

SERVICE MANUAL

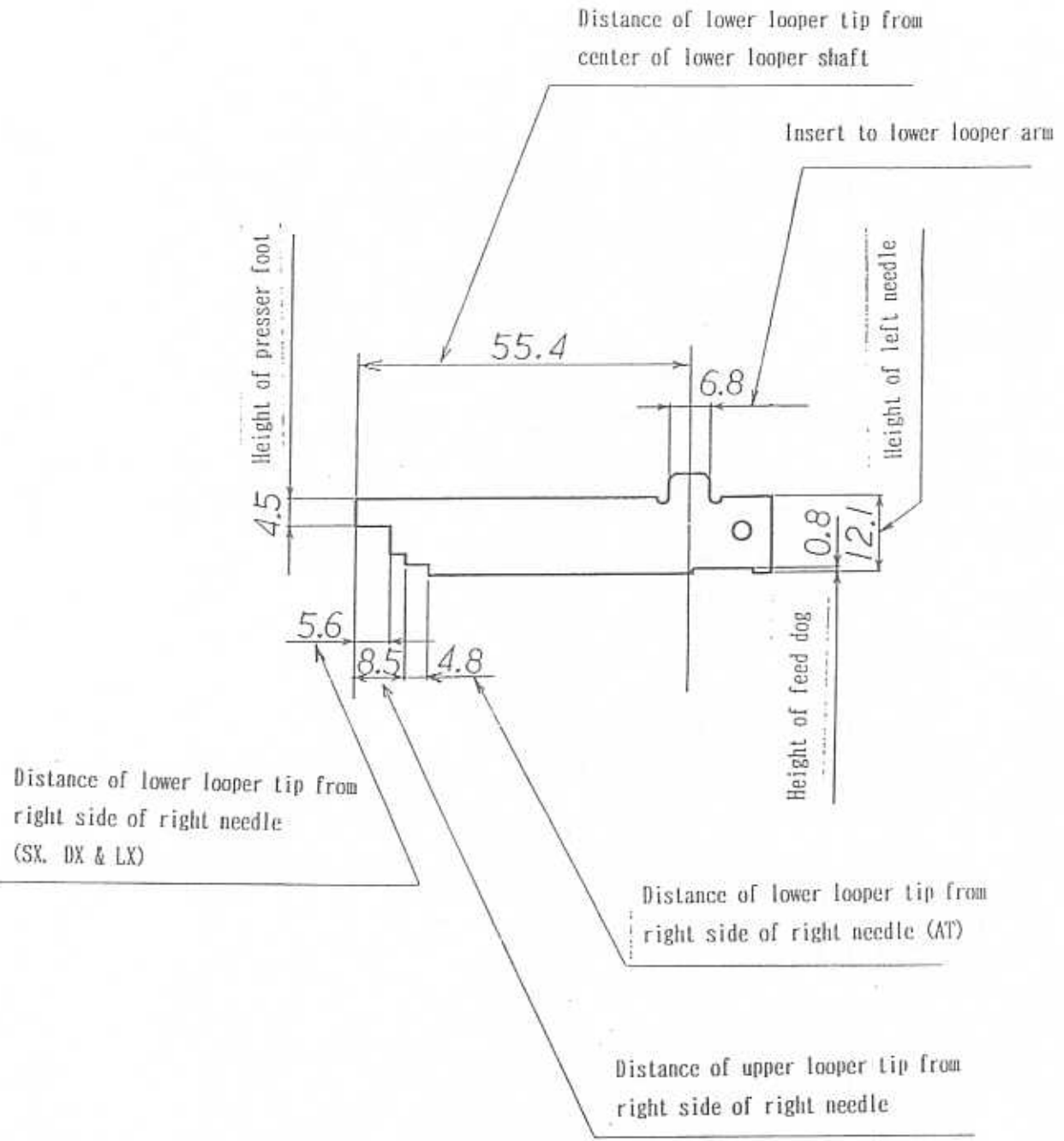


Model **BLE 1 AT**

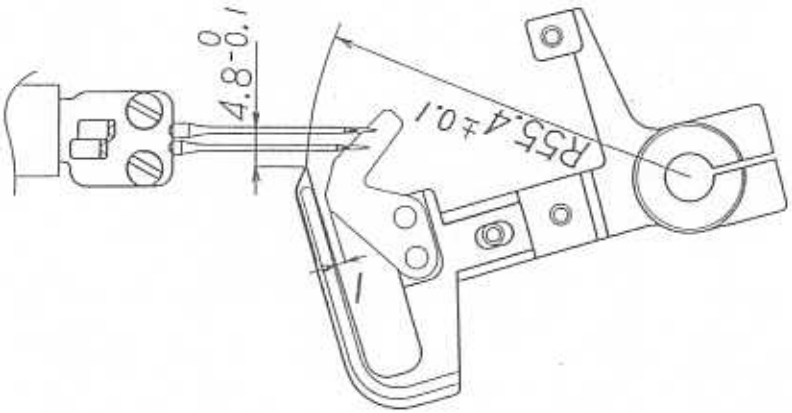
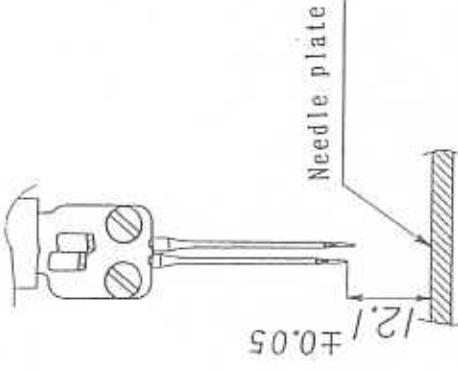
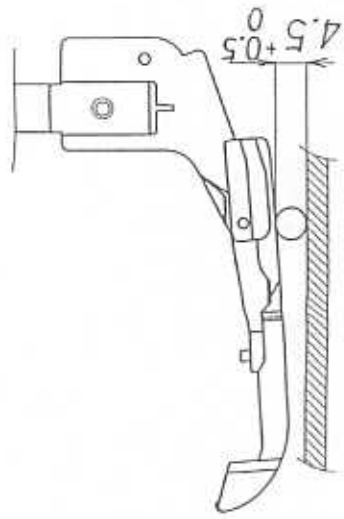
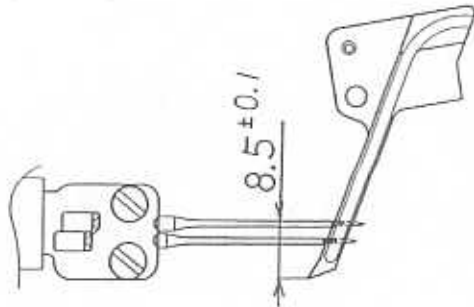
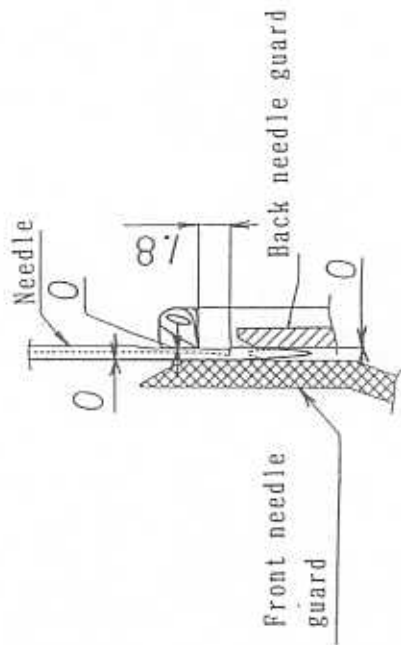
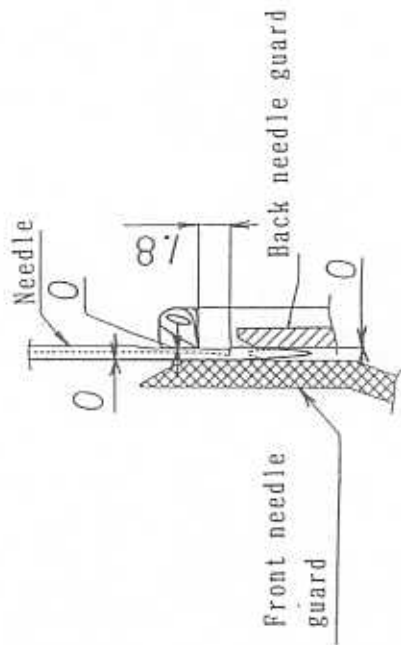
baby lock[®]

#SMBLE1AT

Adjusting gauge



Adjustment of needle, lower looper, upper looper, presser foot & needle guard

<p>Lower looper adjustment</p> 	<p>Height of left needle</p> 	<p>Height of presser foot</p> 
<p>Upper looper adjustment</p> 	<p>Needle guard adjustment</p> 	<p>Needle guard adjustment</p> 

Preparation: Before you adjust the Thread Delivery Unit, remove the spool stand base plate, take-up cover, stitch selector knob, face cover, belt cover, bed cover and arm cover from the machine.

1. Adjustment of Thread Delivery Unit

WARNING - The Thread Delivery Unit is precisely assembled and you cannot overhaul it at all. We assure its durability but if anything wrong is happen, we would ask you to replace the whole unit.

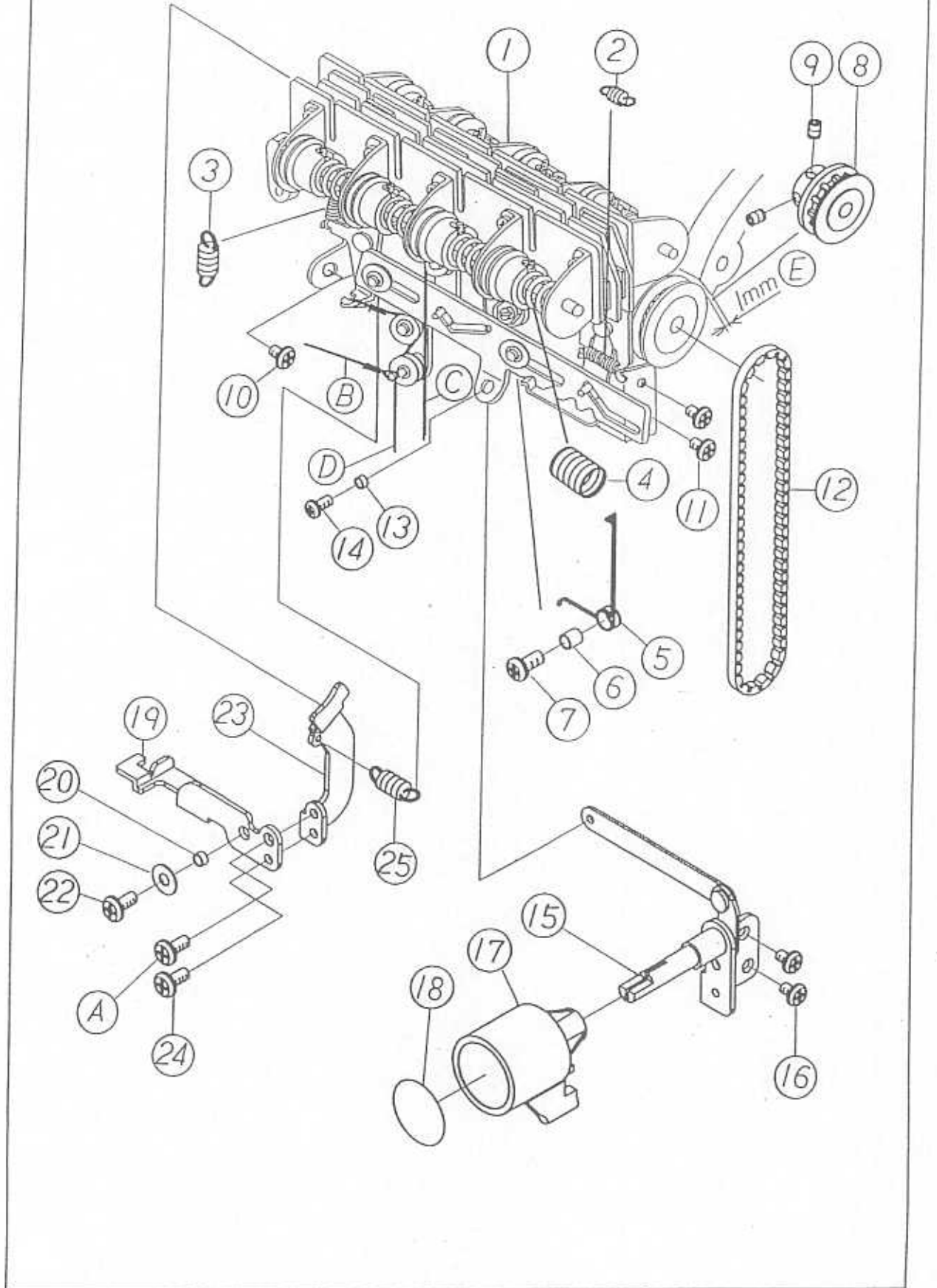
1-1 HOW TO REPLACE THE TIMING BELT ⑫ OF THREAD DELIVERY UNIT ① (see P4)

- a) Loosen the presser foot joint link fixing screw A(⑳ upper screw).
- b) Loosen the thread delivery unit fixing screw ⑩.
- c) Remove 2 pcs of the thread delivery unit fixing screw ⑩.
- d) Push the thread delivery unit ① downward and remove the timing belt of thread delivery unit ⑫ Then, remove the motor belt and you can replace the timing belt of thread delivery unit.
- e) Return 2 pcs of the thread delivery unit fixing screw ⑩. You are required to adjust the clearance at 1mm between handle and the timing pulley. (E)
- f) Tighten the screw ⑩ and screw A(⑳ upper screw).
- g) Adjustment of timing
see P.7, 1-4, c

1-2 HOW TO REPLACE THE THREAD DELIVERY UNIT (see P.4)

- a) Remove the selector knob link fixing screw ⑭ & spacer⑬.
- b) Remove 3 pcs of sensor cable B, C & D.
- c) Remove 3 pcs of thread delivery unit fixing screw ⑩& ⑪.
- d) Remove the thread delivery unit timing belt⑫ and you can remove the thread delivery unit from the machine.
- e) Replace the thread delivery unit and assemble each part in the order of d) → c) → b) → a).
- f) Make sure that the 3 pcs of sensor cable are exactly in the roller.
- g) After you replace the thread delivery unit, you are required to adjust and check following items;
 - 1) Adjust the thread delivery cam (see P.7, 1-4, c)
 - 2) Check the stitches (see P.11, 2).

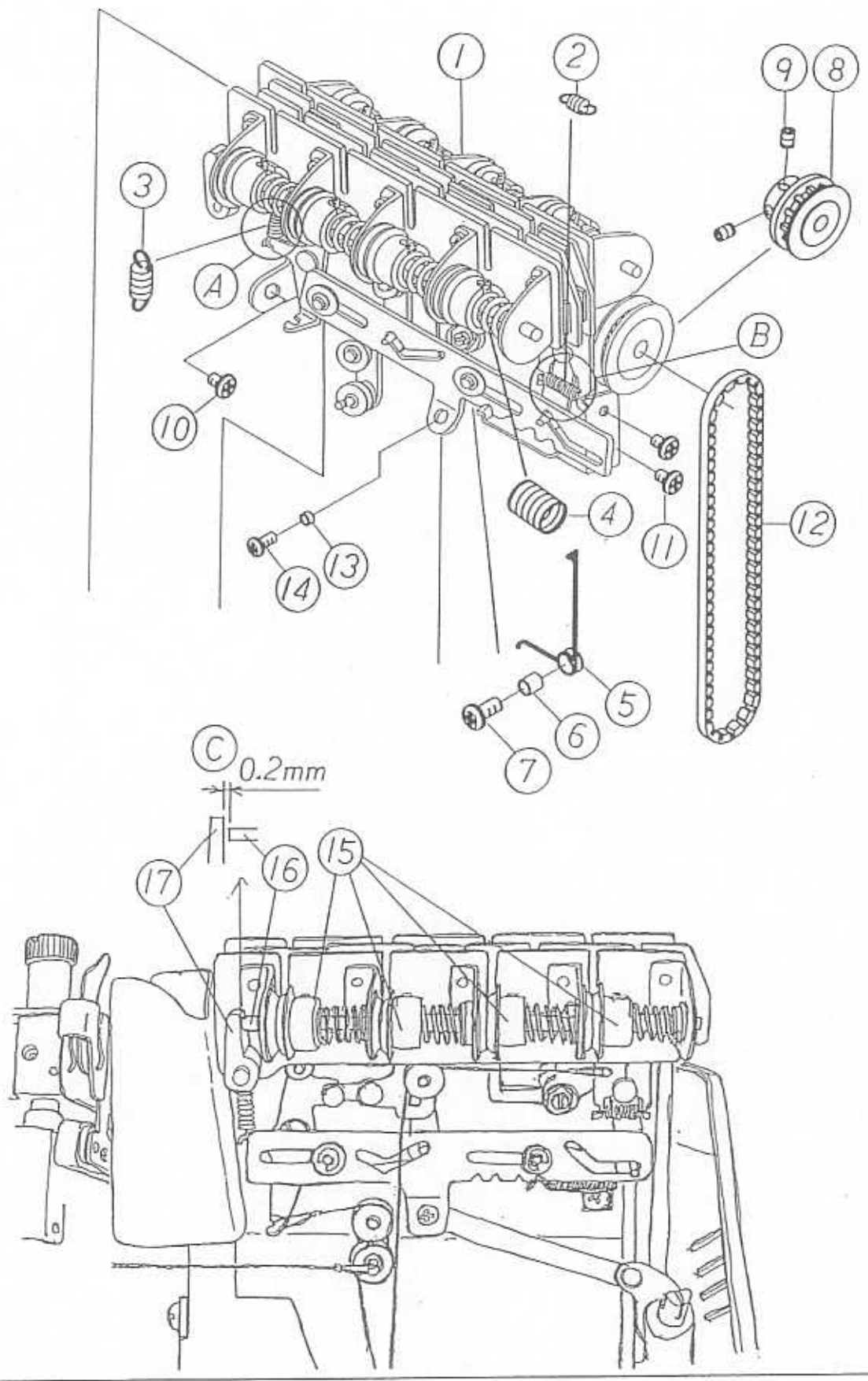
THREAD DELIVERY SYSTEM COMPONENTS



1-3 HOW TO REPLACE THE SPRINGS OF THREAD DELIVERY UNIT (see P.6)

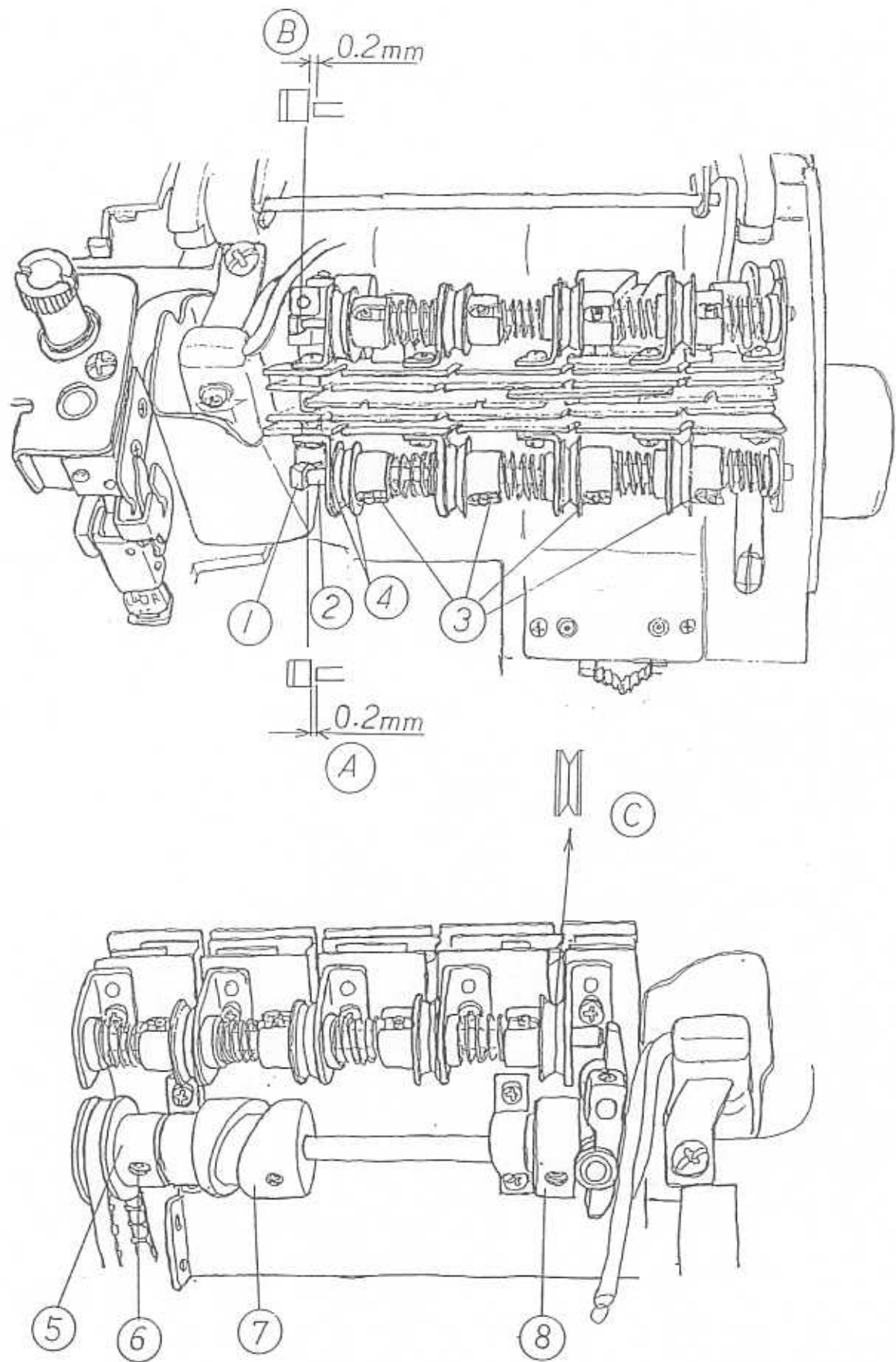
- a) Stitch connecting arm plate spring ③ - Hook the spring at hook A.
- b) Looper thread pulling plate spring ② - Hook the spring at hook B.
- c) Thread pulling movable spring ⑤
 - Remove the edge of hook of thread pulling movable spring ⑤, loosen the fixing screw ⑦ and replace the spring and space ⑥ at the same time.
- d) Disc press spring ④ (both front and rear)
 - 1) Loosen 4 pcs of fixing screw of the thread press disc thrust collar ⑮ and pull out the thread press disc shaft ⑯ rightward. Be careful not to splash the spring.
 - 2) After you replace the spring ④, insert the thread press disc shaft ⑯ slowly from the right side.
 - 3) Pushing the thread press disc shaft ⑯ from the right side, rotate the machine pulley until the thread press driving arm reaches the far left.
 - 4) Make a clearance of 0.2mm between the thread press driving arm ⑰ and thread press disc shaft ⑯ (see C), move the thread press disc thrust collar ⑮ to rightward and tighten each screw firmly to fix the disc press spring ④. Tighten other 3 screws in the same way.
 - 5) Rotate the machine pulley and make sure the clearance of 0.2mm between the thread press driving arm and thread press disc.

THREAD DELIVERY SYSTEM COMPONENTS



1-4 ADJUSTMENT OF THREAD DELIVERY UNIT (see P8)

- a) Adjustment of clearance A for front thread press post arm
- 1) Rotate the machine pulley until the front thread press post arm ① comes to the far left.
 - 2) Make a clearance of 0.2mm between the front thread press post arm ① and thread press disc shaft ②, and then, move 4 pcs of screw for thread press disc collar③ to the rightward and tighten these screws firmly to fit the disc press spring firmly.
- b) Adjustment of clearance for rear thread press post arm - Same as 1-4. a).
- c) Adjustment of timing
- 1) Loosen 2 pcs of thread delivery unit timing pulley fixing screw ⑥.
 - 2) Rotate the machine pulley and lower the upper looper at the bottom.
 - 3) Turn the thread delivery cam ⑦ toward you until the front thread press disc ④ shuts. (C)
 - 4) Tighten 2 pcs of thread delivery unit timing pulley fixing screw ⑥ and make sure to fit the thread delivery unit timing pulley ⑤.
- d) Adjustment of thread delivery changing cam ⑧
- You cannot adjust the thread delivery changing cam itself because its shaft has a flat surface. For the adjustment of timing, adjust thread delivery unit timing pulley ⑤ (1-4. c).
- e) Adjustment of thread delivery cam ⑦
- You cannot adjust the thread delivery cam itself because its shaft has a flat surface. For the adjustment of timing, adjust thread delivery unit timing pulley ⑤ (1-4. c).



1-5 REPLACEMENT OF SENSOR CABLE (see P.10)

The sensor cable consists of 113 pcs of fine stainless wire and its pulling strength is 13kg (3 lb.). Therefore, it is almost unnecessary to replace the sensor cable. In case you replace the cable, refer the followings;

There are 3 types of sensor cable and each cable is different length.

* Fabric thickness sensor cable ③	about 127mm (5 inch.)
* Needle thread sensor cable ②	about 320mm (12 inch.)
* Looper thread sensor cable ①	about 498mm (20 inch.)

a) Replacement of fabric thickness sensor cable ③

- 1) Push the width changing roller arm A to the left and remove the fabric thickness sensor cable ③.
- 2) Replace the cable and make sure that the cable is in the groove of guide roller.
- 3) Check the stitches (see P.11, 2).

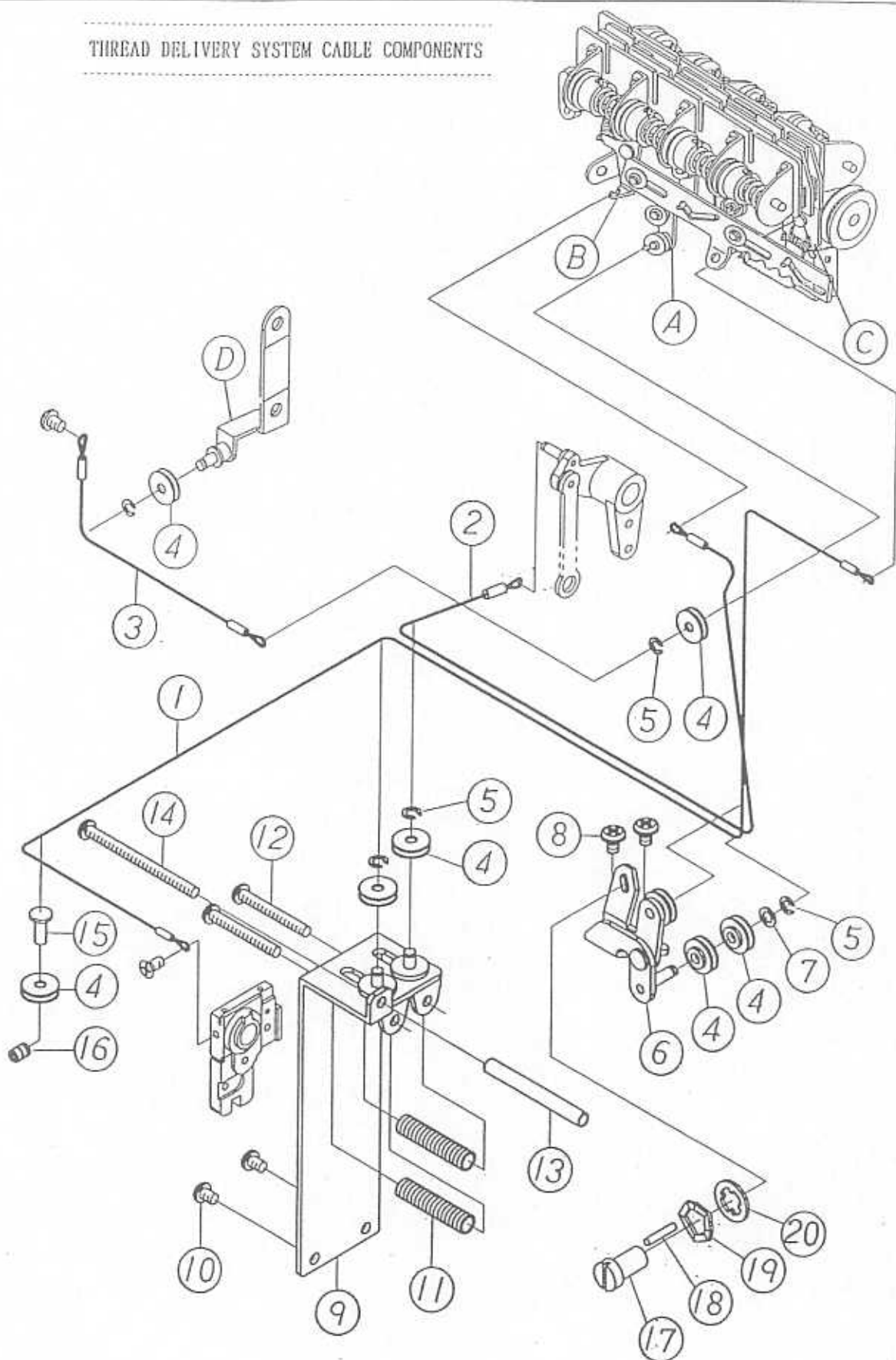
b) Replacement of needle thread sensor cable ②

- 1) Move the stitch joint arm plate B to the right and remove the needle thread sensor cable ②.
- 2) Replace the cable and make sure that the cable is in each 4 grooves of guide roller.
- 3) Check the stitches (see P.11, 2).

c) Replacement of looper thread sensor cable ①

- 1) Move the looper thread pulling plate C to the left and remove the looper thread sensor cable①.
- 2) Replace the cable and make sure that the cable is in each 5 grooves of guide roller.
- 3) Check the stitches (see P.11, 2).

THREAD DELIVERY SYSTEM CABLE COMPONENTS



2. ADJUSTMENT OF STITCHES

Each sensor cable is precisely adjusted at the factory. In case you cannot get the perfect stitches, check the following items at first.

- a) Refer the trouble shooting (P.15, 4) and check each item.
- b) Turn the looper thread fine-tuning screw and check the stitches.

Even if the above items are satisfactory but stitches are still not perfect, adjust each part with the following standard thread & fabric:

fabric : cotton 1-layer
thread : 100% polyester spun thread (maxi-lock or metrosene thread)
needle : Organ HAXISP #11
machine: 1-needle (right), 3-thread sewing
width : 5.0mm
length : 4.0mm
D.F. : N
stitch selector : 0

2-1 ADJUSTMENT OF NEEDLE THREAD SENSOR CABLE

The needle thread sensor cable effects the timing of both needle thread and looper threads. You are required to adjust this cable first.

NOTE: The needle thread sensor cable adjusting screw works;
+ Turn clockwise and both needle & looper threads become loose.
+ Turn counter-clockwise and both needle & looper threads become light.

- a) Line up the looper thread fine-tuning screw at the standard position.
- b) Sew 1-layer of cotton with 1-needle (right) 3-thread as shown in the above and adjust only the needle thread in the stitch not to have a puckering. Disregard the looper threads in the stitch at this stage.
- c) Then, adjust the looper thread sensor cable (2-2).

2-2 ADJUSTMENT OF LOOPER THREAD SENSOR CABLE

Before the adjustment of looper thread sensor cable, adjust the needle thread sensor cable first (2-1).

NOTE: The looper thread sensor cable adjusting screw works;

‡ Turn clockwise and looper threads become loose.

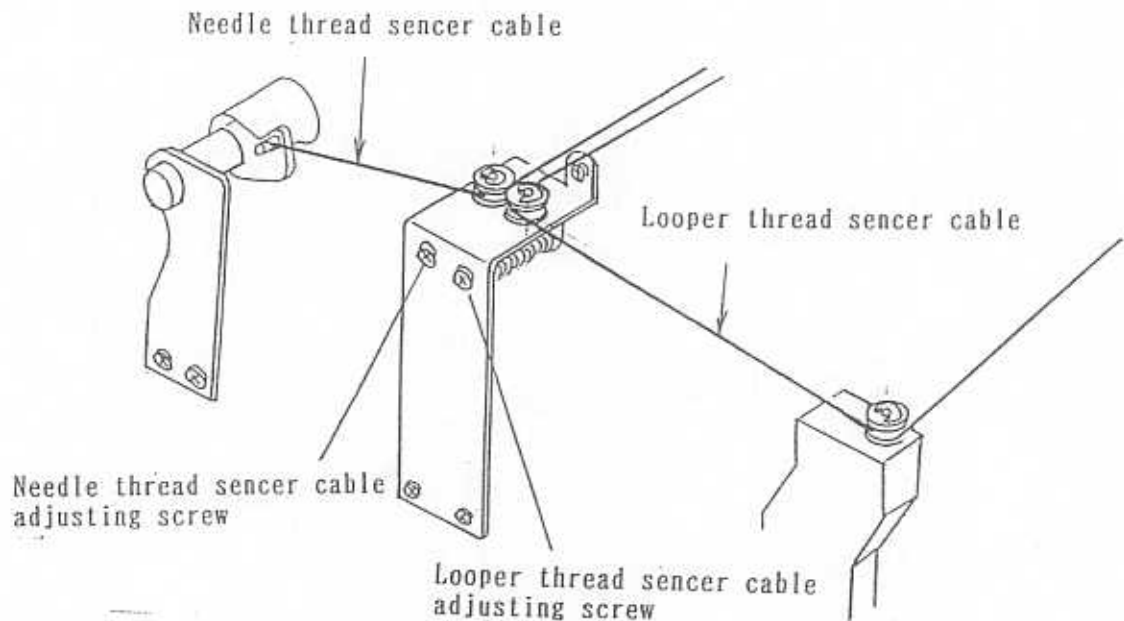
‡ Turn counter-clockwise and looper threads become tight.

- a) Line up the looper thread fine-tuning screw at the standard position.
- b) Sew 1-layer of cotton with 1-needle (right) 3-thread as shown in the previous page and turn the screw until you get the ideal stitch which looper threads are not loose and fabric is not curled.
- c) After adjustment of looper thread sensor cable, the timing of needle thread might be changed. Therefore, check the needle thread sensor cable again (see 2-1).

2-3 ADJUSTMENT OF FABRIC THICKNESS SENSOR CABLE (see P10)

This cable is almost not required any of adjustments. In case you need the adjustment, follow as below;

- a) Rotate the machine pulley until the needle is in the bottom.
- b) Bend the presser foot bar guide plate D under the needle thread guide roller and adjust the timing.



3. ADJUSTMENT OF NEEDLE THREADER

(see P14)

Before you adjust the needle threader, you are required to exchange the new needles of ORGAN HAXISP #11 as the bent needles or different needles cause the incorrect timing of needle threader. Also, you are required to make sure that needles are positioned in the needle clamp holder correctly.

3-1 REPLACEMENT OF NEEDLE THREADER

- a) Remove the needle threader hook fixing screw 22 and replace the hook 20.
- b) Insert the hook 20 until the end of needle threader selector plate 23 and lighten the needle threader hook fixing screw 22.
- c) Align the green marks on the pulley and machine body and make sure if the needle threader works properly.
- d) Change the needle threader select plate 23 right and left, and make sure if the needle threader works both for right and left needles.
- e) In case the needle threader does not work properly, see 4-2 and/or 4-3 and adjust it.

3-2 ADJUSTMENT OF HIGH AND LOW DIRECTION FOR NEEDLE THREADER

- a) Align the green marks on the pulley and machine body so that the needles are positioned at the highest.
- b) Make sure that the needle threader hook 20 is positioned until the end of needle threader select plate 23.
- c) Bend the place A on needle threader holder 17 and adjust the direction of high and low for the needle threader.
- d) Change the needle threader select plate 23 right and left, and make sure if the needle threader works both for right and left needles.

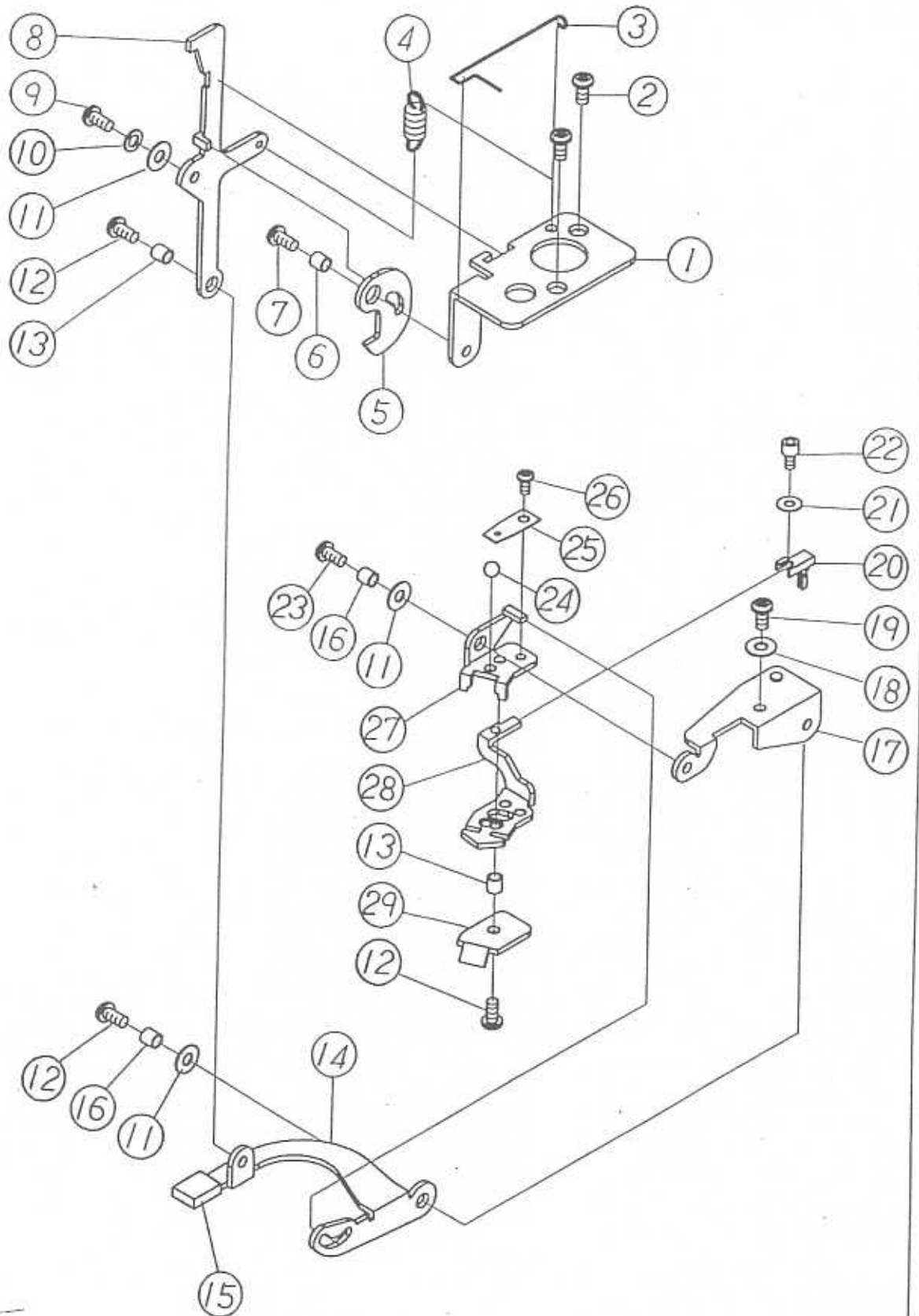
3-3 ADJUSTMENT OF RIGHT AND LEFT DIRECTION FOR NEEDLE THREADER

- a) Align the green marks on the pulley and machine body so that the needles are positioned at the highest.
- b) Loosen the screw 19 and move the needle threader holder 17 right and left until the needle threader works properly.
- c) Tighten the screw 19.
- d) Change the needle threader select plate 23 right and left, and make sure if the needle threader works both for right and left needles.

3-4 ADJUSTMENT OF NEEDLE THREADER SAFETY PLATE

- a) Align the green marks on the pulley and machine body so that the needles are positioned at the highest.
- b) Loosen the screw 9 and adjust the position of washer 11 in order to make the needle threader safety plate lowered smoothly when the needle threader lever 14 is lowered.
- c) Tighten the screw 9.
- d) Rotate the machine pulley and make sure that the needle threader lever 14 is not lowered when the needles are not in the highest position.

NEEDLE THREADER COMPONENTS



4. TROUBLE SHOOTING

4-1 NEEDLE THREADS ARE UNBALANCED ;

- * Is the serger threaded correctly? → See Quick Reference Guide
- * Are the threads snapped in the head guide? → See Instruction Book P.12
- * Is the stitch selector positioned correctly? → See Quick Reference Guide
- * Is the looper thread fine-tuning screw positioned correctly?
→ See Instruction Book P.13
- * Are the threads recommended high quality? → See Instruction Book P.7
- * Is the needle thread sensor cable positioned correctly? → See P9, 1-5
- * Is the needle thread sensor cable adjusted correctly? → See P11, 2-1

4-2 LOOPER THREADS ARE UNBALANCED ;

- * Is the serger threaded correctly? → See Quick Reference Guide
- * Are the threads snapped in the head guide? → See Instruction Book P.12
- * Is the stitch selector positioned correctly? → See Quick Reference Guide
- * Is the looper thread fine-tuning screw positioned correctly?
→ See Instruction Book P.13
- * Are the threads recommended high quality? → See Instruction Book P.7
- * Is the looper thread sensor cable positioned correctly? → See P9, 1-5
- * Is the looper thread sensor cable adjusted correctly? → See P11, 2-2

4-3 THREAD BREAKS ;

- * Is the serger threaded correctly? → See Quick Reference Guide
- * Are the threads snapped in the head guide? → See Instruction Book P.12
- * Is the stitch selector positioned correctly? → See Quick Reference Guide
- * Is the looper thread fine-tuning screw positioned correctly?
→ See Instruction Book P.13
- * Are the threads recommended high quality? → See Instruction Book P.7

4-4 NEEDLE THREADER WORKS IMPROPERLY ;

- * Are the green marks on the pulley and machine body aligned? → See P13, 3
- * Are the needles inserted until the end of clamp holder? → See P13, 3
- * Is the height of each needle correct? → See P 2
- * Is the adjustment of needle threader correct? → See P13, 3