

GLOBAL

INDUSTRIAL SEWING MACHINES

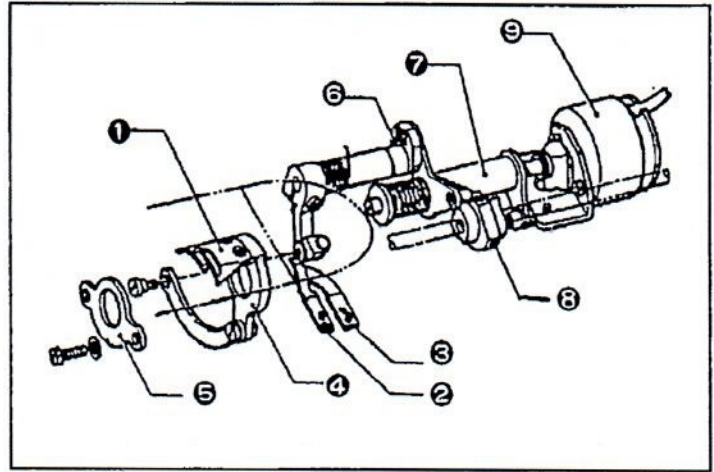
Global 3900 series

Thread trimmer settings

7 Thread trimmer

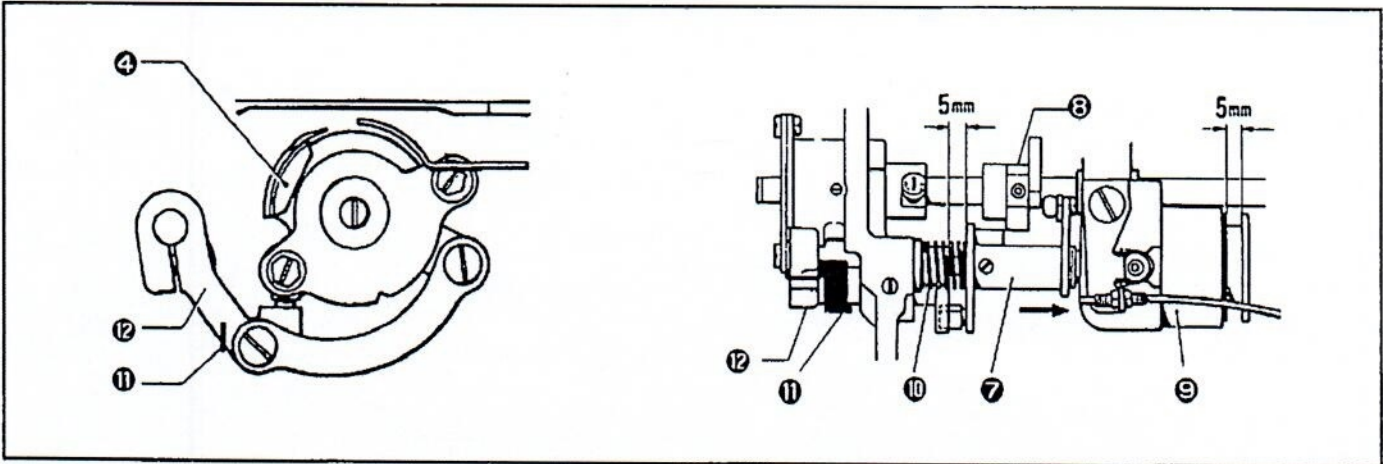
1. Thread trimmer

The thread trimmer consists of the movable knife ①, the fixed knife ②, the lower thread finger ③, the movable knife holder ④, the knife holder presser ⑤, the forked shaft ⑥, the thread trimmer cam lever assembly ⑦, the thread trimmer clutch ⑧, and the thread trimmer solenoid ⑨.



2. Thread trimmer operation (The five figures below and on the next page show the thread trimmer without the rotary hook assembly.)

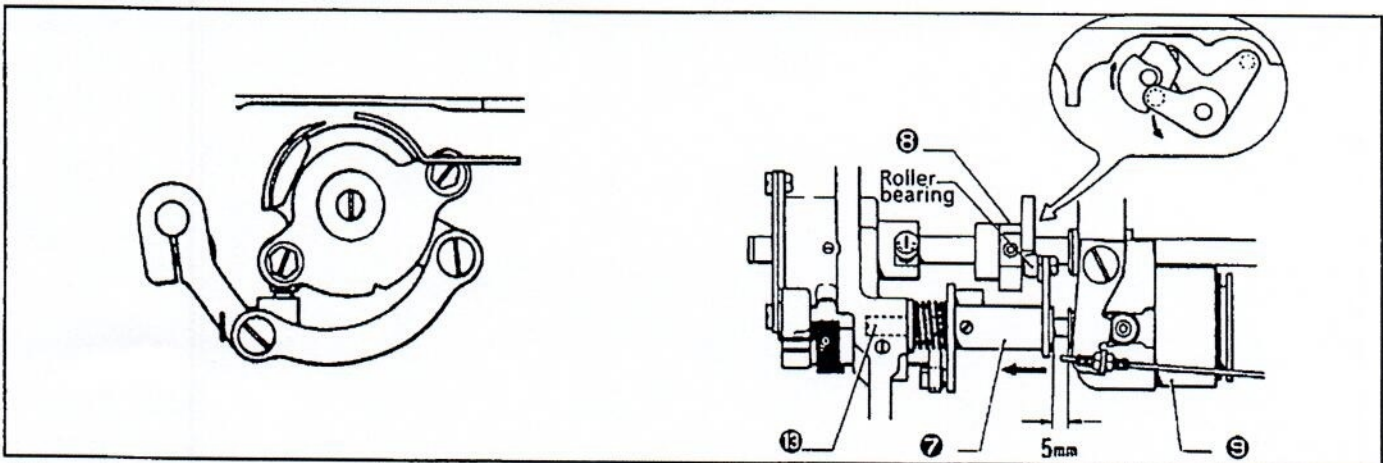
(1) During operation



The thread trimmer cam lever spring ⑩ presses the thread trimmer cam lever assembly ⑦ against the thread trimmer solenoid ⑨. Because the thread trimmer cam lever assembly ⑦ does not engage with the thread trimmer clutch ⑧, the movable knife holder ④ does not function.

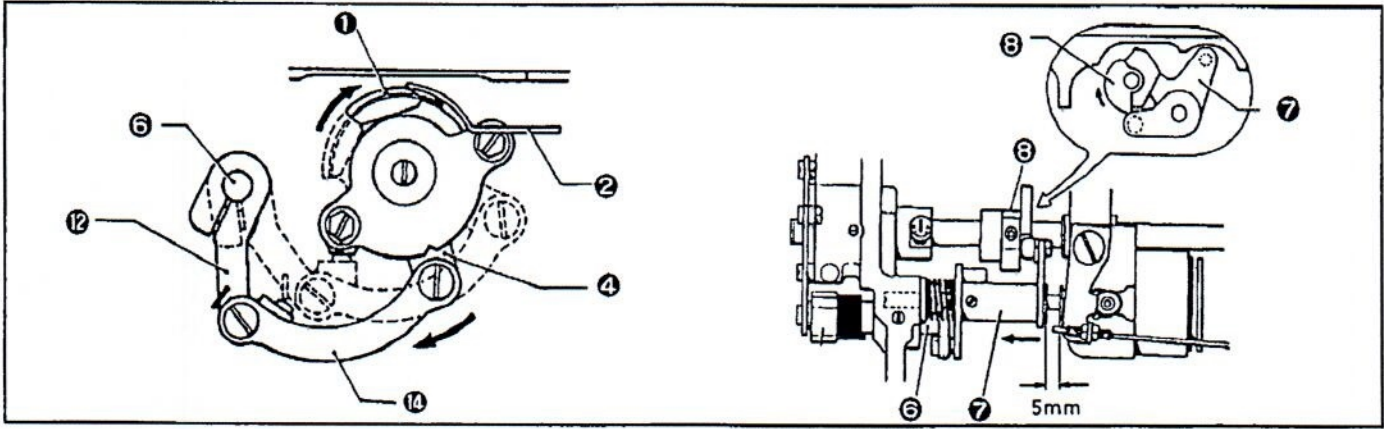
The thread trimmer lever spring ⑪ presses the thread trimmer lever ⑫ to prevent the movable knife holder ④ from shifting.

(2) When the thread trimming signal is received



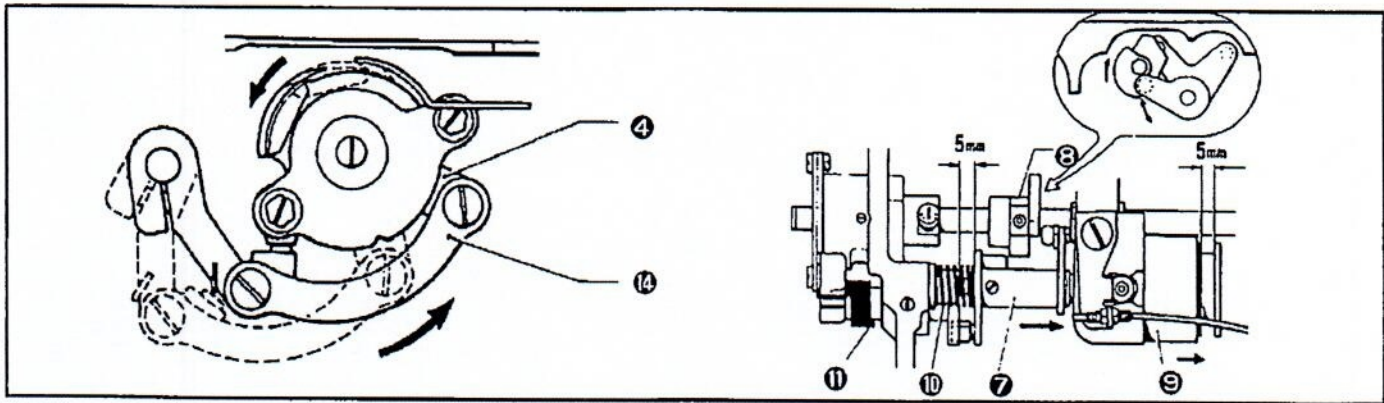
When the treadle is heeled back and the thread trimming signal is received, the thread trimmer solenoid ⑨ activates, and presses the thread trimmer cam lever stud ⑮. The roller bearing of the thread trimmer cam lever assembly ⑦, secured by the thread trimmer cam lever stud ⑮, is pushed above the circumference of the thread trimmer clutch ⑧.

(3) Movable knife holder action



By the rotation of the lower shaft, the thread trimmer clutch ⑧ pushes the roller bearing up. The motion of the roller bearing is transmitted to the forked shaft ⑥ via the thread trimmer cam lever assembly ⑦. The motion is then relayed to the thread trimmer rod ⑭ and the movable knife holder ④ via the thread trimmer lever ⑫ connected to the forked shaft ⑥. The movable knife ① attached to the movable knife holder ④ moves in the direction of the arrow and overlaps the fixed knife ②.

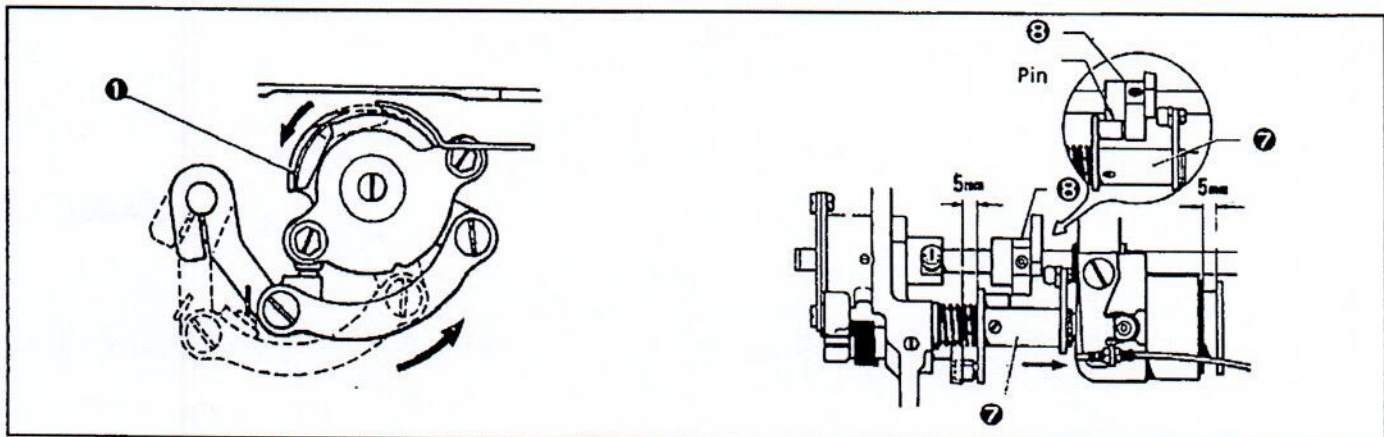
(4) Thread trimming complete stop



When the thread trimming signal is not received, the thread trimmer solenoid ⑨ retracts and the thread trimmer cam lever spring ⑩ pushes the thread trimmer cam lever assembly ⑦. Then the roller bearing of the thread trimmer cam lever assembly ⑦ moves away from the thread trimmer clutch ⑧ and returns to its original position.

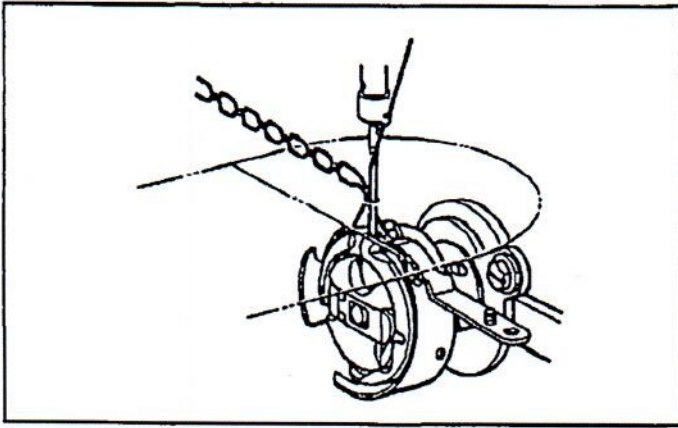
The thread trimmer lever spring ⑪ returns the thread trimmer rod ⑭ and the movable knife holder ④ to their original positions (in the direction of the arrow).

(5) Thread trimming safety device

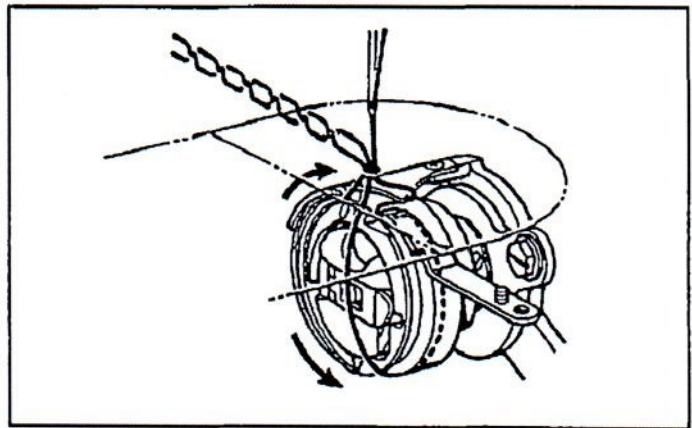


If the movable knife ① does not completely retract, the pin of the thread trimmer cam lever assembly ⑦ and the thread trimmer clutch ⑧ automatically carry the movable knife ① to a position where it does not strike the needle.

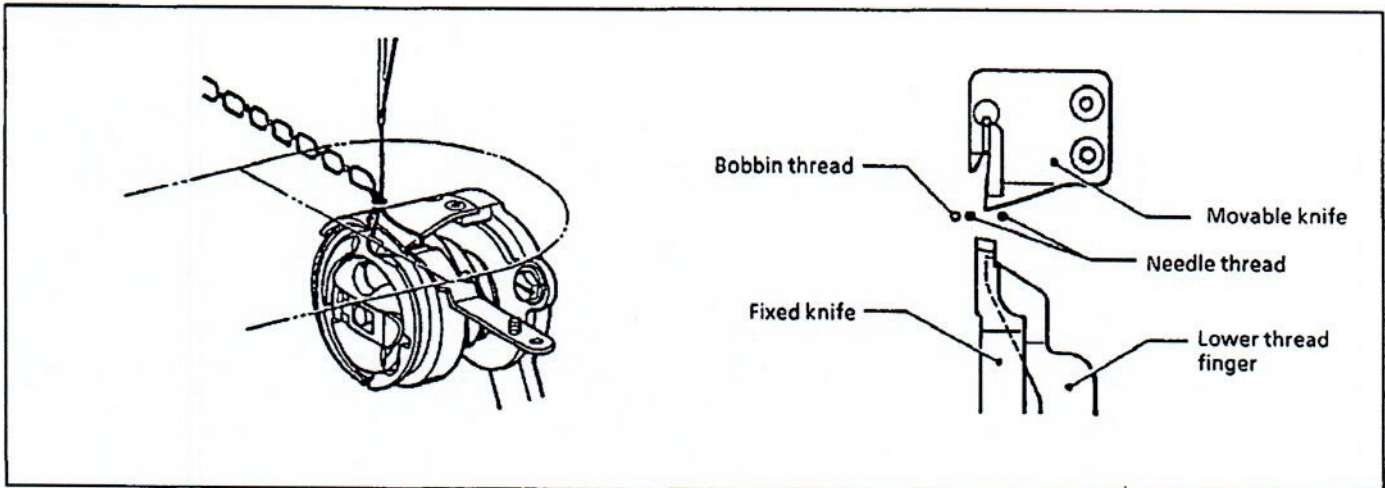
3. Needle and bobbin threads trimming



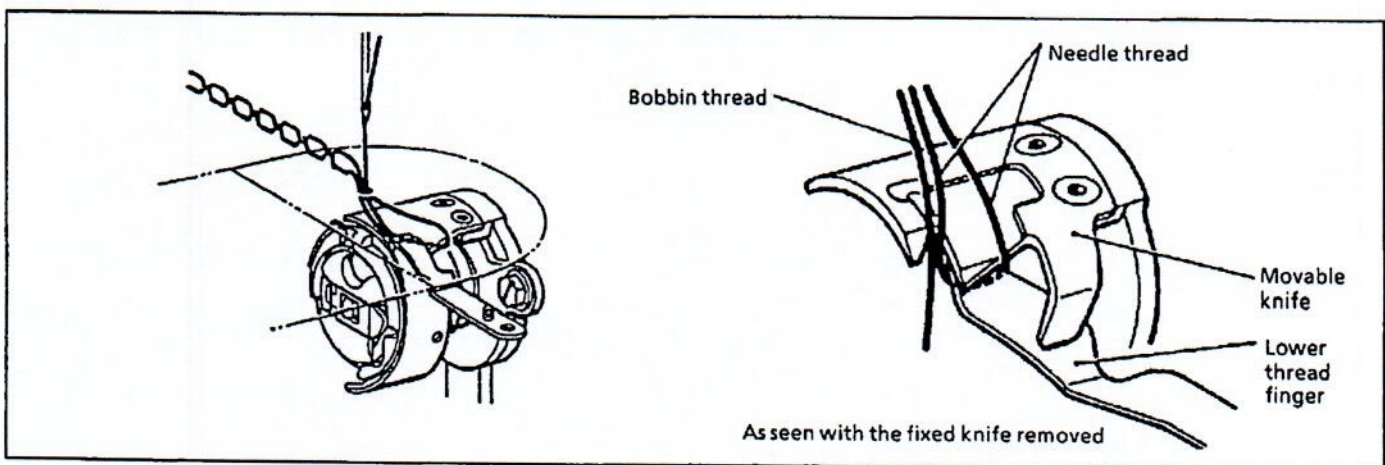
(1) When the needle rises 1.8 mm above its lowest position, the rotary hook point catches the loop formed by the needle.



(2) When the thread trimming signal is received, the thread trimmer clutch drives the movable knife. The needle thread is caught by the rotary hook and fed around the shuttle body.

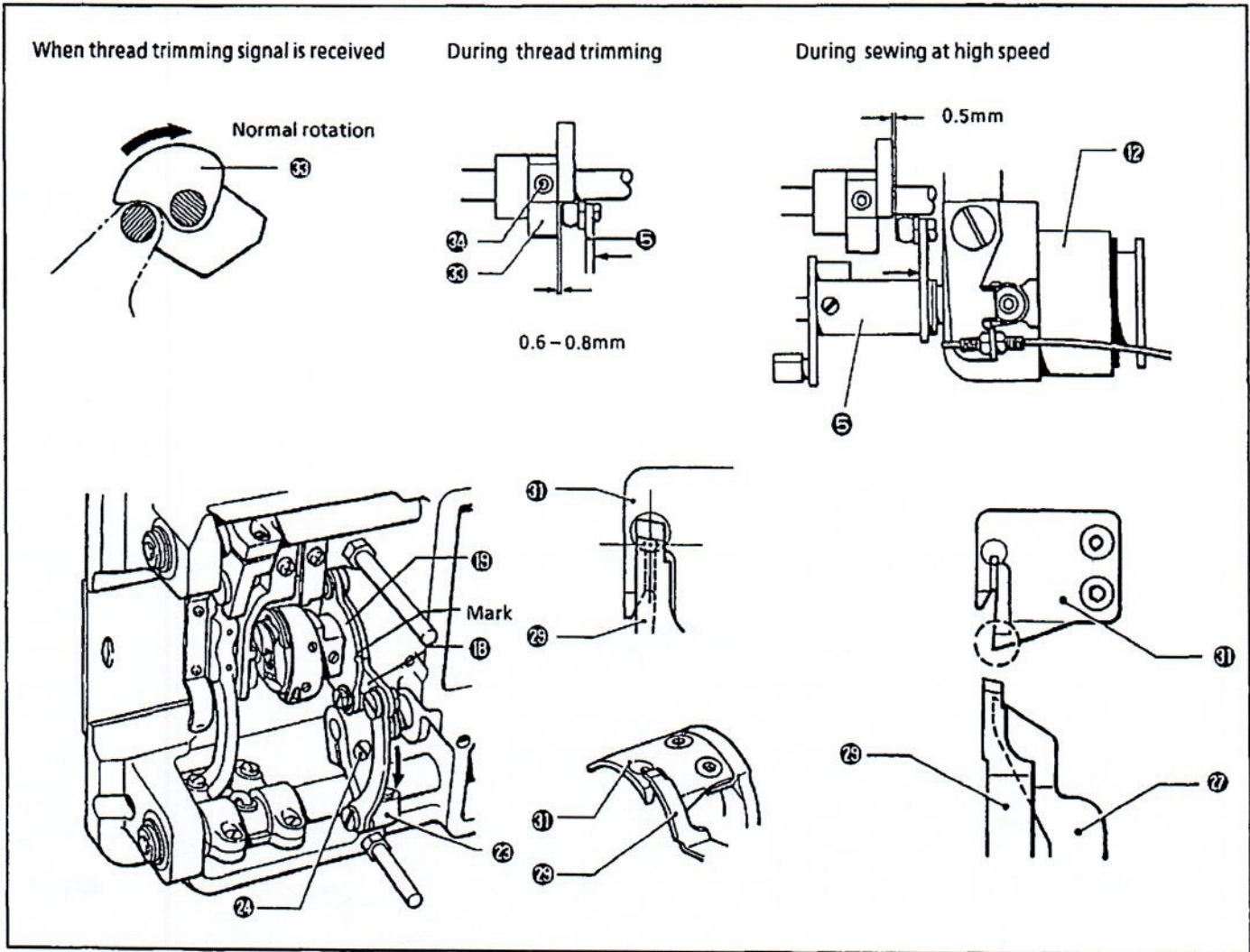


(3) The movable knife tip enters the triangular loop formed by the rotary hook point under the needle plate, and the loop spreading occurs. At this point the thread take-up is raised slightly above its lowest position (the upper shaft has turned approximately 330°), and the needle thread is spread by the movable knife as shown in the figure above. If the timing of the movement is too early, loop spreading is not performed properly which results in thread trimming errors.



(4) The needle and bobbin threads caught by the movable knife in step (3) are gradually spread by the movable knife and the lower thread finger to be cut by the fixed knife tip. At this time, the thread take-up approaches the top of its stroke. When the movable knife is spreading the needle thread, the tension release relieves the needle thread tension to prevent excessive tension and to enable the needle thread to be extended smoothly.

Adjusting the thread trimmer timing



1. Adjusting the thread trimmer clutch position

Turn the machine pulley until the needle bar is raised 5 mm above its lowest position. When pressing the thread trimmer solenoid 12 manually, loosen the screw 24 and adjust the thread trimmer clutch 20 so that its indent contacts the roller bearing, and so that the space between the end faces of the thread trimmer clutch 20 and the roller bearing is 0.6-0.8 mm.

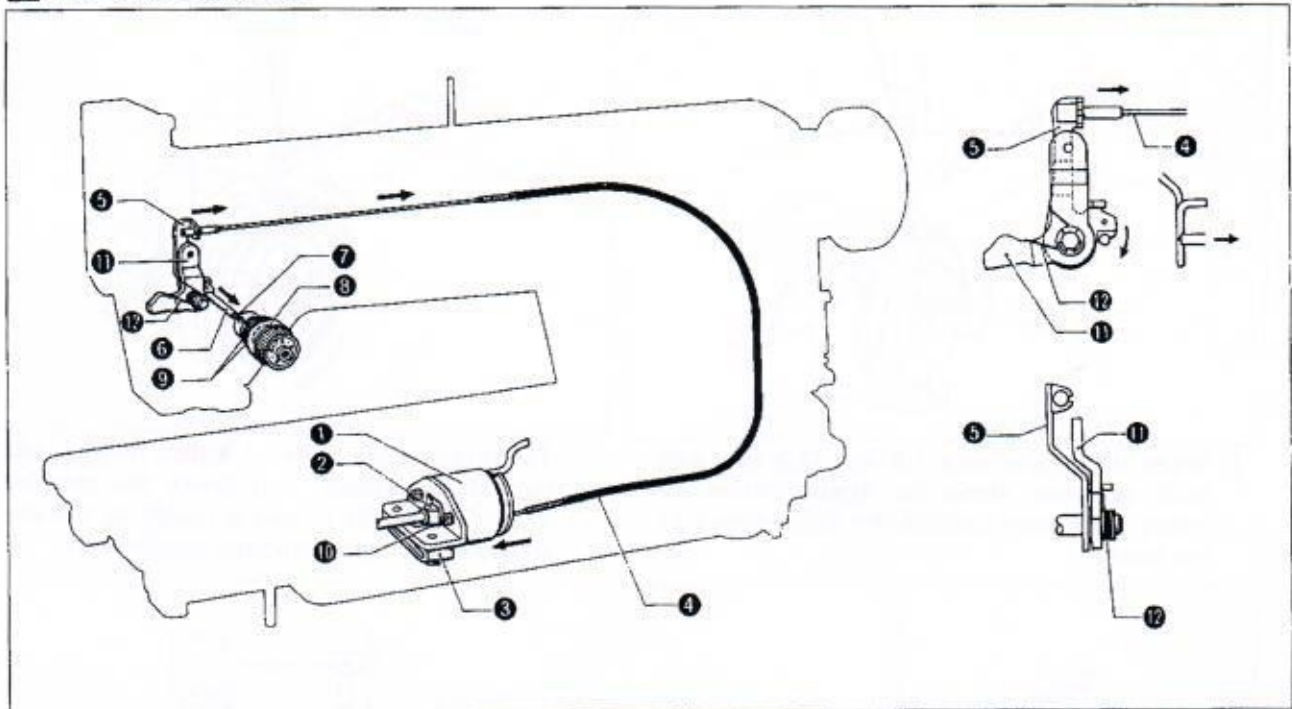
2. Adjusting the movable knife and fixed knife positions

The fixed knife 26 tip and the movable knife 21 must overlap for 1 mm when the roller bearing of the thread trimmer cam lever 5 is lifted to the top of the thread trimmer clutch 20. (The notch marks of the movable knife holder 16 and the knife holder presser assembly 19 will be aligned.)

If they do not overlap, shift the thread trimmer lever 24 so that the knives (26 and 21) overlap when the roller bearing is lifted to the top of the thread trimmer clutch 20. Then tighten the screw 24.

NOTE: The lower thread finger 27 should be below the movable knife.

6 Tension release



1. The thread trimmer solenoid ① operates when the thread trimmer signal is relayed.
2. The solenoid rod ② connected to the end of the thread trimmer solenoid ① pushes the tension release lever ③.
3. The tension release wire ④ relays the motion of tension release lever ③ to tension release slide ⑤.
4. The side of tension release slide ⑤ presses tension release bar ⑥.
5. Tension release bar ⑥ lifts tension release pin ⑦ and tension releasing disc ⑧.
6. Tension disc ⑨ is released when tension releasing disc ⑧ is raised.
7. When the thread trimmer signal stops, the solenoid rod ②, tension release lever ③, and wire ④ retract.
(Tension release spring ⑩ forces tension release lever ③ all the way back.)
- * When the presser foot is raised with the knee lifter, the knee lifter lifting lever ⑪ presses tension release slide ⑤. Subsequent action is the same as steps 4 through 9 above.
When the presser foot is lowered, spring ⑫ returns tension release slide ⑤.