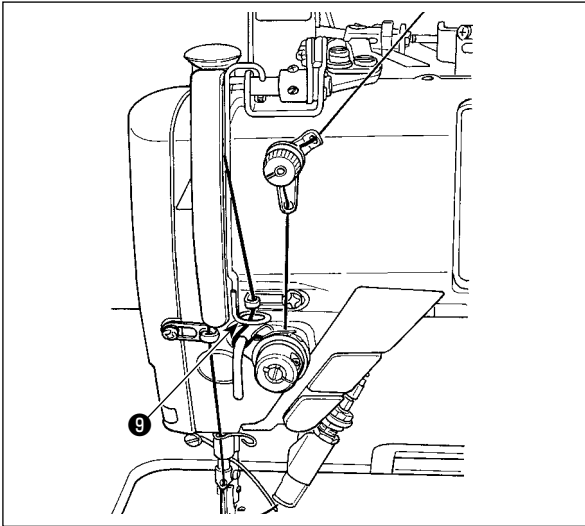
(2) Adjusting the installing position of the wiper

Quietly press down wiper link A ③ with fingers and fix it with wiper setscrew ⑧ after adjusting so that a clearance of approximately 1 mm is provided between the back of needle and the wiper and so that a clearance of approximately 2 mm is provided between the top end of needle and the wiper as illustrated when returning wiper ⑦ passes just behind the needle.

At this time, wiper ⑦ should be installed with its top end inclined toward direction A. (To install the wiper correctly, roughly position it first, then finely adjust the installing position of the wiper by correcting its inclination with a pair of pincers or with fingers.)

(3) Adjusting the home position of the wiper

The wiper of the sewing machine comes with ratchet ⑥, which allows the wiper to be drawn backward and release the needle thread during its outgoing stroke and allows the wiper to return to its home position and spread the needle thread. Press wiper link A ③ slowly with fingers in the downward direction and confirm that the wiper returns to the home position after the locus of the top end of the wiper has passed the center of needle as illustrated in Fig. 1. If the wiper returns to the home position too early, correct and lower the stand-by position of wiper ⑦ in the direction of B and shift the home position to the left. If the leftmost stroke end of the wiper is too far after the adjustment, re-perform the adjustment procedure described in "Adjusting the stroke of the wiper".



(4) Checking the adjustment results of the wiper

After the completion of the adjustment procedure required, thread the machine head (in this case, only thread guide 9 of the thread hauler should not be threaded), and make the sewing machine sew one or two idle stitches. Now, make the thread trimmer actuate and check that the wiper is capable of spreading the needle thread without a mistake when it actuates. Thread is not sewn on the material, which means that the needle thread lacks in stability. In this case, the wiper may not spread the needle thread with consistency if it actuates under the material. As long as the wiper is capable of spreading the needle thread properly in the ratio of 80 or more to 100 trials, the wiper will successfully spread the needle thread above the material with no mistake.



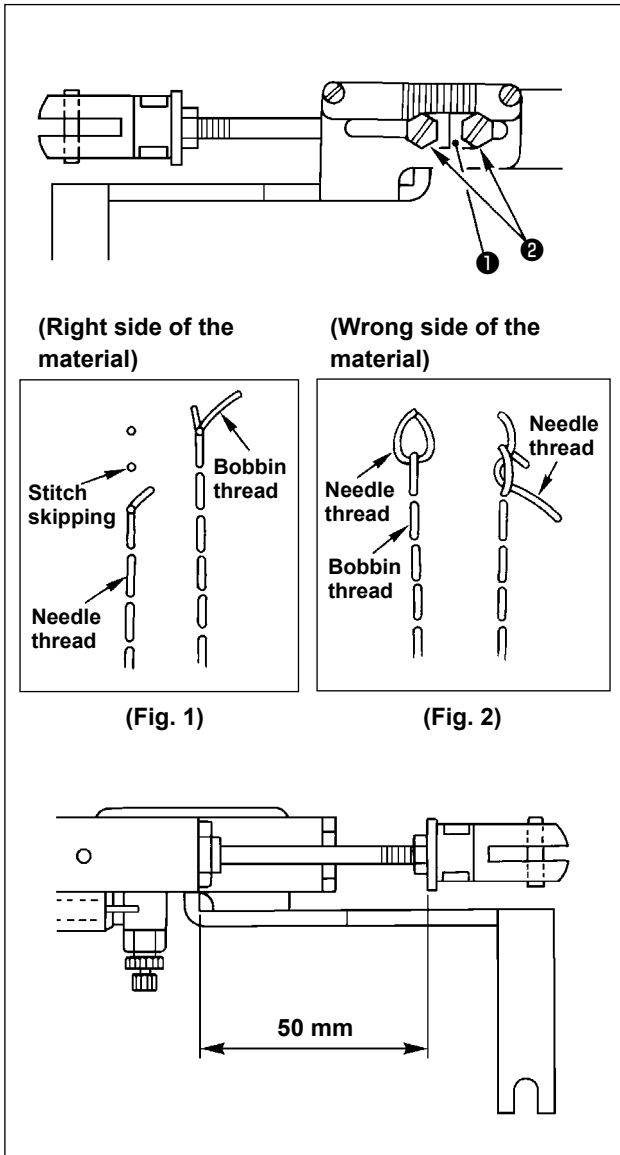
- 1. The wiper is likely to fail to spread the thread in the case of idle stitches. It is advisable not to actuate the wiper when the sewing machine performs idle stitching.**
- 2. Do not actuate the wiper with the presser foot raised since the presser foot interferes with the wiper.**

9. Adjusting the thread hauler



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



Since the needle thread is clamped at the start of sewing, bobbin thread may be drawn up on the right side of the material or thread skipping may occur unless the needle thread is slacked properly. On the other hand, if the needle thread is slacked excessively, the needle thread may be drawn down on the wrong side of the material and become tangled up or the cutting length of the needle thread presser knife may be lengthened.

- 1) Loosen two screws ② in the stopper of the thread hauler. Move thread hauler adjusting plate ① to the right (in this case, the marker line on the plate moves to the right, also) to increase the amount of thread to be drawn by the thread hauler, or to the left (in this case, the marker line moves to the left, also) to decrease it.
- 2) If the finished seam appears as illustrated in Fig. 1, move thread hauler adjusting plate ① to the right so that the marker line on the plate moves to the right. If the finished seam appears as illustrated in Fig. 2, move the plate to the left so that the marker line on the plate moves to the left. After the adjustment, securely tighten two screws ② in the stopper of the thread hauler.



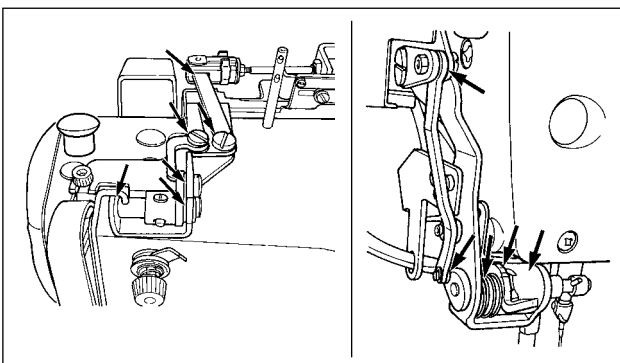
The amount of thread to be drawn by the thread hauler will change in accordance with the type of thread to be used or the set value of the thread tension controller. Therefore, be careful when the material to be sewn is changed. Set the installing position of the top end of the thread hauling cylinder to 50 mm.

10. Care



WARNING :

Turn OFF the power before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



■ Grease-up

It is recommended to periodically (once a year) perform grease-up to the arrow mark sections in the illustration with JUKI grease A (Part No. : 40006323 separately sold).