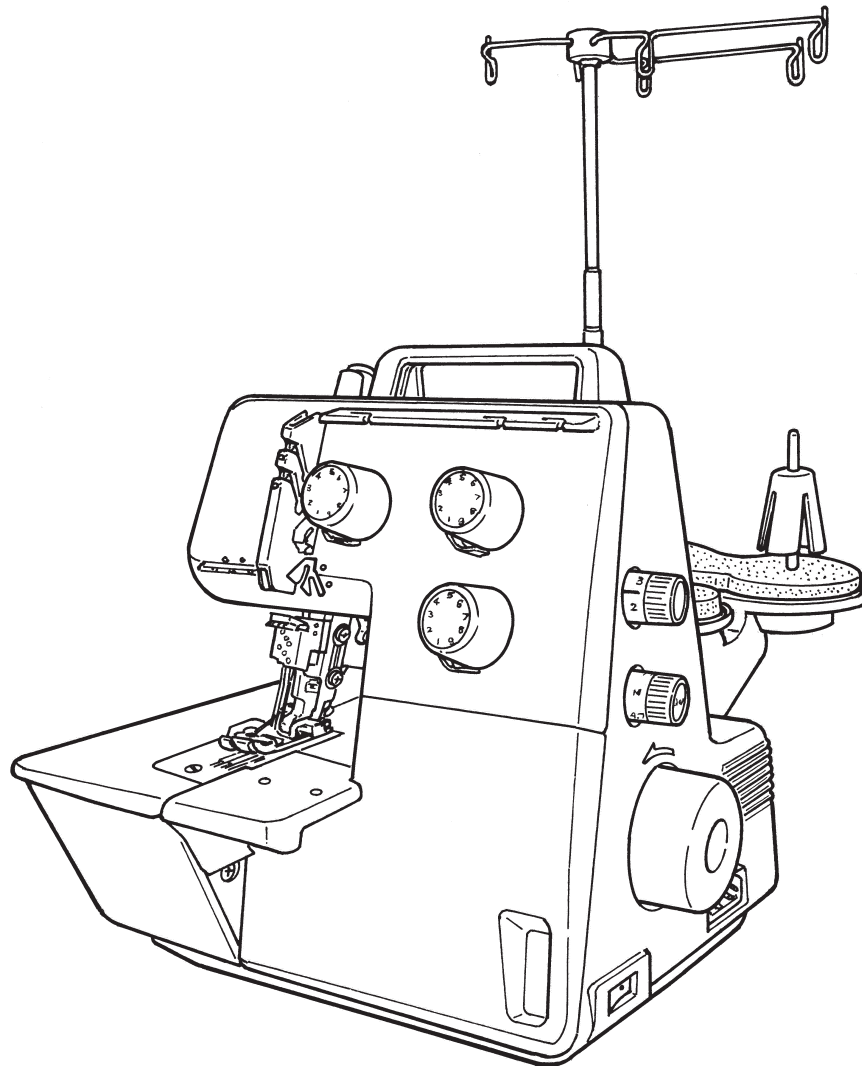


3-Needle, 2/3/4-Thread Cover Stitch Sewing Machine

MCS-1500

SERVICE MANUAL



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WARNING :

To avoid the risk of fire, electric shock, injury to persons or damage to components, especially keep the following :

- When disassembling, assembling or adjusting the sewing machine, remove the power plug.
- When assembling, be careful about the electrical cord being caught with other components, damage to the covered parts of the cord or miswiring.
- When replacing the part(s), use the genuine part(s).

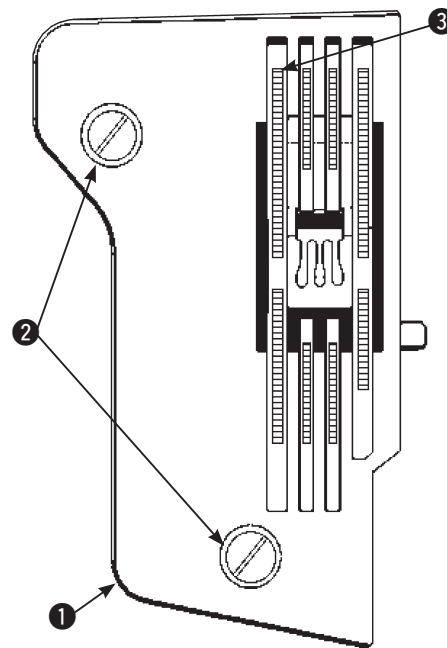
Specifications

No. Items	Description
1. No of needle and threads	3-needles 4-threads, 2-needles 3-threads (for covering) 1-needle 2-threads (for double-chain)
2. Needle	130/705H #80 (#70 - #90)
3. Overedge width	5.0 mm (for covering)
4. Stitch length	1.0 - 4.0 mm
5. Differential feed ratio	Stretching: 1 : 0.7 Shirring: 1 : 1 - 1 : 2
6. Needle bar stroke	27 mm
7. Feed dog height	Standard 1.3 mm
8. Presser foot height	8 (+0/-0.6) mm
9. Light	UL/CSA 15 Watt (built-in), VDE/SAA/GB 10 Watt (built-in)
10. Power switch	2-step rocker switch
11. Motor	built-in, 240V, 120V, 230V, Input 90W
12. Sewing speed	Up to 1,350 sti/min
13. Driving system	Timing belt, Machine rotates in the forward (normal) direction
14. Machine size	280 (W), 335 (D), 285 (H) mm
15. Machine weight	6.8 kg
16. Foot control	Electronic type

1. Installation of the throat plate

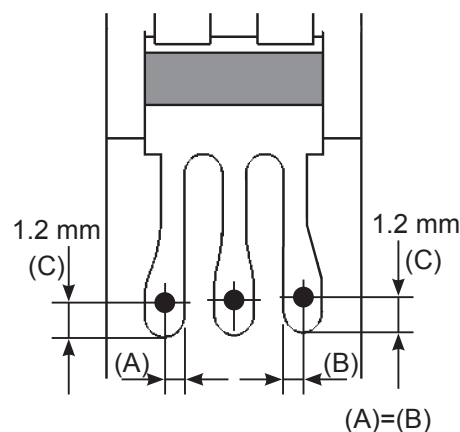
1.1. Checking items:

- ❶ Throat plate
- ❷ Setscrew
- ❸ Feed dog
 - Check that needles are laterally equidistant with respect to the throat plate slot (A, B).
 - Check that the distance between the needle center and the front edge of the throat plate slot is 1.2 mm (C).



1.2. How to perform adjustment:

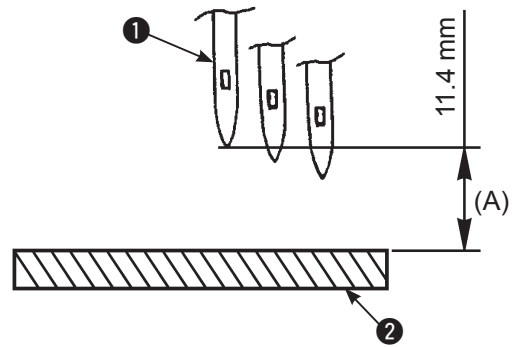
- Perform the adjustment of the needle entry by moving the throat plate.
- Loosen the setscrews ❷ of the throat plate and adjust the following:
 - a) The feed dog teeth are parallel to the slots in the throat plate.
 - b) The needles are spaced equidistantly to the slots in the throat plate (A, B).
 - c) The distance between the needle center and the front edge of the throat plate slot is 1.2 mm (C).
- Retighten the setscrews ❷.



2. Height of the needle bar

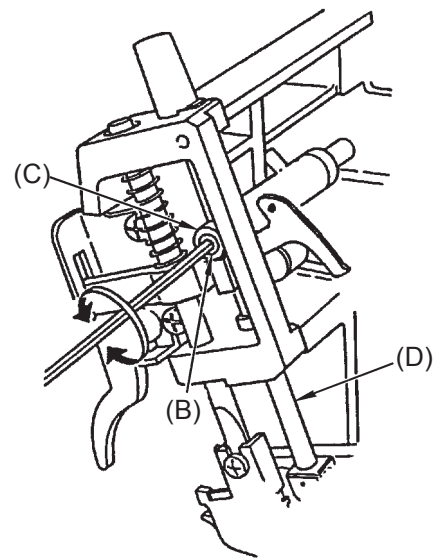
2.1. Checking items:

- ① Left hand needle
- ② Throat plate
 - Check that the distance between the throat plate surface and the left hand needle point with the needle bar at the highest point of its stroke is 11.4 mm (A) when using needle system 130/705H.



2.2. How to perform adjustment:

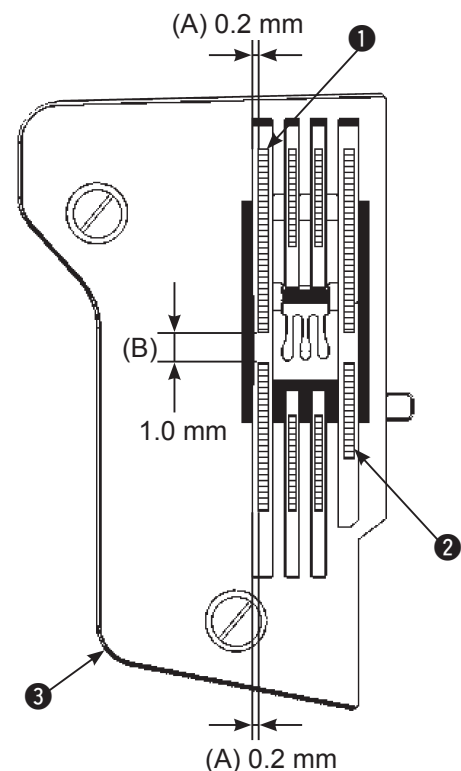
- Allow the needle bar (D) to reach its highest position.
- Loosen the setscrew (B) of the needle bar connection (C) slightly.
- Move the needle bar (D) up or down to make adjustment.
- Retighten the setscrew (B).



3. Position of the feed dog

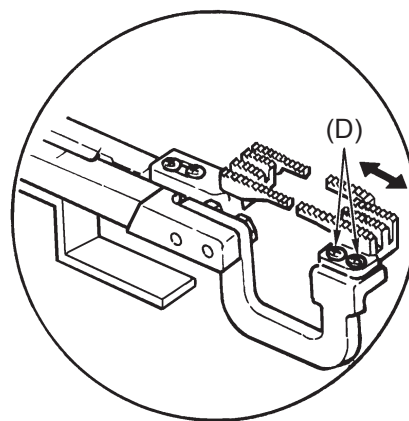
3.1. Checking item:

- ① Main feed dog
- ② Sub feed dog
- ③ Throat plate
 - Check that the feed dog and the slot in the throat plate are parallel with each other.
 - Check that there is a clearance on the left side of the feed dog and the throat plate of 0.2 mm (A).
 - Check at the most-advanced position in max. main feed and min. sub-feed the clearance between the main feed dog and sub-feed dog is 1.0 mm (B).



3.2. How to perform adjustment:

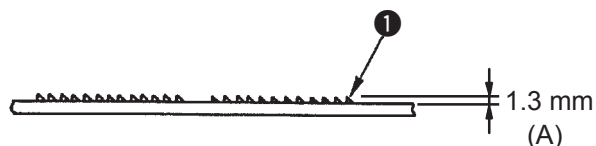
- Loosen the setscrews (D) of the sub feed dog.
- At the most advanced position in max. main feed and min. sub feed move the sub feed dog back and forth and perform adjustment so that the clearance between the main feed dog and the sub feed dog is to be 1.0 mm (B).
- Retighten the setscrews (D).



4. Height of the feed dog

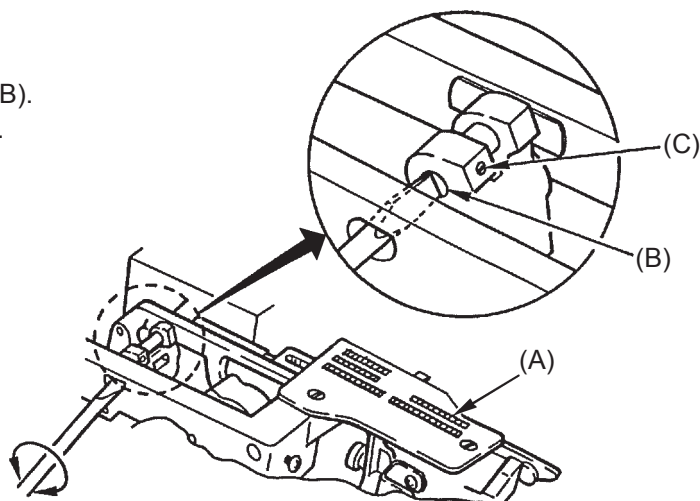
4.1. Checking items:

- ① Front end of feed dog
 - Check that the feed dog in its highest position at stitch length 2.5 is 1.3 mm higher than the throat plate surface (A).



4.2. How to perform adjustment:

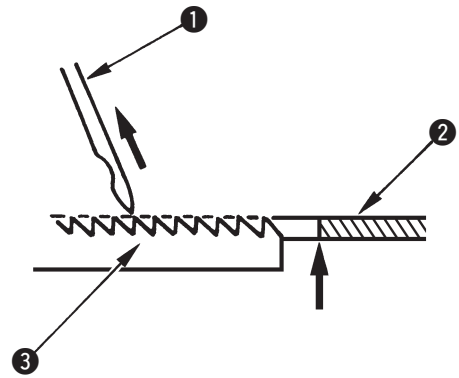
- Set the feed dog (A) in its highest position.
- Loosen the setscrew (C) from the eccentric stud (B).
- Turn the eccentric stud (B) to perform adjustment.
- Retighten the setscrew (C).



5. Feed dog timing

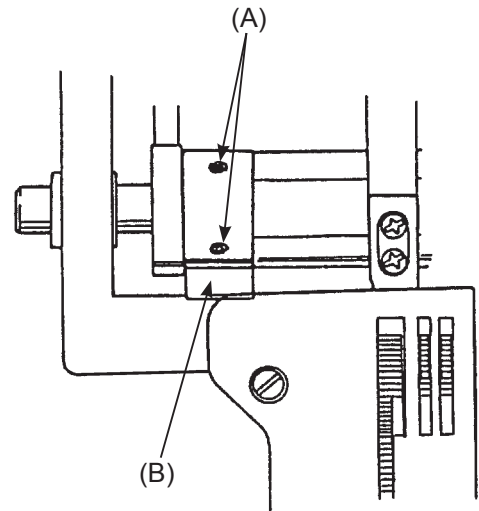
5.1. Checking items:

- ① Left hand needle
- ② Throat plate
- ③ Feed dog
- Check that the needle point of the left hand needle and the teeth points of the feed dog are at the same time flush with the surface of the throat plate when feed dog and the needle are in their upward stroke at stitch length 2.5.



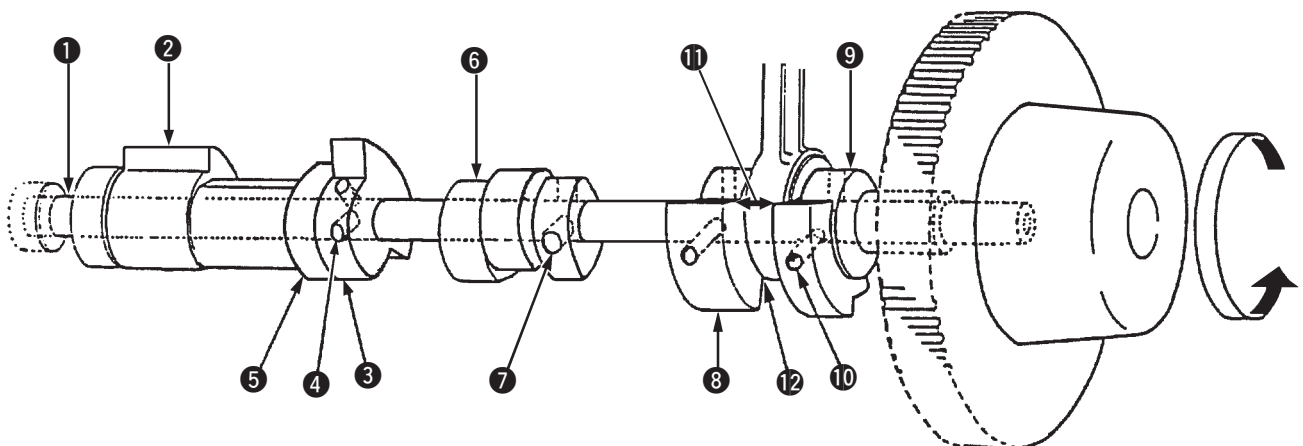
5.2. How to perform adjustment:

- Loosen the setscrews (A).
- Rotate the feed excenter cam (B) to make adjustment.
- Retighten the setscrews (A).



6. Position of the balance weights and cams

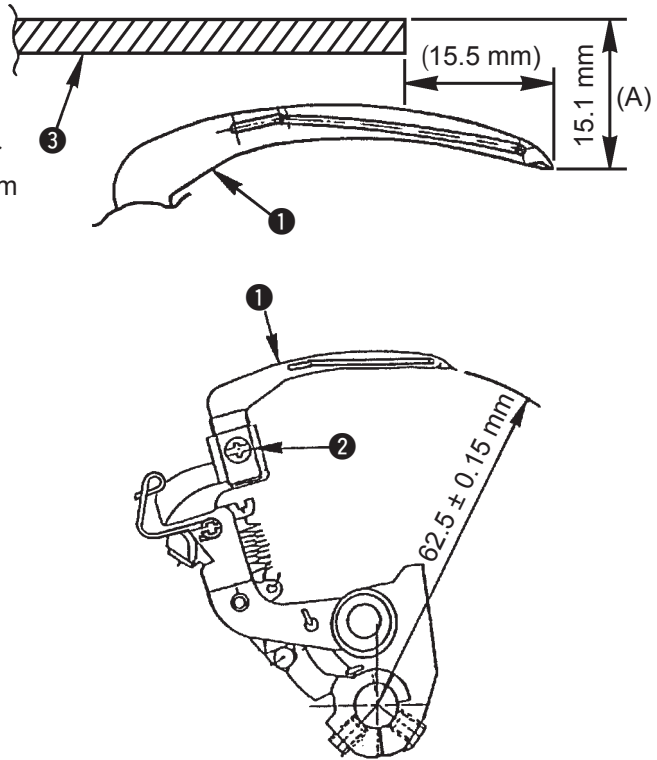
- ① Main shaft
- ② Feed cam
- ③ Double-chain osc.cam
- ④ First setscrew is aligned at the position of setscrew number 10
- ⑤ Space 0 ~ 0.05 mm
- ⑥ Lower looper cam
- ⑦ First setscrew is aligned at the position of setscrew number 10
- ⑧ Lower balance weight
- ⑨ Needle bar driving cam
- ⑩ First setscrew
- ⑪ Same level
- ⑫ Space 0.2 mm



7. Radius of the double-chain looper

7.1. Checking items:

- ① Double-chain looper
- ② Setscrew of double-chain looper
- ③ Throat plate
 - To the right-most position of the double-chain looper. Check that the distance between double-chain looper blade point and the throat plate top surface is 15.1 mm (A).
 - (Distance from the center of the double-chain looper shaft to the double-chain looper blade point is 62.5 ± 0.15 mm).



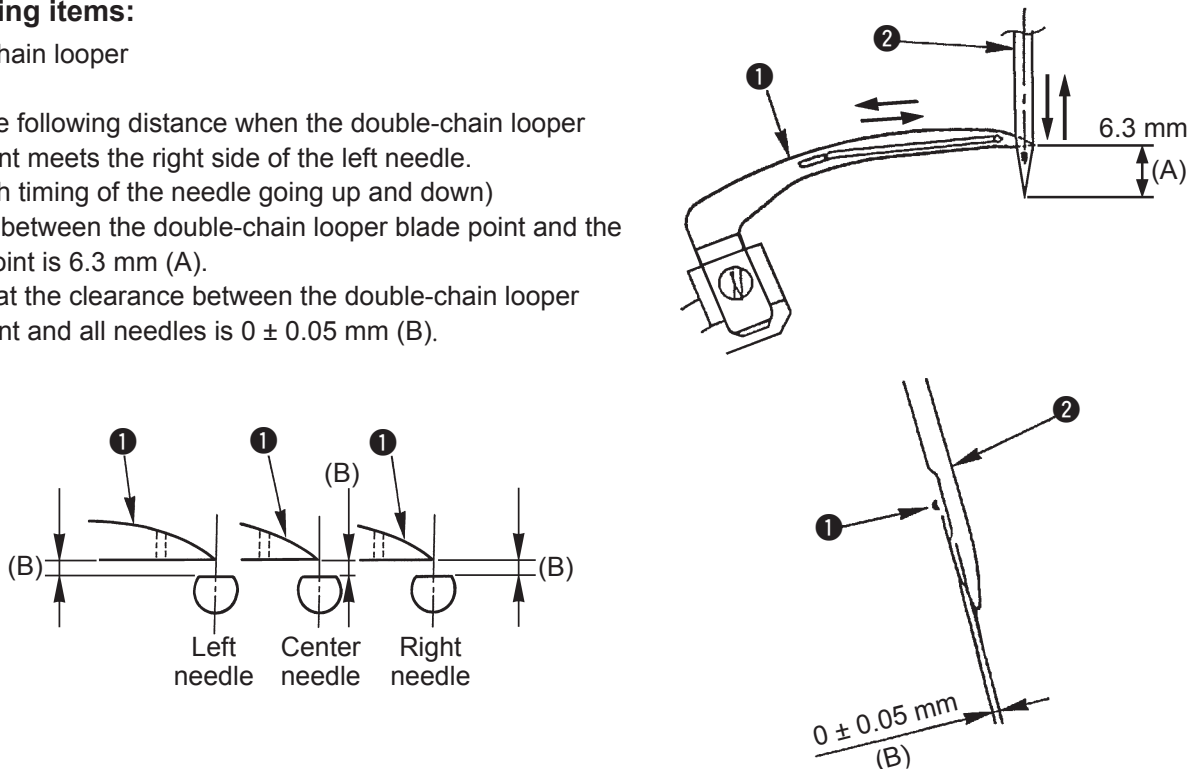
7.2. How to perform adjustment:

- Loosen the setscrew ② of the double-chain looper.
- Move the double-chain looper up or down to make adjustment ①.
- Retighten the setscrew ②.

8. Adjustment of the double-chain looper and the needles

8.1. Checking items:

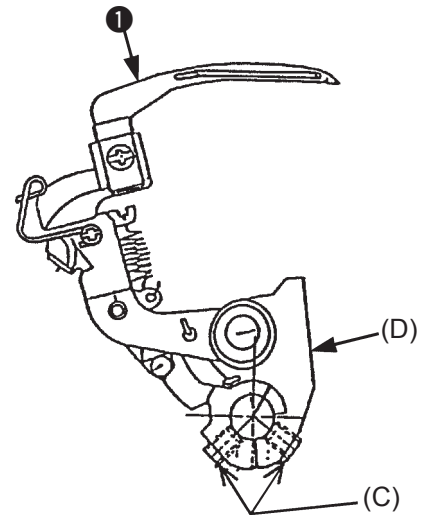
- ① Double-chain looper
- ② Needle
 - Check the following distance when the double-chain looper blade point meets the right side of the left needle. (With both timing of the needle going up and down)
 - Distance between the double-chain looper blade point and the needle point is 6.3 mm (A).
 - Check that the clearance between the double-chain looper blade point and all needles is 0 ± 0.05 mm (B).



8.2. How to perform adjustment:

How to adjust the distance and clearance between the double-chain looper blade point and the needle.

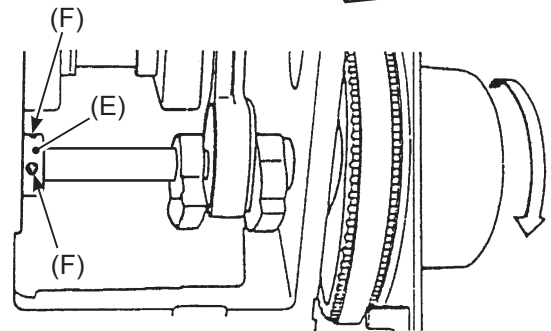
- Loosen the setscrews (C) of the double-chain looper support arm.
- Move the double-chain looper support arm (D) back or forth, left or right to make adjustment.
- Retighten the setscrews (C).



8.3. How to perform adjustment:

How to adjust the meeting timing of the double-chain looper and the needle.

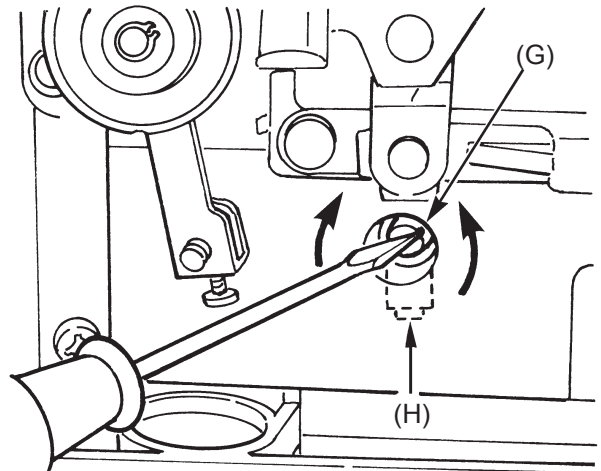
- Loosen the setscrews (F) of the lower looper cam (E).
- Rotate the lower looper cam (E) to make adjustment.
- Retighten the setscrews (F).



8.4. How to perform adjustment:

How to adjust the clearance between the double-chain looper blade point and the needle.
(Fine adjustment)

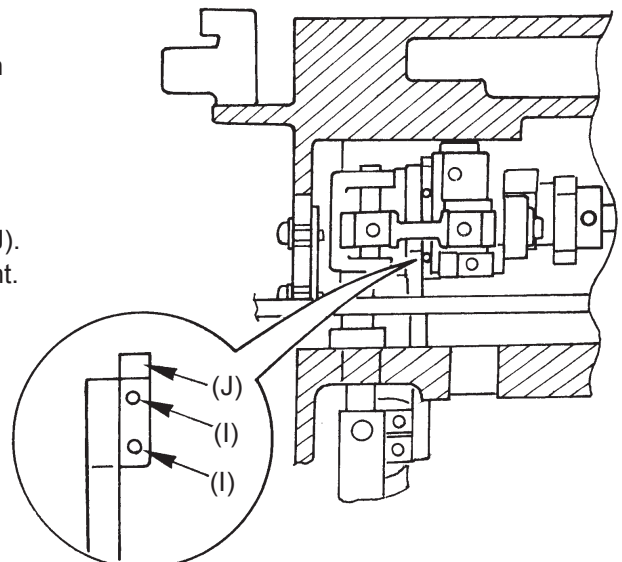
- Loosen the setscrews (H) of the eccentric stud (G).
- Turn the eccentric stud (G) left or right to make fine adjustment.
- Retighten the setscrews (H).



8.5. How to perform adjustment:

How to adjust the clearance between the double-chain looper blade point and the needle.
(Difference adjustment of the right needle clearance and the left needle clearance.)

- Loosen the setscrews (I) of the Double-chain osc.cam (J).
- Rotate the Double-chain osc.cam (J) to make adjustment.
- Retighten the setscrews (I).

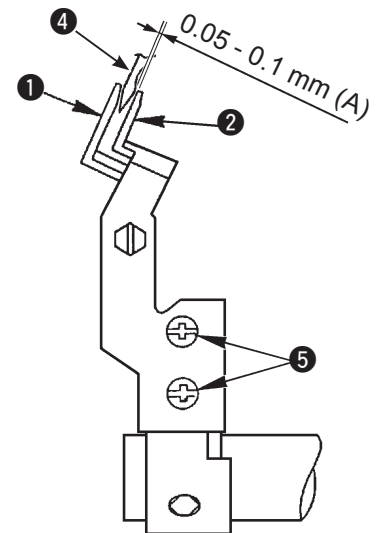


9. Installation of the needle guards

9.1. Checking item:

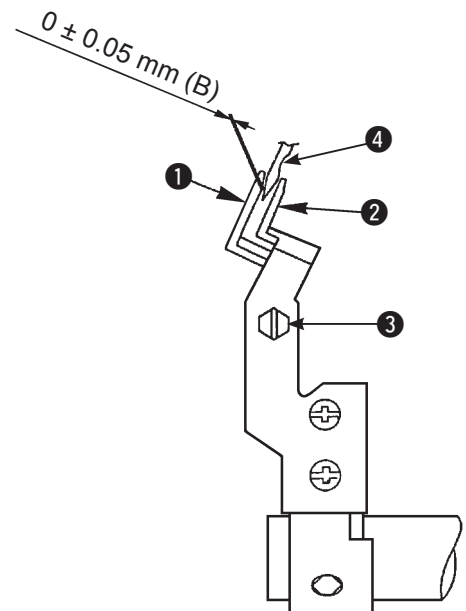
- ① Front needle guard
- ② Rear needle guard
- ③ Setscrew
- ④ Needle 130/705H size 80
- ⑤ Setscrew

- Check that the clearance (A) of 0.05 - 0.1 mm is provided between the needle and the rear needle guard.
- Check that the clearance (B) of 0 ± 0.15 mm is provided between the needle and the front needle guard.



9.2. How to perform adjustment:

- Loosen the setscrew ⑤.
- Make the adjustment by moving the rear needle guard ② back or forth.
- Retighten the setscrew ⑤.
- Loosen the setscrews ③.
- Move the needle guard ①, ② to make the adjustment (B).
- Retighten the setscrews ③.



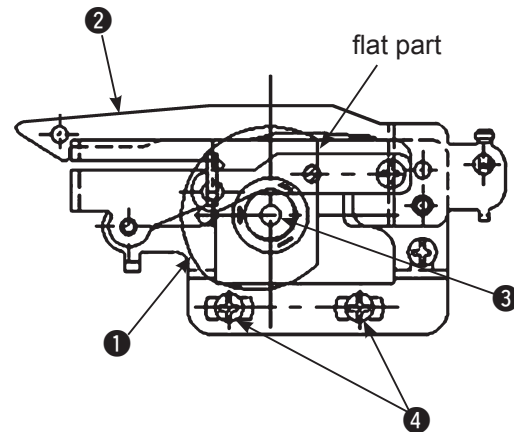
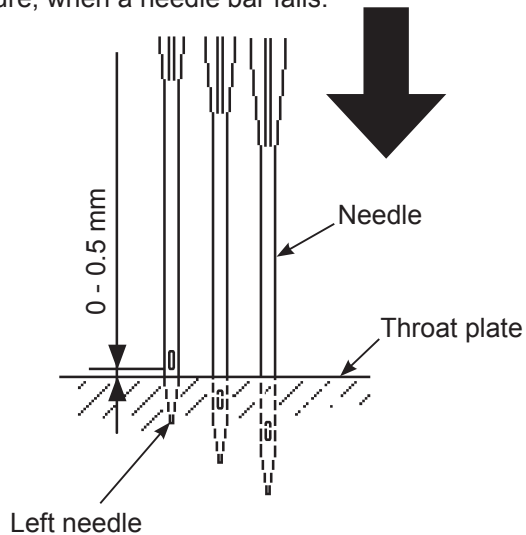
10. Position of the double-chain looper thread take-up

10.1. Checking items:

- ❶ Double-chain looper thread take-up
 - ❷ Double-chain looper thread take-up guide
 - ❸ Setscrew of double-chain looper thread take-up
 - ❹ Setscrew of double-chain looper thread take-up guide
- Check that the flat part of the double-chain looper thread take-up ❶ is in its vertical position, when the needle bar is position (A).

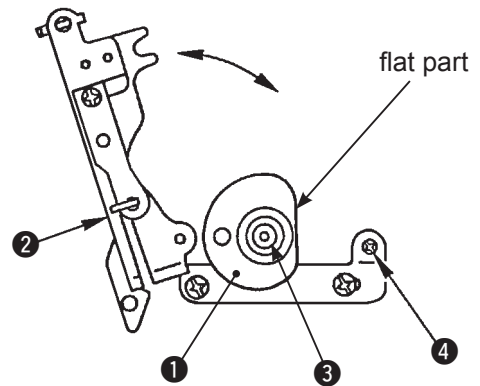
Needle bar position (A):

(A) is a position of the state of the following figure, when a needle bar falls.



10.2. How to perform adjustment:

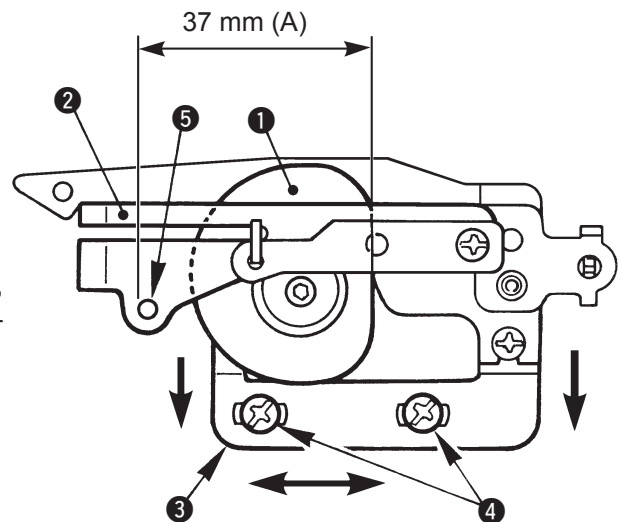
- Loosen the setscrew ❹ and swing up the double-chain looper thread take-up guide ❷.
- Loosen the Setscrew ❸ of the double-chain looper thread take-up ❶.
- Turn the double-chain looper thread take-up ❶ to make adjustment.
- Retighten the setscrew ❸.
- Move the double-chain looper thread take-up guide ❷ down and retighten the setscrew ❹.



11. Position of the double-chain looper thread take-up guide

11.1. Checking items:

- ① Double-chain looper thread take-up
 - ② Double-chain looper thread take-up guide
 - ③ Double-chain looper thread take-up base plate
 - ④ Setscrews of double-chain looper thread take-up base plate
 - ⑤ Shaft
- Check that the distance from the shaft ⑤ to the flat side of the double-chain looper thread take-up ① is 37 mm (A), when the flat side of the double-chain looper thread take-up ① is in its vertical position.



11.2. How to perform adjustment:

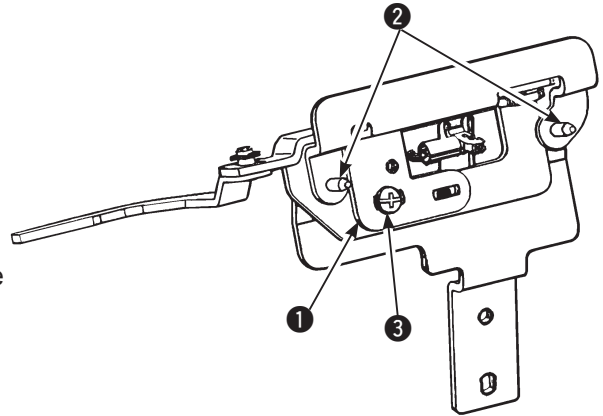
- Loosen the setscrews ④ of the double-chain looper thread take-up base plate ③.
- Move the double-chain looper thread take-up base plate ③ to make adjustment.
- Retighten the setscrews ④.

12. Position of the tension release mechanism of the tension controller

12.1. Checking items:

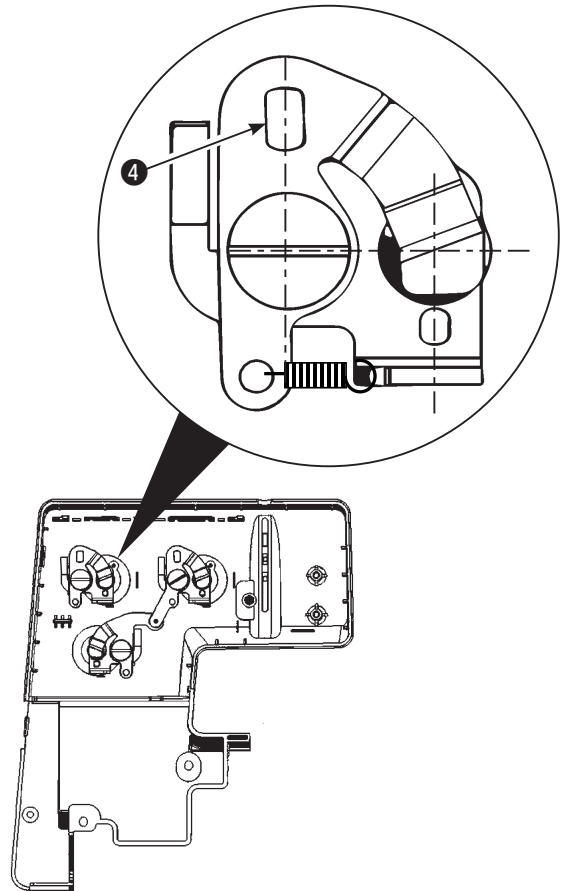
- ① Tension release actuating plate
 - ② Support shaft
 - ③ Setscrew
 - ④ Cam hole for the support shaft
- Check, if the tensions are released, when:
- the presser foot is lifted
 - the tension dials are set on No.4

A clearance of 0.4 - 0.8 mm should appear between the tension discs.



12.2. How to perform adjustment:

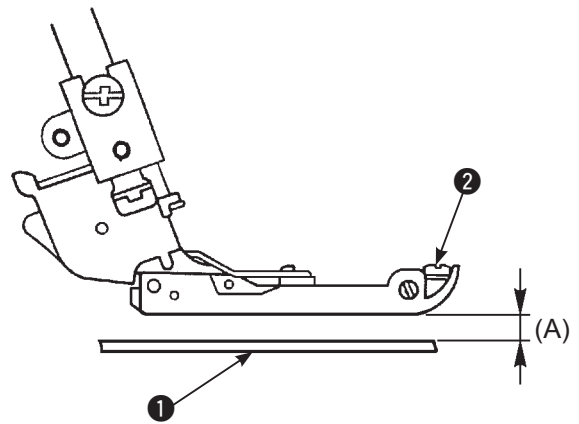
- Remove the front cover.
- Loosen the setscrew ③ of the tension release actuating plate ①.
- Move the tension release actuating plate ① left or right to perform adjustment.
- Retighten the setscrew ③.



13. Height and lateral position of the presser foot

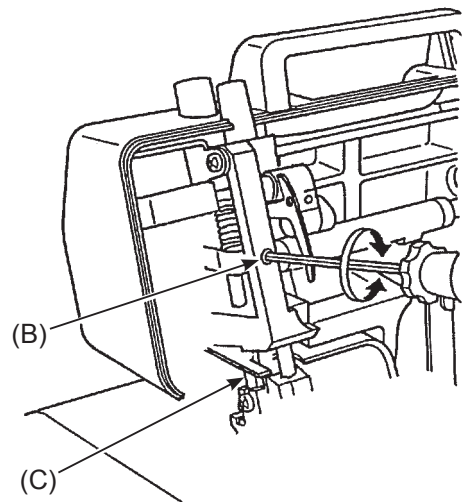
13.1. Checking item:

- ① Throat plate
- ② Chain stitch presser foot
 - Raise the presser foot using the lifting lever and check that the distance between the throat plate surface and the presser foot sole is 8 (+0/-0.6) mm (A).
 - Check that the presser foot is parallel to the feed dog slot in the throat plate.



13.2. How to perform adjustment:

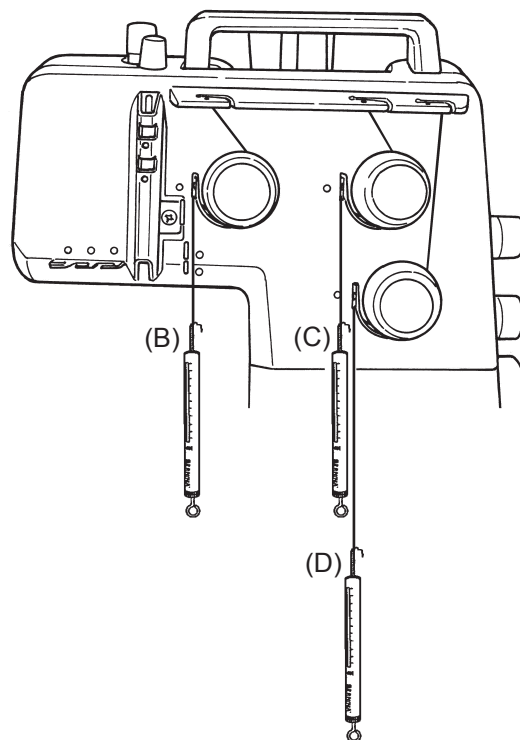
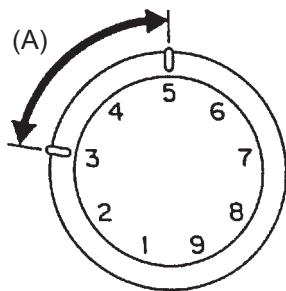
- Raise the presser foot by lifting the lever.
- Loosen the setscrew of the presser bar guide bracket (B).
- Move the presser bar up or down and turn it to make adjustment (C).
- Retighten the setscrew (B).



14. Thread tension controls

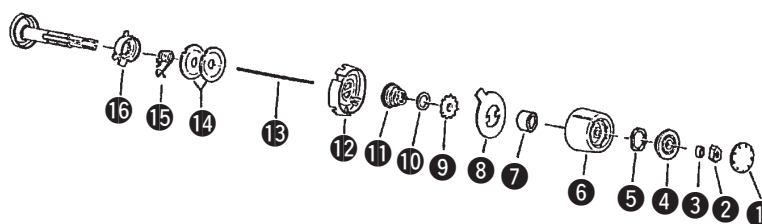
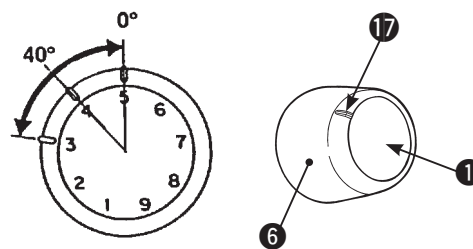
14.1. Checking item:

- Using a No.120 polyester spun thread (saba120c), check that sewing results are good with tension settings between 3 and 5 (A) this by sewing a cover stitch formation.
- Check the specified tension values by using the tension gauge and a No.120 polyester spun thread (saba120c white color).
 - Left needle tension (B) 35 - 45g
 - Center needle tension (C) 40 - 50g
 - Right needle tension (D) 55 - 65g



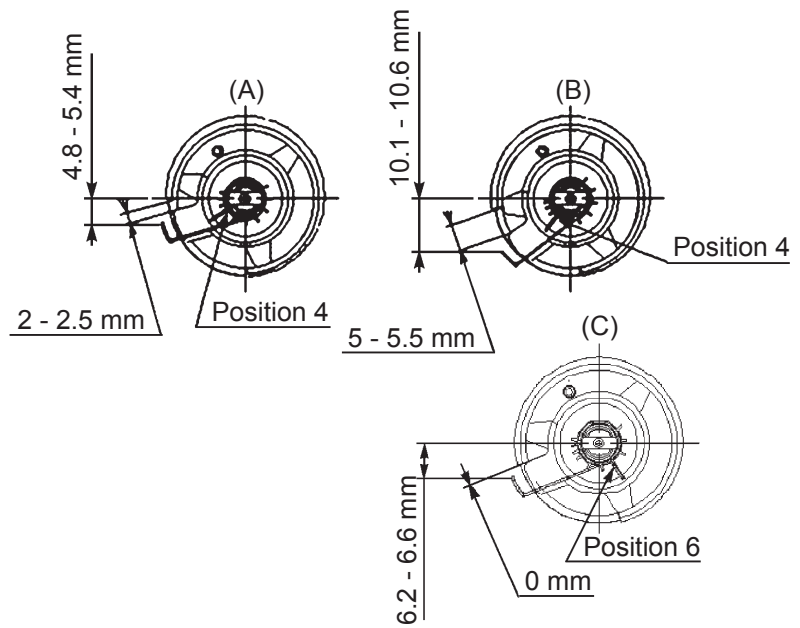
14.2. How to perform adjustment:

- Disassemble the thread tension controls.
- Remove tension dial scale ①.
- Loosen and remove the nut ②.
- Remove part ③ to ⑧.
- Turn the nut ⑨ until the specified tension value is obtained.
- Remount the parts ⑧ to ⑥.
- Mount the tension dial ⑥ with indicator ⑰ at position 4, to match No.4 on the dial scale ①.



15. Positioning the thread take-up spring

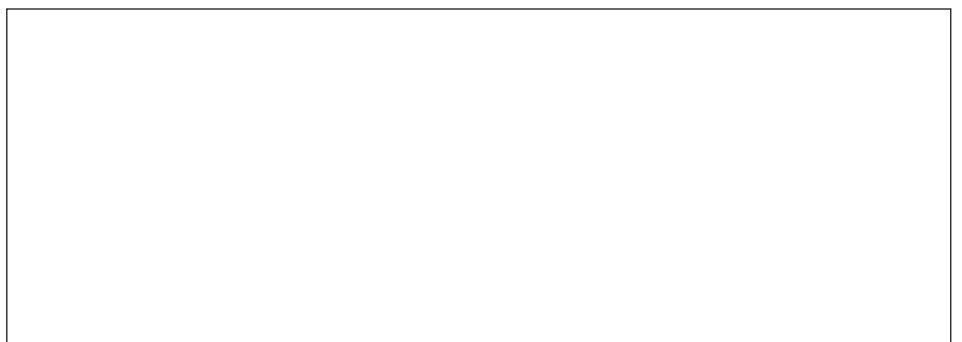
- Left needle tension (A)
- Center needle tension (B)
- Right needle tension (C)



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