

# ***Yamato***<sup>®</sup>

## Instruction Manual

PNEUMATIC UNDER THREAD TRIMMER  
WITH ANTI-UNRAVELING FUNCTION

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### **UTL-A/Y, UTL-A**

UTL-A44/Y, UTL-A44/ST2-A/Y

UTL-A44, UTL-A44/ST2-A

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VG2735, VG3721 class

Thank you for having purchased UTL-A/Y or UTL-A.

Before using your UTL-A/Y or UTL-A, please read the Instruction manual and understand the contents well.

After reading the instruction manual, please keep it in a location where it is easily accessible to the operator.



**YAMATO SEWING MACHINE MFG. CO., LTD.**

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## Attention

The parts used for this product are subject to change without notice. If such a change is made, any part of the contents and illustrations of this instruction manual may not conform to this product. In preparing the instruction manual, we have made our best efforts for making it free of any error or omission. If any error or omission should yet be found, it might not be rectified immediately.

# 1. Introduction

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## UTL-A

Pneumatic under thread trimmer with anti-unraveling function

For common UT-A device, the seam may unravel because the thread at the end of seam is broken while doing laundry. This UTL-A device is designed to prevent the seam from unraveling.

## ST2-A

Air operated top cover thread trimmer

## Y

A compact servomotor

A built-in (sewing machine) compact servomotor

## NOTE

When using UTL-A device, a model which with compact motor (indicated as 「/Y」), or a model which with Mitsubishi GY-100 motor is needed.

## Notice:

In this instruction manual, the description about installation, operation and adjustment may different according to the type of motor.

- In case of 「/Y」 which with compact motor model, it will be indicated as 「UTL-A/Y (with Y motor)」.
- In case of using Mitsubishi GY-100 motor, it will be indicated as 「UTL-A (without Y motor)」.

# 2. Installation

## 2.1 Table cutting diagram

### 2.1.1 Table top type (Type A)(Only for UTL-A /Y with Y motor)

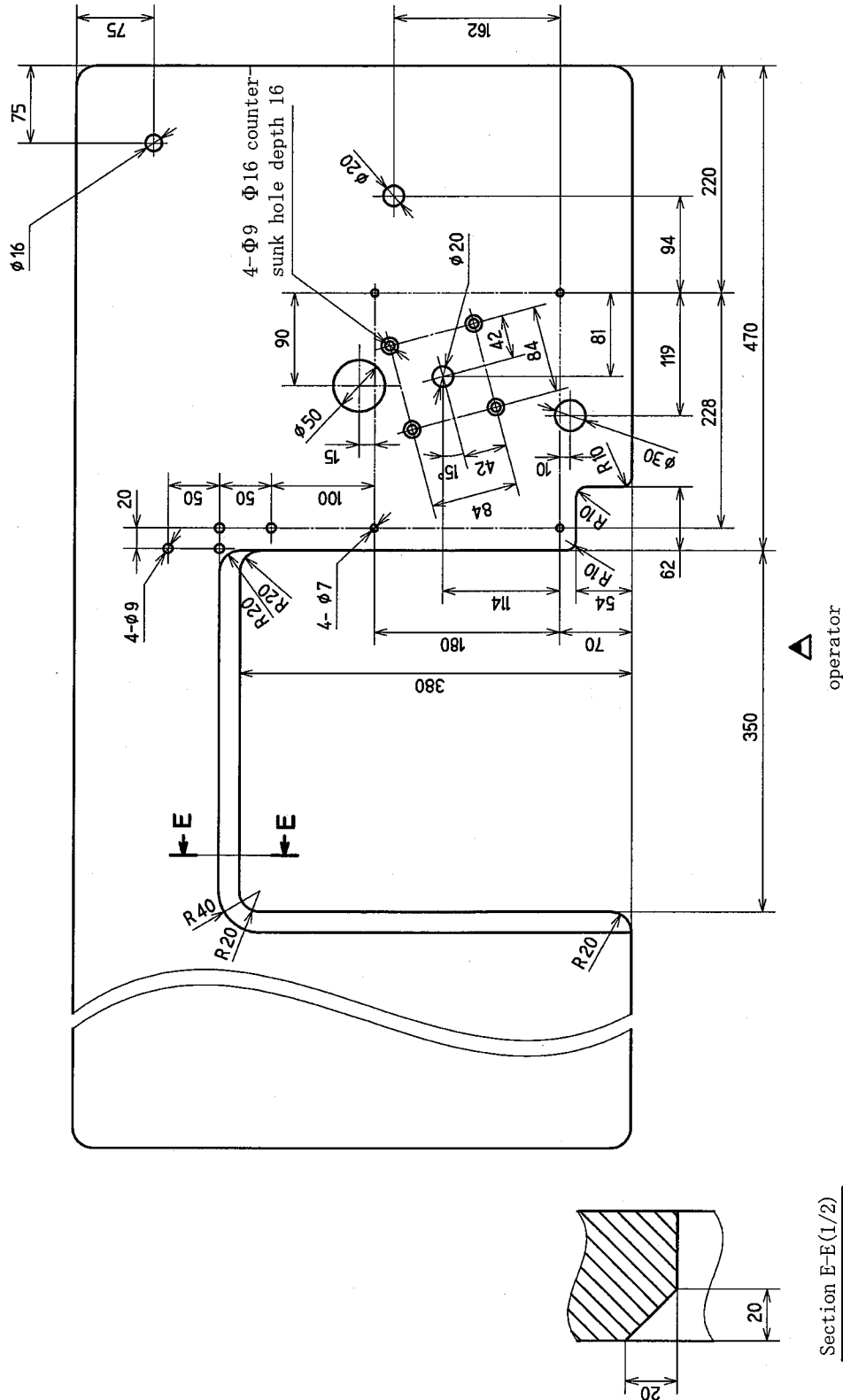


Fig. 1

2.1.2 Table top type (Type B)(Only for UTL-A /Y with Y motor)

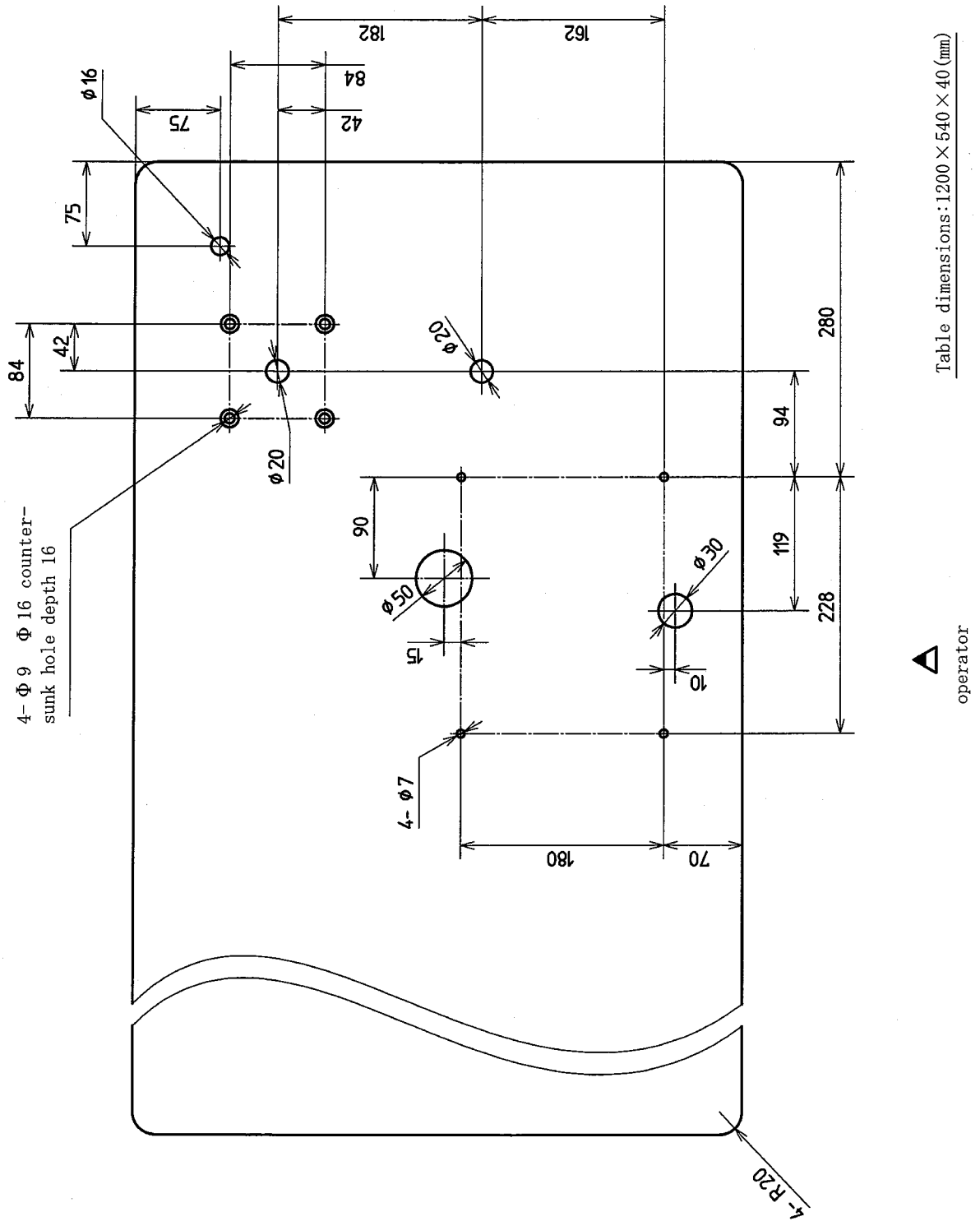


Fig. 2

2. Installation

2.1.3 Semi-submerged type (Only for UTL-A /Y with Y motor)

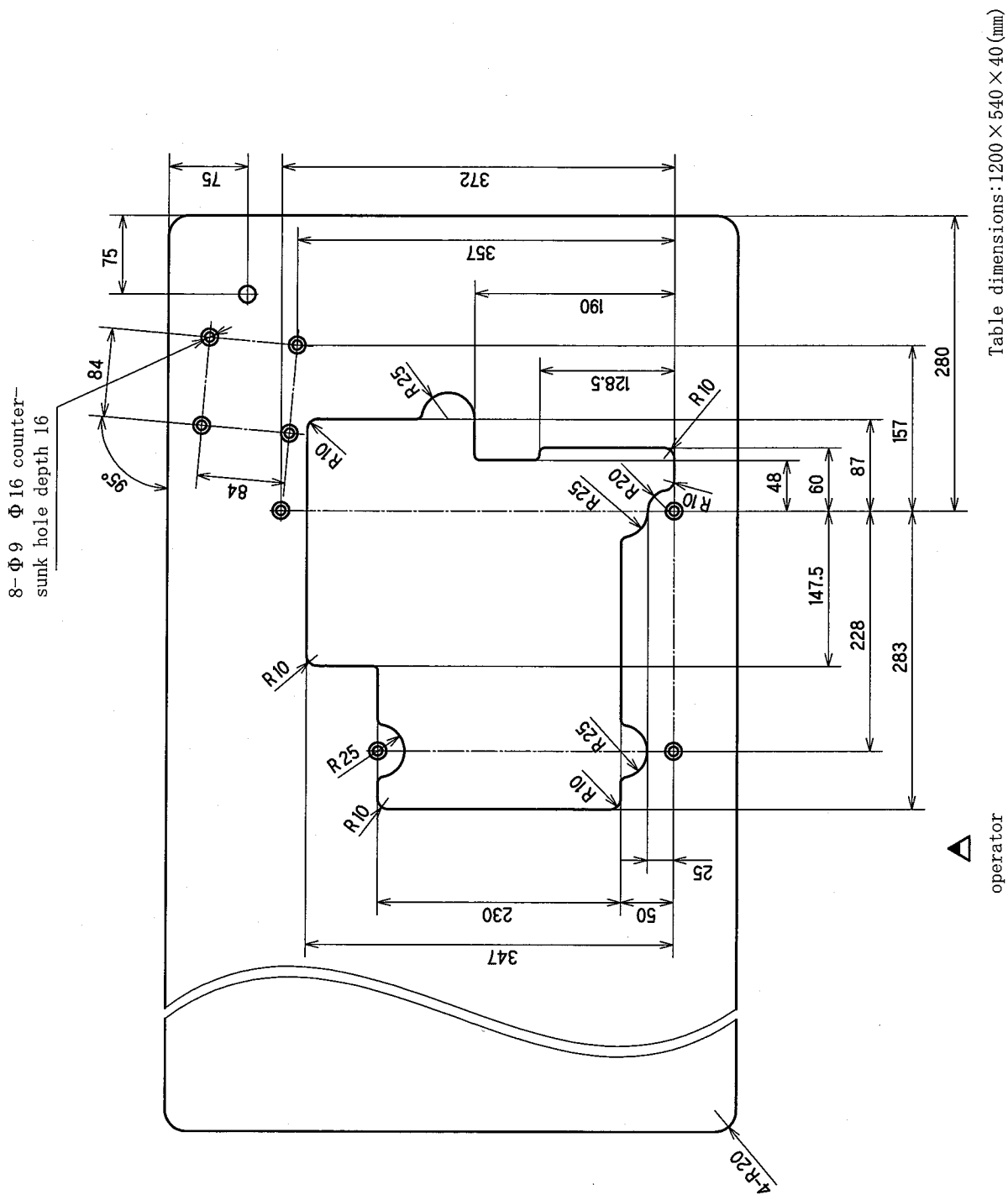


Fig. 3

**2.2 Wiring**

**2.2.1 In case of UTL-A/Y (with Y motor)**

**2.2.1.1 Connecting detector switch**

Connect the 3P-connector of the detector switch to that of the intermediate cable.

Insert R connector into the position of figure properly according to the machine model or device.

Refer to the parts number of R connector in "5. Appendix Table 3".

**CAUTION**

1. Be sure to use an appropriate R connector according to the machine model.  
The R Connector is limited for the safe use. If an improper R Connector is connected, the machine might be damaged.
2. When the R Connector is not connected, maximum sewing speed will be 2000 rpm. And the functions will be limited for giving consideration to safety.

**2.2.1.2 Connecting intermediate cables to the solenoid valves**

Insert the connectors of the intermediate cable to the solenoid valves until they click.

**2.2.1.3 Solenoid valve number and intermediate cable part number**

Device	Looper Thread Cutter	Presser Foot Lifter	Air Wiper	Top Cover Thread Cutter	Hook	Chip Suctioning Pipe	Number of Solenoid Valves	Intermediate Cable part number
UTL-A44/Y	②	①	③	×	④	⑤	5	1200486
UTL-A44/ST2-A/Y	②	①	×	③	④	⑤	5	1200486

Table 1

Note 1 : The circled number shows the number of solenoid valves.

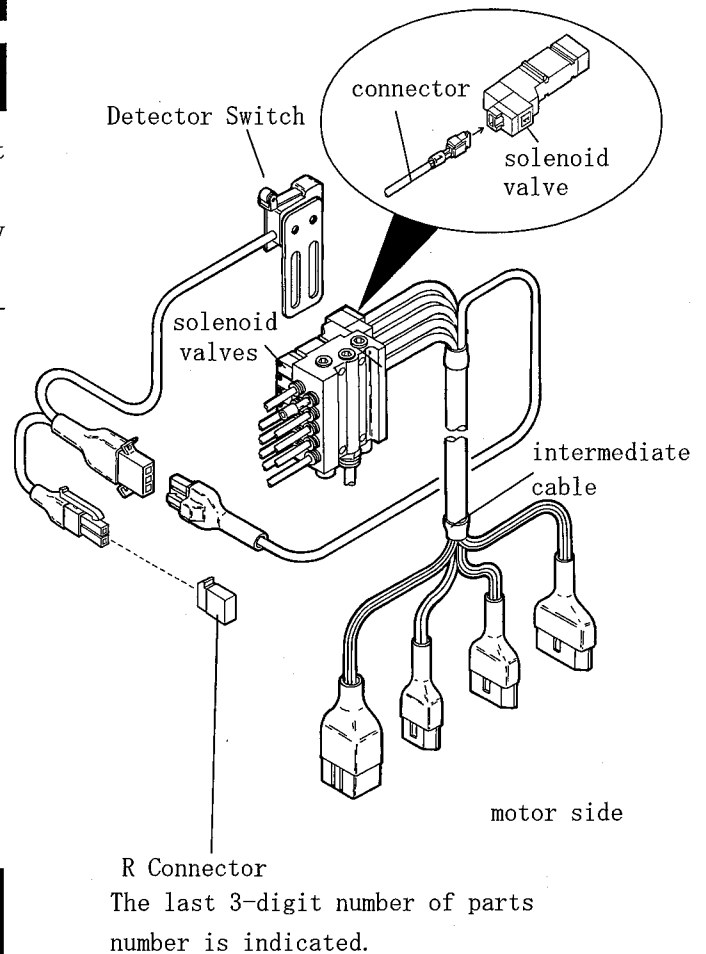


Fig. 4



## 2. Installation

### 2.2.1.4 Connect intermediate cables to motor

#### WARNING

To avoid electrical hazard, unplug the control box during wiring.

- Install the control box and the pedal unit onto the machine table by referring to the instruction manual for the motor.
- For the control box, the pedal unit, the motor, and the position detector (synchronizer), refer to the instruction manual for the motor.
- Connect each connector on control box with one which is the same in color and shape from intermediate cable. Miss-connecting may cause damage to the sewing machine.

#### Connecting lamp

#### CAUTION

Never use other type of lamp except for an exclusive lamp. If not, it can cause damage to the control box.

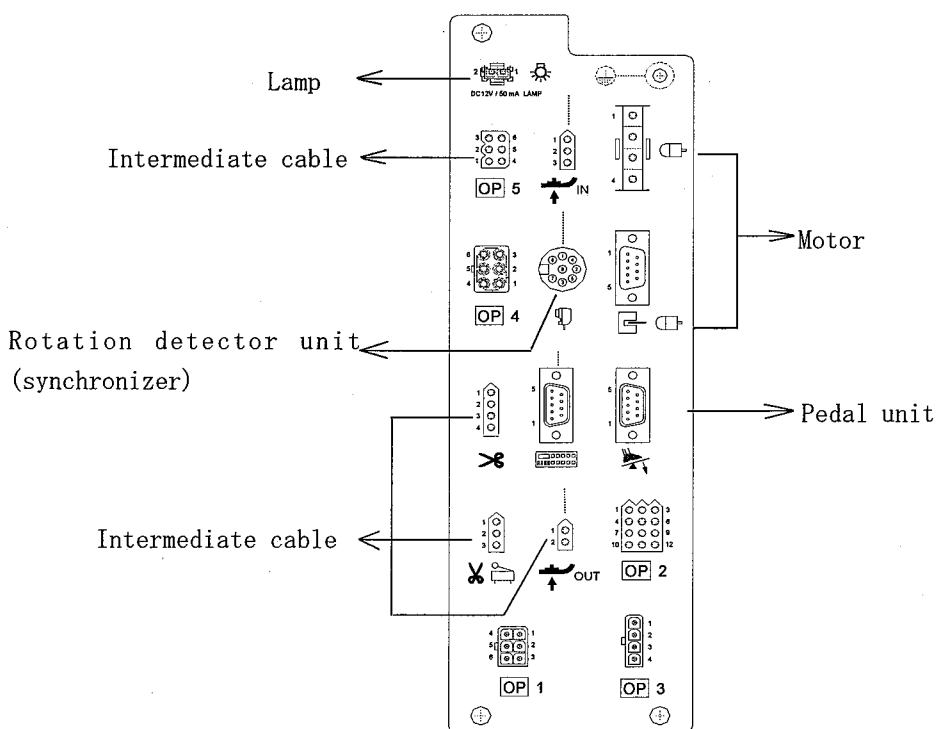


Fig. 5

**2.2.2 In case of UTL-A (without Y motor)**

**2.2.2.1 Connecting detector switch**

Connect the 3P-connector of the detector switch to that of the intermediate cable.

**2.2.2.2 Connecting intermediate cables to the solenoid valves**

Insert the connectors of the intermediate cables to the solenoid valves until you hear they click.

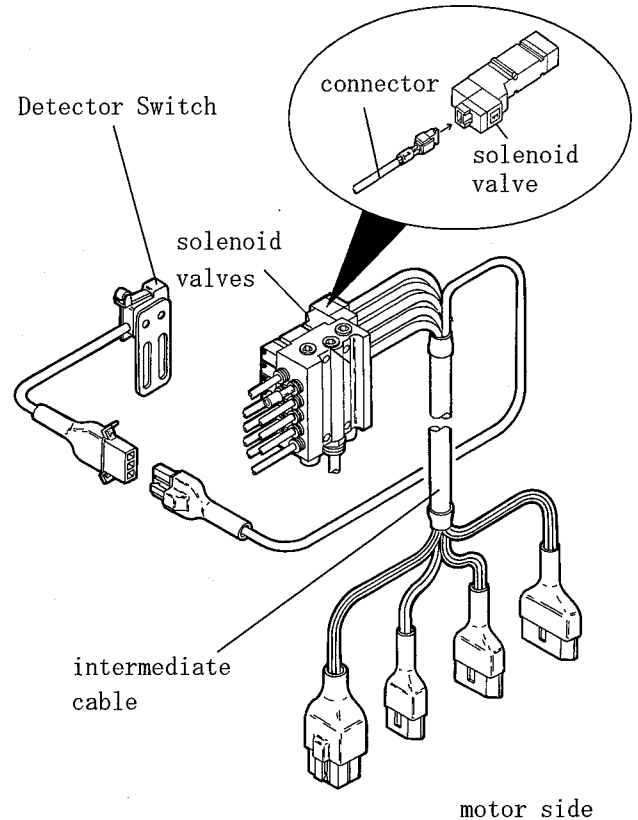


Fig. 6

**NOTE**

1. The figure indicates the case of using 5 solenoid valves.
2. The intermediate cable may differ according to the type of motor.

**2.2.2.3 Solenoid valve number and intermediate cable part number**

Device	Looper thread cutter	Presser foot lifter	Air wiper	Top cover thread cutter	Hook	Suction pipe	Number of solenoid valves	Intermediate cable part number
UTL-A44	②	①	③	×	④	⑤	5	1200491
UTL-A44/ST2-A	②	①	×	③	④	⑤	5	1200491

Table 2

Note 1 : The circled number shows the number of solenoid valves.

Note 2 : The intermediate cable which has been shown in the table 2 is in case of using Mitsubishi GY 100 motor.

## 2. Installation

### 2.2.2.4 Connect intermediate cable to motor

#### **WARNING**

To avoid electrical hazard, unplug the control box during wiring.

- Install the control box and the pedal unit onto the machine table by referring to the instruction manual for the motor.
- For the control box, the pedal unit, the motor, and the position detector (synchronizer), refer to the instruction manual for the motor.
- Connect each connector from control box with one which is the same in color and shape from intermediate cable. Miss-connecting may cause damage to the sewing machine.

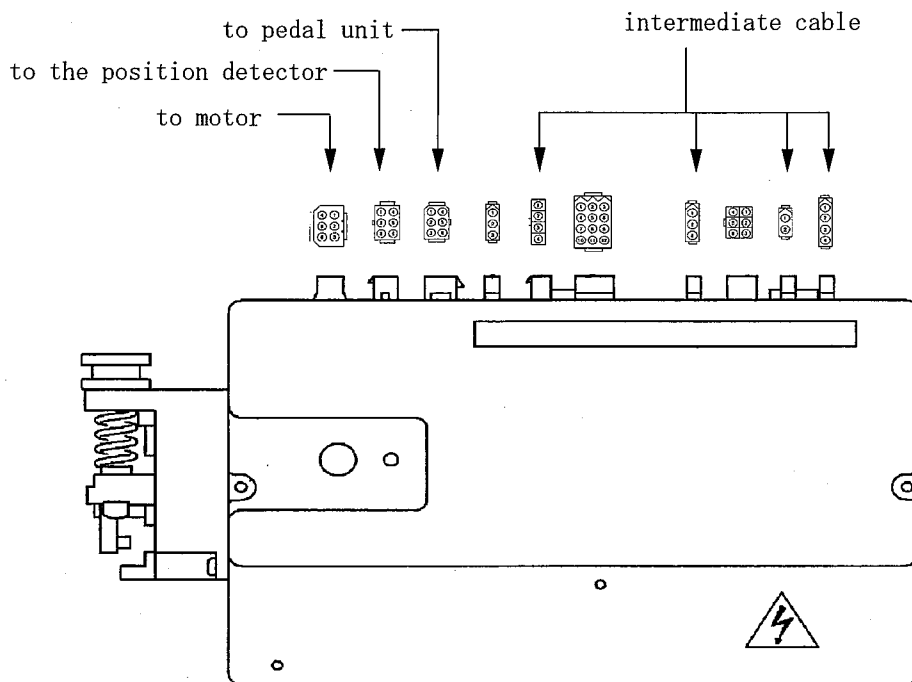


Fig. 7

## 2.3 Air piping diagram

### 2.3.1 UTL-A44/Y, UTL-A44 (VG2735 class)

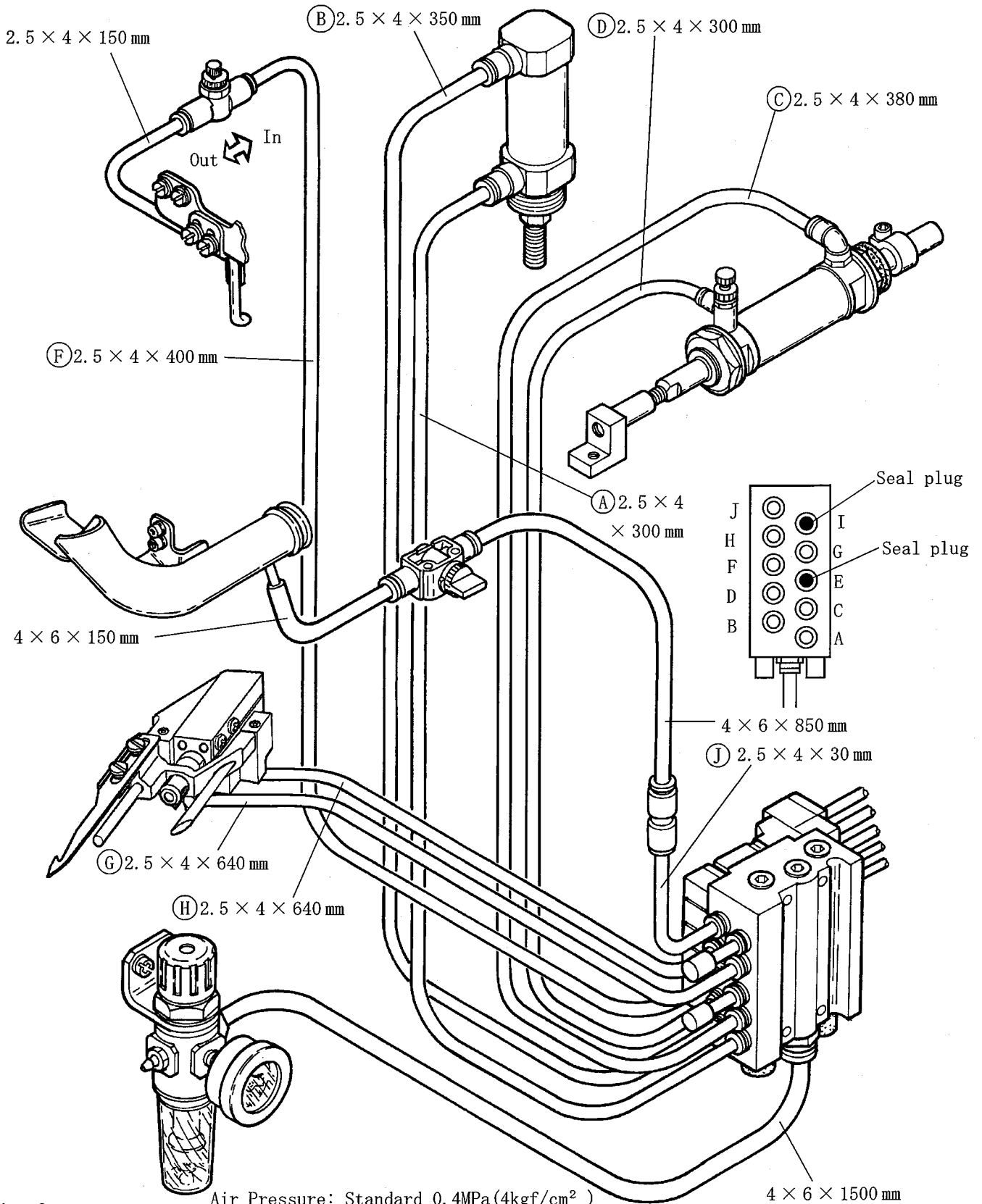


Fig. 8

Air Pressure: Standard 0.4MPa (4kgf/cm<sup>2</sup>)  
Range 0.35 ~ 0.45MPa

2. Installation

2.3.2 UTL-A44/ST2-A/Y, UTL-A44/ST2-A (VG2735 class)

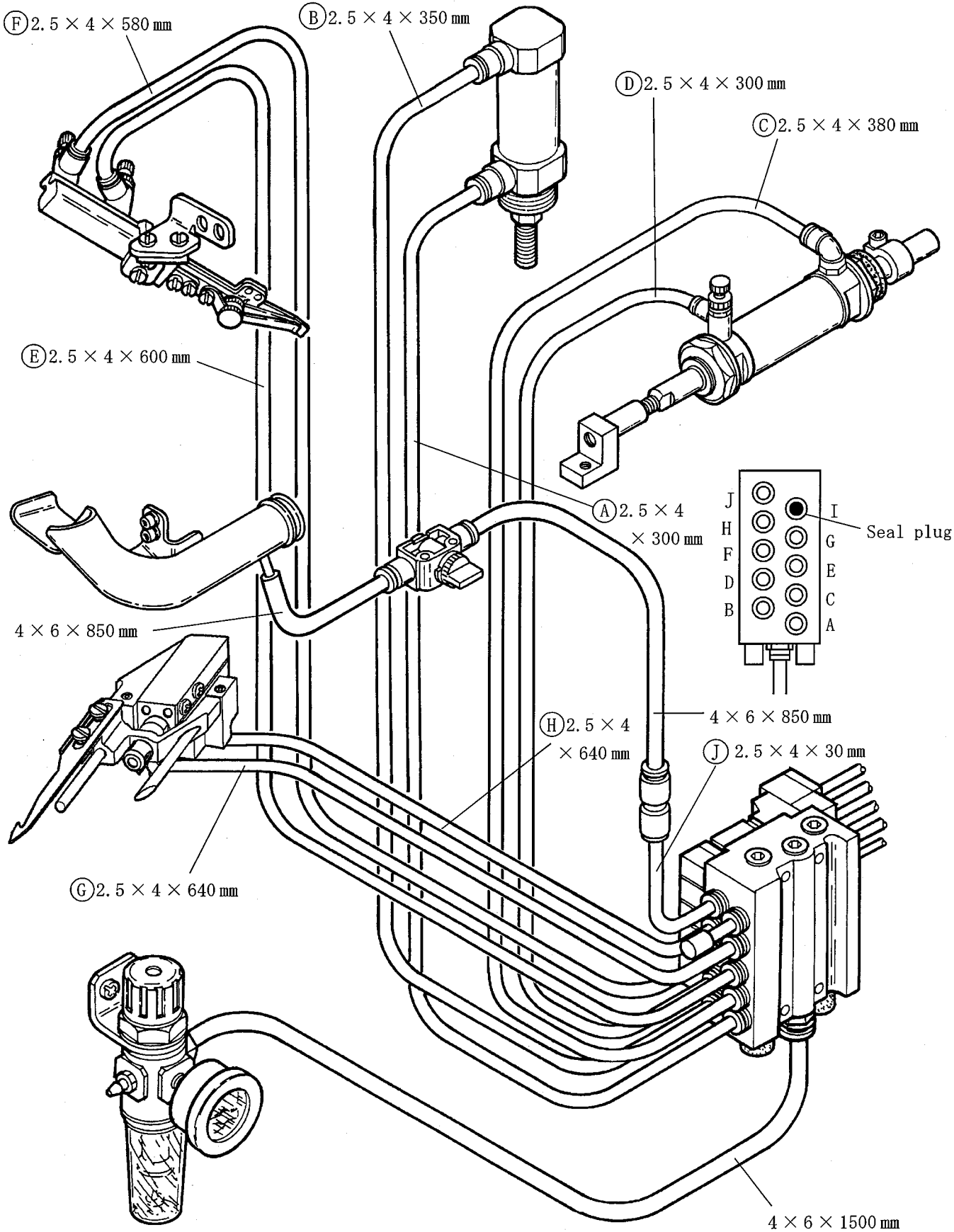


Fig. 9

Air Pressure: Standard 0.4MPa (4kgf/cm<sup>2</sup>)  
 Range 0.35 ~ 0.45MPa

2.3.3 UTL-A44/Y, UTL-A44 (VG3721 - 8 class)

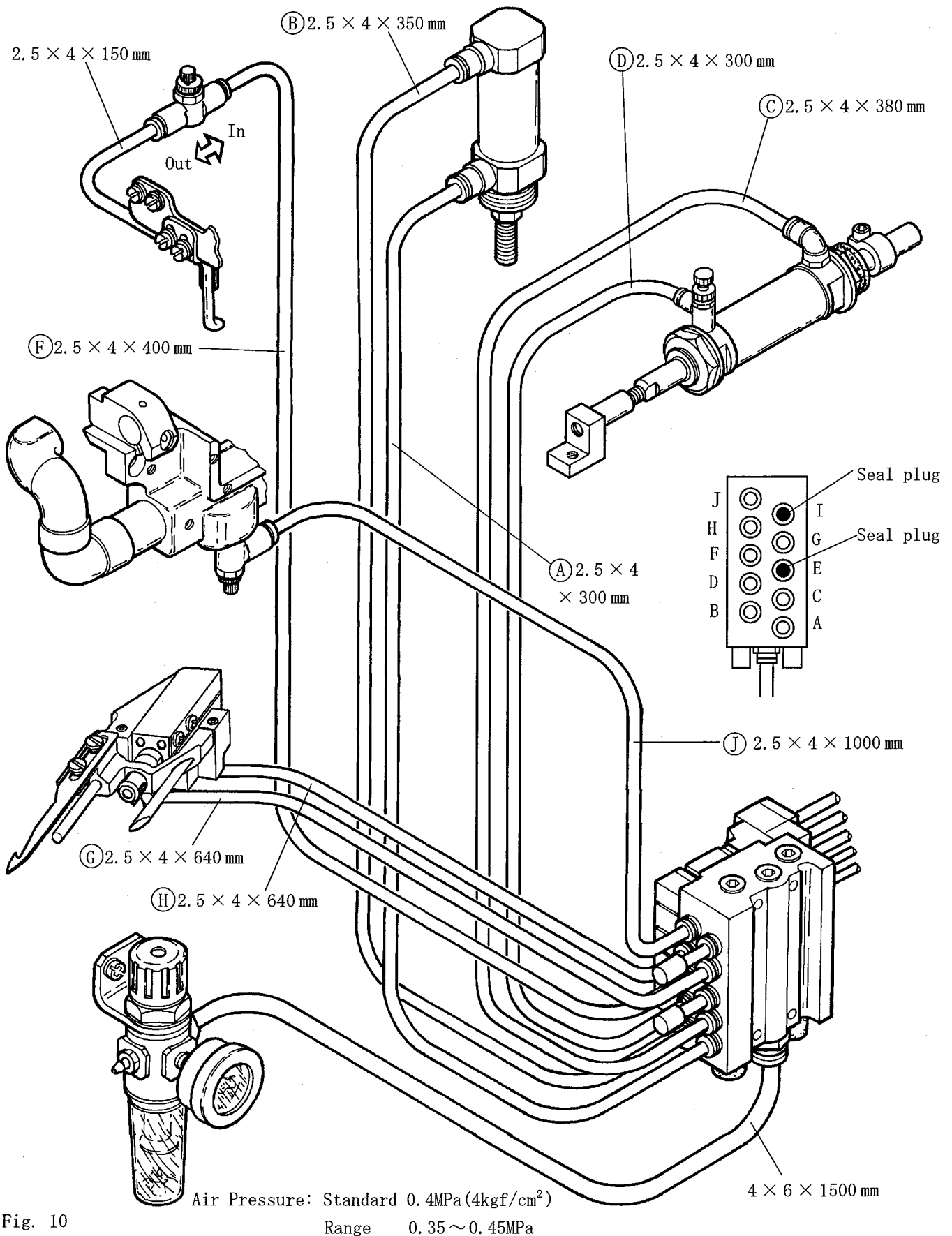


Fig. 10

## 2. Installation

### 2.3.4 UTL-A44/ST2-A/Y, UTL-A44/ST2-A (VG3721-8 class)

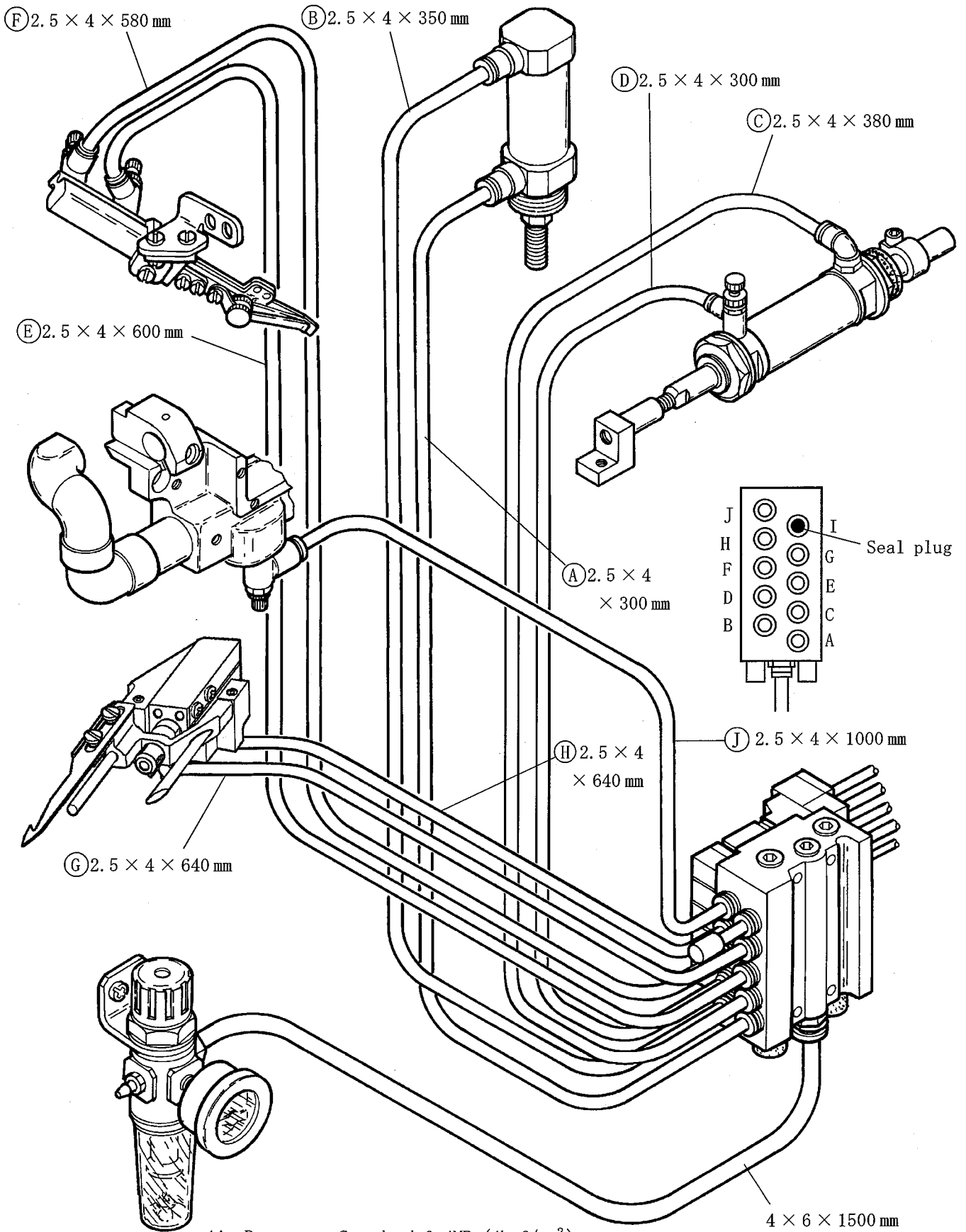


Fig. 11


Air Pressure: Standard 0.4MPa (4kgf/cm<sup>2</sup>)  
 Range 0.35 ~ 0.45MPa

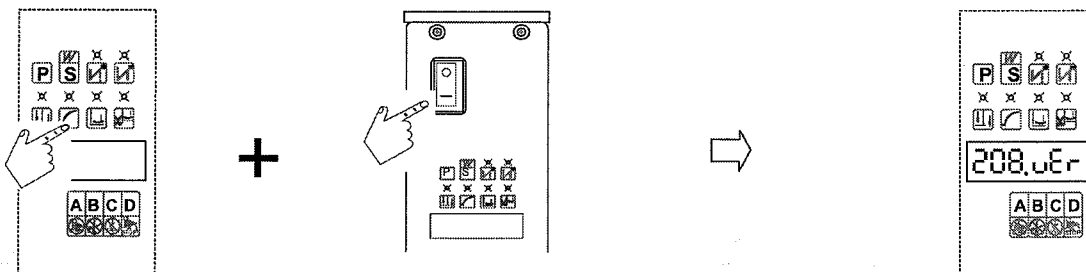
## 2.4 Setting motor

### 2.4.1 In case of UTL-A/Y (with Y motor)

#### 2.4.1.1 Setting UTL device

For main model, the setting of motor can be changed through the following method.

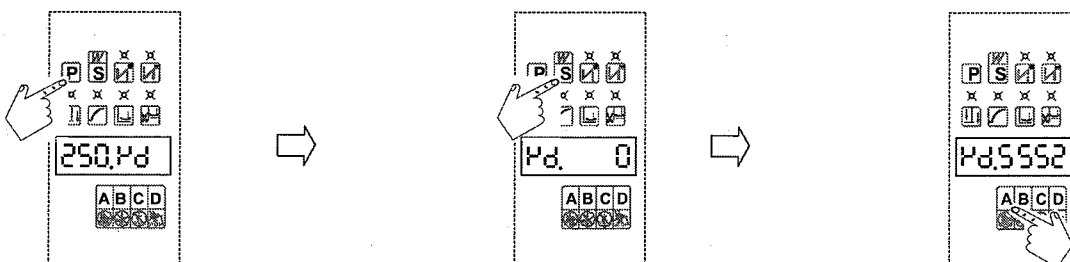
1 While pressing  key, turn the power switch on. LED displays "208.VER" as parameter number.



2 Press "P" key, the parameter number increases. Keep pressing until "250.Yd" is displayed.

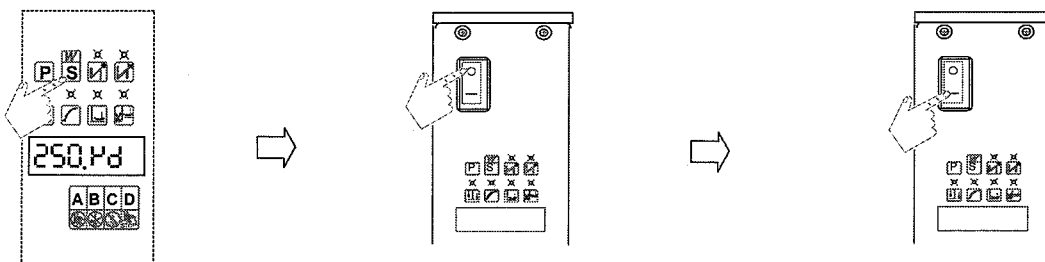
3 Press "S" key to display "Yd.WXYZ". "WXYZ" stands for the setting value and can be displayed from 0 to 9999.

4 Press "A" "B" "C" "D" key to enter the UTL device code. Please enter the appropriate code for machine by referring to Table 3 in "5. Appendix").



5 Press "S" key. After one second or more, turn the power switch off. LED displays "POWEROFF".

6 Turn the power switch on. Now UTL device can start working.



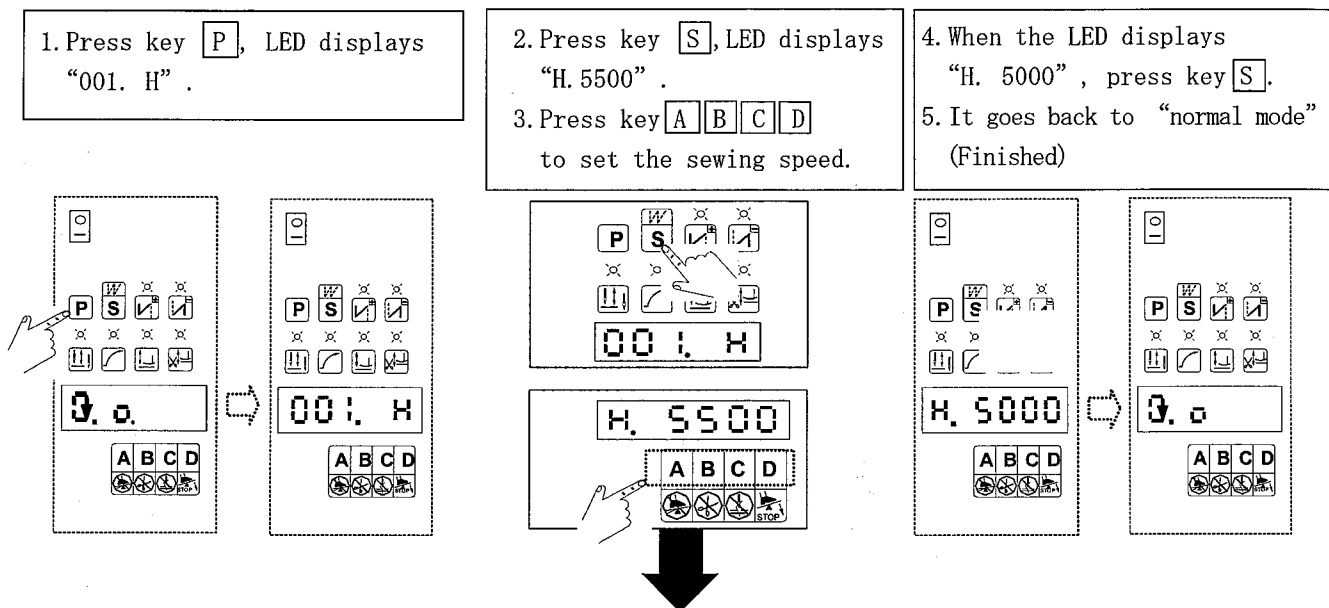


## 2. Installation

### 2.4.1.2 Setting sewing speed

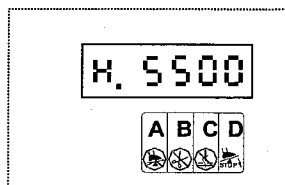
Set appropriate sewing speed according to the type of machine.

(Example) Change the speed from 5500rpm to 5000rpm.

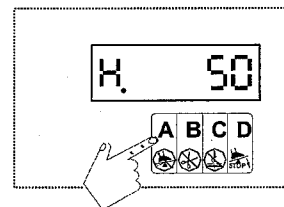
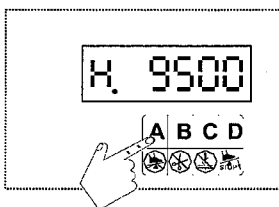


The numerical value cannot be decreased. When want to change speed setting, follow the procedure below.

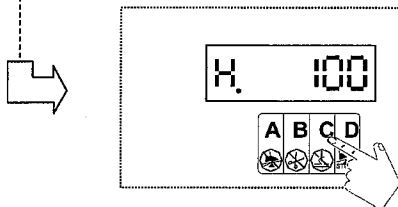
1. The speed setting is displayed.



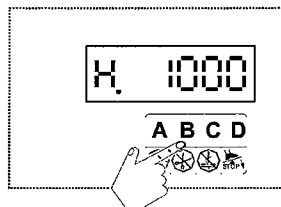
2. Press key **[A]** several times, lowest value "50" will be displayed after the highest value "9xxx".



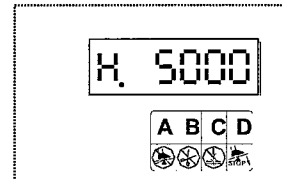
4. Press key **[C]**, the numerical value is displayed, then raise it.



5. Press key **[B]** to raise the value.



6. Set the numerical value by pressing **[A]** key.



### ⚠ CAUTION

Do not set the speed over the speed limit. It may cause the damage and trouble to the sewing machine.

### 2.4.1.3 Release the UTL

Press the **C** key to release and set the UTL.  
While 「**C**」 lights up, UTL is released, and it can be used as a UT-A device.

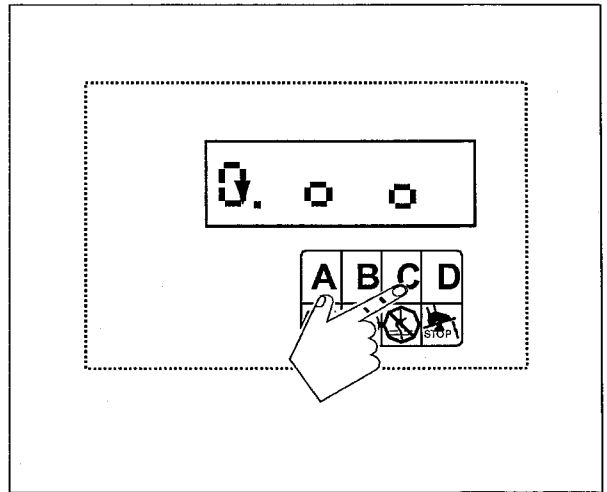


Fig. 12

### 2.4.1.4 Release thread cutting operation

Press the **B** key to release and set thread cutting operation.  
While 「**B**」 lights up, thread cutting operation is released.

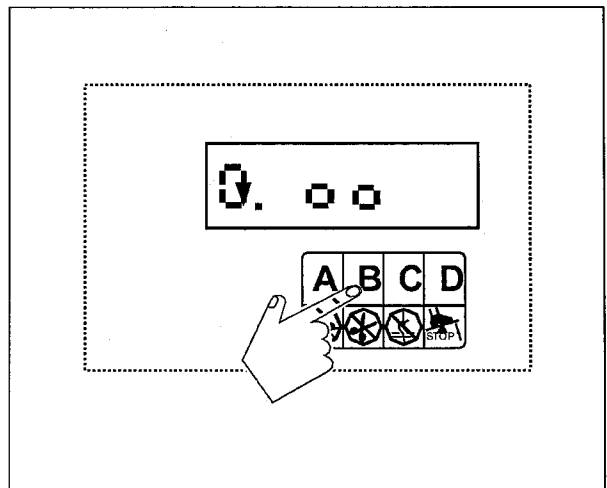


Fig. 13

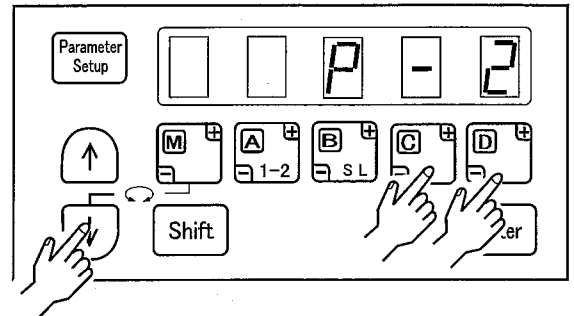
## 2. Installation

### 2.4.2 In case of UTL-A (without Y motor)

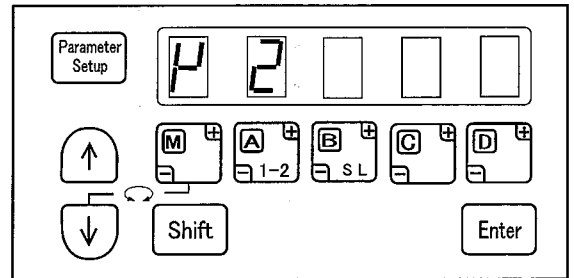
#### 2.4.2.1 Setting UTL-A device

Refer to the instruction manual for motor, change the setting of program mode [2], and make it suitable for UTL-A device.

- Shift it to program mode [2].  
(Press [ $\downarrow$ ] + [C] + [D] keys at the same time.)

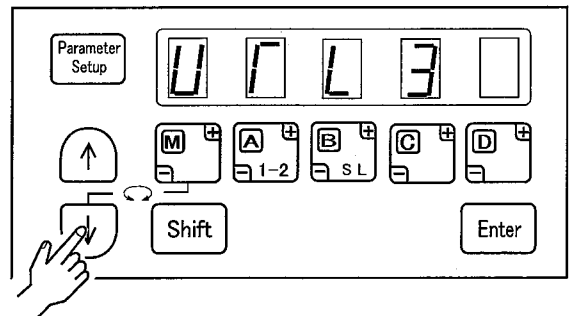


- Shift to program mode.

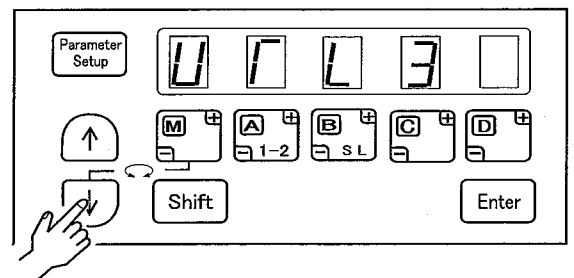


- Press the [ $\downarrow$ ] key, functions will be shown as the following.

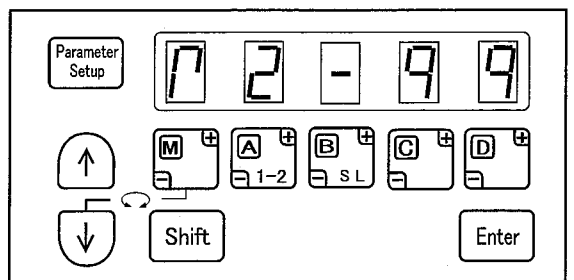
	Function	LED
UTL-A	UTL3	UFL3
UTL-A/ST2-A	UTL5	UFL5



- Keep pressing [D] key until the machine goes back to the normal mode.  
([UTL3] will be blinking during setting. It means that the setting is changing.)



- The normal mode will be displayed as the figure on the right.  
(Setting finished)



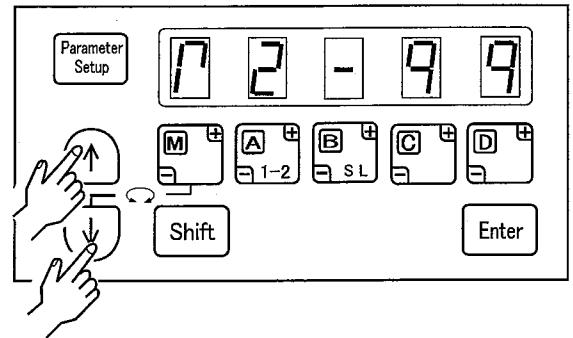
### 2.4.2.2 Setting sewing speed

Set the sewing speed according to the type of machine.

(Example) Change the sewing speed from 5500 rpm to 5000 rpm.

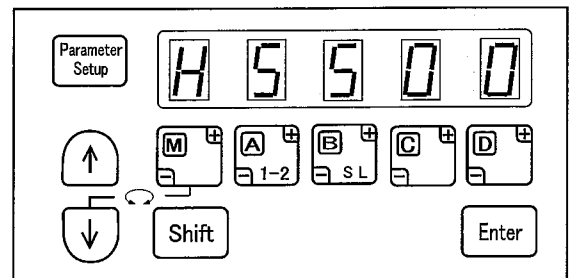
1. Shift it to program mode [P].

(Press [ $\downarrow$ ] + [ $\uparrow$ ] keys at the same time)

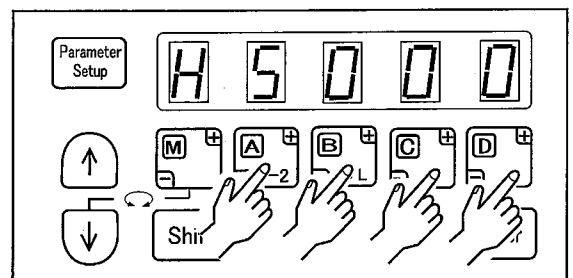


2. The program shifts to mode [P].

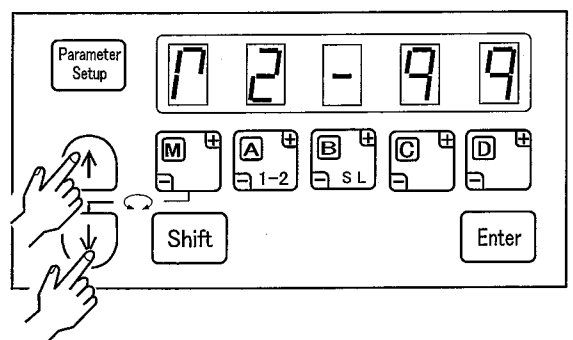
(The value which is shown on the LED is the setting value)



3. Press [A], [B], [C] and [D] keys to display [5 0 0 0].



4. Press [ $\downarrow$ ]+[ $\uparrow$ ] keys at the same time, it will go back to the normal mode.



### ⚠ CAUTION

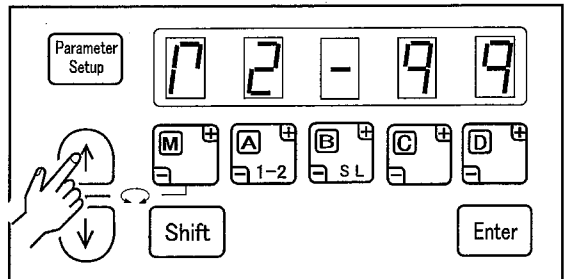
Do not set the value over the speed limit. It may cause damage and trouble to the machine.

## 2. Installation

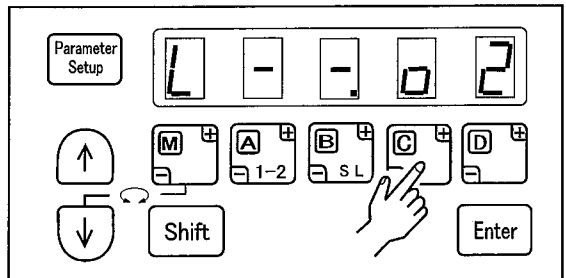
### 2.4.2.3 Release the UTL

This machine can be used as a UT-A device after releasing the UTL.

1. Press the [↑] key twice.

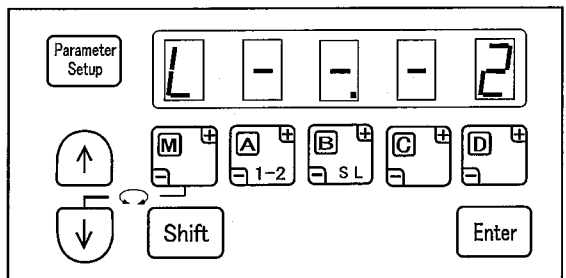


2. Press the [C] key to release the UTL.

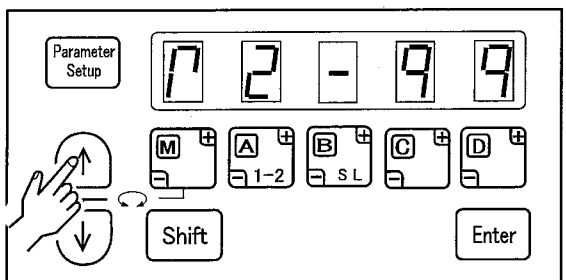


3. If 「-」 above the [C] key lights up, it means that the UTL has been released and can be used as a UT-A device.

4. Pressing the [C] key can activate the UTL again. If the 「□」 above the [C] key lights up, it means that the UTL has been activated.



5. Press [↑] key twice, it goes back to the normal mode.



## 2.5 Adjusting synchronizer (Adjusting position detector)

### 2.5.1 In case of UTL-A/Y (with Y motor)

#### ⚠ CAUTION

Unplug all the intermediate cable connectors which are connected to the solenoid valves. If not, they may be scratched by the parts and be damaged.

In case of sewing machine with UTL-A/Y device, make sure that the needle stops at the position between the highest point and the point 0.5 mm below the highest point.

Loosen the screws①, move the synchronizer② right and left to adjust the position.

Run the sewing machine and make sure the needle stops at the appropriate position.

After adjustment, refer to [2.2.1.3 Solenoid valve number and intermediate cable part number] and connect the intermediate cables to solenoid valves until they click.

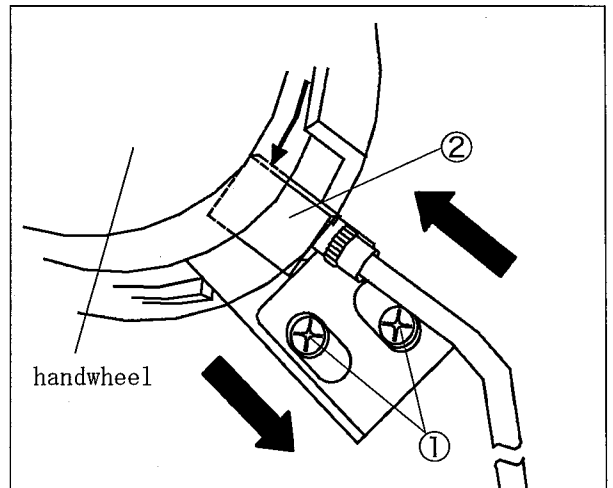


Fig. 14

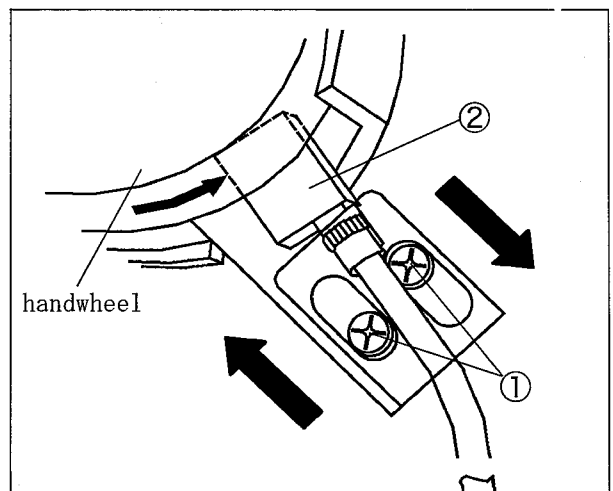


Fig. 15

## 2. Installation

### 2.5.2 In case of UTL-A (without Y motor)

#### ⚠ CAUTION

Unplug all intermediate cable connectors which are connected to the solenoid valves. If not, they may be scratched by the parts and be damaged.

- (1) Install the synchronizer① onto the machine pulley and tighten the screws② slightly.
- (2) Set the synchronizer positioning pin③ into the groove of the synchronizer① and tighten the screw④ securely.
- (3) Turn the motor switch "ON".
- (4) Toe down the pedal to sew two or three stitches.
- (5) Heel back the pedal. Then the needle stops a certain position.
- (6) Loosen the screws② and rotate the pulley clockwise. Align the line of the handwheel⑤ with the hole⑥ of the machine arm.

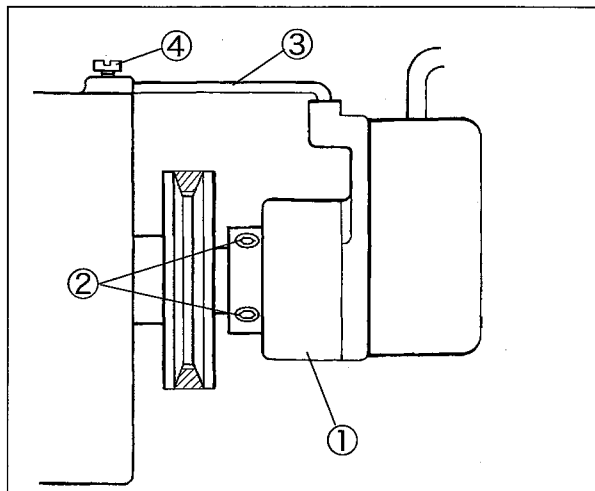


Fig. 16

#### NOTES

1. At this moment, the needle bar is at the highest point.
2. Turn the pulley clockwise. The using range of this device is between where the needle bar is at the highest point to the position that 0.5 mm below its highest point.

- (7) Toe down the pedal to sew a few stitches. Make sure that the needle bar stops at the position 0.5 mm below its highest point.

After installing the synchronizer, refer to 「2.2.2.3 Solenoid valve number and intermediate cable part number」 and connect the intermediate cable to solenoid valves until they click.

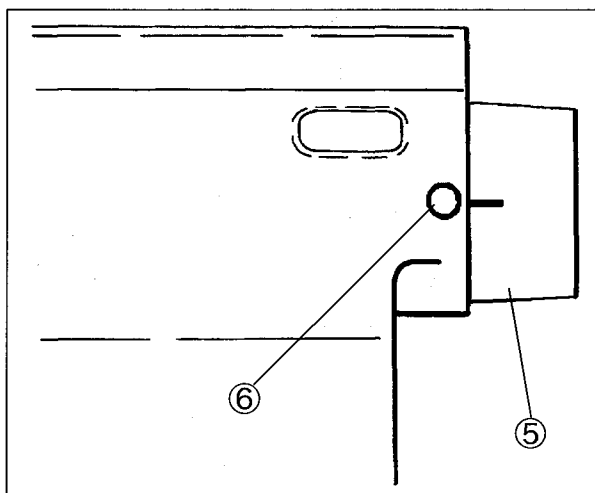


Fig. 17

# 3. Proper operation

## ⚠ CAUTION

Be sure to place a fabric under the presser foot during operation.

### 3.1 Operating procedure for UTL-A44/Y, UTL-A44 devices

The motor can be selected from needle up stop position (1 position) and needle down stop position (2 position). The operating procedure for 1 position and 2 position is as below.

- (1) Heel back the pedal to raise the presser foot.  
(Fig. 18 ③)
- (2) Place a fabric under the presser foot and toe down the pedal. (Fig. 18 ①)  
The machine starts sewing. At the same time, suction pipe starts suctioning chips.
- (3) Release the pedal. (Fig. 18 ②)
  - Suction stops.
  - The needle stops at the lowest point.  
(Skip this procedure when 1 position is selected.)
- (4) Heel back the pedal. (Fig. 18 ③)
  - The hook starts working.
  - The machine runs for several stitches.
  - The needle rises and stops at the highest point.
  - The trimming knife mechanism operates to cut the needle and the looper threads under the stitch plate. The looper thread will be held by the clamp spring.
  - The looper thread which was held by the hook also will be cut.
  - The presser foot rises and the air wiper blows air for 2 seconds.
- (5) Release the pedal to position ②. (Fig. 18 ②)  
The presser foot goes down.

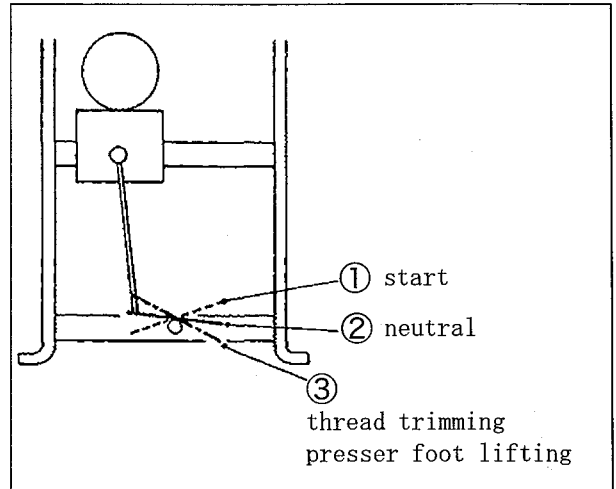


Fig. 18

## NOTE

The presser foot can be raised and lowered by heeling back the pedal to the positions ② and ③, except for the pedal is toed down to the position ①.



### 3. Proper operation

## ⚠ CAUTION

Be sure to place a fabric under the presser foot during operation.

### 3.2 Operating procedure for UTL-A44/ST2-A/Y, UTL-A44/ST2-A devices

The motor can be selected from needle up stop position (1 position) and needle down stop position (2 position). The operating procedure for 1 position and 2 position is as below.

- (1) Heel back the pedal to raise the presser foot.  
(Fig. 19 ③)
- (2) Place a fabric under the presser foot and toe down the pedal. (Fig. 19 ①)  
The machine starts sewing. At the same time the suction pipe starts suctioning.
- (3) Release the pedal. (Fig. 19 ②)
  - Suction stops.
  - The needle stops at the lowest point.  
(Skip this procedure when 1 position is selected.)
- (4) Heel back the pedal. (Fig. 19 ③)
  - The hook starts working.
  - The machine runs for several stitches.
  - The needle rises and stops at the highest point.
  - The trimming knife mechanism operates to cut the needle and the looper threads under the stitch plate. The looper thread will be held by the clamp spring.
  - The looper thread which was held by the hook also will be cut.
  - The ST2-A device cuts the top cover thread and will hold it. Then the presser foot rises.
- (5) Release the pedal. (Fig. 19 ②)  
The presser foot goes down.

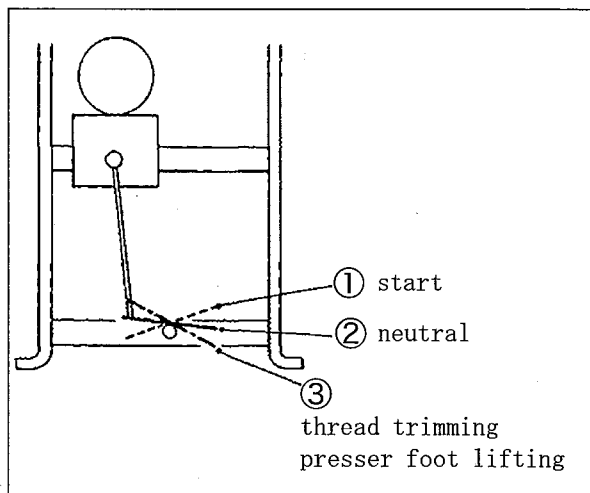


Fig. 19

## NOTE

The presser foot can be raised and lowered by heeling back the pedal to the positions ② and ③, except for the pedal is toed down to the position ①.

### 3.3 Regular maintenance (Only for UTL-A/Y with Y motor )

1. Remove the dust from the dust proof filter① on the motor bracket every day.

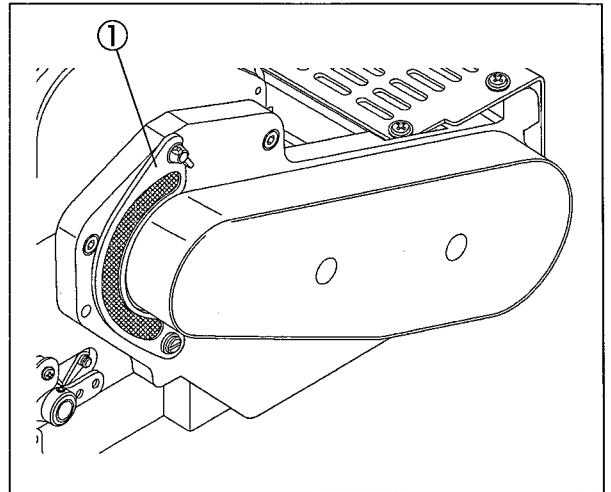


Fig. 20

2. Loosen the wing bolt② to remove the dust proof filter①, and remove the dust inside once a week.

**⚠ CAUTION**

When dust is clogged, the sewing machine may not be cooled down sufficiently. This may cause over heating.

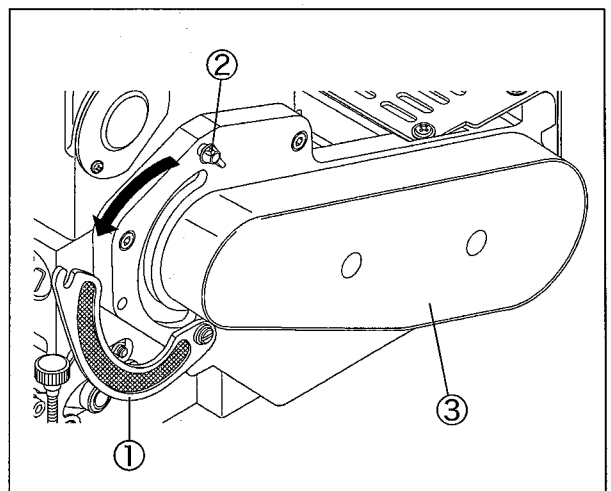


Fig. 21

3. Remove the belt cover to clean the around once a month.

**⚠ CAUTION**

If dust clogs up between the timing pulleys③④ and the timing belt⑤, it can cause belt breakage.

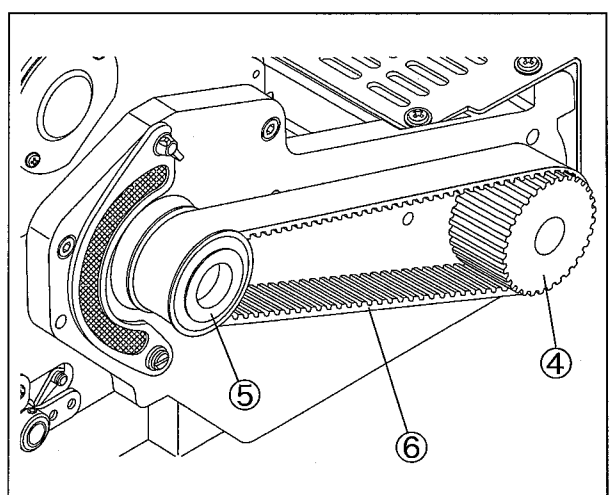


Fig. 22

# 4. Adjustment

## ⚠ WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

### 4.1 Adjusting detector switch

The detector switch has been designed not to let the sewing machine start working until the trimming knife returns to its original position completely.

- (1) Loosen the screws ① and ②.
- (2) Adjust the positions of the detector switch ③ and the switch guide ④ as below.
  - Make the switch be pressed (ON) when the trimming knife returns to its original position.
  - Make the switch not be pressed (OFF) when the front of the upper knife touches the looper while moving the air cylinder by hand.
- (3) Tighten the screws ① and ② securely.

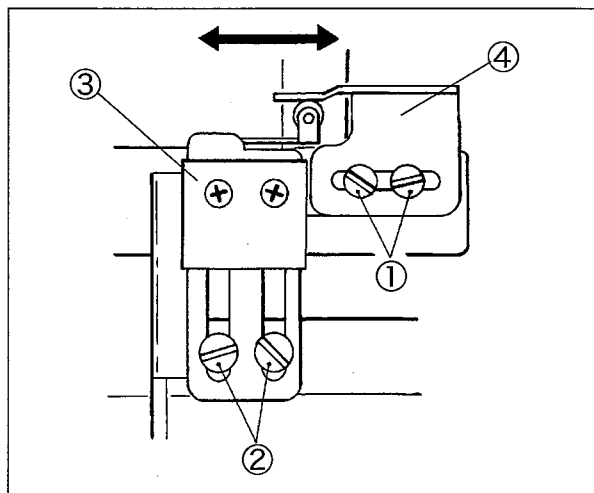


Fig. 23

### 4.2 Adjusting thread trimming mechanism

#### 4.2.1 Thread trimming air cylinder

The proper stroke of the air cylinder is 15 mm.  
Make adjustment by loosening the screw ⑥ of the collar ⑤.

## ⚠ CAUTION

Readjust the thread trimming mechanism after changing the stroke of the air cylinder.

#### Adjusting speed controller

The speed controller controls the speed of that the air cylinder starts working until the air cylinder comes back.

To adjust the standard position for speed controller, tighten the adjusting knob ⑦ securely first, then turn it back twice.

## ⚠ CAUTION

After adjustment, fix the adjusting knob ⑦ with the lock nut ⑧ securely.

If turn the speed controller fully, the shocking will be huge. This can cause damage to trimming devices.

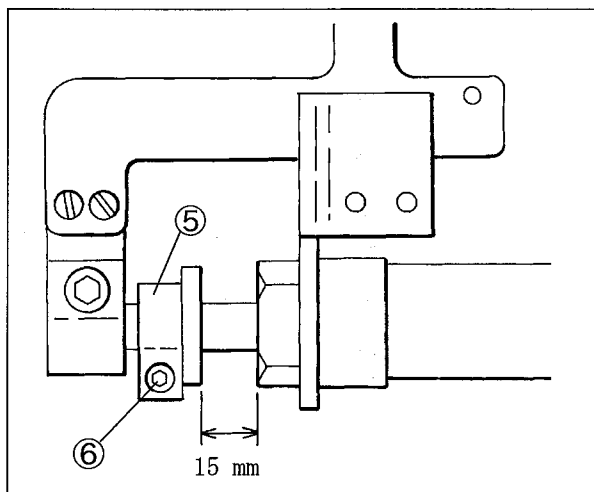


Fig. 24

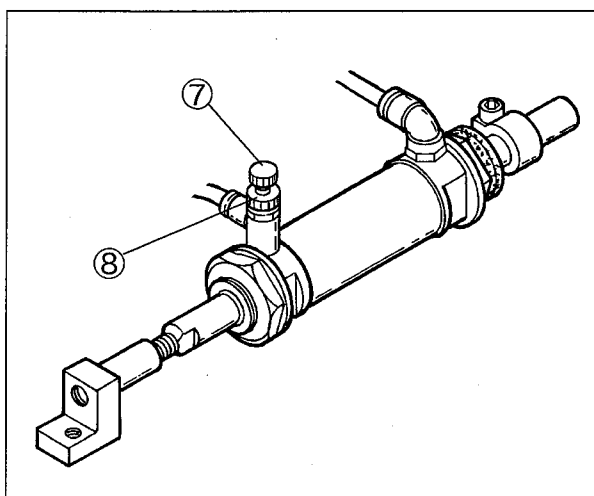


Fig. 25

**WARNING**

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

**4.2.2 Position of lower knife****CAUTION**

When operating the trimming knife mechanism manually, raise the needle to the highest point. If not, the parts may be touched and broken.

- (1) Loosen the screws ⑤.
- (2) Set the part ② of the lower knife ① parallel to the part ④ of the lower knife carrier ③.
- (3) Tighten the screws ⑤ securely.

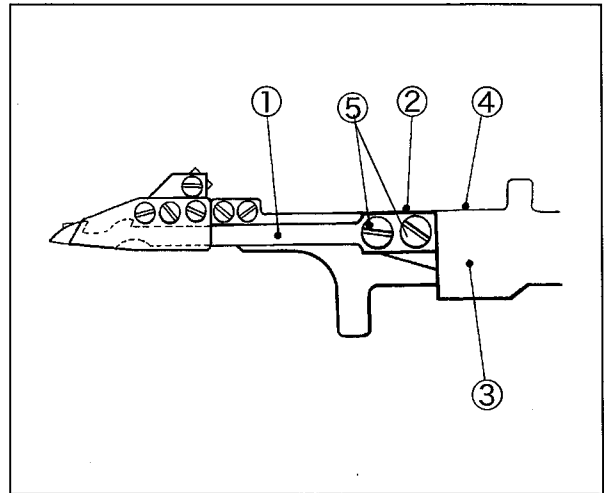


Fig. 26

**4.2.3 Relation between upper and lower knives**

- (1) Loosen the screws ⑩.
- (2) Make the tip of the needle thread hook ⑥ of the lower knife pass the corner ⑧ of the upper knife ⑦.
- (3) Move the lower knife to the extreme right. Move the upper knife ⑦ right or left, and make the engagement between the looper thread hook ⑨ and the upper knife ⑦ to 0.5 mm.
- (4) Tighten the screws ⑩ securely.

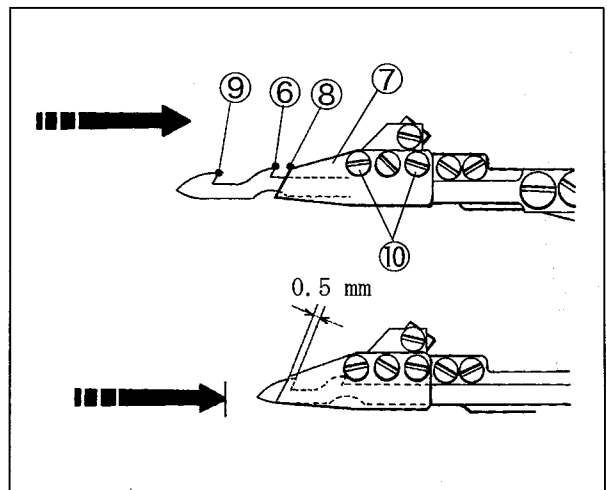


Fig. 27

**4.2.4 Positions of clamp spring and clamp spring presser**

- (1) Loosen the screws ⑩.
- (2) Set the part ⑫ of the lower knife ① at the same line with the back of the clamp spring ⑪ when the lower knife moves to the right.
- (3) Tighten the screws ⑩ securely.
- (4) Loosen the screws ⑭.
- (5) Set the back of the clamp spring presser ⑬ at the same line with the backs of the lower knife ① and the clamp spring ⑪.
- (6) Make the distance between the left tip of the clamp spring pressure ⑬ and the upper knife tip to 1 mm.
- (7) Tighten the screws ⑭ securely.

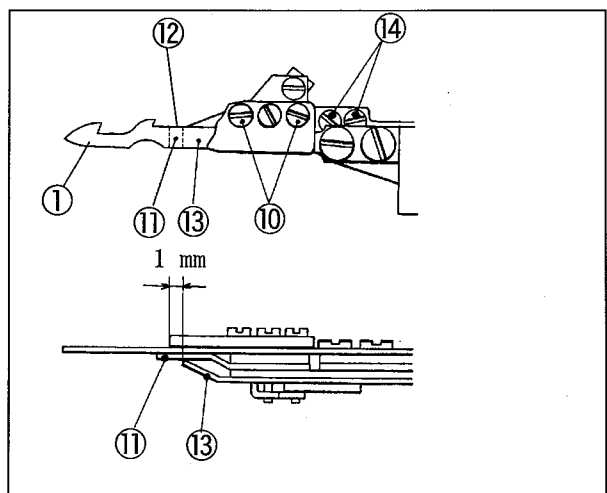


Fig. 28

## 4. Adjustment

### WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

#### 4.2.5 Pressure of clamp spring

The looper thread is caught and held by the clamp spring ① after being cut.

Turn the adjusting screw ② to adjust the pressure.

- To increase the pressure, turn it clockwise.
- To decrease the pressure, turn it counterclockwise.

Keep the pressure as low as possible to hold the looper thread.

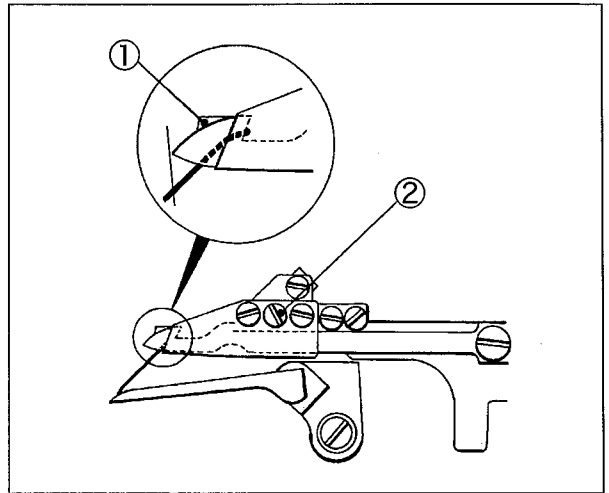


Fig. 29

#### 4.2.6 Position of upper knife carrier

When the lower knife carrier ③ slides to the left, the upper knife carrier ④ also slides to the left at the same time, and will be stopped by touching the upper knife carrier stopper ⑤.

The upper knife slides into the bottom of the stitch plate.

The position of upper knife carrier stopper will be decided by the screws ⑥ automatically.

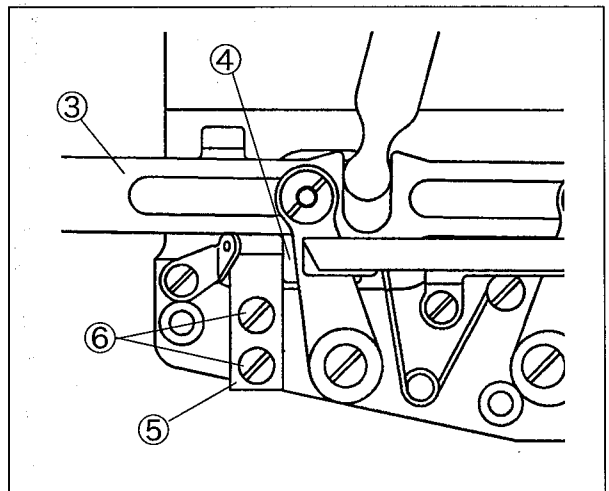


Fig. 30

**⚠ WARNING**

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

### 4.2.7 Relation between lower knife and needle

- (1) Loosen the nuts ②.
- (2) Move the lower knife ① to the extreme left.
- (3) Move the connecting block ③ right and left to make the distance between the needle thread hook ④ and the left needle to 3.5 - 4.5 mm.
- (4) Tighten the nuts ② securely.

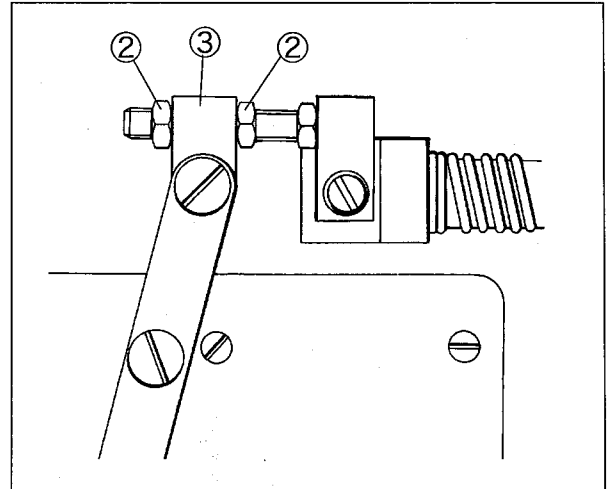


Fig. 31

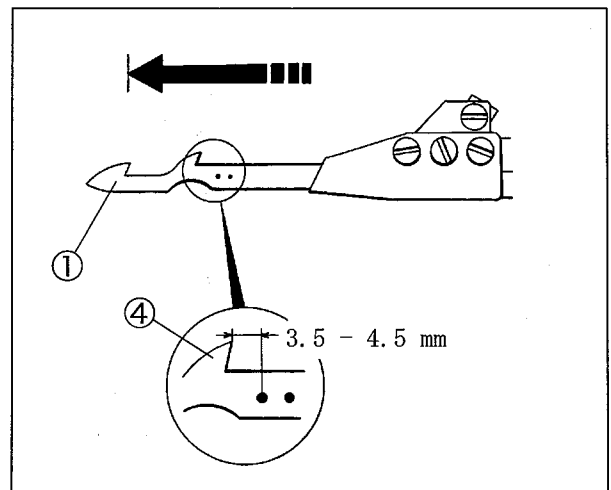


Fig. 32

## 4. Adjustment



### WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

#### 4.2.8 Position of the tip of lower knife

- (1) Move the lower knife ① to the left.
- (2) When the distance between the tip ② of the lower knife ① and the right end of the looper is 12 mm, make the tip ② position at the center of the flat part of the looper.
- (3) Loosen the screw ③ and turn the knife guide lever ring (right) ④ to adjust the position of the tip ②.

- To move the tip backward, turn it clockwise.
- To move the tip forward, turn it counterclockwise.

- (4) Tighten the screw ③ securely.

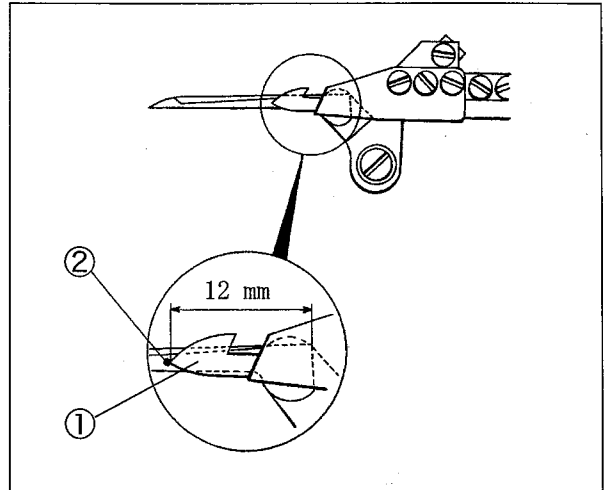


Fig. 33

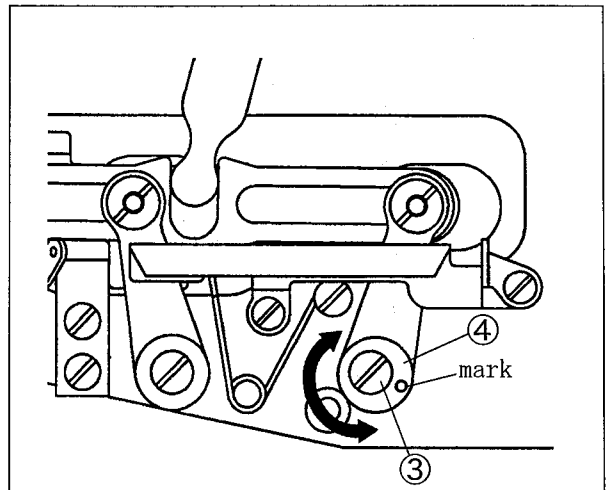


Fig. 34

## ⚠ WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

### 4.2.9 Lower knife carrier guide

Make the clearance between the lower knife ① and the upper end of the looper to 0.05 - 0.1 mm.

- (1) Loosen the screws ②. Move the lower knife carrier guide ③ up or down to adjust the clearance.
- (2) Tighten the screws ② securely.
- (3) After adjustment, make sure the upper and lower knife carriers move smoothly.

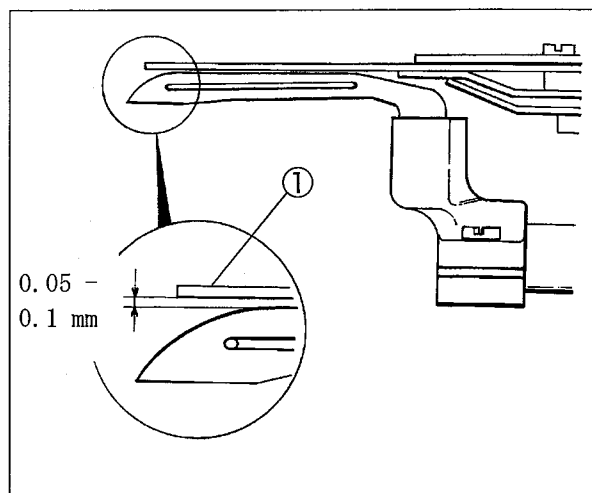


Fig. 35

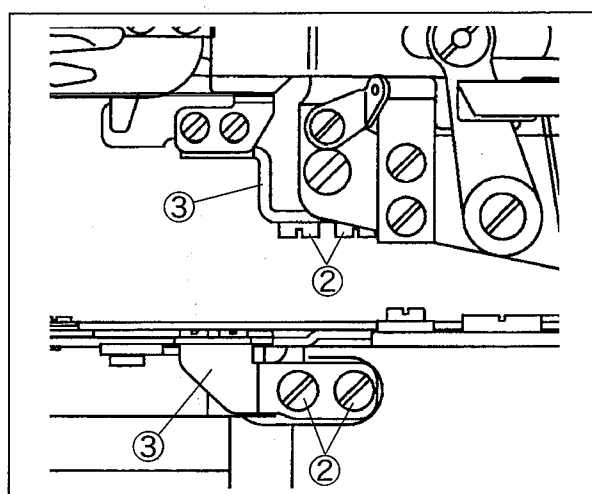


Fig. 36

### 4.2.10 Lower knife carrier guide(upper)

When the lower knife carrier slides to the left, the upper knife carrier also slides to the left at the same time, and will be stopped by touching the upper knife carrier stopper.

- (1) Loosen the screws ④.
- (2) Make the clearance between the lower knife carrier ⑤ and the lower knife carrier guide(upper) ⑥ to 0.05 - 0.1 mm when the upper knife carrier stops.
- (3) Tighten the screws ④ securely.

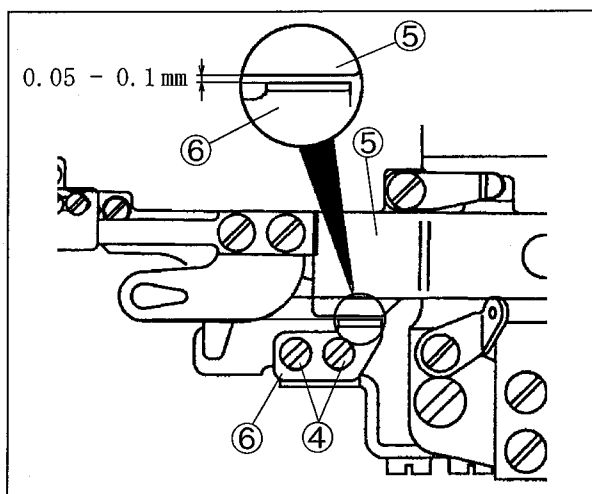


Fig. 37



## 4. Adjustment

### 4.2.11 Adjusting hook

#### Up-and-down position

(1) Turn the pulley clockwise and match the mark on handwheel with the arm hole ②.

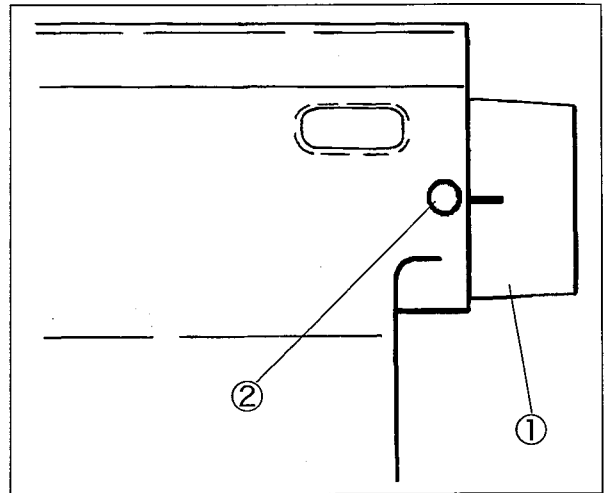


Fig. 38

(2) Make the top surface of hook ④ 0.5-1.0 mm lower than the looper ③ top surface, and adjust it to a level.

To make adjustment loosen the screw ⑤ and hold the knife carrier ⑥ up.

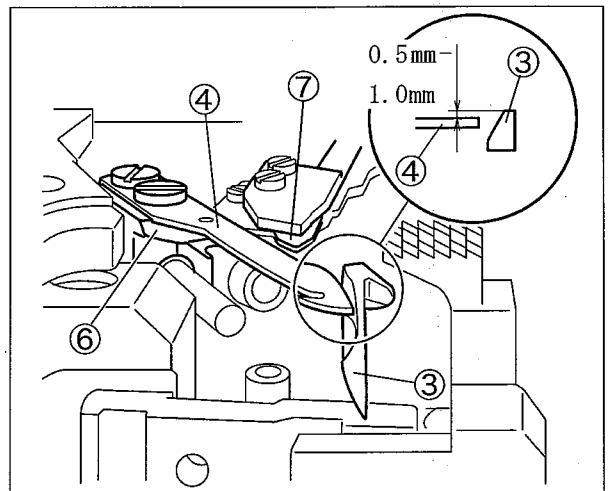


Fig. 39

(3) Make sure that when the lower knife ⑦ of UT device moves back, it won't touch the hook ④.

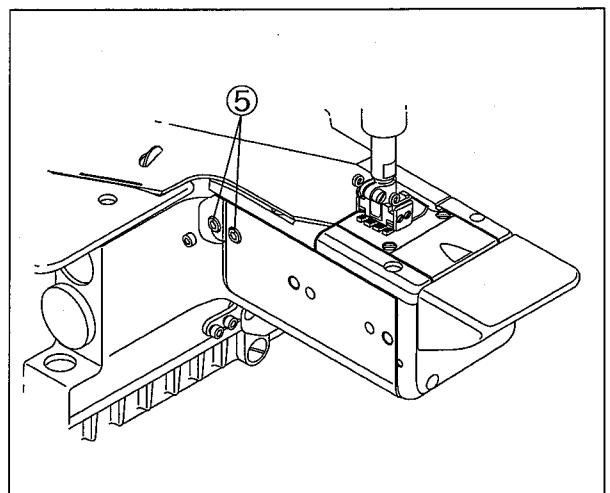


Fig. 40

**Position of the hook**

When the hook ④ at its original position, adjust the front-and-rear distance between the needle thread hook ⑧ of the knife ⑦ on UT device and the slot ⑨ of the hook ④ to 0.5-1.0 mm.

Make sure that when the hook comes extreme out (at this point, the hook ④ touches the looper ③ and comes out of it), the tip ⑩ of the hook is in front of the back ⑪ of the looper.

Loosen the screw ⑫ to make adjustment.

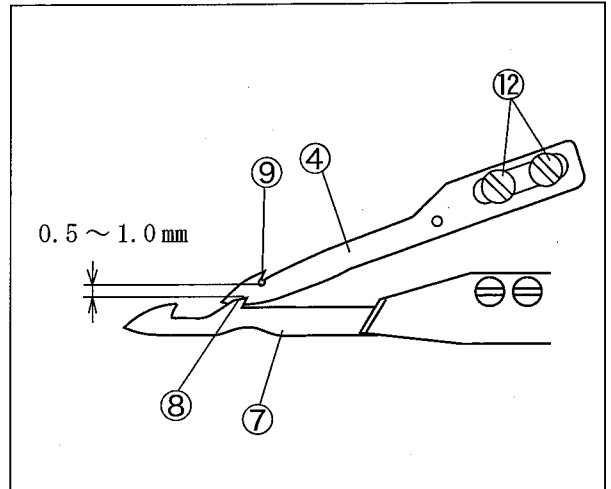


Fig. 41

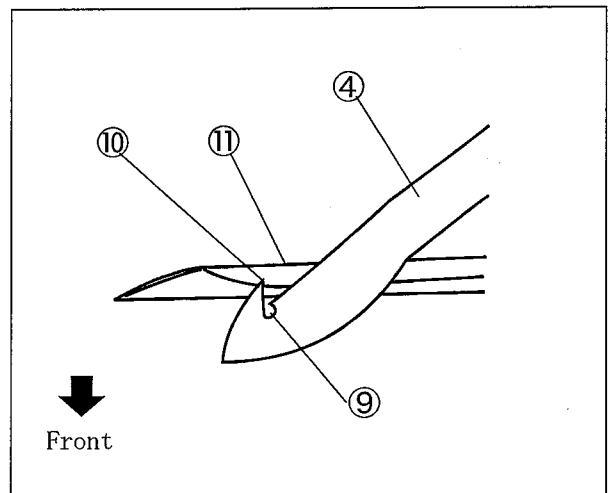


Fig. 42

## 4. Adjustment

### WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

#### 4.2.12 Relation between lower knife and needle thread or looper thread

After adjustment, recheck the following points before sewing.

★ The lower knife ① should pass through the needle thread loops ② and ③, and the hook ④ should pass the front of the looper thread ⑤.

★ The needle and the looper threads are pulled by the hooks ④ and ⑥ to the right when the lower knife ① returns. Then the threads will be cut by the upper knife.

If the UTL device has been adjusted correctly, the end of the seam should be as same as the Fig. 44A.

Looper thread ⑦ does not unravel easily.

Looper thread ⑧⑨ may untangle because they have been cut.

If the hook did not hold the looper thread, the end of seam will be as same as the Fig. 44B.

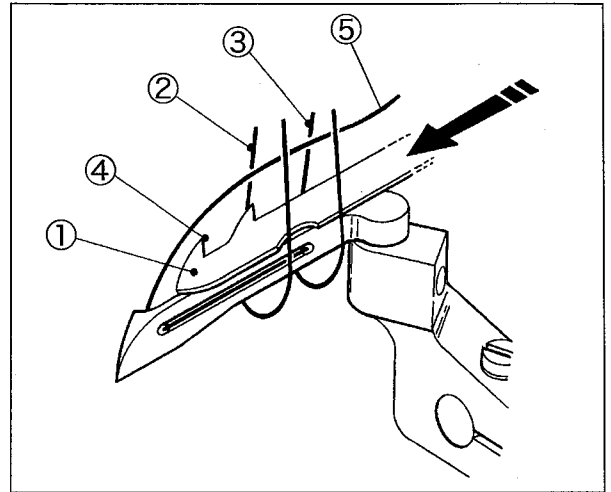


Fig. 43

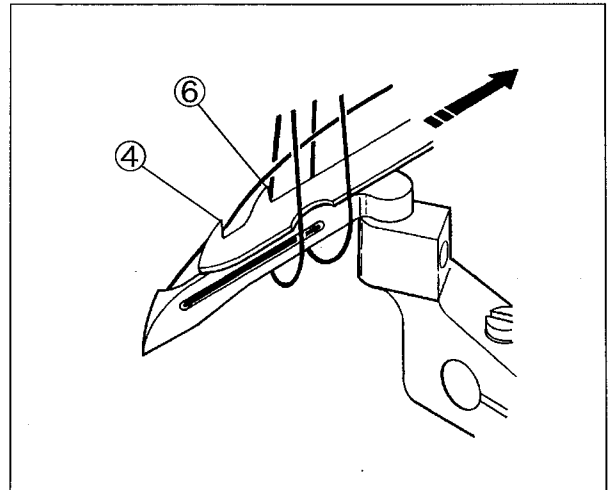


Fig. 44

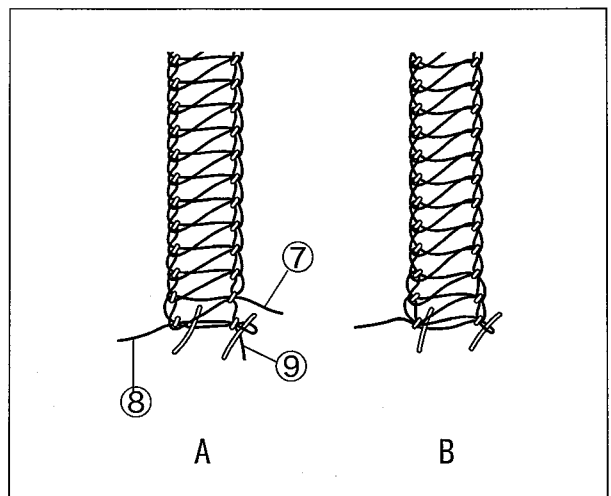


Fig. 45

## ⚠ WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

### 4.3 Adjusting tension release mechanism

#### 4.3.1 Tension release block

- (1) Loosen the screw ③.
- (2) When the rod of the thread trimming air cylinder is at the extreme left (when the trimming knife device does not operate), even up the edge of the tension release block ① and rod end ② of the air cylinder.
- (3) Tighten the screw ③ securely.

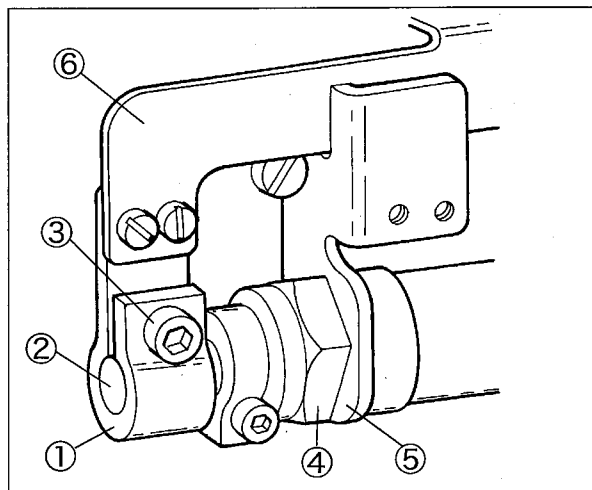


Fig. 46

#### 4.3.2 Tension release connecting plate

Make adjustment by referring to Fig. 46.

- (1) Loosen the lock nut ④ of the air cylinder.
- (2) Adjust the position of the switch holder ⑤ so that it won't come out of the screw head ⑦ and the clearance between the tension release connecting plate ⑥ and the tension release lever ⑧ can be kept.
- (3) Tighten the lock nut ④ securely.

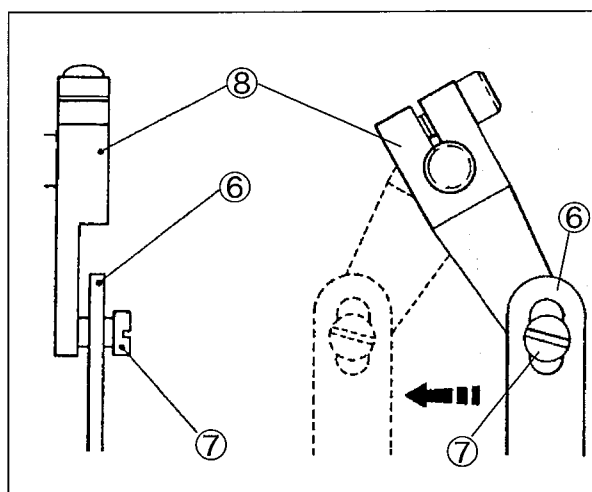


Fig. 47

#### 4.3.3 Thread pull-off lever

- (1) Loosen the screw ⑩ of the tension release lever ⑧ on the rear of the machine frame.
- (2) Raise the thread pull-off lever ⑨ to the highest point.
- (3) Tighten the screw ⑩ securely.

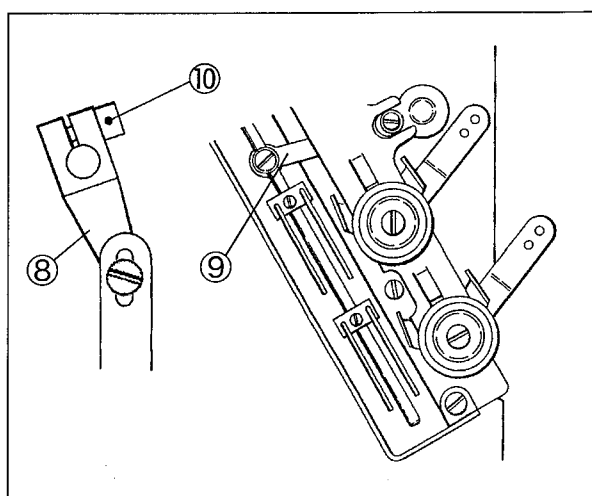


Fig. 48

## 4. Adjustment

### WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

#### 4.3.4 Tension disc separator

- (1) Loosen the screw ② of the tension release adjusting eccentric ①.
- (2) Position the tension disc separator ③ by turning the tension release adjusting eccentric ① so that the thread tension discs can be opened as fast as possible.  
To open the thread tension discs fast, lower the tension disc separator ③.
- (3) Loosen the screw ⑦ to set the top of the tension pull-off bar ④ 35 mm extruded from that of the thread pull-off eyelet ⑤.
- (4) Tighten the tension pull-off bar ④ to the thread pull-off bar holder ⑥ with the screw ⑦.

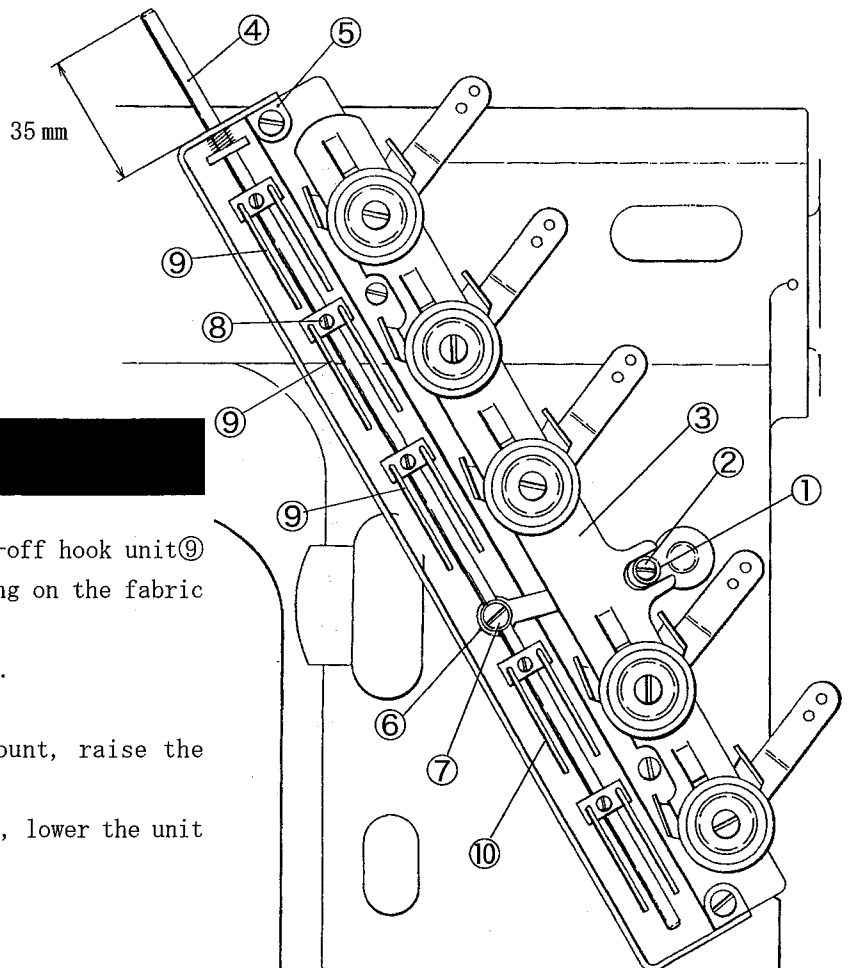


Fig. 49

#### 4.3.5 Thread pull-off hook unit

Adjust the position of the thread pull-off hook unit ⑨ not to remain the needle thread too long on the fabric surface at the beginning of sewing.  
Loosen the screws ⑧ to make adjustment.

- To decrease the thread take-up amount, raise the thread pull-off hook unit ⑨.
- To increase the thread take-up amount, lower the unit ⑨.

### CAUTION

1. If the thread take-up amount of the hook unit ⑨ is too small, the stitch can not be formed at the beginning of sewing.
2. Use the thread pull-off hook unit ⑩ only when using woolly thread for the looper. When not using, raise it to the position that the thread can not be taken-up.

## 4.4 Adjusting air wiper

- (1) Loosen the screws③.
- (2) Slide the air wiper① back and forth to make the air blow the back the needles.
- (3) Tighten the screws③ securely.
- (4) Loosen the screws④.
- (5) Raise the needle to the highest point, and place the center of the air blowing hole② of the air wiper 1 - 2 mm below the left needle eye.
- (6) Tighten the screws④ securely.
- (7) Adjust the air volume with adjusting screw of the speed controller⑤.

- To decrease the air volume, turn it clockwise.
- To increase the air volume, turn it counterclockwise.

### ⚠ CAUTION

1. Keep the air volume as low as possible.
2. If the air blows the front of the needles, the needle thread may be slipped away from the needle eye. Make sure that the air blows the back of the needles.

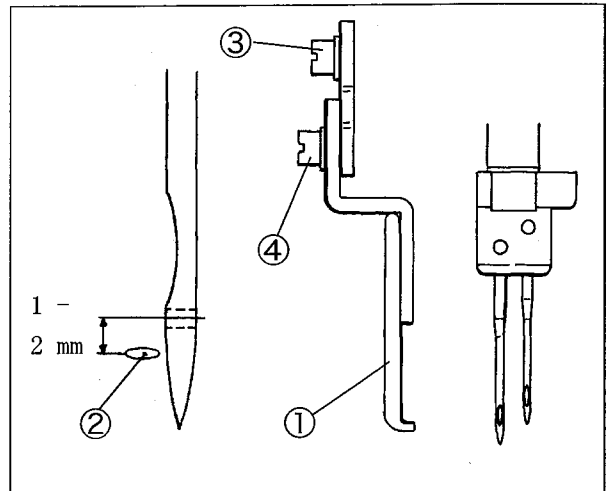


Fig. 50

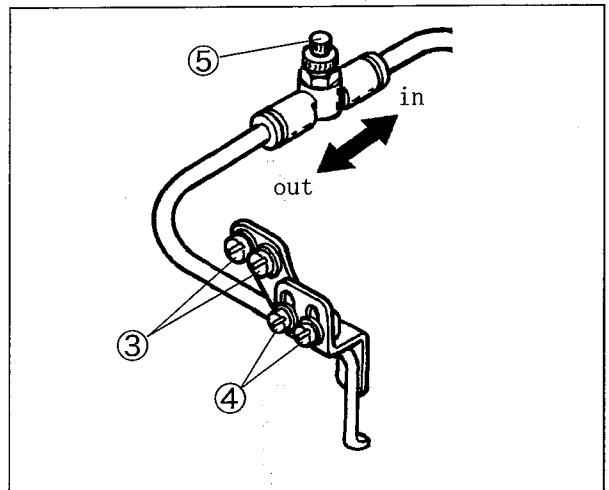


Fig. 51

## 4. Adjustment



### WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

### 4.5 Presser foot lifter mechanism

- (1) Loosen the lock nut ①.
- (2) Turn the cylinder rod chip ③ to raise the presser foot 6 mm up when the cylinder rod ② is lowered (during the cylinder operates).
- (3) Tighten the lock nut ① securely.

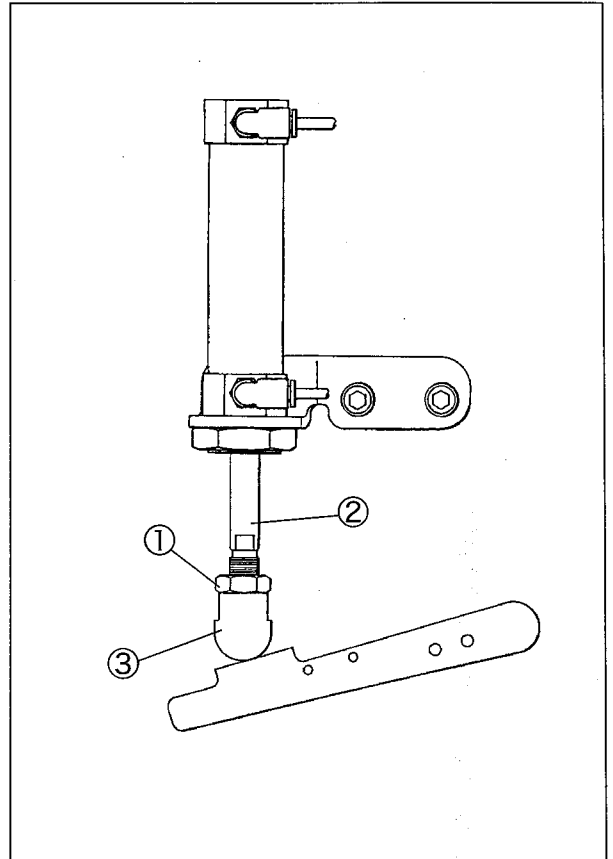


Fig. 52

## ⚠ WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

### 4.6 ST2-A device

#### 4.6.1 Position of movable trimming knife

- (1) Fit the line of the handwheel ① with the hole ② of the machine arm (the needle is at the highest point).
- (2) Set the movable trimming knife ③ to the lowest point by inserting a pair of tweezers through the hole ④.

#### NOTE

Never let the movable trimming knife ③ touch the presser foot, the left needle ⑤, and the spreader ⑥. If touched, loosen the screws ⑦ and ⑧ to make adjustment.

- (3) Loosen the screw ⑩. Make the clearance between the top of the stitch plate and the movable trimming knife tip ⑨ to 5.5 - 6.0 mm when the movable trimming knife ③ is at the lowest point.

#### NOTE

After adjustment above, the movable trimming knife ③ should cross over the top cover thread.

- (4) After above-mentioned adjustment, tighten the screws ⑦, ⑧, and ⑩ securely.
- (5) Check the position of the movable trimming knife by moving it up or down.

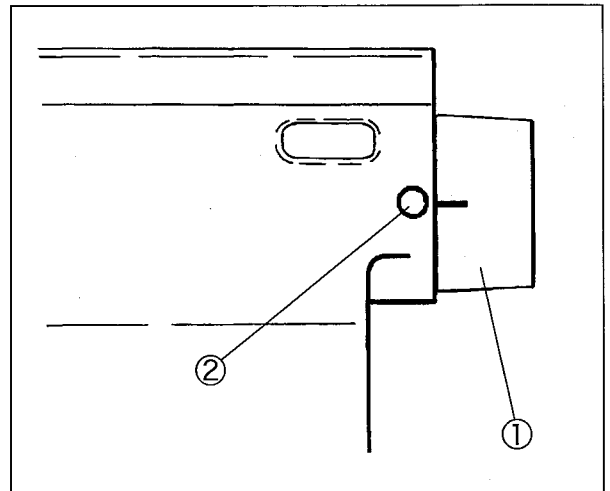


Fig. 53

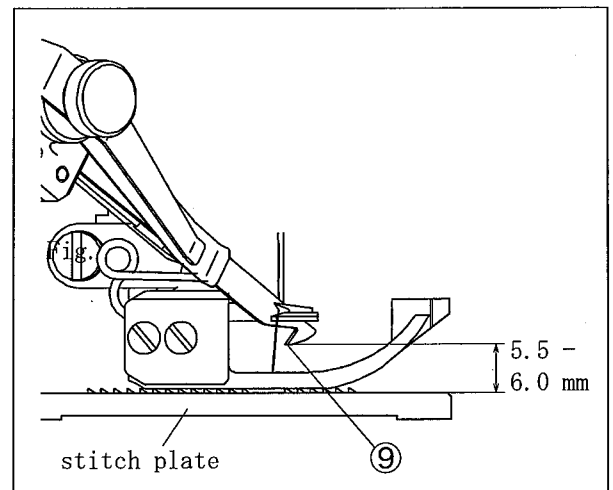


Fig. 54

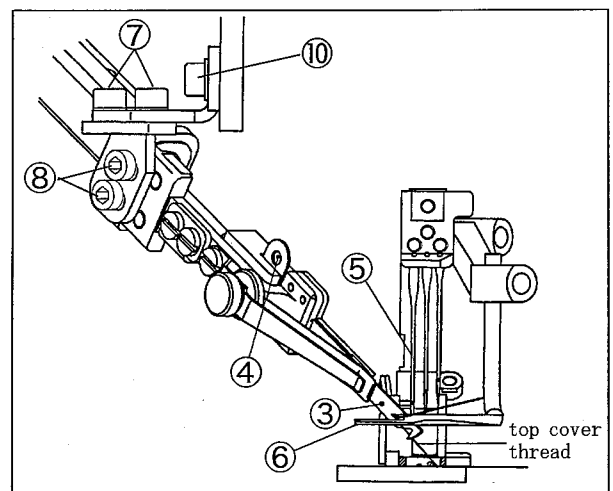


Fig. 55



## 4. Adjustment

### NOTE

To adjust the speed of the movable trimming knife, loosen the nuts ① and turn the adjusting screws ② on the speed controllers of the air cylinder.

● To speed down, turn them clockwise.

● To speed up, turn them counterclockwise.

The presser foot starts rising immediately after the movable trimming knife cut the top cover thread. Adjust the speed so that the movable trimming knife will not touch the presser foot.

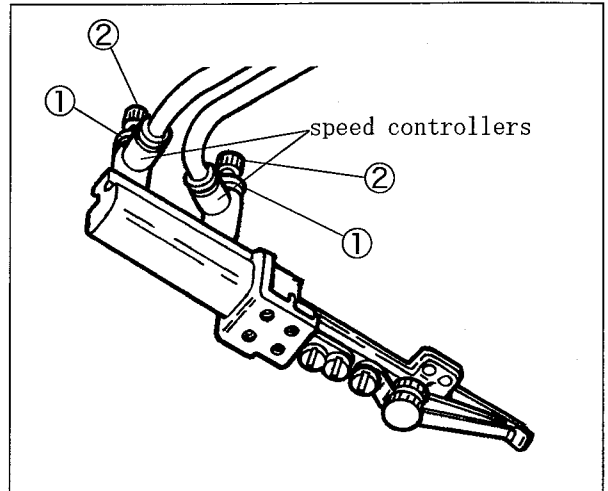


Fig. 56

### 4.6.2 Engagement between movable and fixed trimming knives

#### WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

The engagement between the movable trimming knife ③ and the fixed trimming knife ④ should be adjusted to 0-0.05 mm as shown in Fig. 50.

Normally adjustment above is not necessary.

### NOTE

The stroke of the movable trimming knife should be as same as that of the air cylinder.

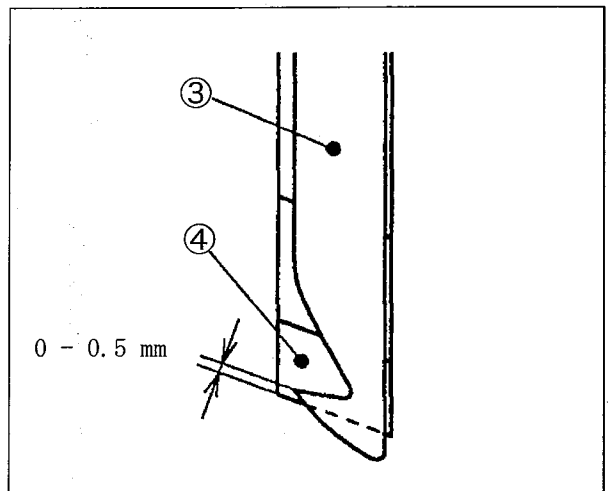


Fig. 57

## ⚠ WARNING

ALWAYS turn the motor switch OFF and check that the motor has been already stopped.

### 4.6.3 Pressure of thread clamp spring

Keep the pressure as low as possible to hold the threads.

- (1) Loosen the nut ③.
  - (2) Adjust the pressure with the adjusting screw ④, make the thread clamp spring ② and the movable trimming knife ① can hold the threads after the knives cut the thread.
- To increase the pressure, tighten the adjusting screw ④.

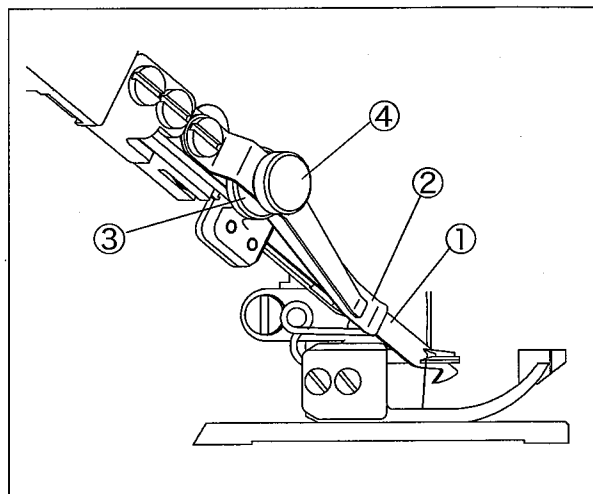


Fig. 58

### 4.6.4 Adjusting thread pull-off hook unit

- To decrease the thread take-up amount, raise the thread pull-off hook unit ⑤.
- To increase the thread take-up amount, lower it ⑤.

## NOTES

1. The amount of the thread should be taken as much as possible. If not enough, the top cover thread cannot be held after cutting.
2. When using stretchable thread like woolly, pass it through the top cover thread eyelet ⑥.

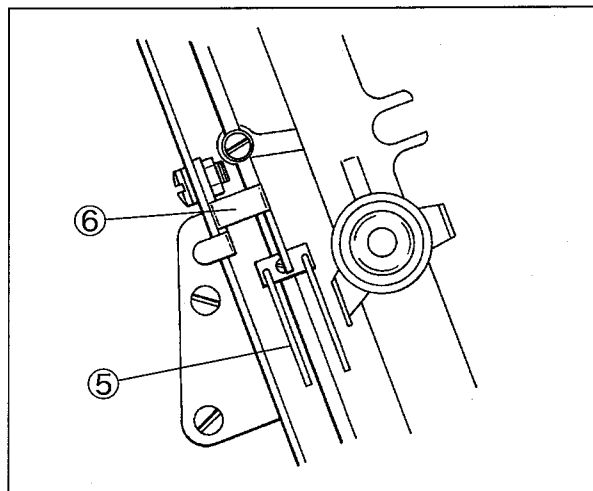


Fig. 59

## 4. Adjustment

### 4.7 Changing timing belt (Only for UTL-A/Y with Y motor)

(1) Loosen the screws ① to remove the belt cover ②.

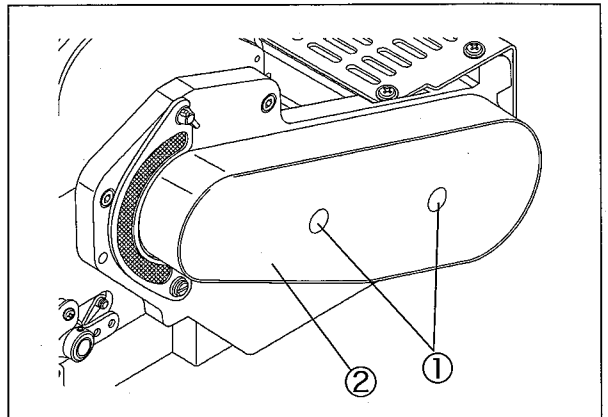


Fig. 60

(2) Remove three screws ④ of the motor bracket ③.

(3) Remove the old timing belt ⑤.

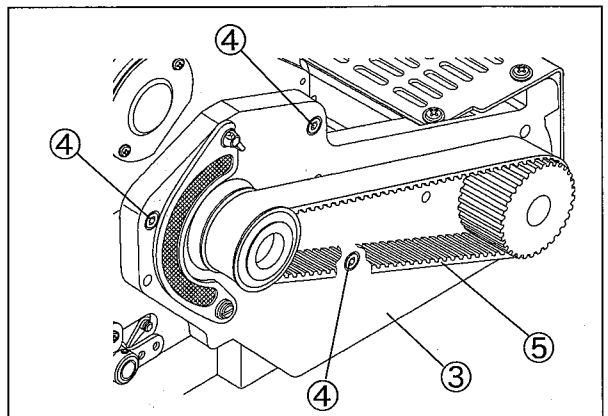


Fig. 61

(4) Set a new timing belt, while holding up the motor bracket ③.

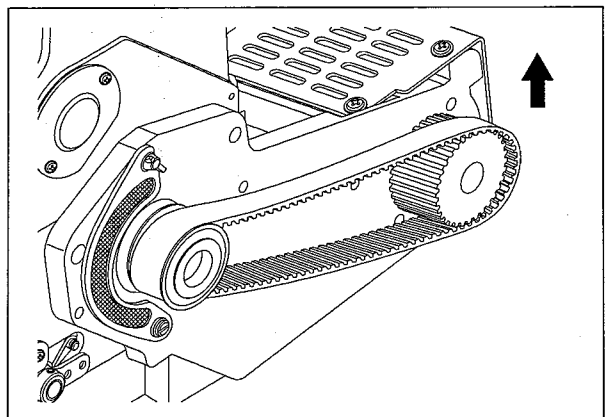


Fig. 62

(5) Match the eyes of the motor bracket ③ to the two pins ⑥ on the machine and fix them with three screws ④.

(6) Reinstall the belt cover ②.

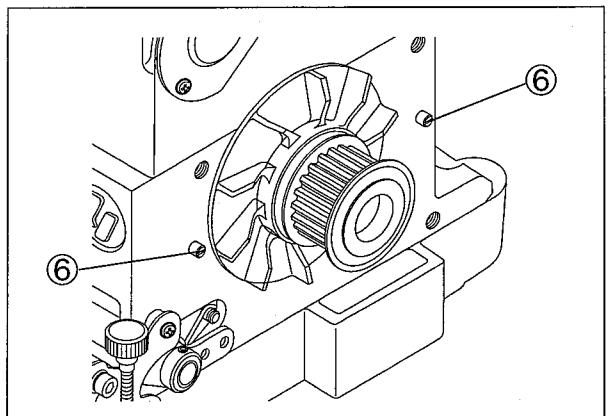


Fig. 63

# 5. Appendix

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Model	Parts No. of R connector	Code		Main feed dog	Remarks
		UTL-AXX/Y	UTL-AXX /ST2-A/Y		
VG2735-31-8	1070197	5040	5072	3509069	
VG2735-32	1070197	5040	5072	3509069	
VG3721-8	1070197	5040	5072	3509048	
VG3721P-8	1070198	4784	4816	3509048	

Table 3

***Yamato***

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