

Yamato[®]

Instruction Manual

Pneumatic under thread trimming device
Pneumatic top cover thread trimming device

UT-A

UT-A44, UT-A44/ST2-A, UT-A44/CS, UT-A44/ST2-A/CS
UT-A42, UT-A42/CS

VG2735, VG2779, VG3721

Thank you for having purchased UT-A device.

Before using your UT-A device, 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.

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Attention

This instruction describes the use of our specified motor, Mitsubishi motors. Refer to a motor as below. When using another motor, contact us or our agent.

<Mitsubishi Motors>

FY100 (Electronic motor)

Attention

The description in this instruction manual is subject to change for improvements of the commodity without notice.

1. Proper operation

⚠ CAUTION

Be sure to place the material under the presser foot when operating.

1.1 Operating procedure for UT-A44 device

The motor can be selected 1 position or 2 position. The operating procedure for 1 position and 2 position is mentioned below.

- (1) Heel back the pedal to raise the presser foot.
- (2) Place the material under the presser foot and toe down the pedal. (Fig. 1-1 ①)

The machine starts sewing and suctioning chips.

- (3) Release the pedal. (Fig. 1-1 ②)

Suction stops chips.

The needle stops at the lowest point.

(Skip this procedure when 1 position is selected.)

- (4) Heel back the pedal. (Fig. 1-1 ③)

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 is held with the clamp spring.

And then, the presser foot is raised and the air wiper blows the air. The air wiper stops blowing after two seconds.

- (5) Release the pedal. (Fig. 1-1 ②)

The presser foot is lowered.

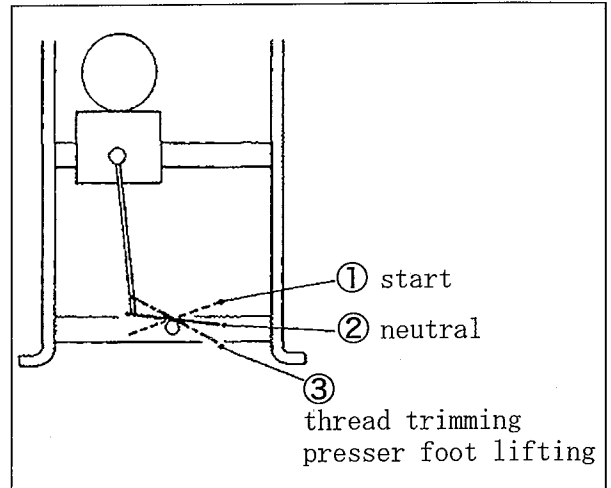


Fig. 1-1

NOTE

The presser foot can be moved up and down by heeling back the pedal to the positions ② and ③ until the pedal is toed down to the position ①.

1. Proper operation

⚠ CAUTION

Be sure to place the material under the presser foot when operating.

1.2 Operating procedure for UT-A44/ST2-A device

The motor can be selected 1 position or 2 position. The operating procedure for 1 position and 2 position is mentioned below.

- (1) Heel back the pedal to raise the presser foot.
- (2) Place the material under the presser foot and toe down the pedal. (Fig. 1-2 ①)
The machine starts sewing and suctioning chips.
- (3) Release the pedal. (Fig. 1-2 ②)
Suction stops chips.
The needle stops at the lowest point.
(Only 2 position.)
- (4) Heel back the pedal. (Fig. 1-2 ③)

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 is held with the thread clamp spring. The ST2-A device cuts and holds the top cover thread.

And then, the presser foot is raised.

- (5) Release the pedal. (Fig. 1-2 ②)
The presser foot is lowered.

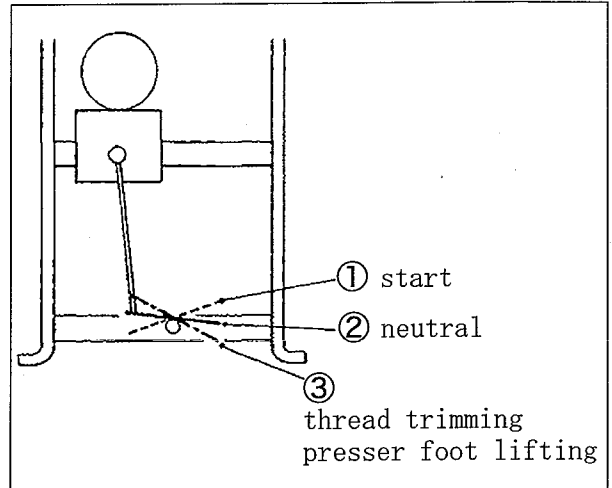


Fig. 1-2

NOTE

The presser foot can be moved up and down by heeling back the pedal to the positions ② and ③ until the pedal is toed down to the position ①.

⚠ CAUTION

Be sure to place the material under the presser foot when operating.

1.3 Operating procedure for UT-A44/CS device

The motor can be selected 1 position or 2 position. The operating procedure for 1 position and 2 position is mentioned below.

- (1) Heel back the pedal to raise the presser foot.
- (2) Place the material under the presser foot and toe down the pedal. (Fig. 1-3 ①)
The machine starts sewing and suctioning chips.
- (3) Release the pedal. (Fig. 1-3 ②)
Suction stops chips.
The needle stops at the lowest point.
(Only 2 position.)
- (4) Heel back the pedal. (Fig. 1-3 ③)
The CS device is activated.
The needle rises and stops at the highest point.
The trimming knife mechanism is activated to cut needle thread and looper thread under the stitch plate.
The looper thread is held with the thread clamp spring. And then, the presser foot rises and the air wiper blows air.
- (5) Release the pedal. (Fig. 1-3 ②)
The presser foot is lowered.

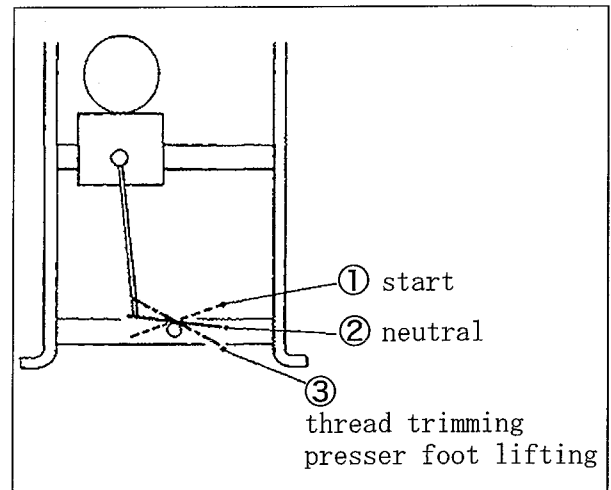


Fig. 1-3

NOTE

The presser foot can be moved up and down by heeling back the pedal to the positions ② and ③ until the pedal is toed down to the position ①.

1. Proper operation

⚠ CAUTION

Be sure to place the material under the presser foot when operating.

1.4 Operating procedure for UT-A44F/ST2-A /CS device

The motor can be selected 1 position or 2 position. The operating procedure for 1 position and 2 position is mentioned below.

- (1) Heel back the pedal to raise the presser foot.
- (2) Place the material under the presser foot and toe down the pedal. (Fig. 1-4 ①)
The machine starts sewing and suctioning chips.
- (3) Release the pedal. (Fig. 1-4 ②)
Suction stops chips.
The needle stops at the lowest point.
(Skip this procedure when 1 position is selected.)
- (4) Heel back the pedal. (Fig. 1-4 ③)
The CS device is activated.
The needle rises and stops at the highest point.
The trimming knife mechanism is activated to cut needle thread and looper thread under the stitch plate.
The looper thread is held with the thread clamp spring.
The ST2-A device cuts and holds the top cover thread.
And then, the presser foot is raised.
- (5) Release the pedal. (Fig. 1-4 ②)
The presser foot is lowered.

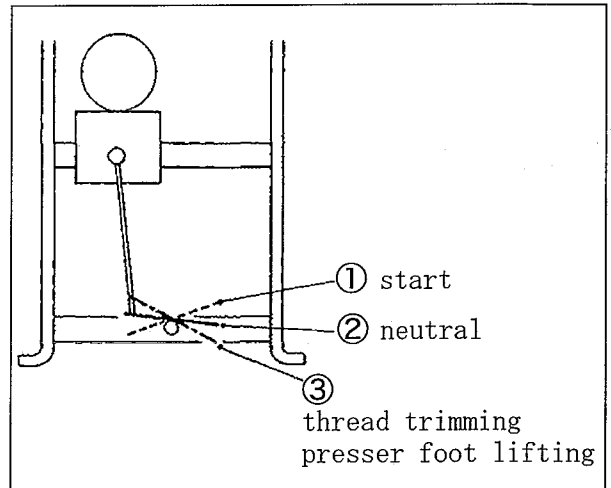


Fig. 1-4

NOTE

The presser foot can be moved up and down by heeling back the pedal to the positions ② and ③ until the pedal is toed down to the position ①.

⚠ CAUTION

Be sure to place the material under the presser foot when operating.

1.5 Operating procedure for UT-A42 device

The motor can be selected 1 position or 2 position. The operating procedure for 1 position and 2 position is mentioned below.

- (1) Heel back the pedal to raise the presser foot.
- (2) Place the material under the presser foot and toe down the pedal. (Fig. 1-5 ①)

The machine starts sewing and suctioning chips.

- (3) Release the pedal. (Fig. 1-5 ②)

Suction stops chips.

The needle stops at the lowest point.

(Skip this procedure when 1 position is selected.)

- (4) Heel back the pedal. (Fig. 1-5 ③)

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 is held with the clamp spring.

And then, the presser foot is raised and the air wiper blows the air.

- (5) Release the pedal. (Fig. 1-5 ②)

The presser foot is lowered and the air wiper stops blowing the air.

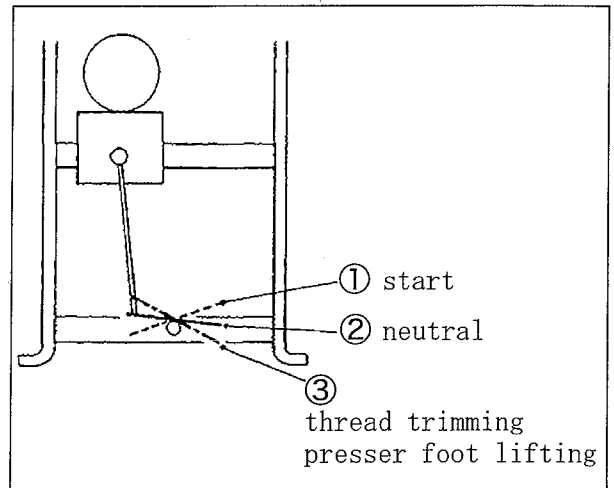


Fig. 1-5

NOTE

1. The presser foot can be moved up and down by heeling back the pedal to the positions ② and ③ until the pedal is toed down to the position ①.
2. The air wiper blows the air during raising the presser foot.

⚠ CAUTION

Be sure to place the material under the presser foot when operating.

1.6 Operating procedure for UT-A42/CS device

The motor can be selected 1 position or 2 position. The operating procedure for 1 position and 2 position is mentioned below.

- (1) Heel back the pedal to raise the presser foot.
- (2) Place the material under the presser foot and toe down the pedal. (Fig. 1-6 ①)
The machine starts sewing and suctioning chips.
- (3) Release the pedal. (Fig. 1-6 ②)
Suction stops chips.
The needle stops at the lowest point.
(Skip this procedure when 1 position is selected.)
- (4) Heel back the pedal. (Fig. 1-6 ③)
The CS device is activated.
The needle rises and stops at its top.
The trimming knife mechanism is activated to cut needle thread and looper thread under the stitch plate.
The looper thread is held with the thread clamp spring. And then, the presser foot rises and the air wiper blows air.
- (5) Release the pedal. (Fig. 1-6 ②)
The presser foot is lowered.

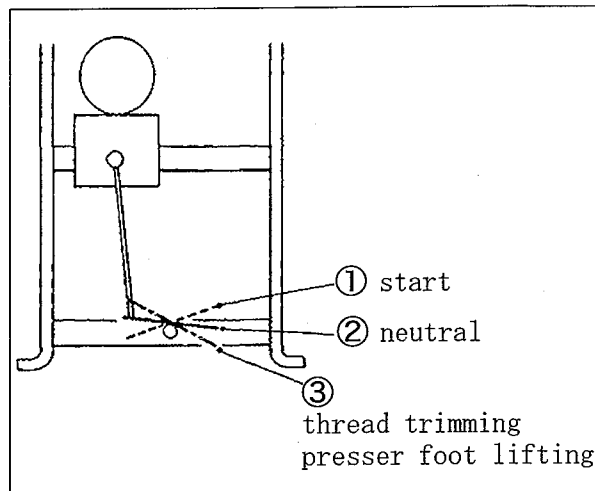


Fig. 1-6

NOTE

1. The presser foot can be moved up and down by heeling back the pedal to the positions ② and ③ until the pedal is toed down to the position ①.
2. The air wiper blows the air during raising the presser foot.

2.Wiring

2.1 Detector switch

2.1.1 Adjusting detector switch

The detector switch works so that the machine does not run until the trimming knife returns to its original position.

- (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 turn ON when the trimming knife returns to its original position.
 - Make the switch turn OFF when the front of the upper knife touches the looper with moving the air cylinder by hand.
- (3) Tighten the screws ① and ② securely.

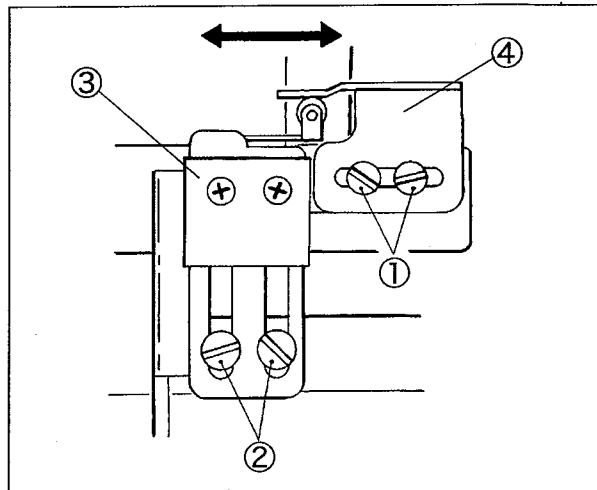


Fig. 2-1

2.1.2 Connecting detector switch

- (1) Connect the cords of the detector switch to the 3P-connector with the numbers as below.

black cord : ⑤
white cord : ⑦
red cord : ⑥

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

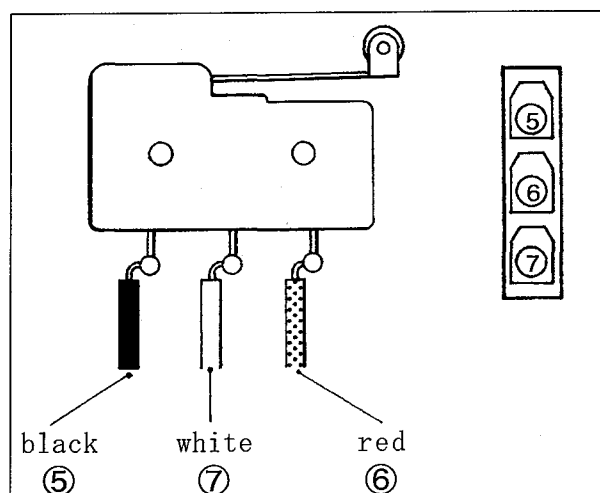


Fig. 2-2

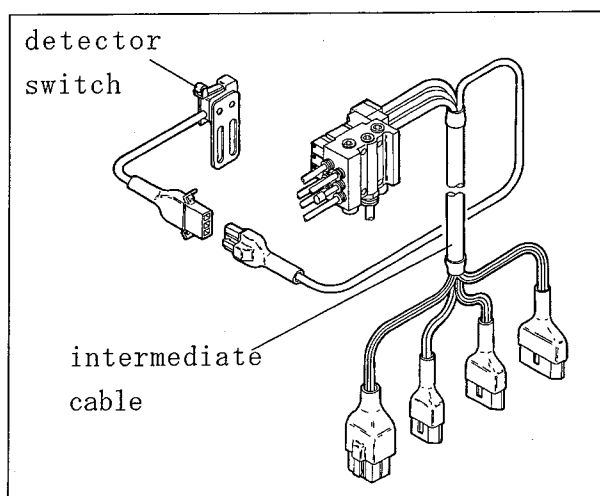


Fig. 2-3

2.2 Connecting intermediate cable

2.2.1 Solenoid valves side

Insert the connectors of the intermediate cable to the solenoid valves until you hear them click.

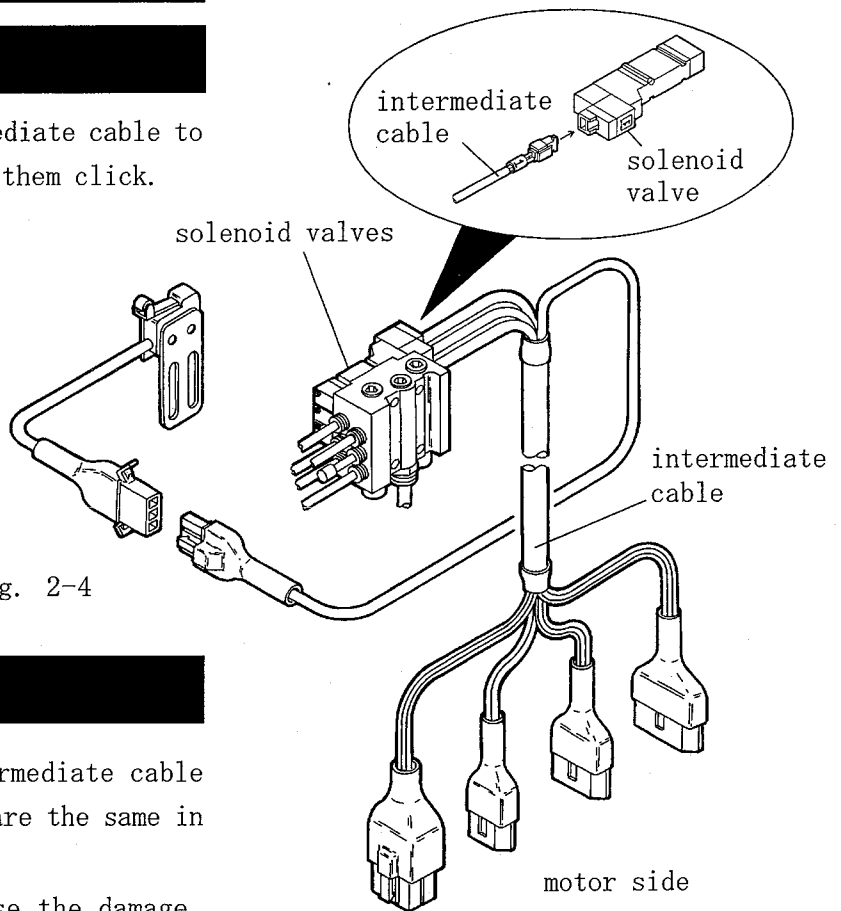


Fig. 2-4

2.2.2 Motor side

Connect the connectors of the intermediate cable to those of the control box. They are the same in color and shape.

Note: If not the same, it can cause the damage.

NOTES

1. Figure 9 shows three solenoid valves.
2. The intermediate cable depends on your motor.

2.2.3 Solenoid valve number and intermediate cable part number

device	looper thread cutter	presser foot lifter	air wiper	top cover thread cutter	CS device	chip suctioning pipe	number of solenoid valves	intermediate cable part number
/UT-A42	②	①	①	×	×	③	3	1200397
/UT-A42/CS	②	①	①	×	③	④	4	1200398
/UT-A44	②	①	③	×	×	④	4	1200393
/UT-A44/CS	②	①	③	×	④	⑤	5	1200394
/UT-A44/ST2-A	②	①	×	③	×	④	4	1200393
/UT-A44/ST2-A/CS	②	①	×	③	④	⑤	5	2100394

Table. 1

Note 1 : The circled number shows the number with the solenoid valve.

Note 2 : The part number of the intermediate cable shows the use for our specified motor (Mitsubishi Motors : EY100, FY100, or HY100).

3. Air piping diagram

3.1 UT-A44 device (VG2735, 2779)

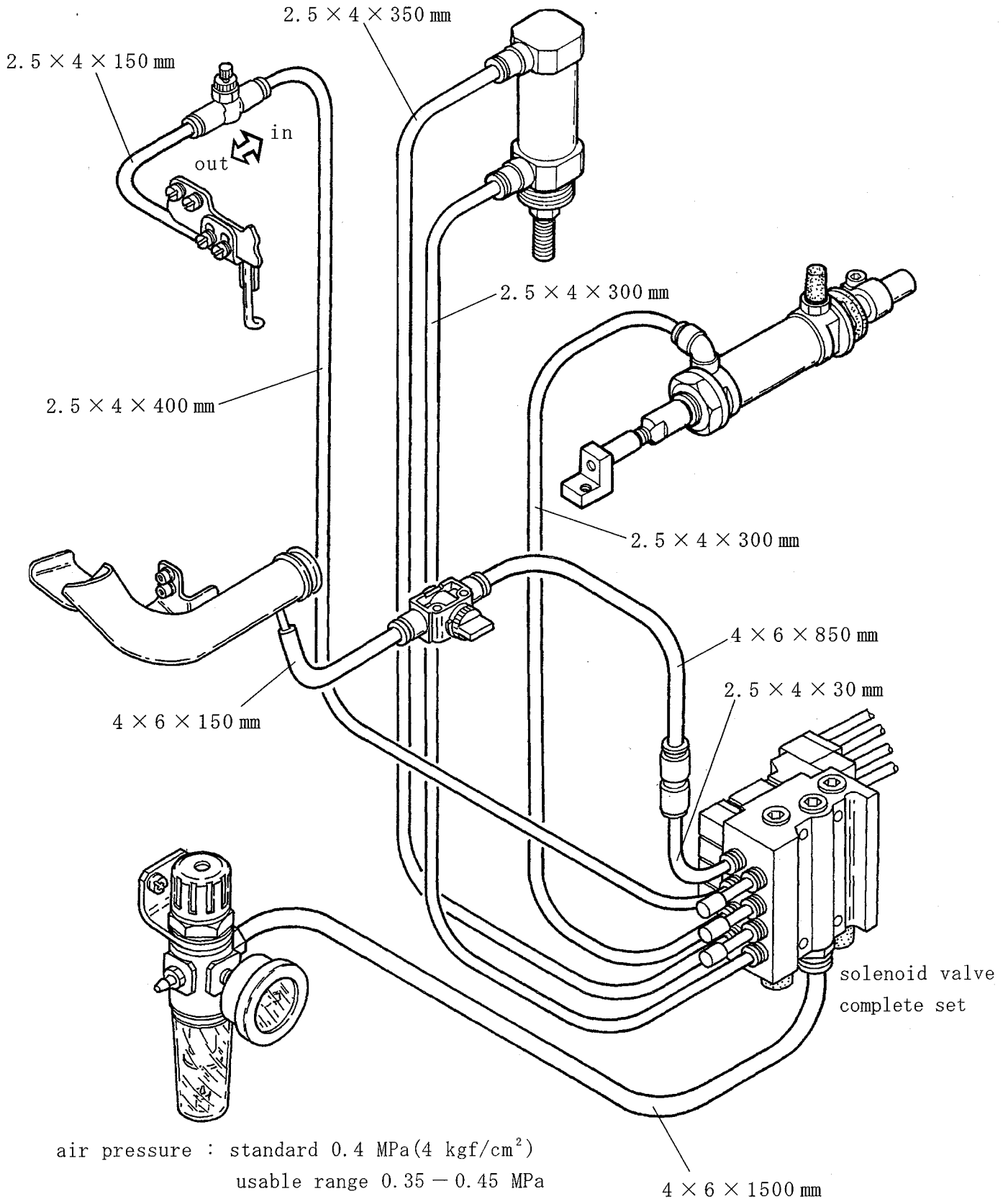


Fig. 3-1

3. Air piping diagram

3.2 UT-A44/ST2-A device (VG2735, 2779)

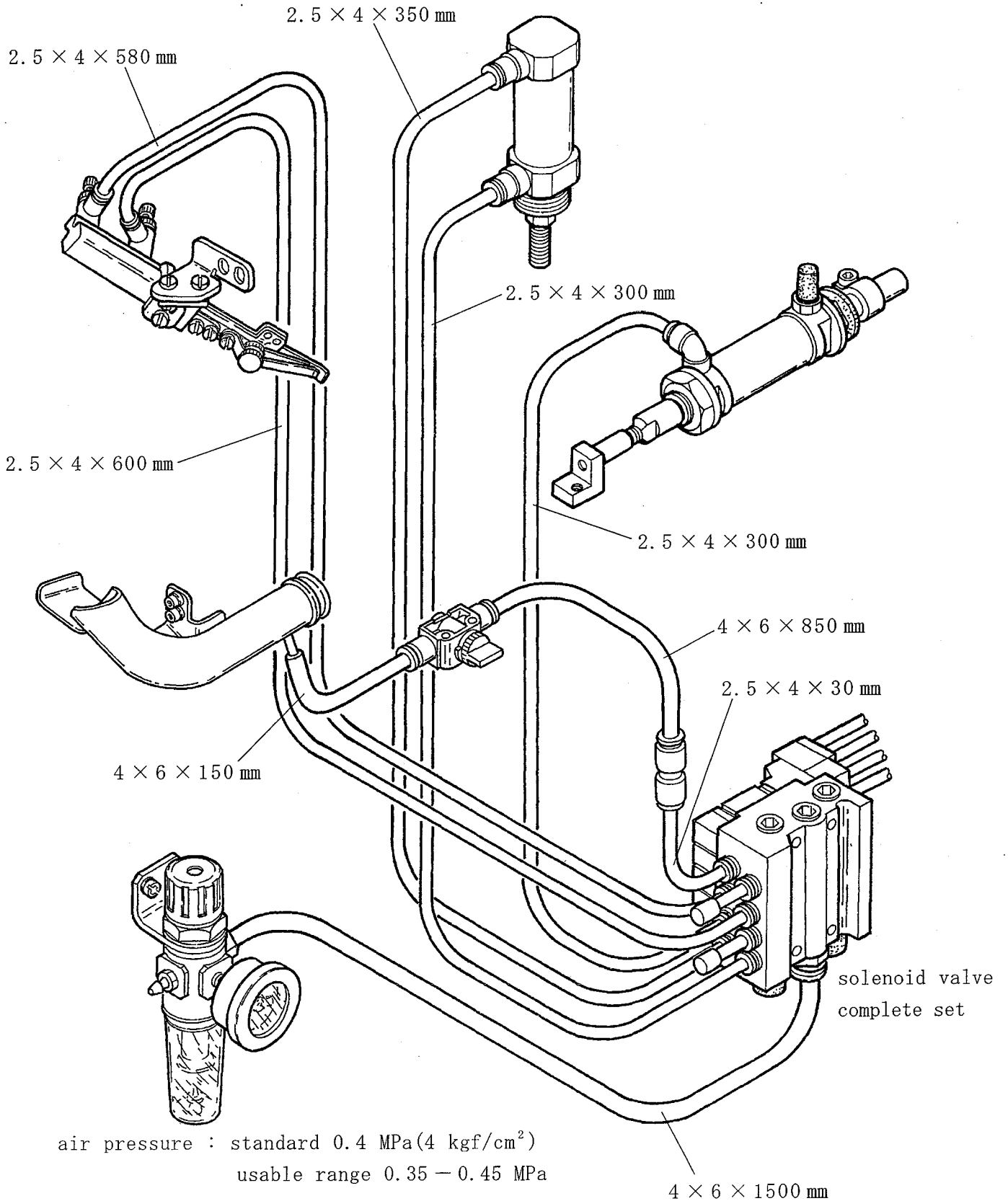


Fig. 3-2

3.3 UT-A44/CS device (VG2735, 2779)

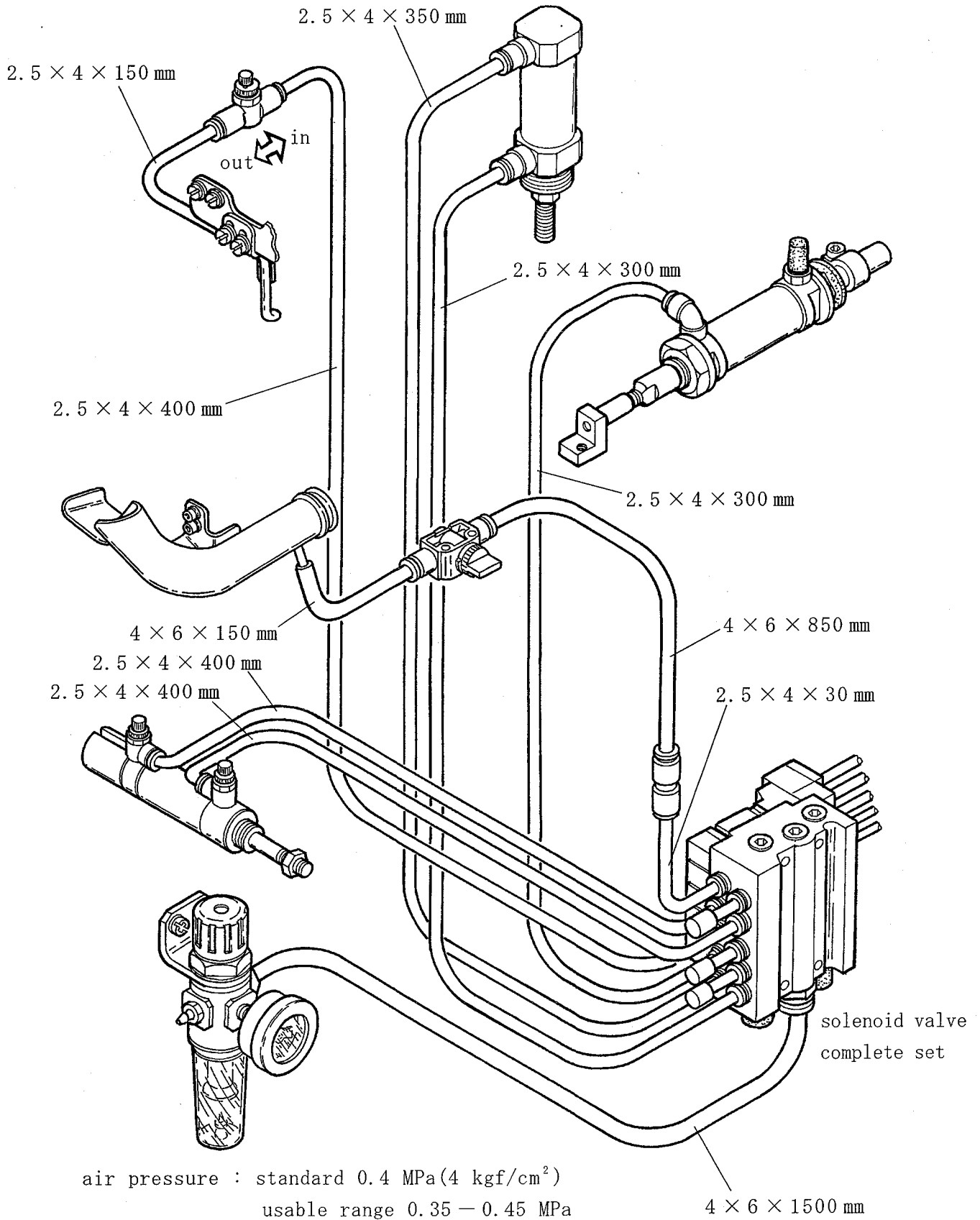


Fig. 3-3

3. Air piping diagram

3.4 UT-A44/ST2-A/CS device (VG2735, 2779)

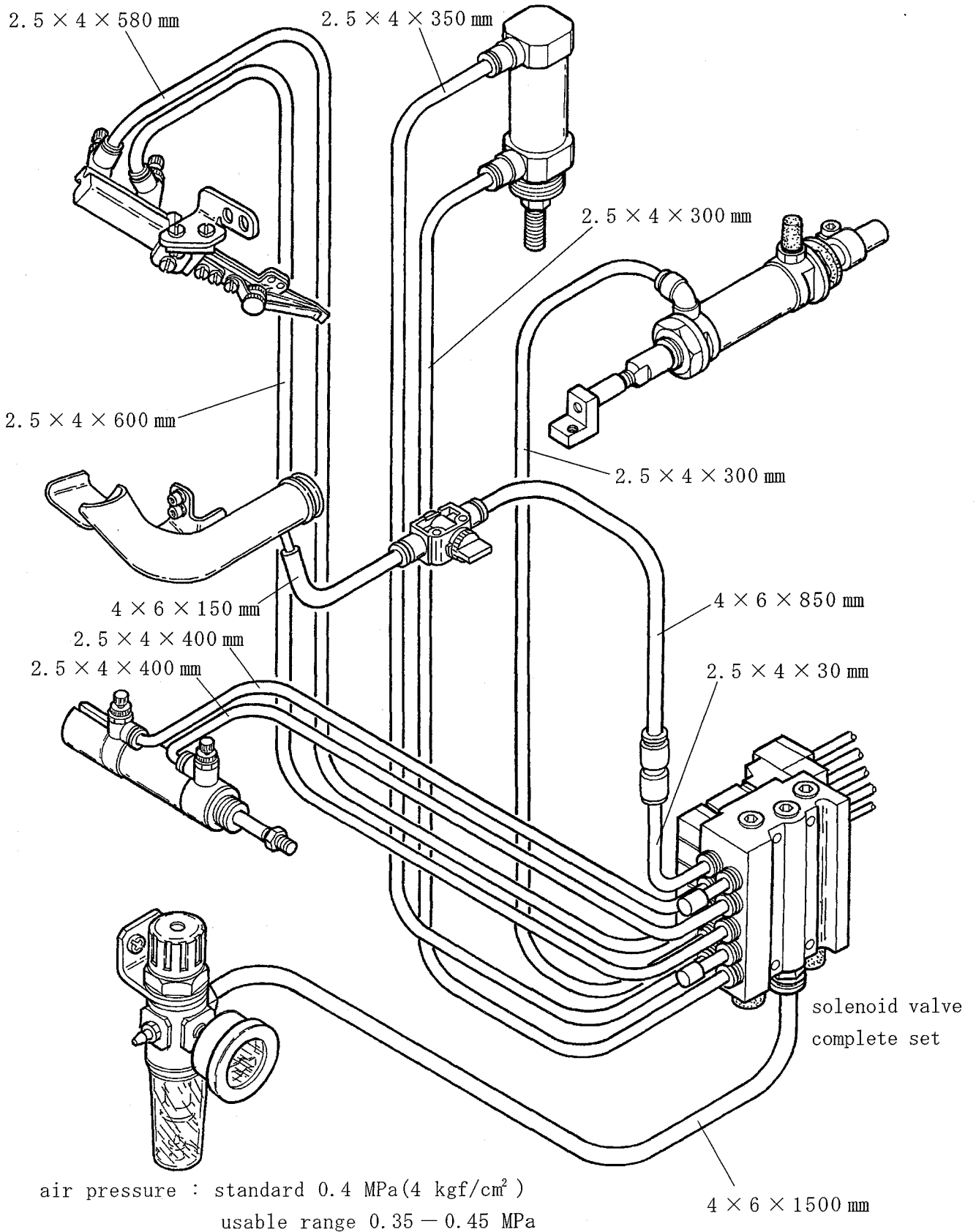


Fig. 3-4

3.5 UT-A42 device (VG2735, 2779)

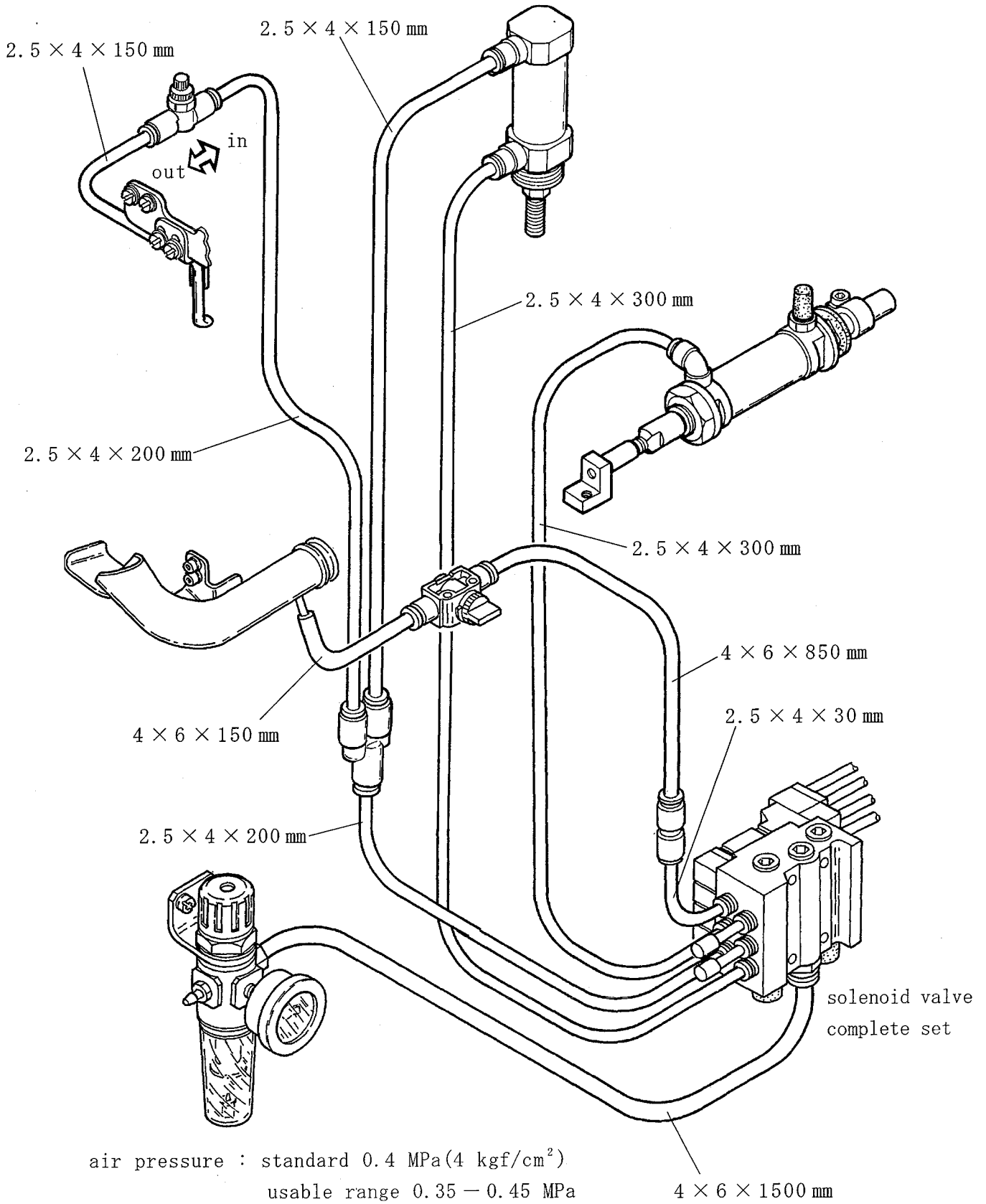


Fig. 3-5

3. Air piping diagram

3.6 UT-A42/CS device (VG2735, 2779)

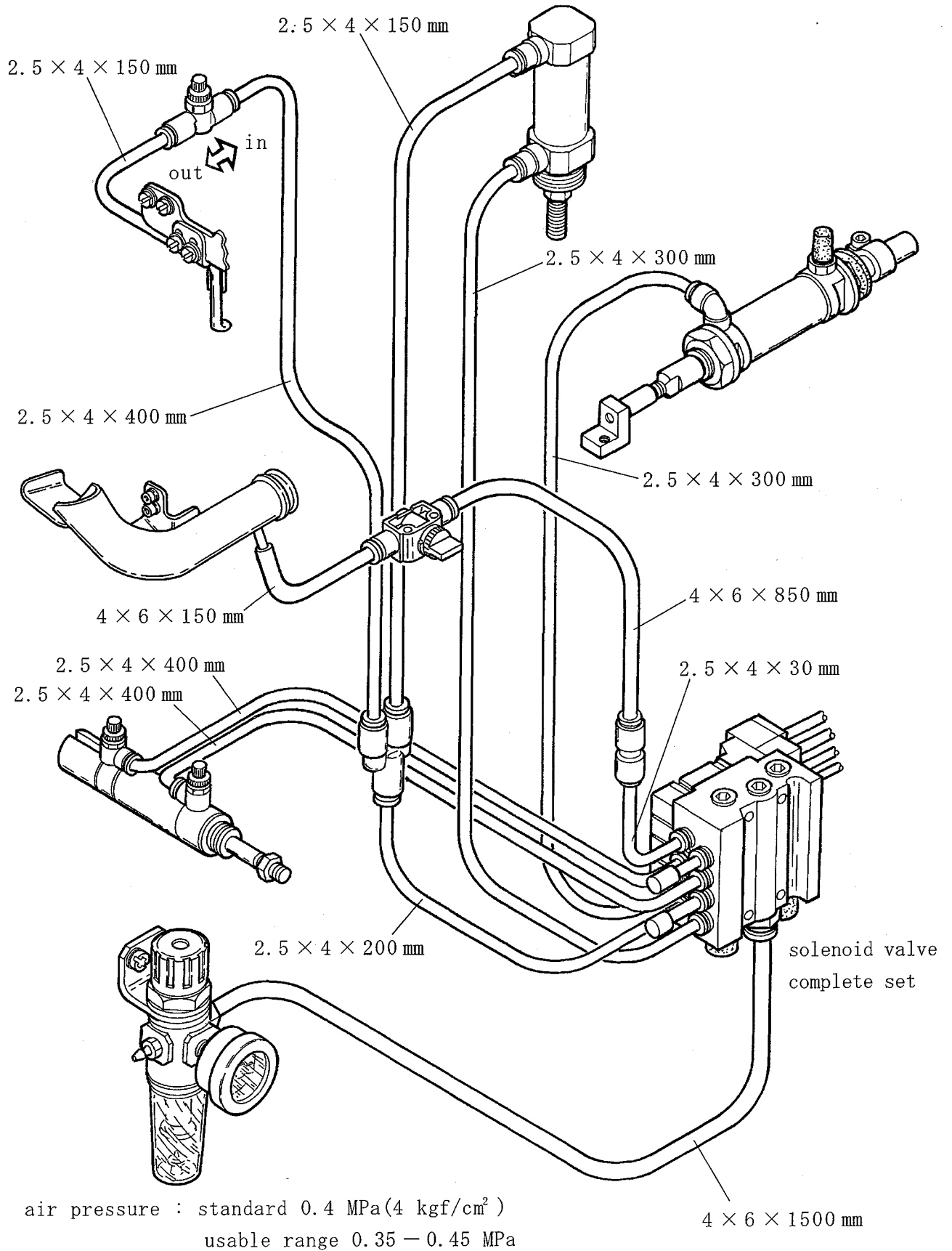


Fig. 3-6

3.7 UT-A44 device (VG3721)

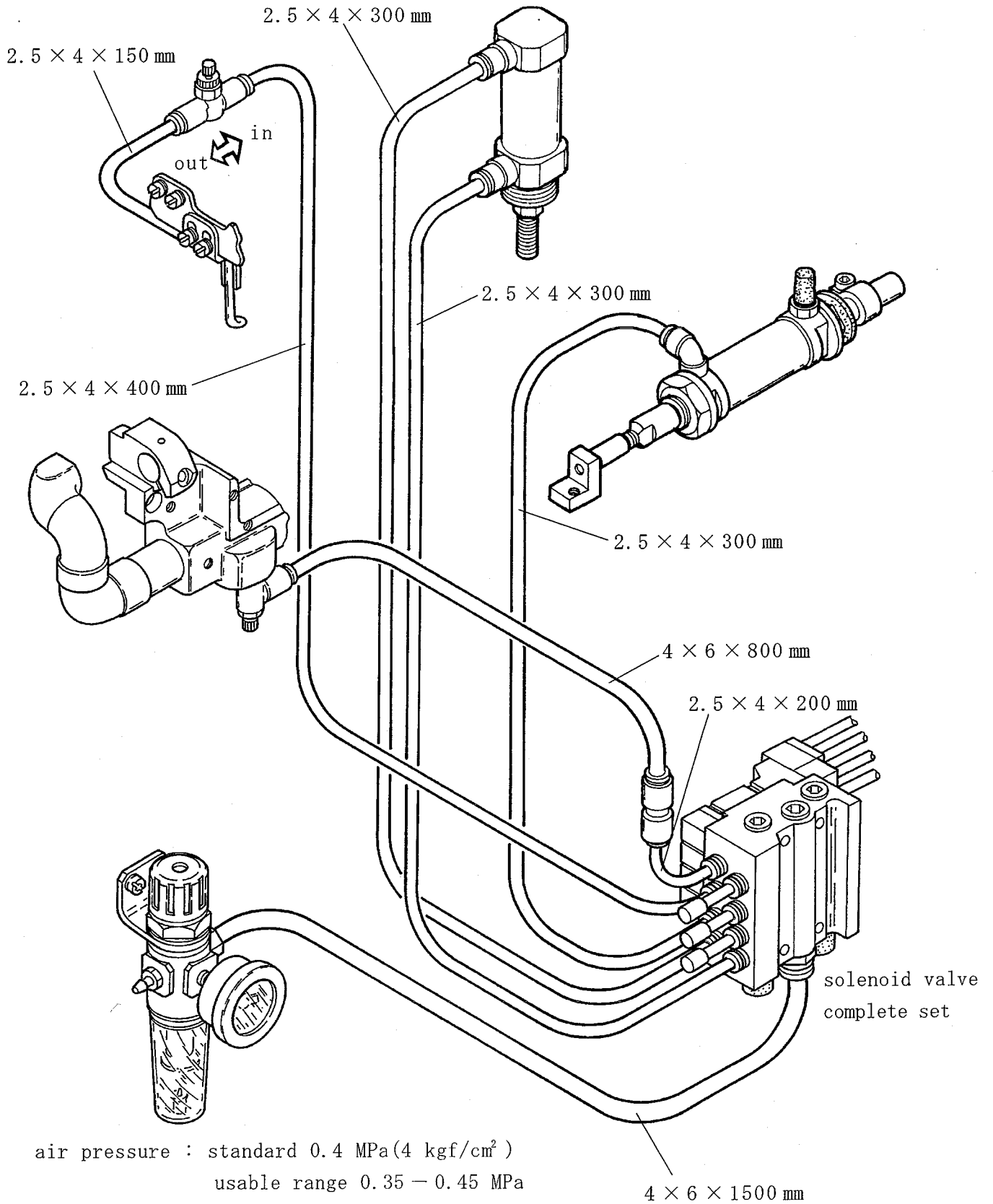


Fig. 3-7

3.8 UT-A44/ST2-A device (VG3721)

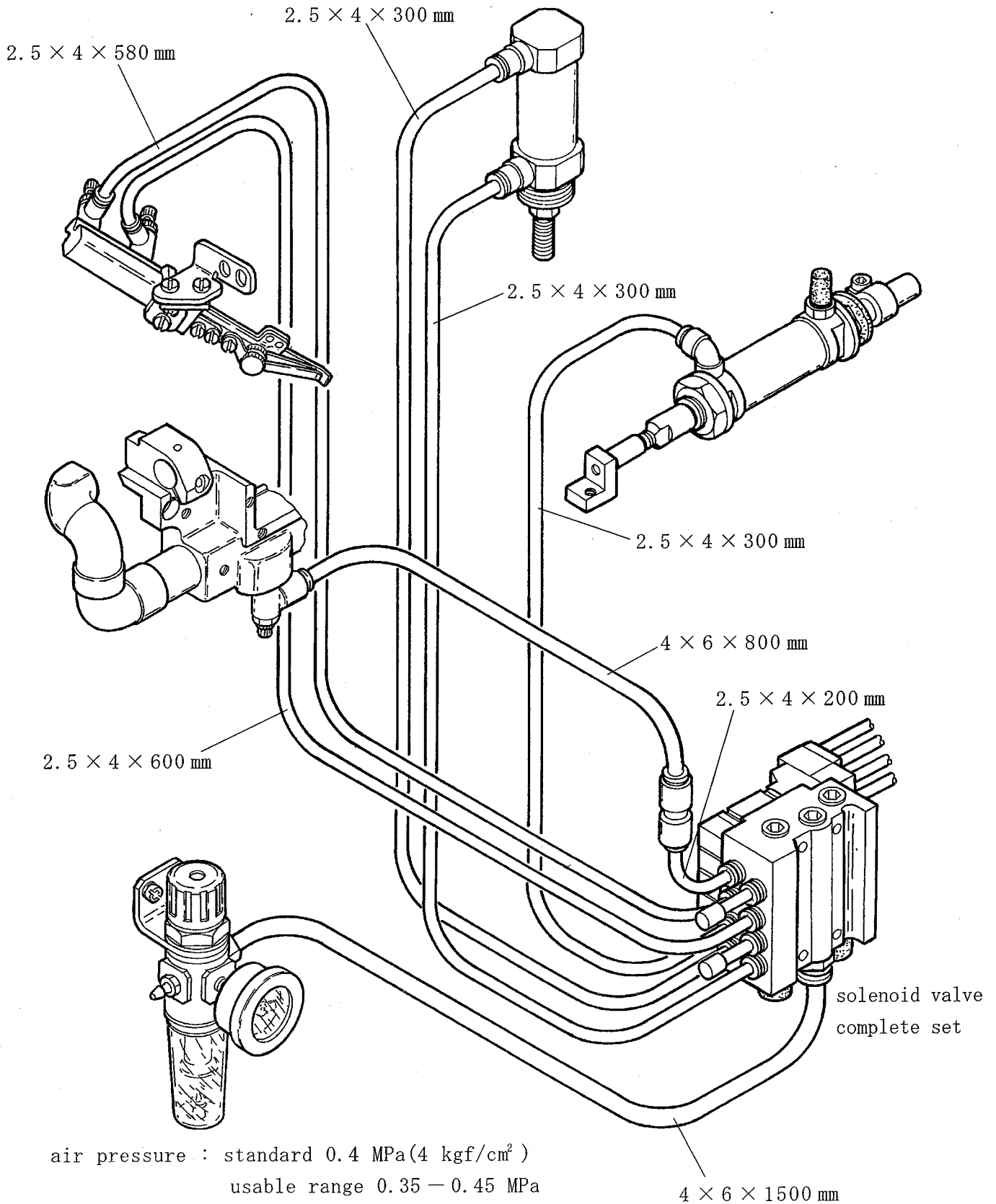


Fig. 3-8

3. Air piping diagram

3.10 UT-A44/ST2-A/CS device (VG3721)

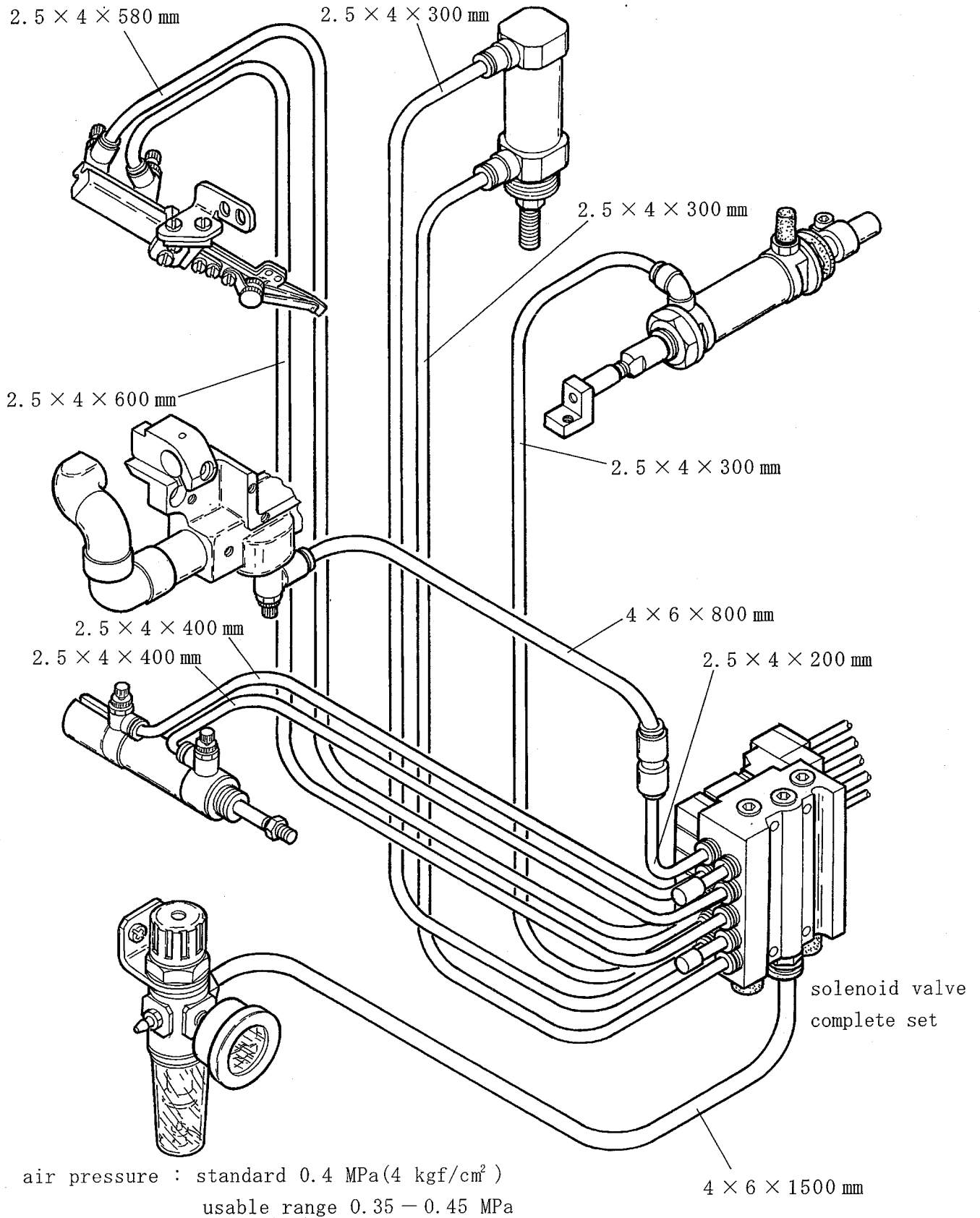


Fig. 3-10

4. Installing synchronizer

⚠ CAUTION

Unplug the air cylinder for the thread trimming from the control box for the motor.

The parts may be touched and broken.

- (1) Install the synchronizer ① onto the machine pulley and tighten the screws ② slightly.
- (2) Set the synchronizer positioning pin ③ into the groove of the synchronizer ① and tighten the screw ④ 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 screws ② and rotate the pulley clockwise. Match the line of the handwheel ⑤ with the hole ⑥ on the machine arm.

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 [2.2.3 Solenoid valve number and intermediate cable part number] and connect the intermediate cable to solenoid valves until they click.

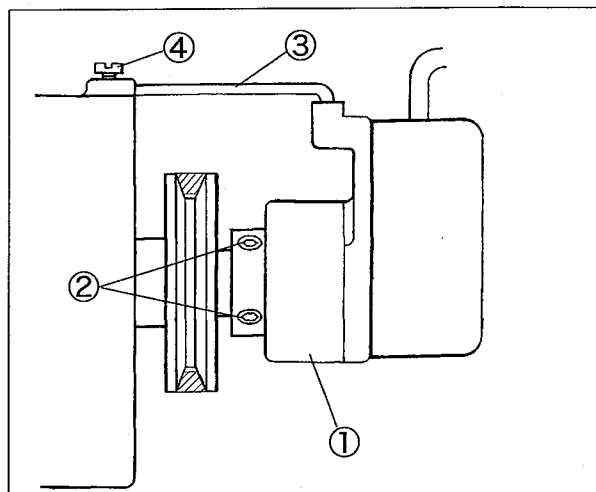


Fig. 4-1

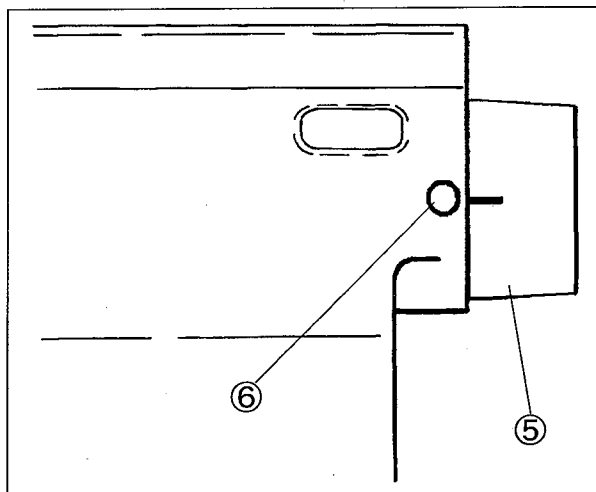


Fig. 4-2

5. Adjusting thread trimming mechanism

⚠ WARNING

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

5.1 Thread trimming air cylinder

The proper stroke of the air cylinder is 15 mm. Loosen the screw ② of the collar ① to adjust it.

⚠ CAUTION

Readjust the thread trimming mechanism after changing the stroke of the air cylinder. Check that the condition of the detector switch. (See the section "2-1-1 Adjusting detector switch")

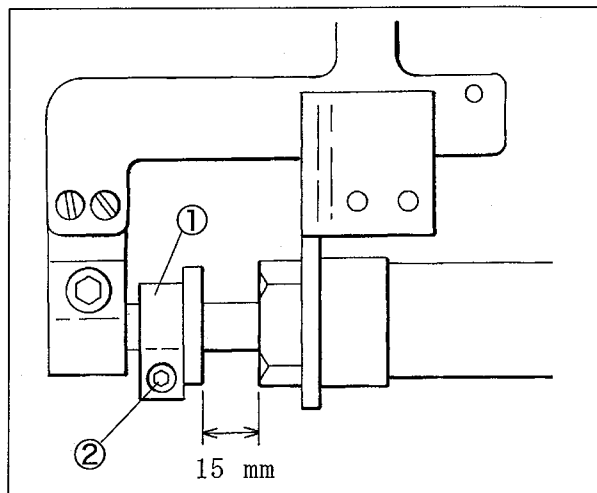


Fig. 5-1

5.2 Position of lower knife

⚠ CAUTION

Operate the trimming knife mechanism manually only when the needle is at the highest point. If not, the parts may be touched and broken.

- (1) Loosen the screws ⑦.
- (2) Set the part ④ of the lower knife ③ parallel to the part ⑥ of the lower knife carrier ⑤.
- (3) Tighten the screws ⑦ securely.

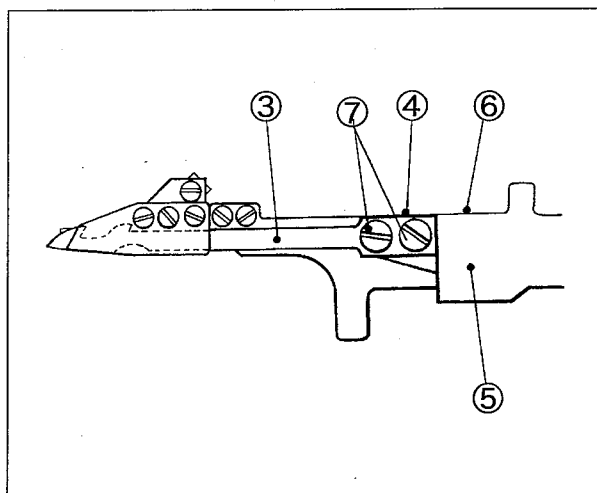


Fig. 5-2

5.3 Relation between upper and lower knives

- (1) Loosen the screws ⑧.
- (2) Adjust the needle thread hook ⑨ of the lower knife to pass at the corner ⑪ of the upper knife ⑩.
- (3) Move the lower knife at the extreme right and the upper knife ⑩ right or left. Make the engagement between the looper thread hook ⑫ and the upper knife ⑩ to 0.5 mm.
- (4) Tighten the screws ⑧ securely.

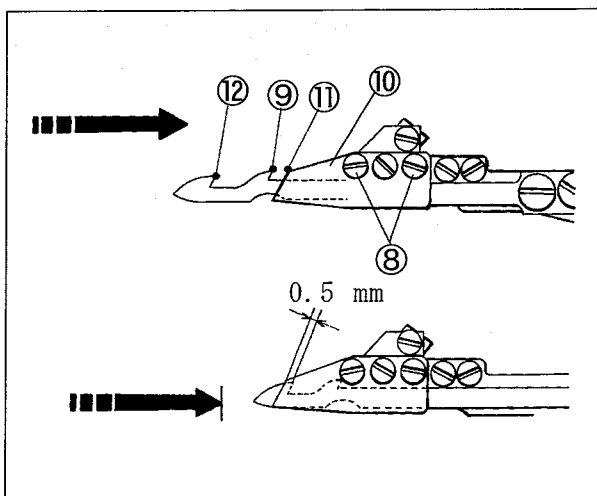


Fig. 5-3

⚠ WARNING

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

5.4 Positions of clamp spring and clamp spring presser

- (1) Loosen the screws ②.
- (2) Set the part ④ of the lower knife ① even with the back of the clamp spring ③ when the lower knife moves to the right.
- (3) Tighten the screws ② securely.
- (4) Loosen the screws ⑥.
- (5) Set the back of the clamp spring pressure ⑤ even with the backs of the lower knife ① and the clamp spring ③.
- (6) Make the distance between the left tip of the clamp spring pressure ⑤ and the upper knife tip to 1 mm.
- (7) Tighten the screws ⑥ securely.

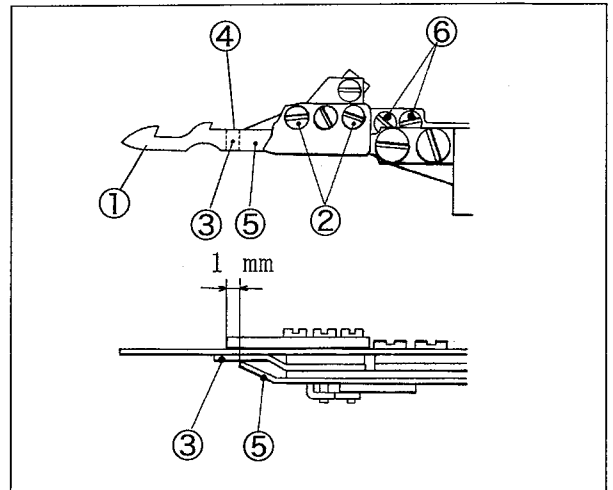


Fig. 5-4

5.5 Pressure of clamp spring

The looper thread is caught and held with the clamp spring ⑦ after cutting it.

Turn the adjusting screw ⑧ to adjust the pressure.

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

Keep the pressure to a minimum for holding the looper thread.

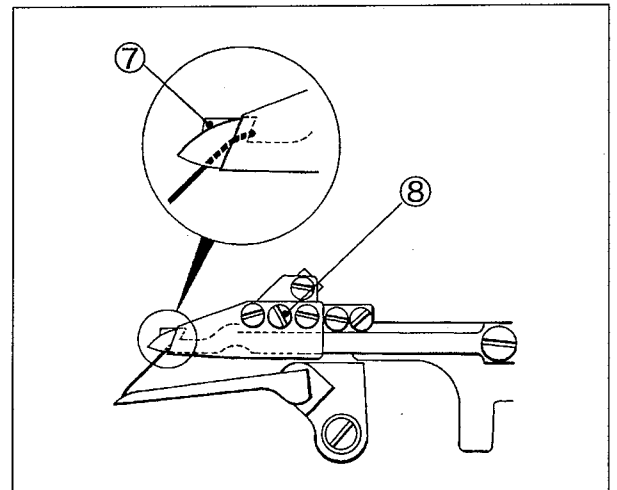


Fig. 5-5

5.6 Position of upper knife carrier

The upper knife carrier ⑩ slides to the left simultaneously with the lower knife carrier ⑨.

And it stops by touching the upper knife carrier stop ⑪.

The upper knife slides under the stitch plate. The upper knife carrier stop positions with the screws ⑫ automatically.

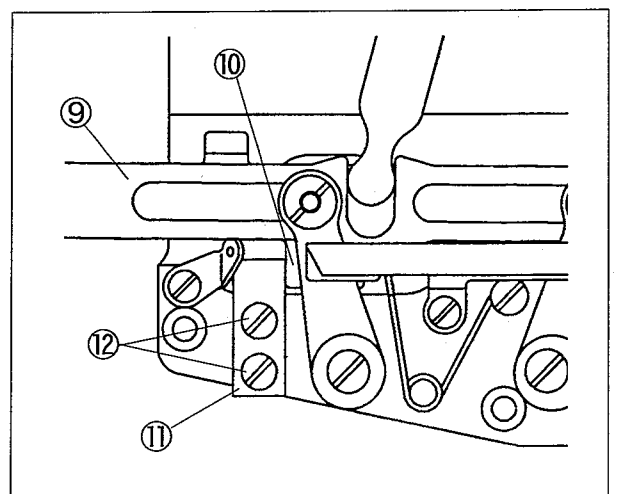


Fig. 5-6

5.Adjusting thread trimming mechanism



WARNING

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

5.7 Relation between lower knife and needle

- (1) Loosen the nuts ②.
- (2) Move the lower knife ① at the extreme left.
- (3) Move the connecting block ③ right or 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.

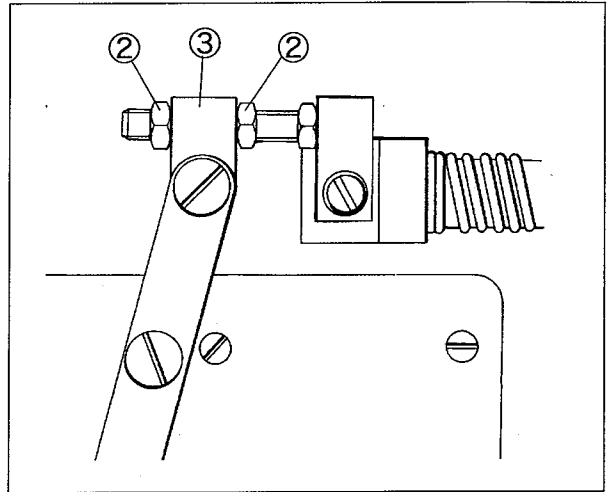


Fig. 5-7

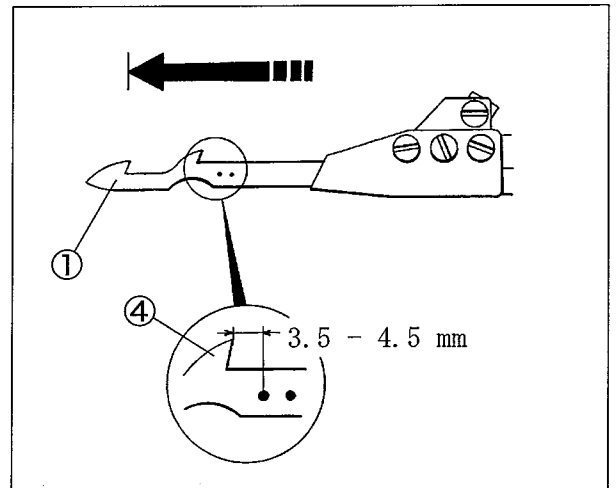


Fig. 5-8

WARNING

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

5.8 Position of lower knife tip

- (1) Raise the needle bar to the highest point by turning the handwheel.
 - (2) Move the lower knife ① to the left.
 - (3) When the distance between the lower knife ① tip ② and the right end of the looper ③ turns to 12 mm, fit the tip with the ridge line ④ on the surface of the looper.
 - (4) Loosen the screw ⑤ and turn the knife guide lever ring (right) ⑥ to adjust the lower knife tip ② position.
- To move the tip backward, turn it clockwise.
 - To move the tip forward, turn it counterclockwise.
- (5) Tighten the screw ⑤.

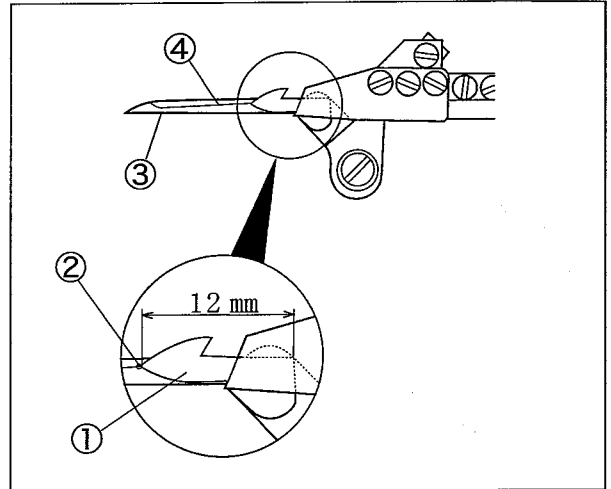


Fig. 5-9

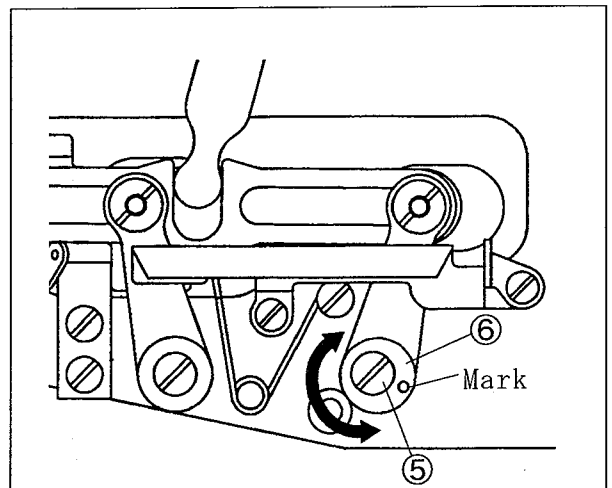


Fig. 5-10

5.Adjusting thread trimming mechanism

WARNING

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

5.9 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.

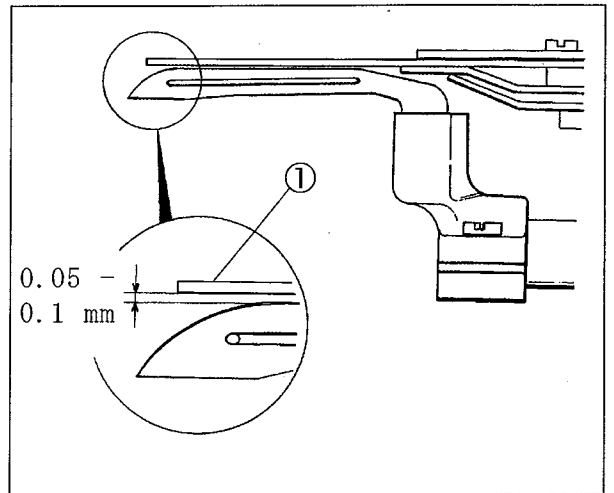


Fig. 5-11

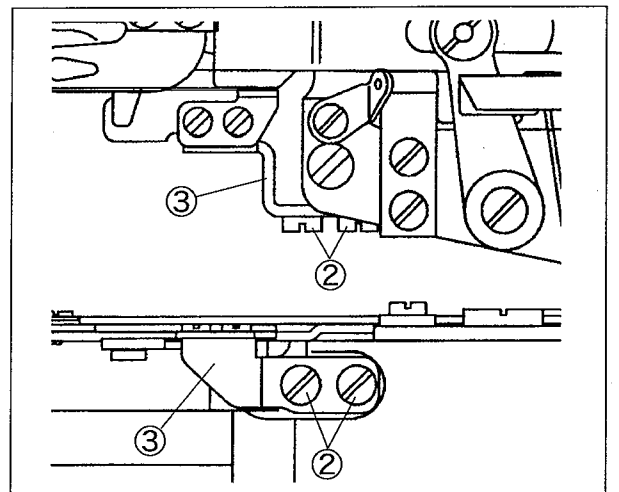


Fig. 5-12

5.10 Lower knife carrier guide (upper)

- (1) Loosen the screw ④.
- (2) Make the clearance between the lower knife carrier ⑤ and the lower knife carrier guide (upper) ⑧ to 0.05 - 0.1 mm when the upper knife carrier ⑥ stops by touching the upper knife carrier stop ⑦.
- (3) Tighten the screw ④ securely.

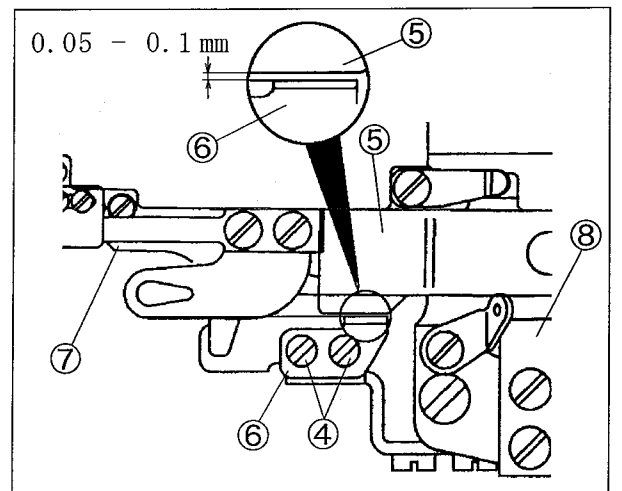


Fig. 5-13


WARNING

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

5.11 Relation between lower knife and needle thread or looper thread

After all adjustments, recheck following points before sewing.

★ The lower knife① should pass through the needle thread loops② and ③, and the hook④ should pass in front of the looper thread.

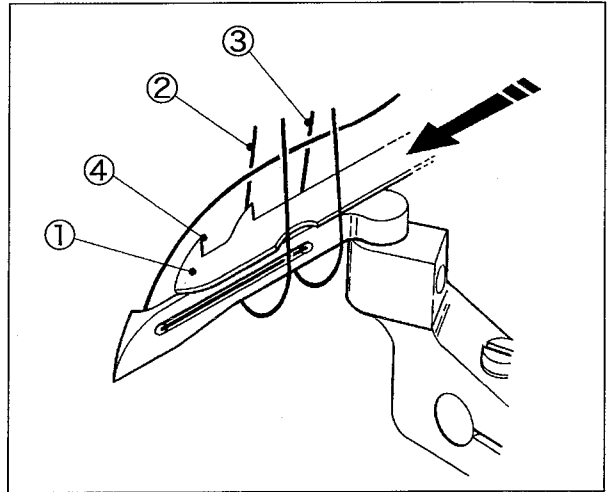


Fig. 5-14

★ The needle and the looper threads are pulled with the hooks④ and ⑤ to the right when the lower knife① returns. Then the threads are cut with the upper knife.

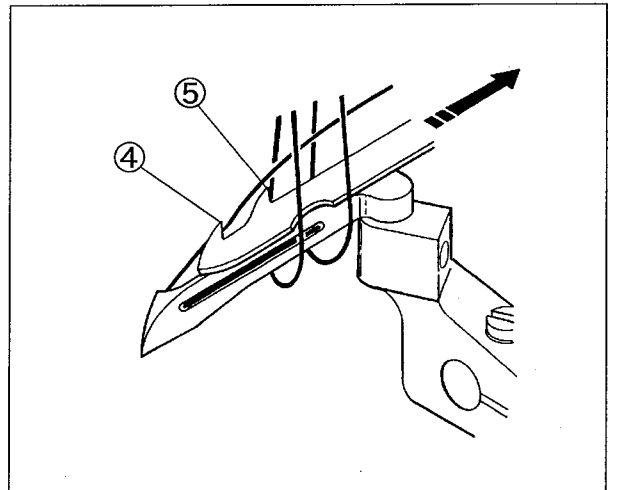


Fig. 5-15

6. Adjusting tension release mechanism

WARNING

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

6.1 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.

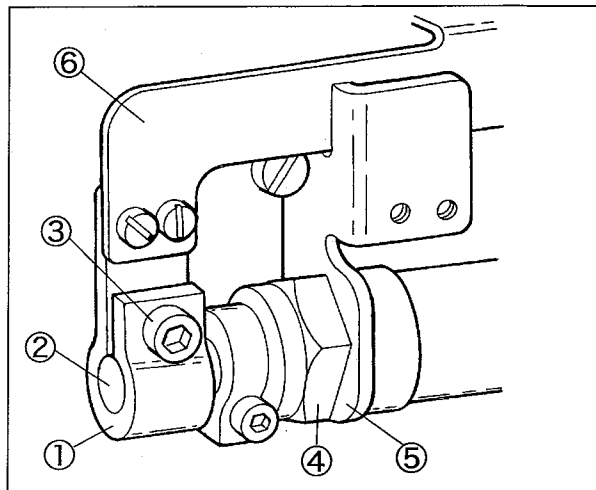


Fig. 6-1

6.2 Tension release connecting plate

Adjust it referring to Figs. 6-1 and 6-2.

- (1) Loosen the lock nut ④ of the air cylinder.
- (2) Adjust the position of the switch holder ⑤ so that the screw head ⑦ does not come off with keeping a clearance between the tension release connecting plate ⑥ and the tension release lever ⑧.
- (3) Tighten the lock nut ④ securely.

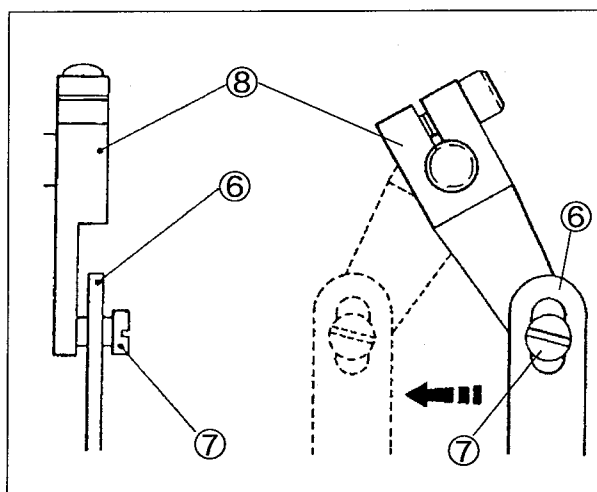


Fig. 6-2

6.3 Thread pull-off lever

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

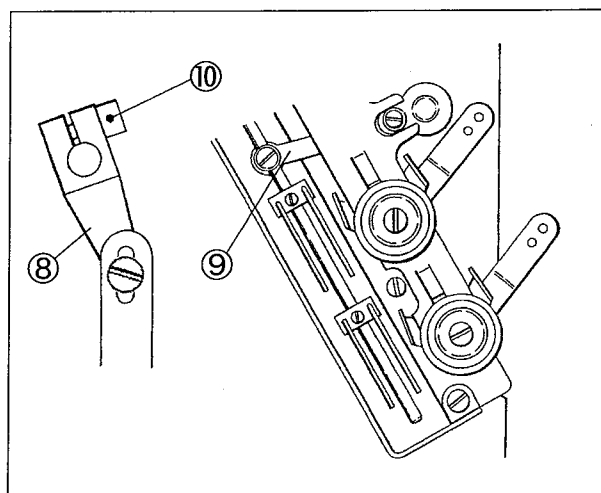


Fig. 6-3

⚠ WARNING

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

6.4 Tension disc sparator

- (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 open 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.

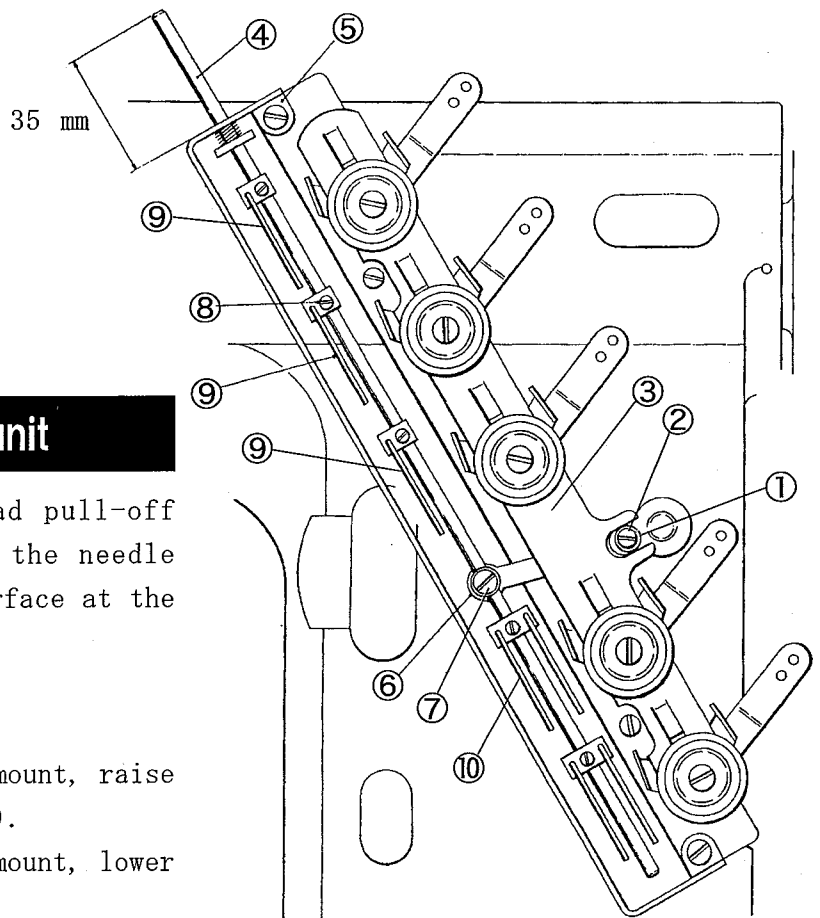


Fig. 6-4

6.5 Thread pull-off hook unit

Adjust the position of the thread pull-off hook unit ⑨ without remaining of the needle thread too much on the material surface at the beginning of sewing.

Loosen the screws ⑧ to adjust it.

- 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 little, the stitch cannot 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 at the position the thread does not take-up.

7. Adjusting air wiper

- (1) Loosen the screws ③.
- (2) Slide the air wiper ① back or forth to blow the air behind the needles.
- (3) Tighten the screws ③ securely.
- (4) Loosen the screws ④.
- (5) Raise the needle at the highest point, and set the center of the air blowing hole ② of the air wiper 1–2 mm below the left needle eye.
- (6) Tighten the screws ④ securely.
- (7) Adjust the air volume with adjusting screw of the speed controller ⑤.
 - To decrease the air volume, turn it clockwise.
 - To increase the air volume, turn it counterclockwise.

⚠ CAUTION

1. Keep the air volume to a minimum.
2. If the air blows in front of the needles, the needle thread may be slipped away from the needle eye. Make sure that the air blows behind the needles.

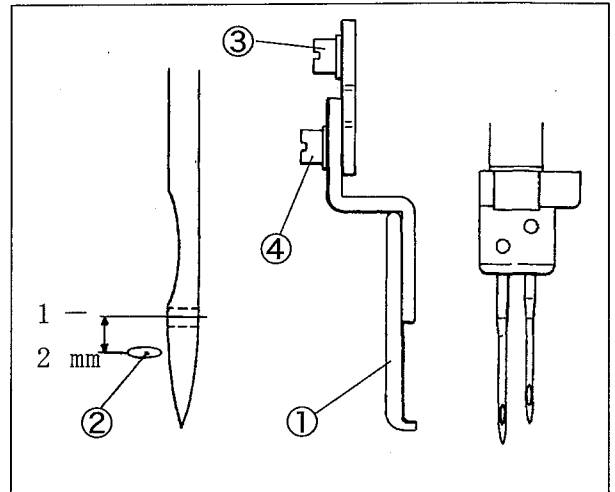


Fig. 7-1

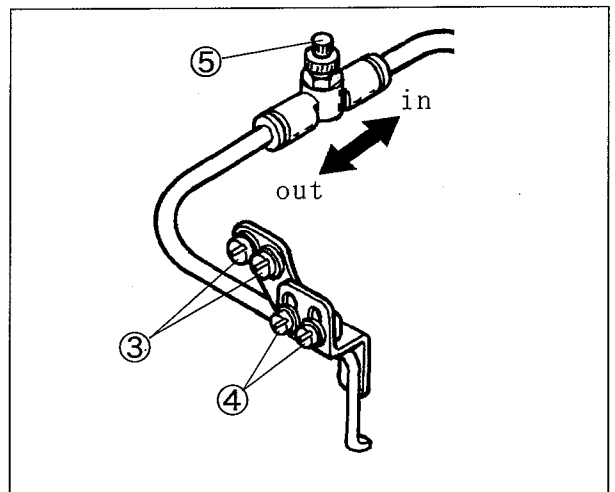


Fig. 7-2

8. Presser foot lifter mechanism

WARNING

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

- (1) Loosen the lock nut ①.
- (2) Turn the cylinder rod chip ③ to raise the presser foot by 6 mm (without the spreader: 7.5 mm) when the cylinder rod ② is lowered (when the cylinder operates).
- (3) Tighten the lock nut ① securely.

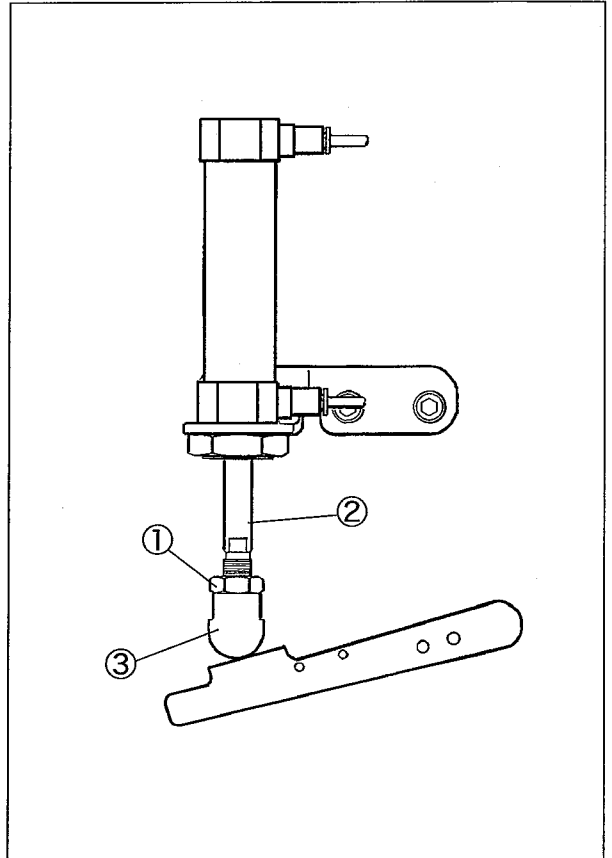


Fig. 8-1

9.ST2-A device

WARNING

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

9.1 Position of movable trimming knife

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

NOTE

Never touch the movable trimming knife ③ to the presser foot, the left needle ⑤, and the spreader ⑥ when lowering.
If touched them, loosen the screws ⑦ and ⑧ to adjust it.

- (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 adjusting above, the movable trimming knife ③ should be crossed over the top cover thread.

- (4) After that, tighten the screws ⑦, ⑧, and ⑩ securely.
- (5) Check the position of the movable trimming knife ③ with moving it up or down.

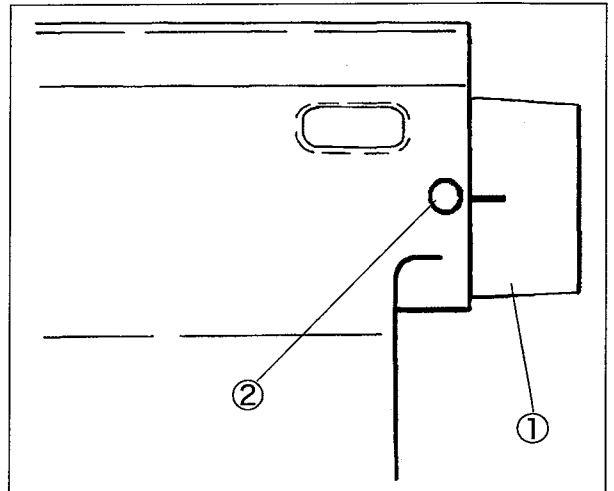


Fig. 9-1

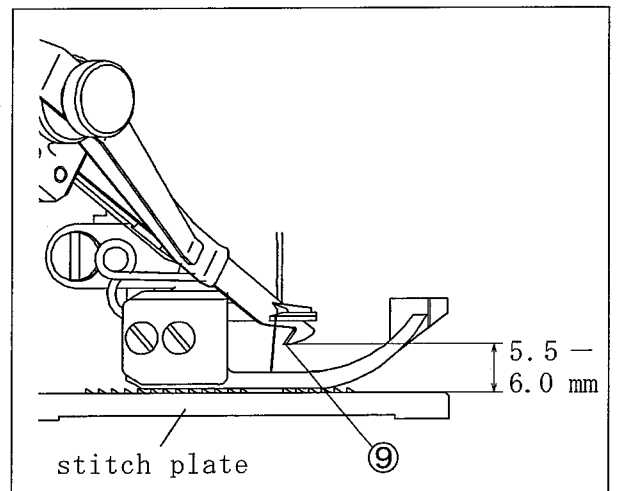


Fig. 9-2

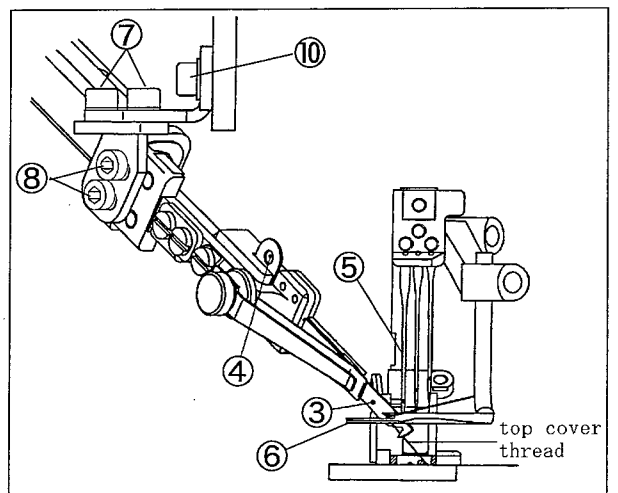


Fig. 9-3

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 cutting the top cover thread with the movable trimming knife. Adjust the speed so that the movable trimming knife does not touch the presser foot.

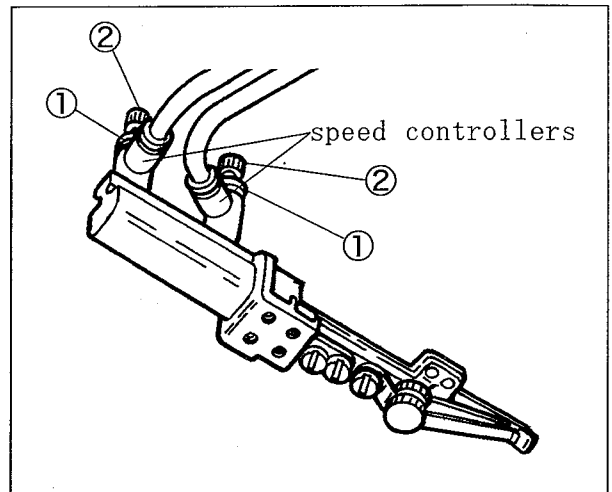


Fig. 9-4

9.2 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 has been adjusted as shown in Fig. 9-5.

Normally adjustment above is unnecessary.

NOTE

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

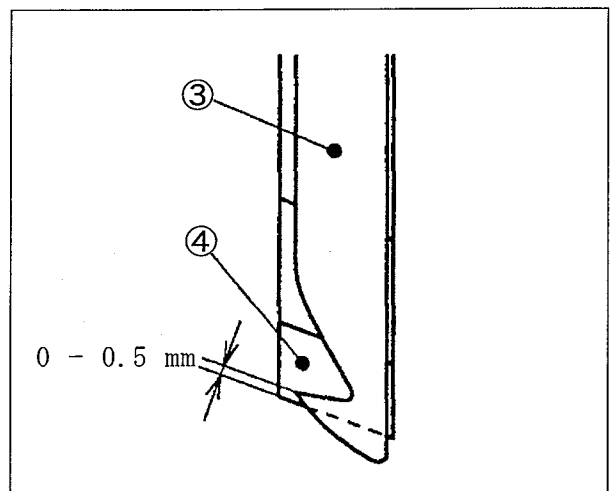


Fig. 9-5

 **WARNING**

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

9.3 Pressure of thread clamp spring

Keep the pressure to a minimum for holding the threads.

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

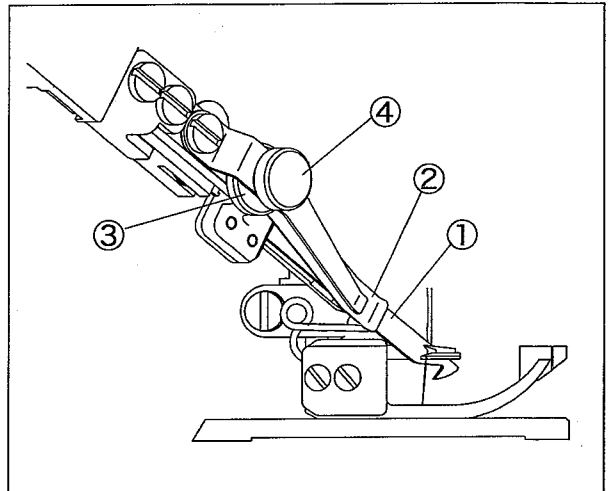


Fig. 9-6

9.4 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 feed of the thread should be as much as possible. If not enough, the top cover thread cannot be held after cutting.
2. When using stretchable thread like woolly, thread through the top cover thread eyelet ⑥.

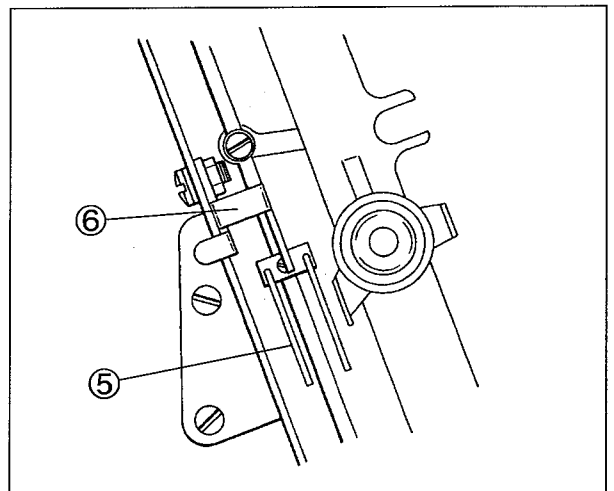


Fig. 9-7



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