

**JUKI**<sup>®</sup>**DSC-245****MODEL DSC-245-4, -5**CYLINDER-BED, 1-NEEDLE, UNISON-FEED LOCKSTITCH  
MACHINE WITH AUTOMATIC THREAD TRIMMER

# INSTRUCTION BOOK

Congratulations on your purchase of a JUKI sewing machine.

Please read this Instruction Book carefully before using the unit in order to get the most out of it and to enjoy using it for a long time.

## BEFORE OPERATION

1. Never operate your machine unless its oil pan has been filled with oil.
2. After setting up your machine, check the rotational direction of the motor. To do this, turn the handwheel by hand to bring the needle down, and turn the power switch ON while observing the handwheel. (The handwheel should turn counterclockwise as observed from the handwheel side.)
3. For the first month, run the machine at a speed of 2,000 s.p.m. or less.
4. When carrying the machine, do not hold it by the synchronizer located at the rear of the handwheel.
5. Confirm that the voltage and phase (single- or 3-phase) are correct by checking them against the ratings shown on the motor nameplate.
6. Observe the standard thread trimming speed, 185 s.p.m.

## OPERATION PRECAUTIONS

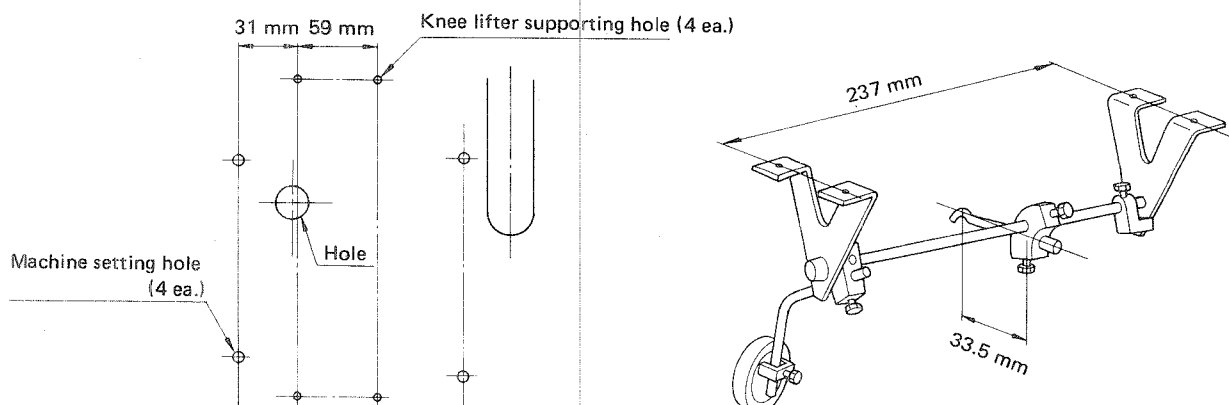
1. Keep your hands away from the needle when you turn the power switch ON or while the machine is operating.
2. Do not put your fingers into the thread take-up cover while the machine is operating.
3. Be sure to turn the power switch OFF before tilting the machine head or removing the V belt.
4. During operation, be careful not to allow your or any other person's head or hands to come close to the handwheel, V belt, bobbin winder or motor. Also, do not place anything close to them. Doing so may be dangerous.
5. If your machine is provided with a belt cover, finger guard or any other protectors, do not operate your machine with any of them removed.
6. Tilt the machine head after removing the hook for the knee lifter.
7. When having tilted the machine head, wipe out oil on the bed underside, the top face of bed support plate and the hinge area, and then raise up it.

## SPECIFICATIONS

Application	Medium-weight materials	
Sewing speed	Max. 2,200 s.p.m.	
Max. stitch length	0 to 6 mm	
Needle	DP x 17 #18	
Lift of presser foot	DSC-245- : 9 mm by hand lifter, 15 mm by knee lifter	
	DSC-245-4, -5 : 8 mm by hand lifter, 13 mm by knee lifter	
Lubricating oil	New Defrix Oil No.	

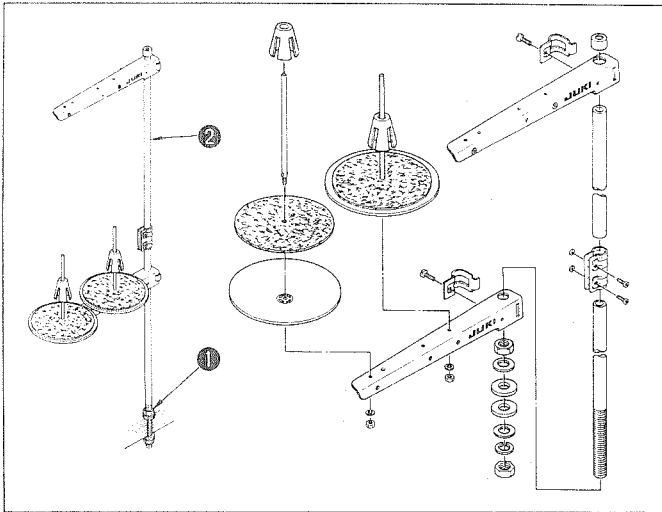
## 1. SETTING UP THE SEWING MACHINE

### Mounting position of the knee lifter



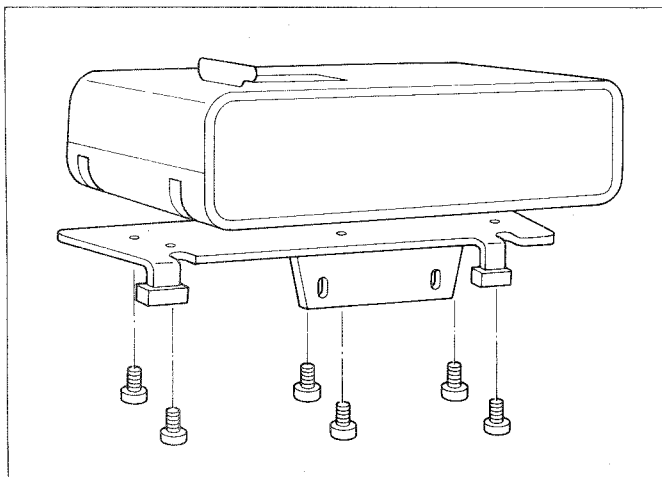
(Note) The knee lifter should be mounted before the motor is installed.

## 2. INSTALLING THE THREAD STAND



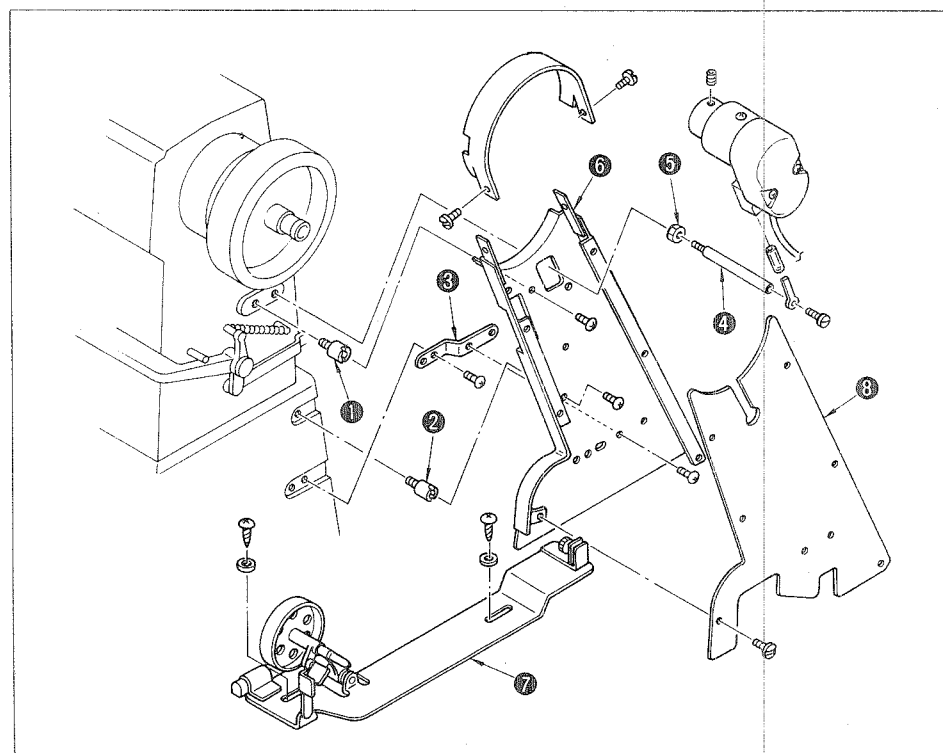
1. Assemble the thread stand, and insert it in the hole in the machine table, and fix it by tightening nut ①.
2. For ceiling wiring, pass the power cord through spool rest rod ②.

## 3. REPLACING THE CPU MOUNTING PLATE



1. Use the CPU mounting plate supplied with the unit when installing the CPU box.

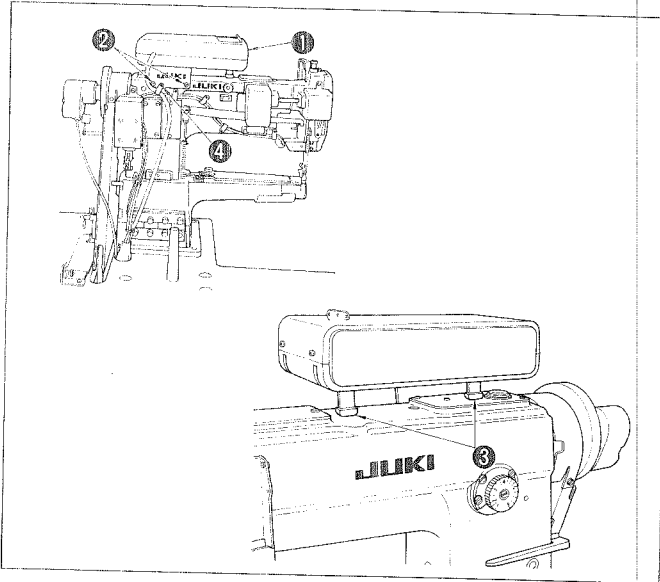
## 4. INSTALLING THE BELT COVER AND THE BOBBIN WINDER



### (Installing Procedure)

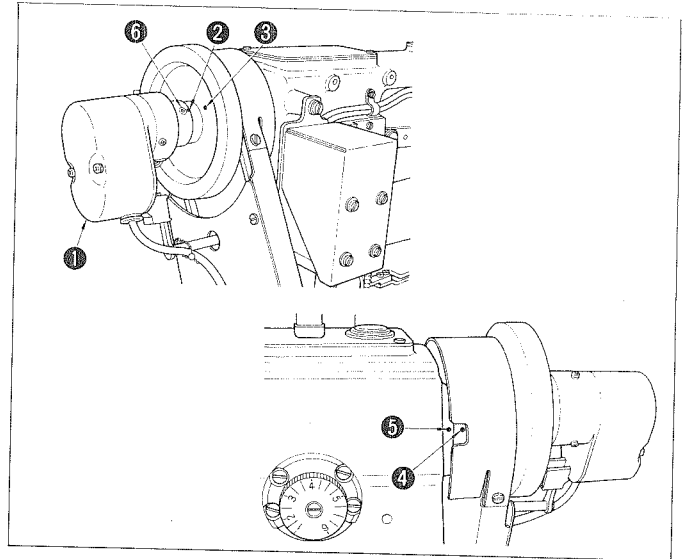
1. Install belt cover support ① in the tapped hole in the machine arm, belt cover support ② and belt cover support plate ③ in the tapped hole in the bed.
  2. Set lock nut ④ in sensor support shaft ⑤ to install it in the tapped hole in the machine arm.
  3. Install belt cover ⑥.
  4. Place bobbin winder ⑦ in the belt cover, and position it so that it does not contact the machine or the belt cover before fixing it with the wooden screws.
  5. Install belt cover side plate ⑧.
  6. Tilt the machine head, and check that the belt cover does not touch the belt slot in the machine table.
- (Note) Tilt the machine head after removing the hook for the knee lifter.

## 5. INSTALLING THE CPU BOX



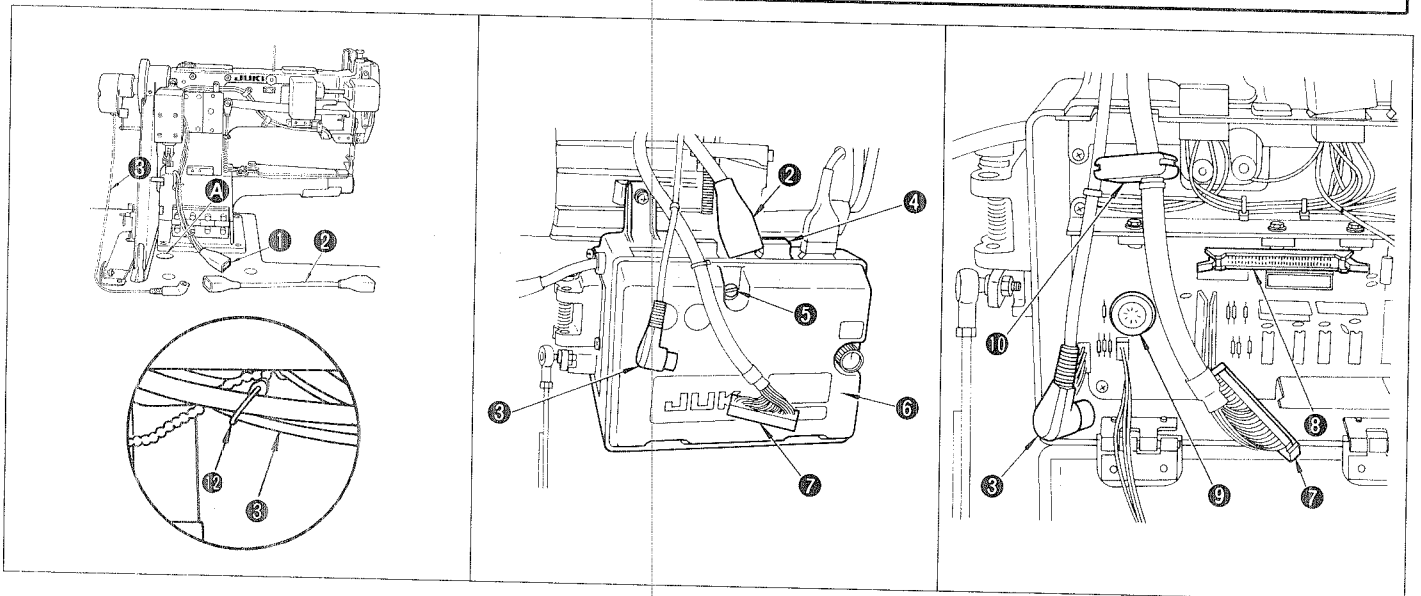
1. Attach CPU box ① to the machine head using furnished screws ② so that rubber feet ③ press on the machine head surface.
2. Secure the cords using furnished nylon clamp ④.

## 6. INSTALLING THE SYNCHRONIZER



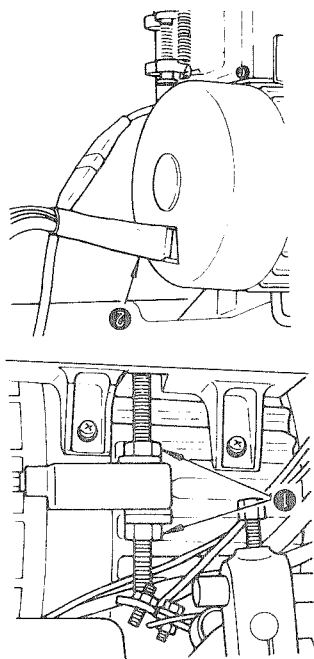
1. Attach synchronizer ① to the handwheel.
  2. Align red marker line ② on synchronizer ① with red marker dot ③ on the handwheel.
  3. Actuate the thread trimmer to perform adjustment using setscrew ⑥ so that red marker dot ④ on the handwheel aligns with red marker dot ⑤ on the machine arm.
- (Note) This adjustment should be performed while actually sewing a cloth.

## 7. CONNECTING THE CORDS

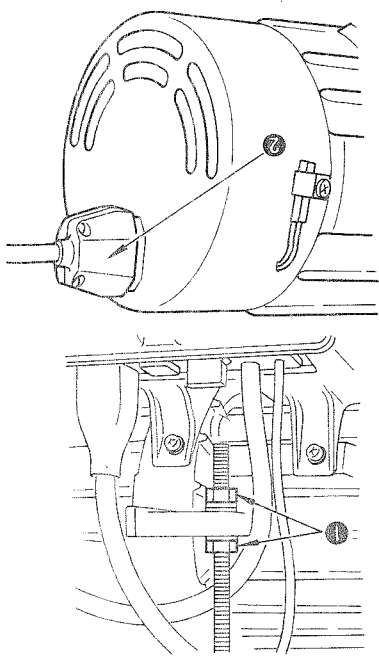


1. Attach cord plug ① of the thread trimming solenoid and reverse stitching solenoid to the receptacle of extension cord ②, then pass the extension cord through hole A in the machine table to bring it down under the machine table.
2. Pass synchronizer cord ③ through hole A in the machine table to bring it down under the machine table after fixing it onto the synchronizer support shaft with the furnished cord clip and fix it onto the CPU box cord with furnished cord clip ④.
3. Attach the plug of extension cord ② to 12-pole receptacle ④ of the PSC box.
4. Remove screw ⑤, and open PSC box cover ⑥.
5. Fit CPU box cord housing ⑦ into connector ⑧ in the PSC box according to the arrow marks, then attach the plug of synchronizer cord ③ to connector ⑨.
6. Fit the notches of rubber bushing ⑩ to the CPU box cord and the synchronizer cord, then close the PSC box cover.

## 8. MOTOR



(For "H" motor)



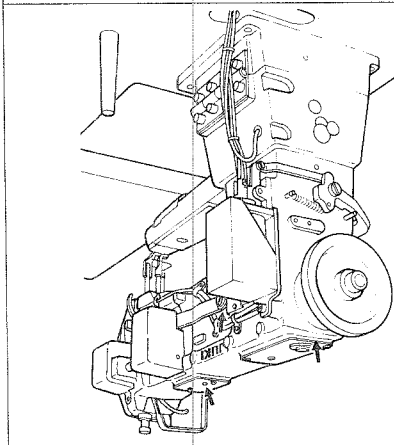
(For "N" motor)

- **Adjusting the belt tension**
  1. Adjust the belt tension by moving nut ● up or down.
  2. The standard belt tension is such that the middle of the belt slacks 10 to 20 mm when it is pushed by hand. An inadequate tension may cause vibration or inaccurate stop position.

## 9. LUBRICATION

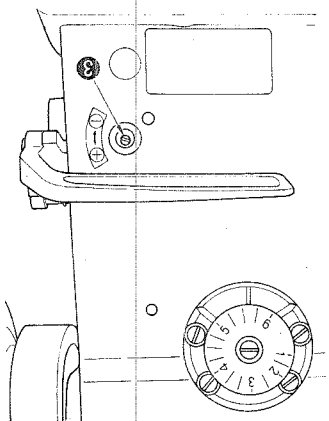
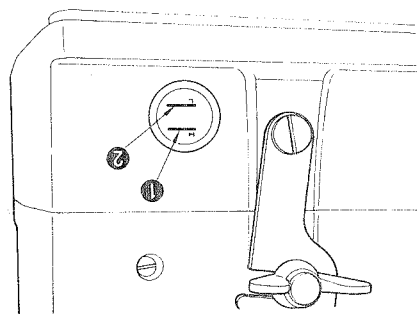
- **Before starting the sewing machine**

1. Prior to operation, be sure to properly lubricate the points marked with the arrows.

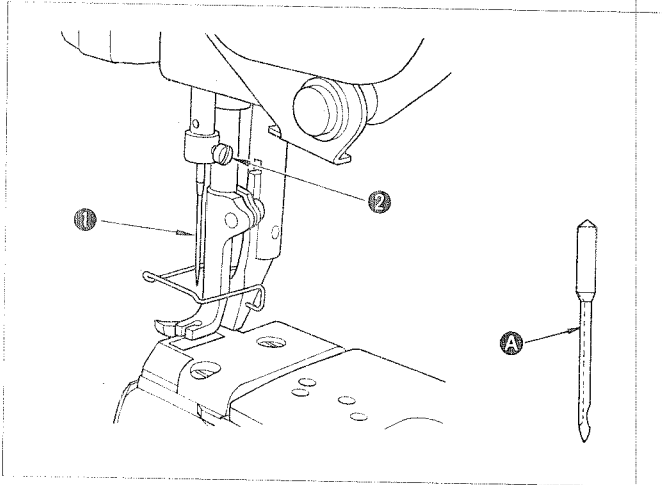


- **Refilling the oil reservoir**

1. Fill Juki New Defrix Oil No. 1 up to H mark ●.
  2. When the oil level drops under L mark ●, refill it.
- **Adjusting the amount of oil supplied to the hook.**
    1. Adjust the amount of oil using knob ● attached in the machine arm. Turn the knob ⊖ direction to decrease the oil amount, and turn it ⊕ direction to increase it.



## 10. ATTACHING THE NEEDLE

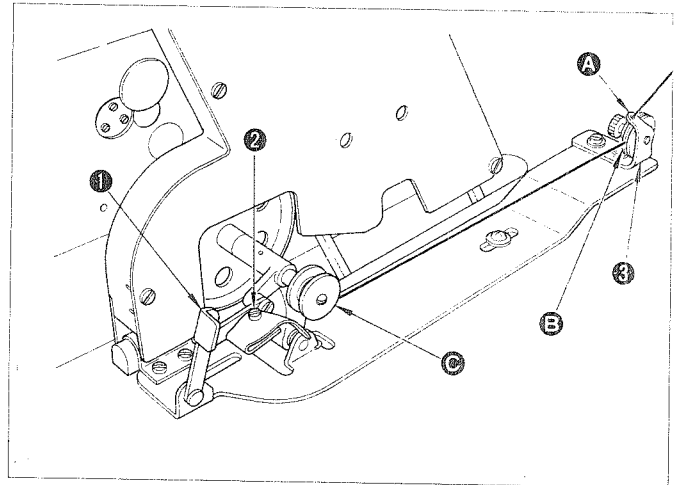


- **Turn the motor power OFF.**

The standard needle is DP x 17 #18.

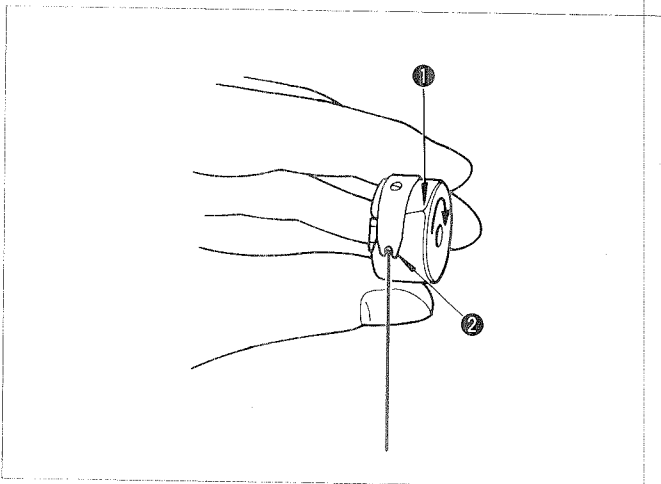
1. Turn the handwheel to move the needle bar up to its highest position.
2. Loosen needle setscrew ②, and hold needle ① so that long groove A faces exactly to the left.
3. Insert the needle into the needle bar until it will go no further.
4. Securely tighten the needle setscrew.

## 11. WINDING A BOBBIN



1. Route the thread in the order of A, B and C before winding it round the bobbin several times.
2. Set bobbin presser ① down to bring the winder in contact with the belt.
3. Adjust screw ② so that the bobbin is wound with thread about 80%. Turning the screw clockwise increases the amount of thread wound on the bobbin, and vice versa.
4. If thread is wound unevenly, move winder tension adjuster base ③ to the right or left to correct it.
5. The moment the bobbin has been wound up, the bobbin presser is released, and the bobbin winder will stop automatically.

## 12. THREADING THE BOBBIN CASE



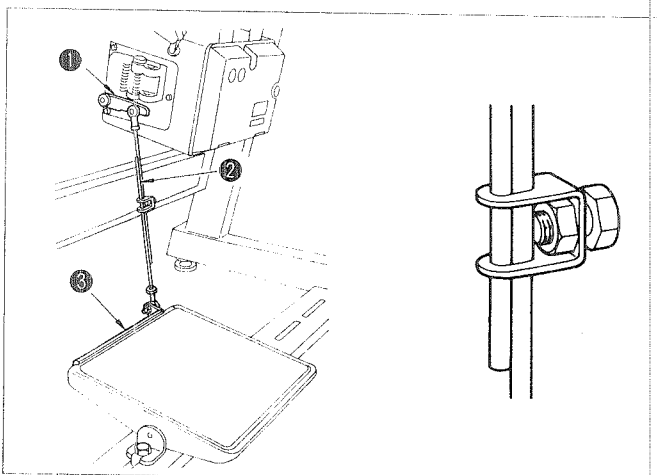
- **Removing the bobbin case**

Raise the bobbin case latch to remove the bobbin case.

- **Threading the bobbin case**

1. Pass the thread through threading slit ① in the bobbin case, and route it under tension spring ②.
2. Hold the latch of the bobbin case, and set the bobbin case into the hook.

## 13. ADJUSTING THE PEDAL



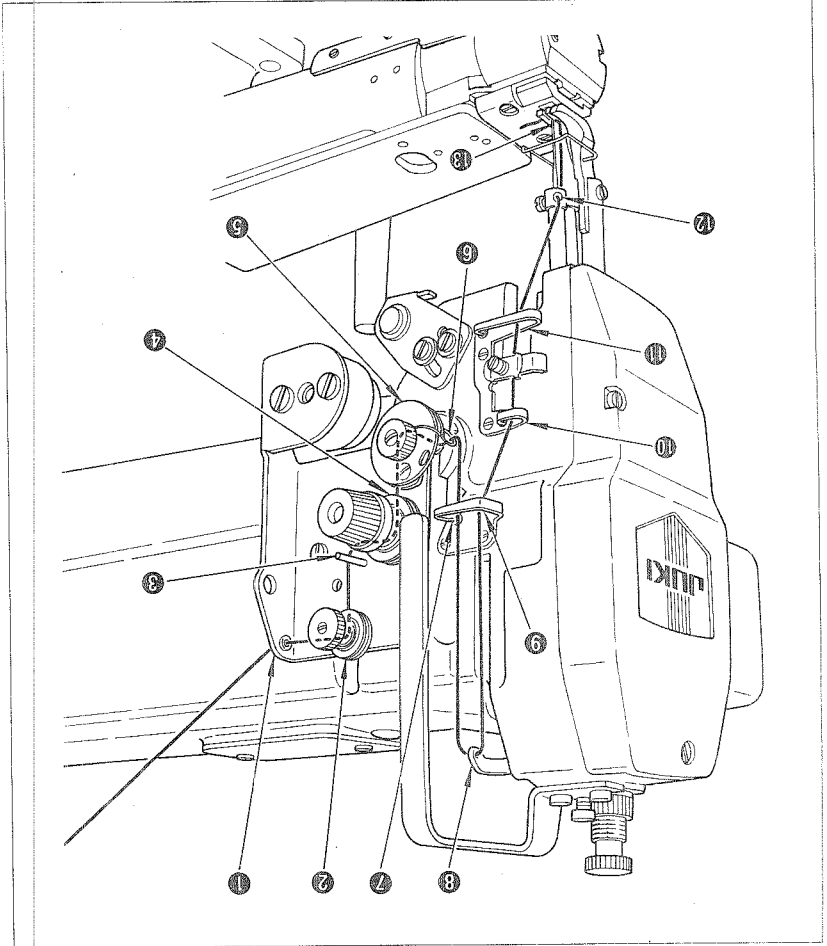
- **Installing the link rod**

1. Move pedal ③ to the right or left to perform adjustment so that motor control lever ① is levelled and link rod ② is perpendicular to the pedal.

- **Pedal angle**

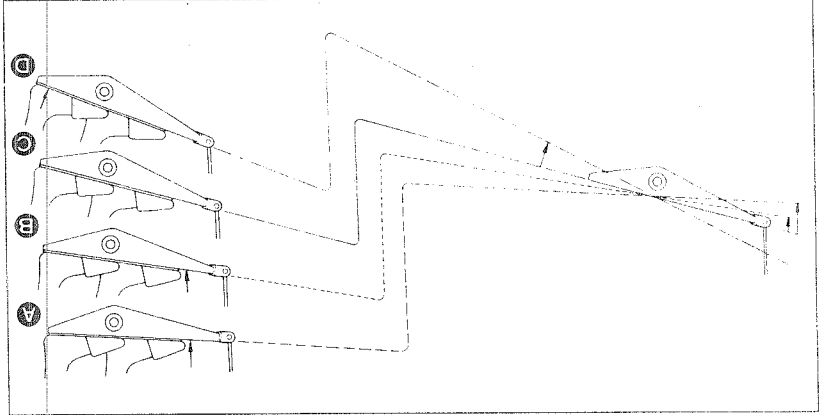
1. The pedal angle can be freely changed by adjusting the length of the link rod.  
Loosen the screw, and adjust the length of the link rod.

## 14. THREADING THE MACHINE HEAD



Thread the machine head as illustrated ① ~ ⑬

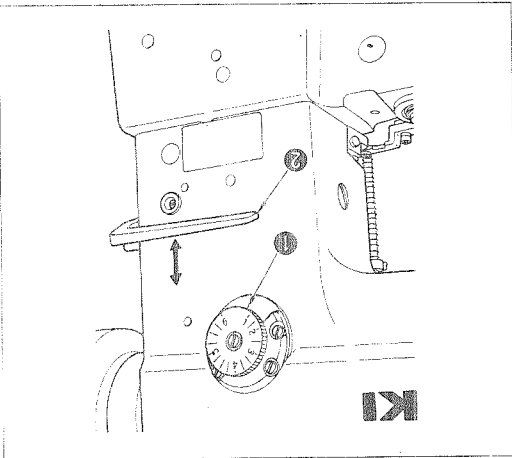
## 17. PEDAL OPERATION



● The pedal may be operated in the following 4 steps:

1. When you slightly depress the front part of the pedal, the machine sews at low speed. ⑤
  2. When you further depress the front part of the pedal, the sewing speed changes from low to high. ④
  3. When you reset the pedal to the neutral position, the machine stops sewing with its needle up or down. ③
  4. When you fully depress the back part of the pedal, the thread trimmer is actuated. ⑥
- The machine will perform normal thread trimming even if you depress the back part of the pedal immediately following high or low speed sewing.
- The machine will completely perform thread trimming even if you reset the pedal to its neutral position immediately after the machine started thread trimming action.
- When the machine stops with its needle down, and if you want to bring the needle up, try thread trimming again or turn the hand-wheel by hand.

## 15. ADJUSTING THE STITCH LENGTH

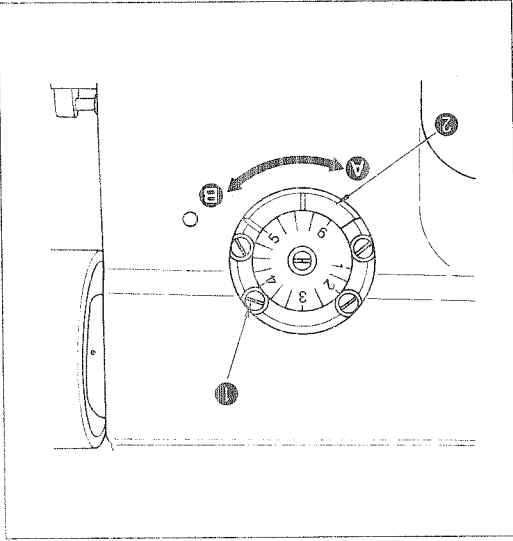


1. Turn stitch length dial ① clockwise or counterclockwise to align the desired value with pin.

● How to engage the reverse feed stitching

1. Push feed lever ② down.
2. The machine performs reverse feed stitching as long as the lever is held depressed.
3. The moment you release the lever, the machine resumes the normal stitching mode.

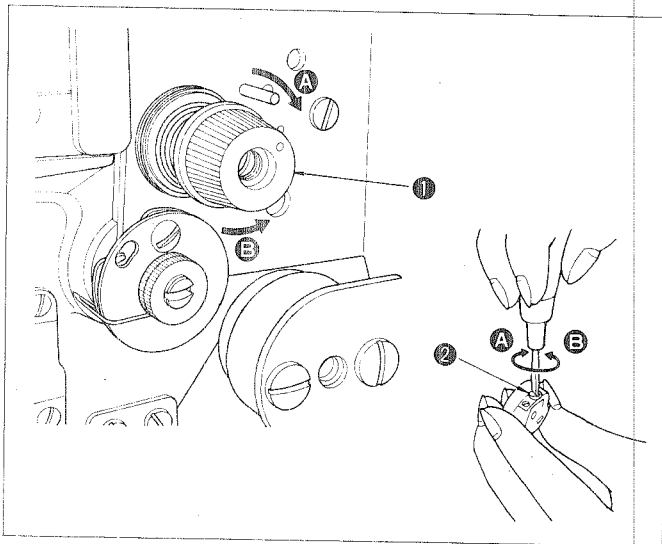
## 16. FORWARD/REVERSE SEAM RATIO



The seam ratio of forward stitch and reverse it shifts according to the sewing condition. In order to adjust it to 1:1.

1. Loosen four feed regulating stud metal set-screws ①.
2. When increasing the forward stitch pitch, turn the slotted portion of eccentric bushing ② clockwise in the direction ③ by the screwdriver.
3. When decreasing the forward stitch pitch, turn eccentric bushing ② counterclockwise in the direction ④.
4. After adjustment, tighten four setscrews ①.

## 18. THREAD TENSION



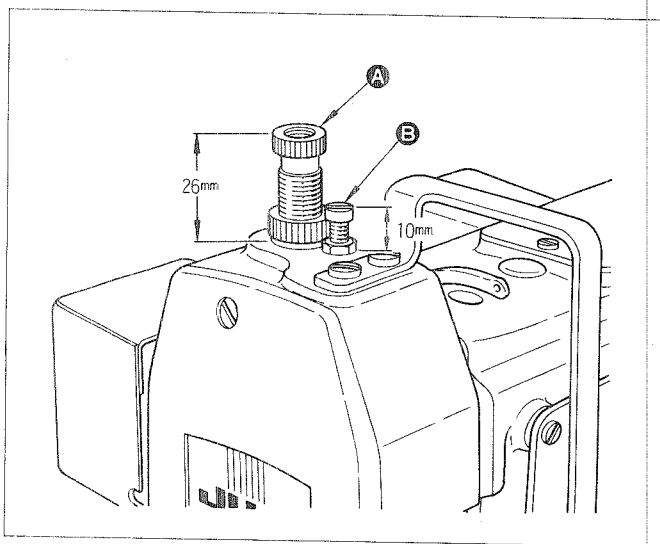
### • Adjusting the needle thread tension

1. Turning tension nut ① clockwise (toward A) increases the needle thread tension. Turning it counterclockwise (toward B) decreases the tension.

### • Adjusting the bobbin thread tension

1. Turning tension screw ② clockwise (toward A) increases the bobbin thread tension. Turning it counterclockwise (toward B) decreases the tension.

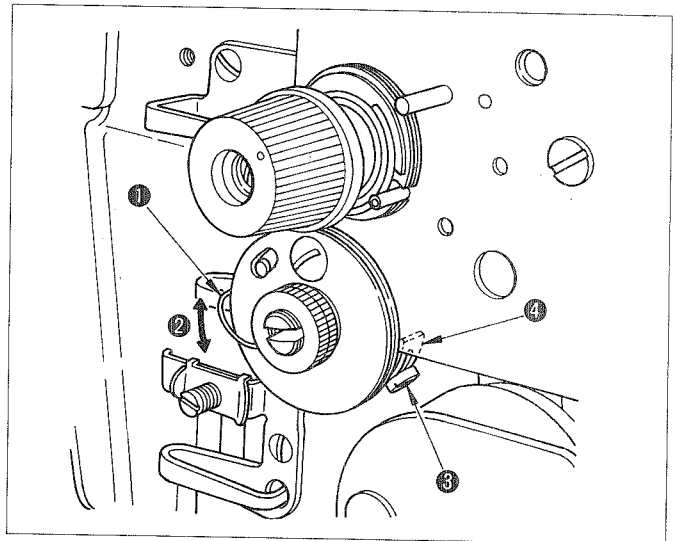
## 20. PRESSURES OF THE PRESSER FOOT AND WALKING FOOT



1. It is possible to adjust the pressure of presser foot A to standard 26 mm and that of walking foot B to standard 10 mm according to the type of material.

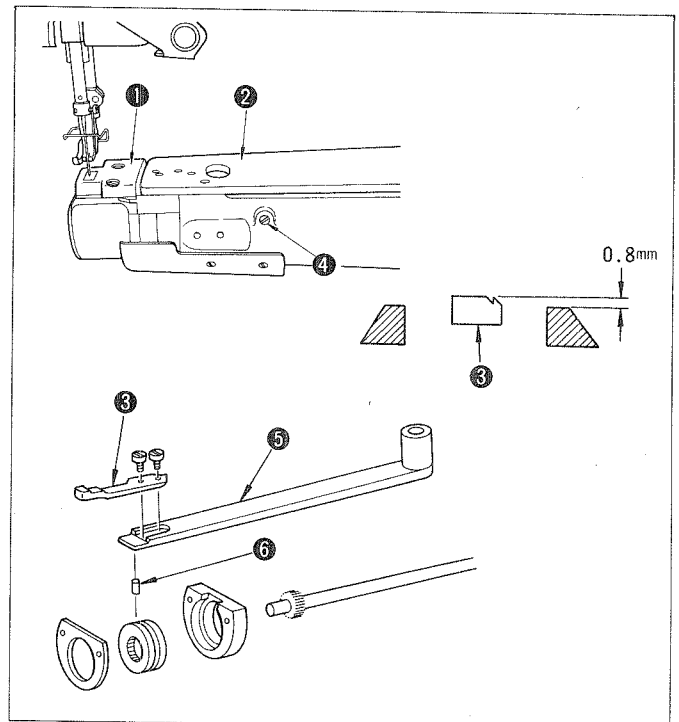
※ It is advisable to minimize the pressures of both feet.

## 19. THREAD TAKE-UP SPRING



1. Standard stroke ② of thread take-up spring ① is 8 to 10 mm. To adjust the stroke, loosen setscrew ③, and turn whole thread controller ④.
2. The standard spring tension is 40 to 50 g.
3. To adjust the tension, turn the thread tension post, using a screwdriver.

## 21. HEIGHT OF THE FEED DOG



1. Feed dog ③ is factory-adjusted to jut out 0.8 mm from the surface of throat plate ①.  
How to adjust the height of the feed dog.  
1) Remove throat plate ①, bed upper cover ② and spring support shaft ③ to extract feed bar ⑤.  
2) Remove pin ⑥.  
3) Replace pin ⑥.

(Note) Marker lines are marked.

When making the height of the feed dog high, use the pin having more marker lines, and when making the height low, use the pin having less marker lines.

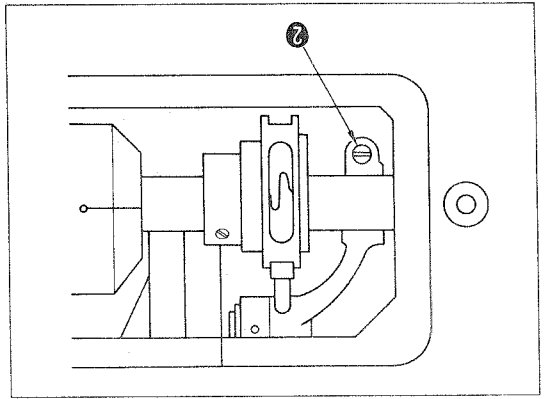
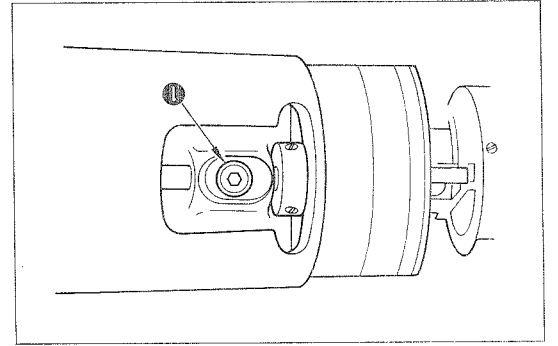
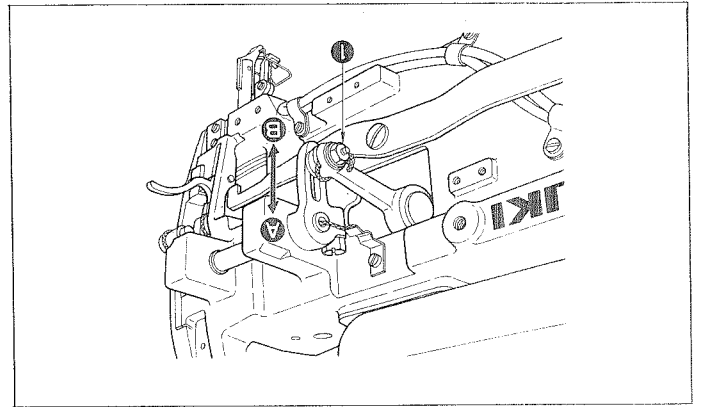
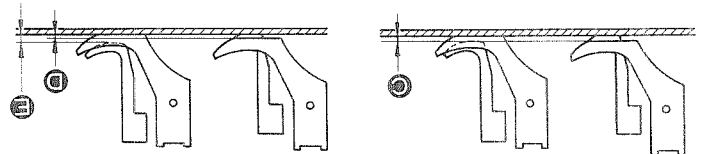
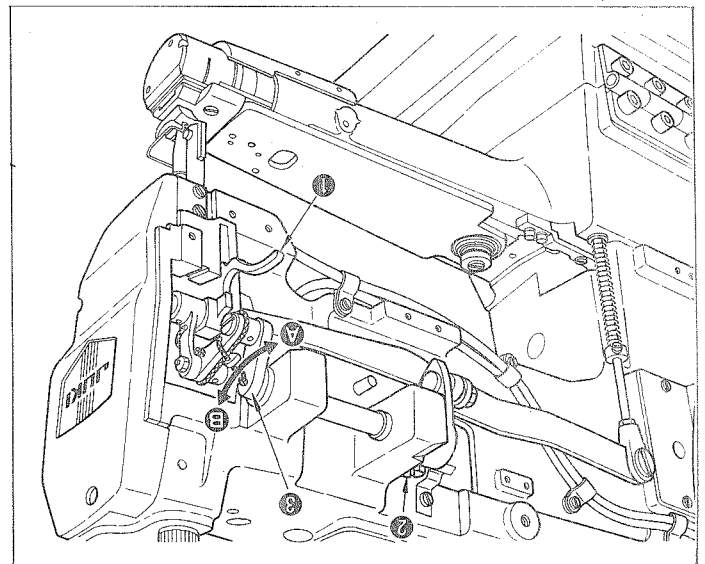
## 22. ADJUSTING THE WALKING FOOT AND THE PRESSER FOOT

- Alternate vertical motions of the walking foot and the presser foot
- 1. The alternate vertical strokes of the walking foot and the presser foot are normally equal.
- 2. Depending on the type of material, however, the vertical strokes of the presser foot and walking foot should be changed.

- 3. For instance, when sewing slippery material or sewing many overlapping sections, a better result may be obtained by adjusting the vertical stroke of the walking foot larger than that of the presser foot.
- 1) Remove the walking foot cover (front), and turn the handwheel by hand until the thread take-up reaches its lowest point.
- 2) Lower hand lifter ①.
- 3) Loosen screw ②.
- 4) As you move top feed crank ③ to the left (in direction ④), the vertical stroke of the presser foot decreases ⑤, whereas the vertical stroke of the walking foot increases ⑥.
- 5) On the contrary, as you move the top feed crank to the right (in direction ③), the vertical stroke of the walking foot becomes closer ⑦ to that of the presser foot when the walking foot sole is in contact with the throat plate surface.
- 6) After adjustment, securely tighten screw ②.
- 7) Reinstall the walking foot cover (front).

### • Height of the walking foot and the presser foot

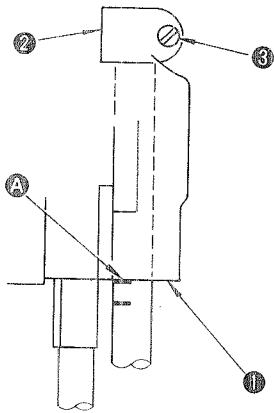
- 1. When sewing elastic material or overlapping sections, a better result may be obtained by changing the height of the presser foot and walking foot.
- 1) Loosen nut ①.
- 2) When you move the cam rod boss toward ② within the slot, the height is increased.
- 3) When you move it toward ③, the height is decreased.
- 4) After adjustment, securely tighten nut ①.



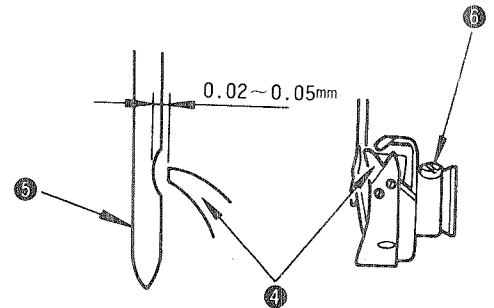
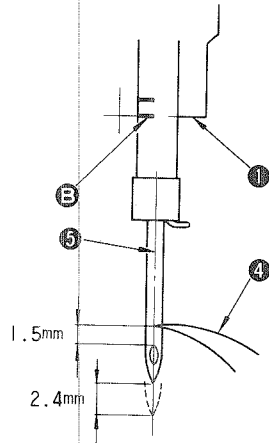
- Adjusting the longitudinal position of the needle bar frame
- 1. Turn the feed regulator dial to maximum.
- 2. Turning the handwheel slowly to this side, loosen and adjust screw ① in the rear arm of the feed bar frame so that the feed does not contact with the front and back of the throat plate at the time of normal/reverse stitch motion.
- 3. Next, turn the feed regulator dial clockwise, set the feed pitch at "0", and loosen screw ② in the rear arm of the needle bar frame.
- 4. Turning the handwheel, move the needle bar frame so that the needle enters the center of needle hole, and tighten the screw.

## 23. NEEDLE-TO-HOOK RELATIONSHIP

### • Positioning the needle bar



### • Positioning the hook



### • < First, set the needle bar at the proper height as follows >

1. Set the stitch length dial at "0".

Adjust so that, when hook point ④ meets the center of needle ⑤, the hook point is 1.5 mm above the upper end of the needle eyelet. Then tighten screw ③ of needle bar bracket ②. (As a rough indication of this adjustment, marker line A on the needle bar aligns with the bottom face of the needle bar frame.)

### • Then, adjust the timing between the needle and the hook as follows:

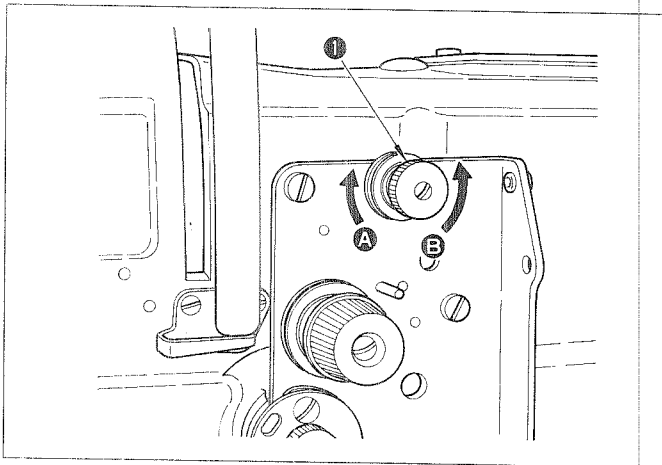
2. Adjust so that, when the needle bar goes up to 2.4 mm above its lowest point, hook point ④ nearly meets the center of needle ⑤. Then tighten setscrew ⑥. (As a rough indication of this adjustment, marker line B on the needle bar aligns with the bottom face of the needle bar frame.)
3. Adjust the clearance between needle ⑤ and hook point ④ to 0.02 to 0.05 mm.

### ★ How to remove the hook

1. Turn the handwheel to bring the needle bar up to its highest position.
2. Remove the hook cover, the bobbin case, the throat plate and the top cover of the bed.
3. Loosen four throat plate frame setscrews.
4. Loosen the hook setscrew, and extract the hook so as to lift the front edge of the throat plate frame.

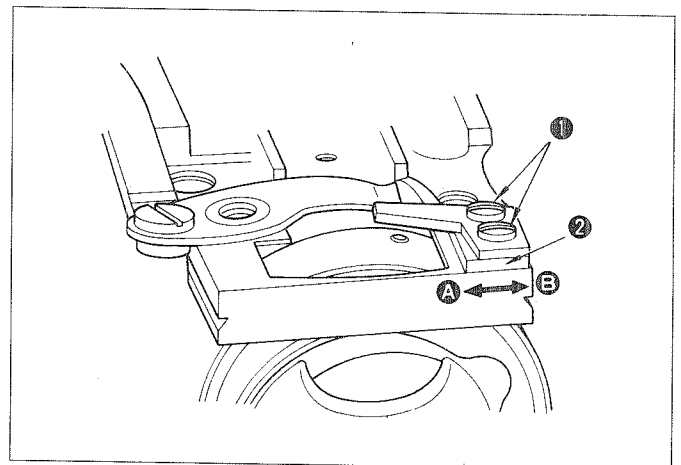
(Note) When installing the hook, tighten the throat plate frame after checking that the protruding portion of the hook stopper in the throat plate frame are properly inserted in the slot in the bobbin case retainer.

## 24. AUXILIARY THREAD TENSION CONTROLLER



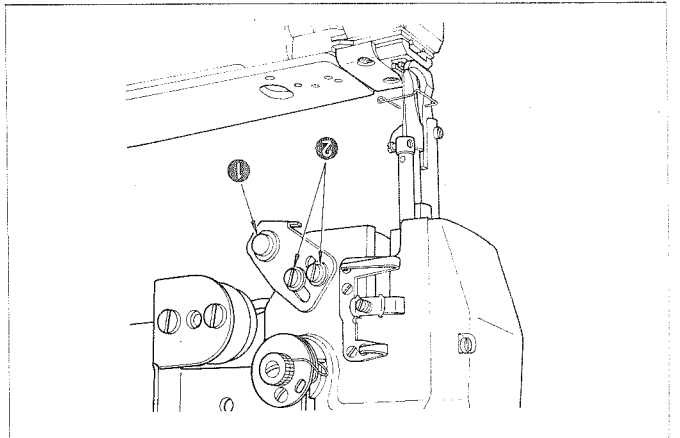
1. Adjust the auxiliary thread tension using nut ①.
  - 1) Turn the nut in direction A → Tension increases and the needle thread shortens.
  - 2) Turn the nut in direction B → Tension decreases and the needle thread lengthens.
- 3) Decrease the tension when using a thin thread or if cloth slippage often occurs.
- 4) Increase the tension when using a thick thread or if upper cloth tends to slip forward.

## 25. ADJUSTING THE PRESSURE OF THE FIXED KNIFE

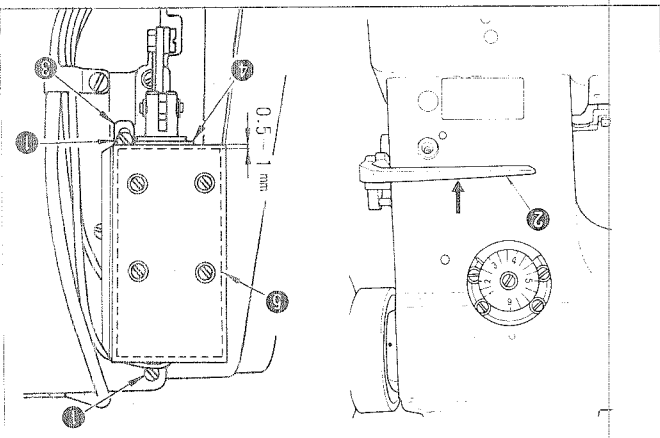


1. Loosen two setscrews ① of the fixed knife and move adjusting plate ② for the knife pressure to direction A resulting in a higher knife pressure. After adjustment, tighten the setscrews.
2. The knife pressure should be increased for a thicker thread. However, it is advisable to minimize (by turning the adjust screw in direction B) the knife pressure as long as the knife trims threads.

## 26. ONE-TOUCH TYPE REVERSE FEED STITCHING MECHANISM

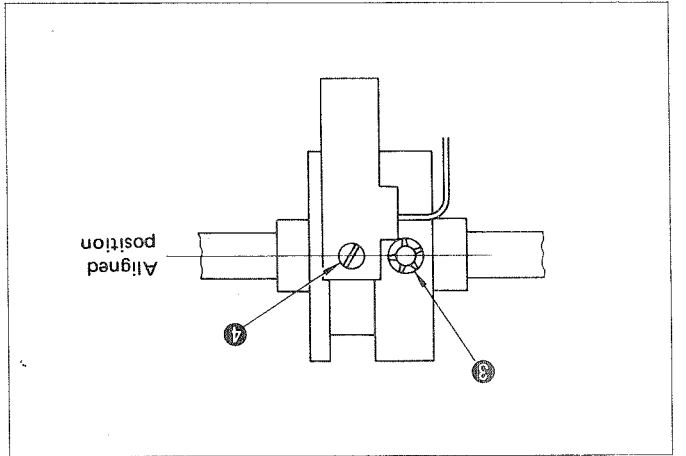


- **How to operate**
- 1. The moment you press switch ①, the sewing machine performs reverse feed stitching.
- 2. The machine continues reverse feed stitching as long as the switch is held pressed.
- 3. When you release the switch, the machine resumes normal stitching.
- **Position of the switch**
- 1. Set the switch in an easy-to-operate position.
- 2. Loosen screws ②, and move the switch up or down to adjust its position.

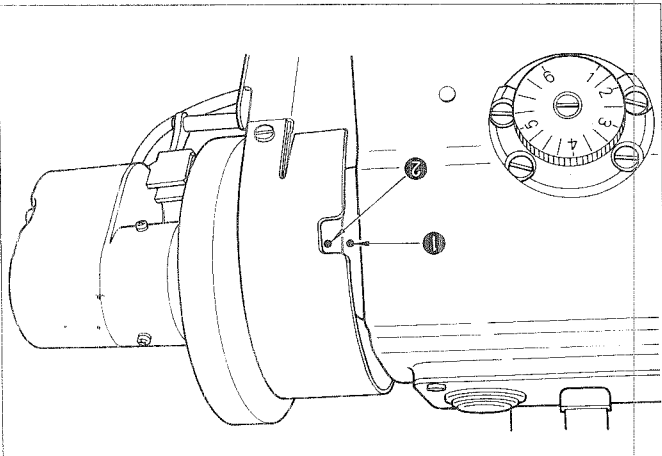


- **Position of the reverse feed solenoid**
- 1. Set the stitch length dial at the maximum.
- 2. Loosen two setscrews ① of the solenoid mounting base.
- 3. Push feed lever ② down until it bottoms, and move inner clearance between rubber packing ④ on the plunger and reverse feed solenoid ⑤ to 0.5 to 1 mm. Tighten setscrew ⑦.

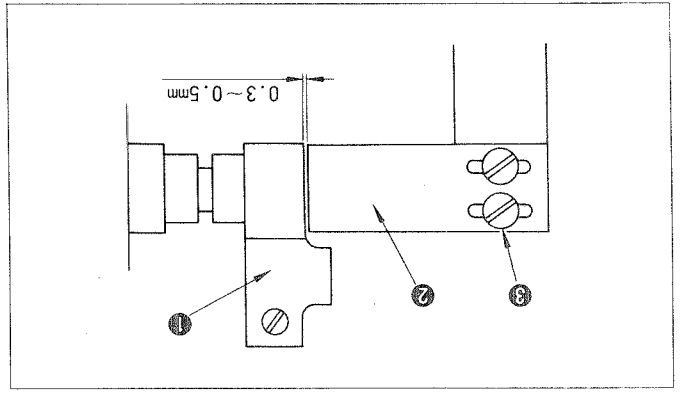
## 27. ADJUSTING THE THREAD TRIMMING CAM



1. Turning the handwheel, align red marker dot ① in the machine arm with white marker dot ② in the handwheel.
2. Turn the thread trimming cam until first screw ③ in the thread trimming cam aligns with cam roller shaft ④ in the cam roller arm, and tighten the screw at the aligned position.

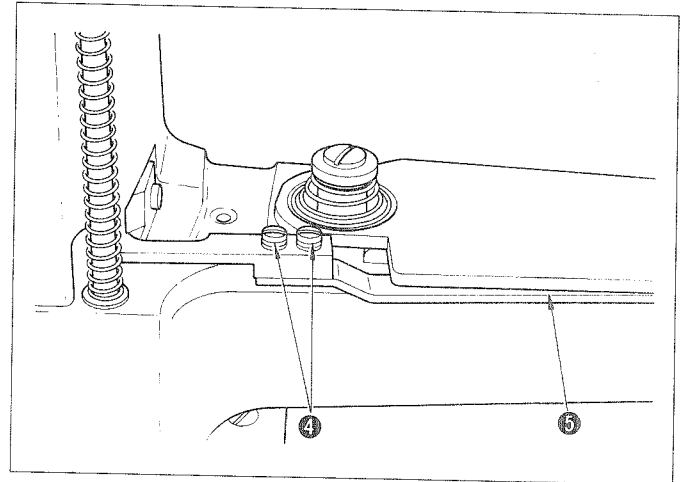
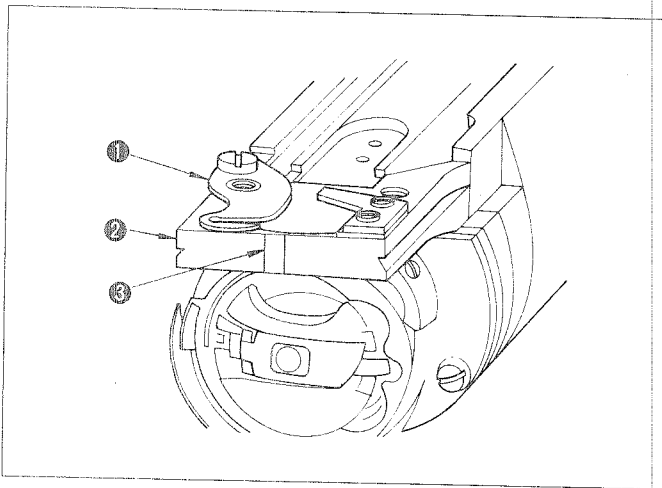


## 28. ADJUSTING THE CAM ROLLER ARM AND CAM ROLLER ARM PRESSER



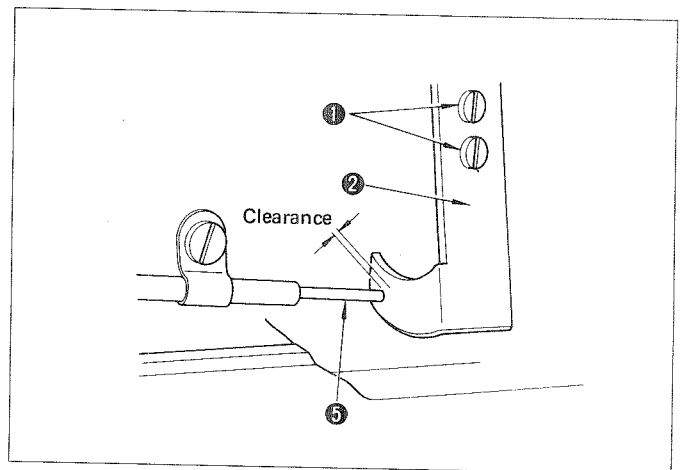
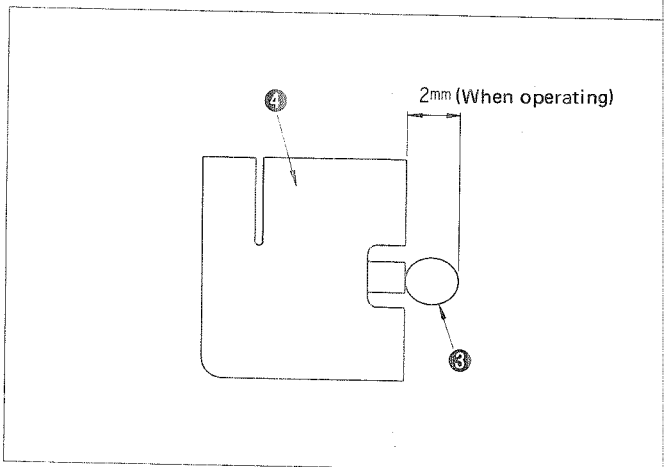
1. Adjust clearance so as to be 0.3 to 0.5 mm between cam roller arm ① and cam roller arm presser ② in case of no thread trimming by loosening setscrew ⑤ in the cam roller arm presser.
2. After adjustment, tighten the screw.

## 29. ADJUSTING MAX MOVING STROKE OF THE ROTARY KNIFE



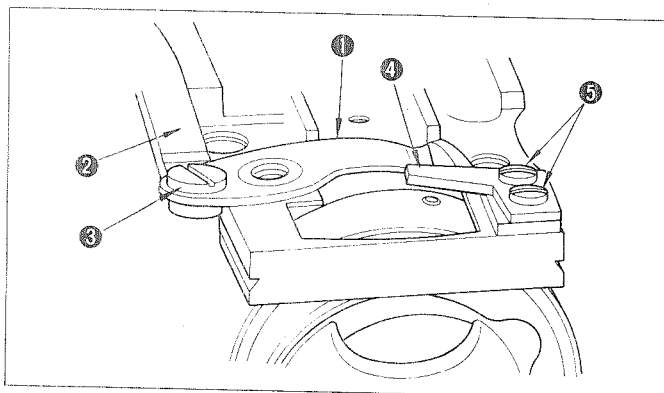
1. Turn the handwheel by hand and insert the trimmer.
2. Loosen setscrew ④ in the driving plate and adjust the length of driving plate ⑤ so that the edge of the rotary knife moves to marker line ③ in the throat plate frame ② when the moving stroke of rotary knife ① is max.
- When the driving plate is lengthened, the moving stroke of the knife decreases, and when it is shortened, it increases.

## 30. ADJUSTING THE OPERATING STROKE OF THE PICKER



1. Turning the handwheel, align the red marker dot in the machine arm with the white marker dot in the handwheel.
2. Loosen setscrew ① in the picker driving plate and push picker driving plate ② by hand.
3. Adjust the position of the picker driving plate so that picker ③ operates 2 mm longer from the end face of hook cover ④.
4. After adjustment, tighten the setscrew.
- When the clearance between the picker driving bar ⑤ and the picker driving plate is large, the operating stroke decreases, and when it is small, the operating stroke increases.

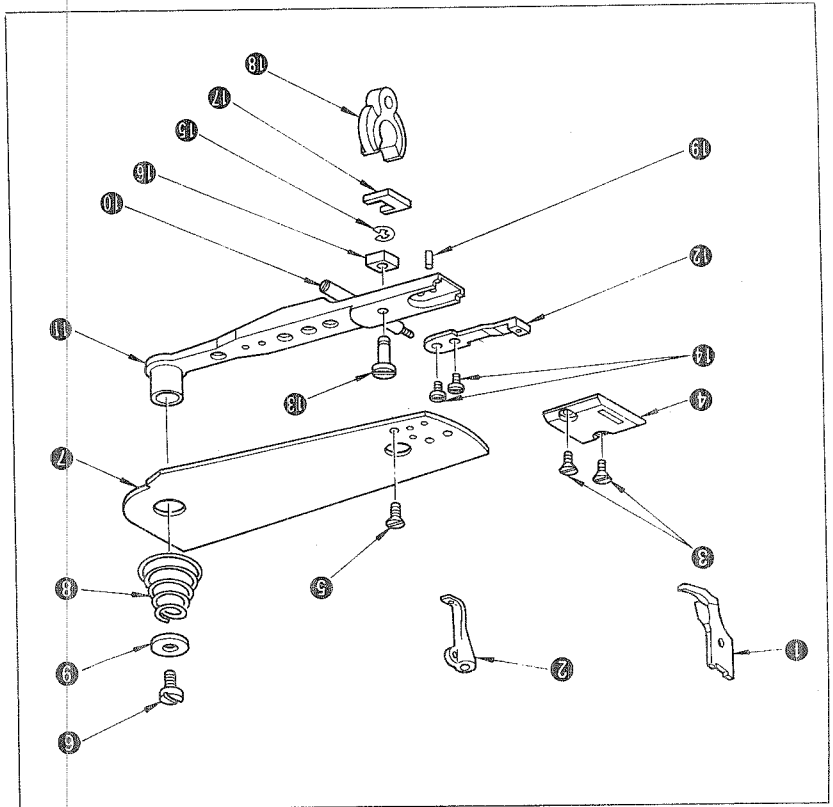
## 31. HOW TO REPLACE THE KNIVES



1. Remove the throat plate and the feed dog.
2. Rotary knife ① can be removed by removing connecting screw ③ in driving plate ②, and fixed knife ④ can be done by removing setscrew ⑤ of the fixed knife.
3. After replacement, adjust the knife pressure.

## 32. HOW TO CHANGE FROM ELLIPTICAL FEED TO HORIZONTAL FEED

This model can be changed to horizontal feed suitable for attaching tapes by replacing parts.

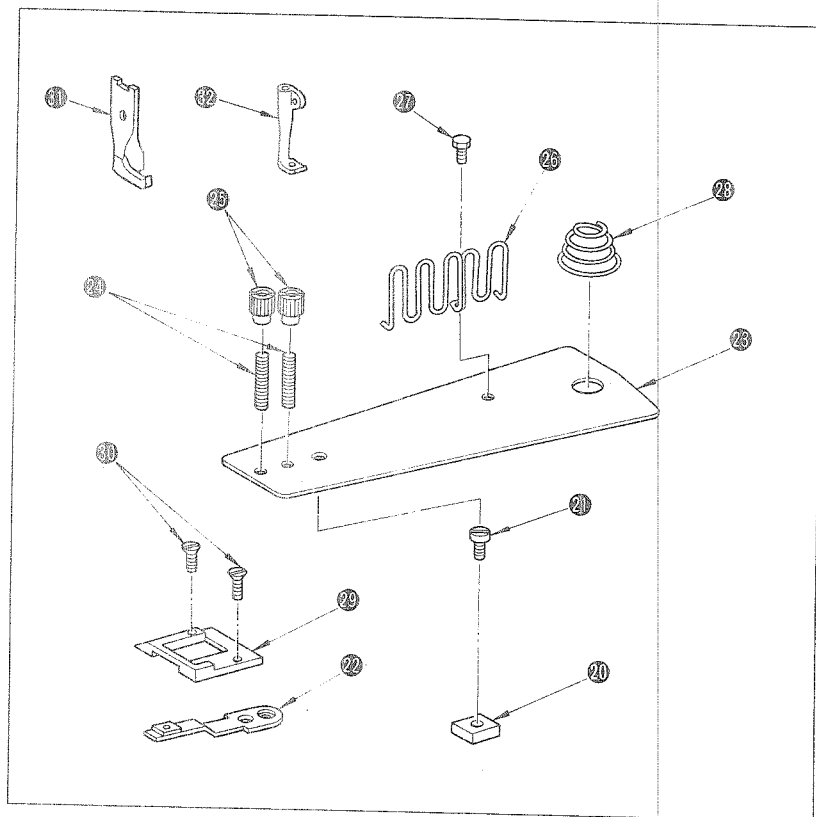


- 1) Remove presser foot ① and walking foot ②.
- 2) Loosen throat plate setscrew ③ and remove throat plate ④.
- 3) Loosen setscrew ⑤ and cap screw ⑥, and remove bed top cover ⑦, bed top cover spring ⑧ and feed bar hinge stud cap ⑨.
- 4) Remove spring support shaft ⑩. (At this time, remove it with feed ⑪ and feed bar hinge stud ⑫, etc. mounted.)
- 5) Remove setscrew ⑬ to remove feed bar ⑭ from feed bar ⑮.
- 6) Remove E ring ⑯, and remove feed bar block ⑰ from feed bar hinge stud ⑱ and remove feed bar hinge stud ⑲.
- 7) Loosen feed bar hinge stud ⑲ and remove it from feed bar ⑲.
- 8) Remove feed bar block ⑰ from feed bar ⑲.
- 9) Remove feed bar block ⑰ from feed bar rocker arm ⑳. (It is unnecessary to remove ㉑.)
- 10) Remove upper/lower feed pin ㉒.

List of parts to be removed

Note	Part No.	Part Name	Q'ty	Remarks
	1	Presser foot	1	
	2	Walking foot	1	
	3	SS211091SSP	2	1/64 threads 40, L=8.5
	4	B1105245000	1	Throat plate
*		D1105245E00	1	Throat plate
	5	SS2090710SP	1	9/64 threads 40, L=7
*	6	B16533245000	1	9/64 threads 40, L=10
	7	B1173245000	1	Bed top cover
*		D1173245E00	1	Bed top cover
	8	B1175245000	1	Bed top cover spring
*	9	B1640245000	1	Feed bar hinge stud cap
*	10	B1638245000	1	Spring support shaft
*	11	B1606245000	1	Feed bar
*		D1606245E00	1	Feed bar
	12	B1613245000	1	Feed
*		D1613245E00	1	Feed
	13	B1645245000	1	Feed bar block hinge stud
*	14	B1652245000	2	1/8 threads 44, L=3.7
	15	RE0300000K0	1	E ring
	16	B1644245000	1	Feed bar block B
	17	B1643245000	1	Feed bar block A
*	18	B1603245000	1	Feed bar rocker arm
	19	B163224500C	1	Upper/lower feed pin

(Note) 1. \* marks mean the parts used succeeding after replacement.  
2. \* marks mean exclusive parts for DSC-245-4, -5.



## 2. Installation process

- 1) Install feed bar block ① on feed bar rocker arm ②.
- 2) Install feed bar block hinge stud ③ on feed bar ④.
- 3) Temporarily install feed ⑤ on feed bar ④.
- 4) Install feed bar ④ on which feed bar block hinge stud ③ and feed ⑤ have been mounted.
- 5) Install spring support shaft ⑥.
- 6) Tighten feed ⑤ so that the needle locates in the center of needle hole.
- 7) Screw binder setscrew ⑦ into bed top cover ⑧. At this time, install binder setscrew ⑨ after applying adhesive to it.
- 8) Screw binder lock nut ⑩ into binder setscrew ⑦.
- 9) Install tape guide ⑪ on bed top cover ⑧ by tape guide setscrew ⑫.
- 10) After performing 7), 8) and 9), install bed top cover ⑧.
- 11) After installing bed top cover spring ⑬ and feed bar hinge stud cap ⑭, tighten feed bar hinge stud cap screw ⑮.
- 12) Install throat plate ⑯ and fix it by throat setscrew ⑰.
- 13) Install presser foot ⑱ and walking foot ⑲.

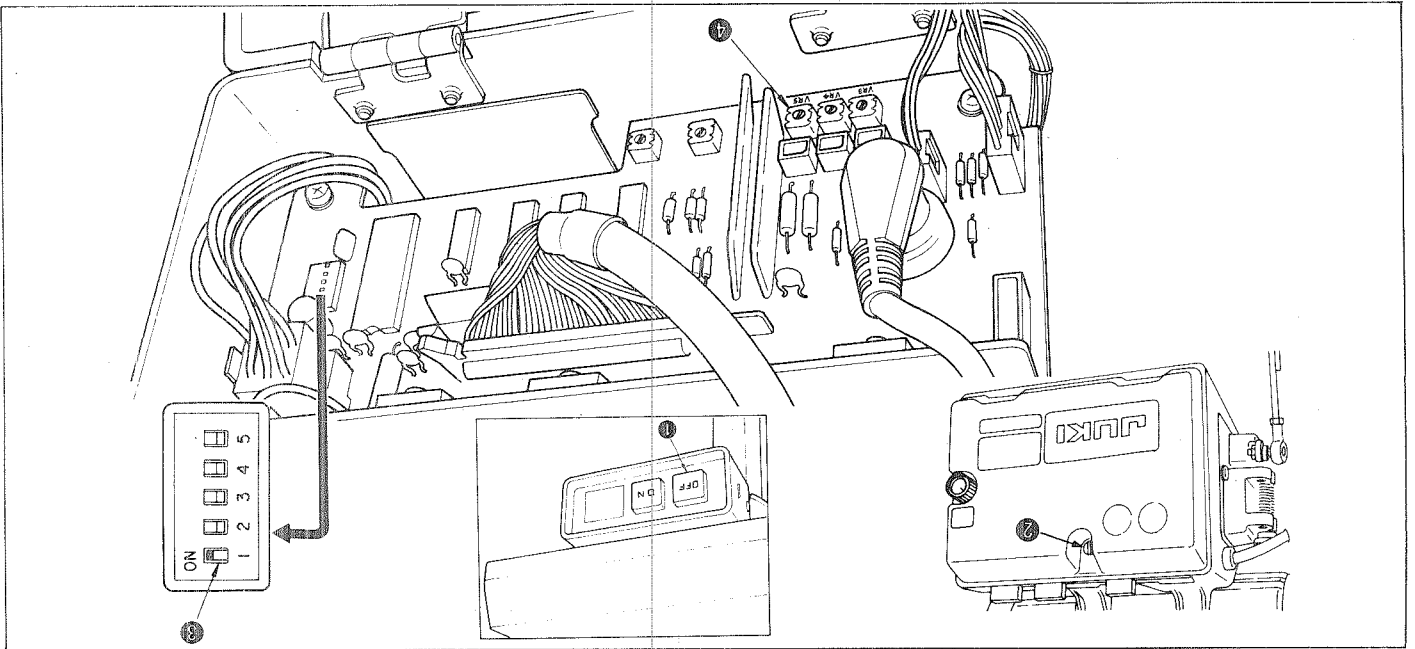
## List of parts to be replaced

Note	No.	Part No.	Part Name	Q'ty	Remarks
	20	MAQ09210000	Feed bar block	1	
	21	MAQ09211000	Feed bar block hinge stud	1	
*		MAQ09411000	Feed bar block hinge stud	1	
	22	MAQ09209000	Feed	1	For attaching a narrow tape
		MAQ09309000	Feed	1	For attaching a broad tape
*		MAQ09409000	Feed	1	For attaching a narrow tape
*		MAQ09509000	Feed	1	For attaching a broad tape
	23	MAQ09202000	Bed top cover	1	
*		MAQ09402000	Bed top cover	1	
	24	MAQ09204000	Binder setscrew	2	11/64 threads 40
	25	MAQ09205000	Binder lock nut	2	11/64 threads 40
	26	MAQ09206000	Tape guide	1	
	27	SS7110510SP	Tape guide setscrew	1	11/64 threads, 40, L=5
	28	MAQ09203000	Bed top cover spring	1	
	29	MAQ09201000	Throat plate	1	
*		MAQ09401000	Throat plate	1	
	30	SS209030SP	Throat plate setscrew	2	11/64 threads, 40, L=8.5
	31	MAQ09208000	Presser foot	1	For attaching a narrow tape
		MAQ09308000	Presser foot	1	For attaching a broad tape
	32	MAQ09207000	Walking foot	1	For attaching a narrow tape
		MAQ09307000	Walking foot	1	For attaching a broad tape

(Note) 1. \* marks mean exclusive parts for DSC-245-4, -5.

2. Select a feed, a presser foot and a walking foot making them one set according to the tape width.

### 33. THREAD TRIMMING SPEED (LOW SPEED)



#### < Adjustment Procedure >

When trimming a thicker thread, the thread trimmer may fail to cut it because of insufficient sewing speed. If this happens, increase the thread trimming speed according to the following procedure. On the contrary, if the bobbin often races when trimming a thinner thread, decrease the thread trimming speed.

- ① Turn power switch ❶ of the motor OFF.
- ② Remove screw ❷ of the PSC box, and open the cover.
- ③ Set dip switch DSW1 ❸ on the PSC circuit board to "ON" (to the right side).
- ④ Raise the presser foot of the machine head, and keep it in its upper position, using the hand lifter.
- ⑤ Turn the power switch ON.
- ⑥ Turn VR5 ❹ to adjust the low speed within the range of 170 to 200 s.p.m. (Turn it clockwise to increase the speed, or turn it counterclockwise to decrease it.) The standard speed is 185 s.p.m. For a model equipped with the MC-210, the sewing speed is indicated on the CPU panel (No. of stitches display).
- ⑦ See paragraph 12, which cover the display of sewing speed, of Instruction Book for the MC-210.
- ⑧ After finishing the adjustment of the sewing speed, turn the power OFF.
- ⑧ Set dip switch DSW1 ❸ on the PSC circuit board to OFF (to the left side).
- ⑨ Close the PSC box cover with care taken not to pinch the cord.

### 34. MOTOR PULLEYS AND V BELTS

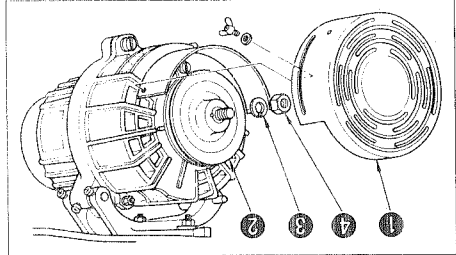
1. Use an M-type V belt.
2. The following table shows the relationship between the motor pulleys, belt lengths and sewing speeds.

Motor pulley O.D.	Motor pulley (asm) part No.	Sewing speed		Belt length	Belt part No.
		50 Hz	60 Hz		
120 mm	MTS-P011500A	2,200s.p.m.	2,200s.p.m.	57 inch	MTJ-VM005700
100 mm	MTS-P009500A	2,200s.p.m.	2,200s.p.m.	56 inch	MTJ-VM005600

(Precaution) A commercially available pulley cannot be used with this machine because this machine has a tapered motor pulley hole. The effective diameter of the motor pulley equals the outer diameter minus 5 mm. For a single-phase motor, use a belt which is 1 inch longer than the one listed above.

- In case of DSC-245
  1. Use the clutch motor of its output 400W at standard.
  2. Use an M-type V belt.
  3. The following table shows the relationship between the motor pulley, belt lengths and sewing speeds.

Motor pulley O.D.	Motor pulley (asm) part No.	Sewing speed		Belt length	Belt part No.
		50 Hz	60 Hz		
120 mm	MTK-P0115000	2,200s.p.m.	2,200s.p.m.	57 inch	MTJ-VM005700
100 mm	MTK-P0095000	2,200s.p.m.	2,200s.p.m.	56 inch	MTJ-VM005600

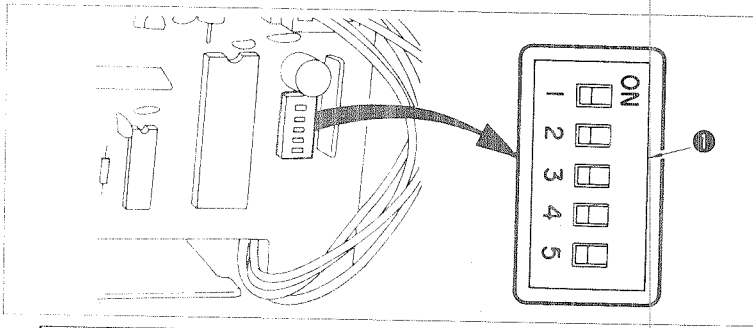


● How to install  
 Remove pulley cover ❶, and mount motor pulley ❷ on the motor shaft, fitting the motor shaft key to the key way of the pulley. Install spring washer ❸, and tighten nut ❹ using a spanner. To remove motor pulley ❷, detach the pulley cover, and reverse the installing procedure. The motor pulley can be easily removed using a gear puller (part No. J1065000000) which is separately available.

(Precaution)  
 When removing the motor pulley, be careful not to hit it too hard with a hammer, otherwise the pulley may be damaged.

## 35. SELECTOR SWITCHES FOR THE MACHINE HEAD

1. The unit is provided with a controller to permit optimum thread trimming according to the type of the machine head.
2. Properly set the DIP switches mounted on the circuit board in the PSC box according to the following procedure:



- 1) Turn the power switch OFF.
  - 2) Open the PSC box cover.
  - 3) Set DIP switches 1 through 5 to ON or OFF according to the functions of the machine head.
  - 4) Close the PSC box cover.
  - 5) Turn the power switch ON.
- (Precaution) Before changing any setting of the switches, be sure to turn the power switch OFF once, or else no functional change can be achieved.

DIP switch 1	DIP switch 2	DIP switch 3	DIP switch 4	DIP switch 5	Function
X	X	X	Δ	X	Standard sewing machine with automatic thread trimmer
X	○	X	Δ	X	Used for sewing extra heavy-weight materials

○ : ON      Δ : ON or OFF (either OK)      × : OFF

\* If the machine is placed in this mode especially sewing heavy-weight materials, the clutch noise will be reduced, while the low sewing speed will be reduced about 20%.

## 36. SAFETY CIRCUITRY

1. This sewing machine is provided with the a safety circuitry against the following possible troubles:

### 1) Slippage of the V belt from the motor pulley;

If the machine is driven with the V belt slipped off, the safety circuitry is actuated in about 2 seconds to stop the entire operation. If this happens, turn the power OFF, properly install the V belt, and turn the power ON again. This should cause the machine to recover the normal condition. The safety circuitry is also actuated if the machine is overloaded.

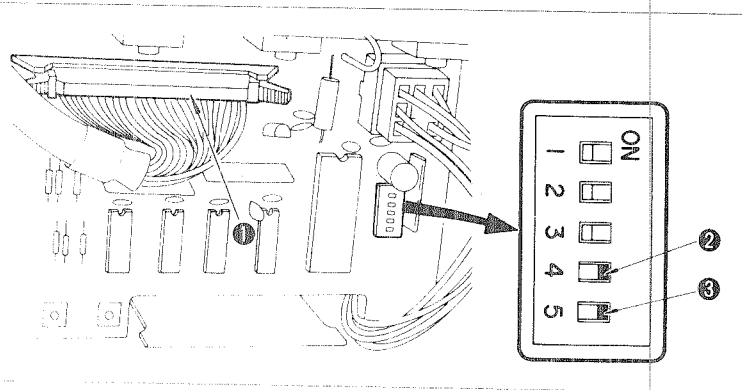
### 2) Failure of a needle position detector;

If the needle upper or lower position detector has failed, the safety circuitry will detect it, and cause the machine to continue operation as one with an ordinary clutch motor. The machine may be operated in this manner until the detector is repaired. (The one-touch type reverse stitching mechanism and the knee lifter remain operable.)

### 3) Failure of the CPU box;

If the CPU box has failed, and normal sewing operation is no longer possible, disconnect the cord from the CPU box, and set the DIP switches to ON. By so doing, the machine can be used as one with a thread trimming motor. (In this case, the reverse stitching mechanism, lifter and wiper will not work.)

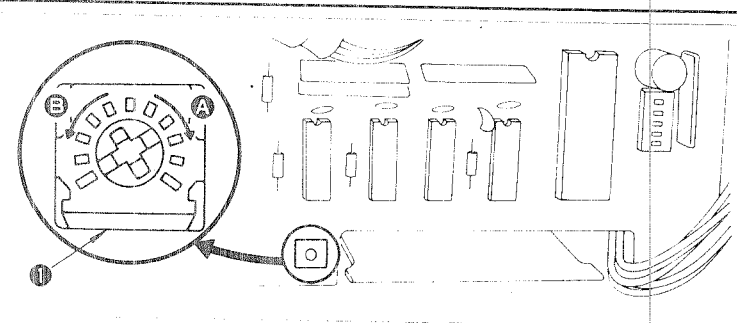
(Precaution) Be sure to set DIP switch 5 to OFF after the CPU has been repaired.



### • How to change DIP switch settings

- 1) Turn the power switch OFF.
- 2) Open the PSC box cover.
- 3) Remove CPU box cord housing ①.
- 4) Set DIP switch 4 ② and DIP switch 5 ③ to ON.
- 5) Close the PSC box cover.
- 6) Turn the power switch ON.

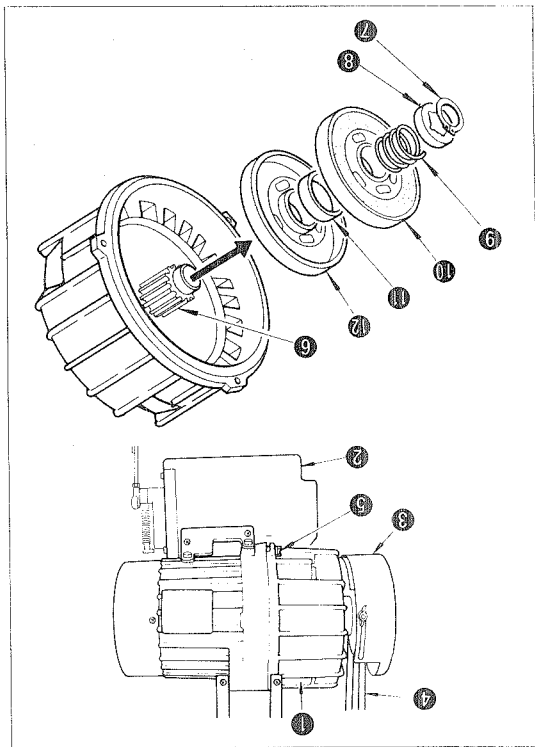
## 37. AUTOMATIC REVERSE STITCHING SPEED



1. Open the PSC box cover, and turn the central slit ("⊕ ⊖" shaped) variable resistor (VR8BT) clockwise (in direction of A) to increase the automatic reverse stitching speed or counter-clockwise (in direction of B) to decrease it.
2. The reverse stitching speed, which is normally factory-adjusted to 400 s.p.m., can be adjusted within the range of 200 s.p.m. to 1,400 s.p.m. using this variable resistor. The number of reverse feed stitches may be increased by one or two when you set a high speed.

## 38. MOTOR (FOR "H" MOTOR)

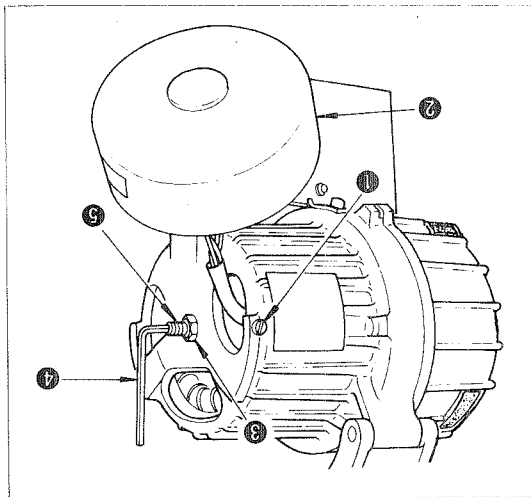
- **Cleaning the motor**
  1. Regularly remove the fibrous wastes from the motor housing, PSC box and ventilating window on the handwheel side from which air is drawn in to cool the motor.
- **Replacing the clutch ring and the brake ring**
  1. When the clutch noise has changed to a metallic noise after an extended period of use or when the rotation has become unsmooth, it is the sign of service life expiry of the friction parts. Replace the clutch ring and brake ring in accordance with the following procedure:



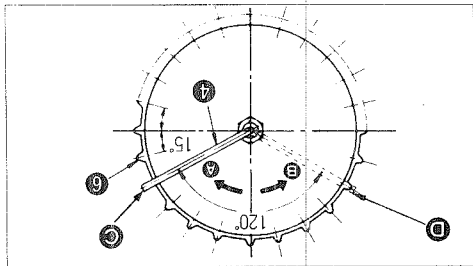
- **How to replace the clutch ring and the brake ring**
  - 1) Remove the connector connecting clutch head (1) and PSC box (2).
  - 2) Remove pulley cover (3), then remove belt (4).
  - 3) Remove clutch head mounting screw (5) to detach the clutch head from the whole motor.
  - 4) Remove C ring (7), spring bearing (8), and clutch return spring (9) from spline shaft (6) of the clutch head. Then, draw out clutch ring (10), spline cap (11) and brake ring (12) with your fingers.
  - 5) If the spline shaft, clutch disc surfaces or brake disc surfaces are dirty, clean them with a rag moistened with benzine or cleaning oil.
  - 6) Uniformly apply the grease supplied with the new ring to the spline shaft using a tooth brush.
  - 7) Replace the ring with the new one, and reassemble the unit.

### ● How to adjust the clutch gap

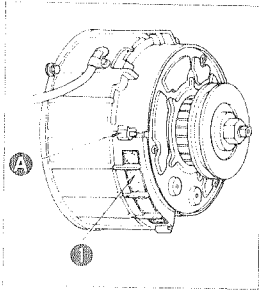
1. When the clutch ring and brake ring have been replaced or if friction exists between the clutch and brake due to an insufficient clutch gap, correct the clutch gap as follows:



- 1) Loosen mounting screw (1), and remove end cover (2).
- 2) Loosen locknut (3).
- 3) Tighten setscrew (4) in the direction of (A) using supplied L-shaped wrench (5) until the point at which the pulley no longer rotates by inertia (zero gap) (6) is found. From that point, turn the L-shaped fins (6) (0.5 mm gap (D)).
- 4) Tighten the locknut with care taken not to cause the setscrew to be moved.

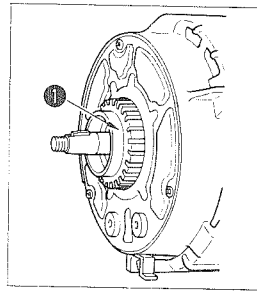


## 39. MOTOR (FOR "N" MOTOR)



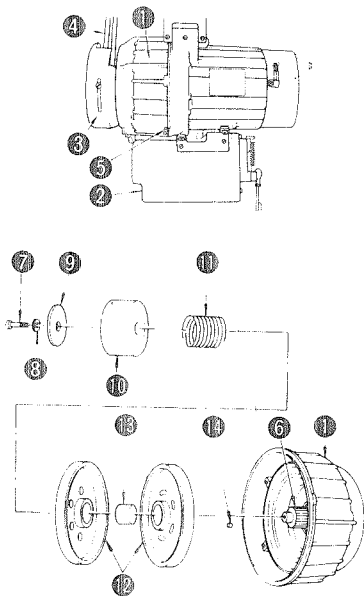
### • Cleaning the filter

1. If you continue to operate the machine with filter ① clogged with fibrous wastes, the motor will overheat, resulting in an extremely shortened service life of the lining.
2. To avoid this, clean the filter once a week every or every other month. The filter can be removed by pulling section A toward you.



### • Adjusting the clearance at the clutch

1. If the motor pulley does not smoothly rotate when you rotate it by hand or when the clutch movable disc has been replaced, adjust the clearance at the clutch as follows:
2. First, fully turn adjust screw ① counterclockwise. Then gradually turn it clockwise until a point at which resistance is felt is reached. From that point, further turn it clockwise 8 steps (120°).

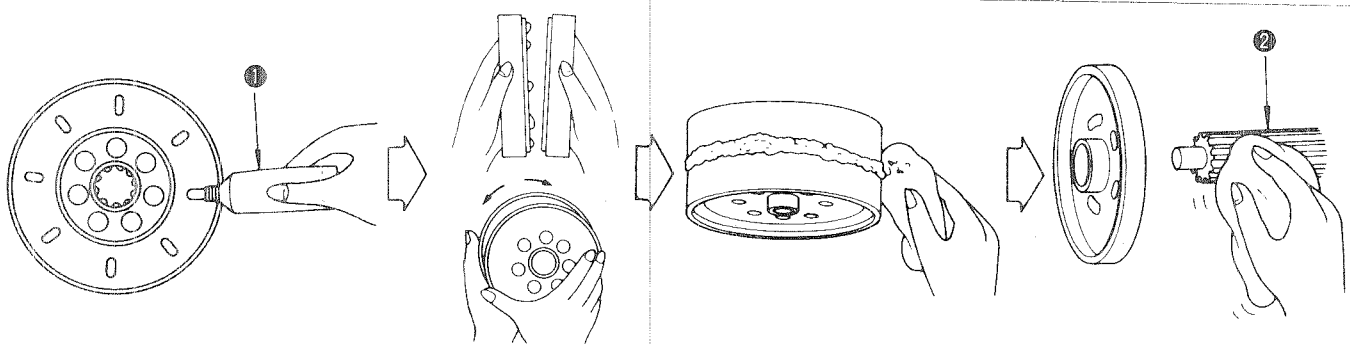


### • Replacing the movable disc

1. A worn clutch lining causes inaccurate stop or abnormal metallic noise. Therefore, immediately replace the movable disc as soon as a sign of wear on the clutch lining is observed.
  - 1) Remove the connector which connects clutch bracket ① to PSC box ②.
  - 2) Remove pulley cover ③, then remove belt ④.
  - 3) Remove mounting screw ⑤ to detach the clutch bracket from the whole motor.
  - 4) Remove small screw ⑦, washer ⑧, presser disc ⑨, housing cover ⑩, spring ⑪, movable disc ⑫ and cushion ⑬ from clutch shaft ⑥ of the clutch bracket.
- (Precaution) At this time, be careful not to lose key ⑭ fitted onto the clutch shaft.
- 5) Replace the movable disc with a new one, reassemble the unit, and adjust the clearance at the clutch.

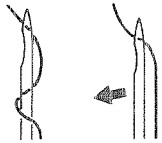
### • Applying the lining lubricant

1. For long life of the lining, supply the lubricant exclusively used for the lining once a year.
2. Also apply the lubricant if the clutch brake produces squeaks or the sewing mechanism fails to work smoothly.
3. Never use any lubricant other than the specified one.
4. The lubricant should be applied after daily work, and the lubricated lining left overnight before it is reassembled. By so doing, the lubricant permeates the lining well for longer service life.
5. How to apply the lubricant.



- 1) Disassemble the motor as in the replacing procedure for the movable disc.
- 2) Remove fibrous wastes from the movable disc and clutch bracket.
- 3) Wipe fibrous wastes and dirt off the lined surfaces of the movable disc using a dry, soft rag.
- 4) Apply lubricant ① to 8 points (a lubricant drop as large as a small bean for each point) on one lined surface.
- 5) Firmly press the lubricated surface against the other unlubricated lined surface.
- 6) Turn the movable discs in the direction opposite to each other in close contact.
- 7) Wipe any excess lubricant off.
- 8) Wipe fibrous wastes off the teeth of clutch shaft ② before applying the lubricant.
- 9) Reassemble the motor, repeat start and stop about 100 times for running in before operation. For a 100V motor, bring the needle up in its highest position before turning the power switch ON.
- 10) Excessive lubricant may prevent motor start. So, check that the motor rotates after the power switch is turned ON.
- 11) A tube is good for 4 lubrications.

## 40. TROUBLES AND CORRECTIVE MEASURES

Trouble	Cause	Corrective measures
<p>1. Thread breakage (Thread frays or wears out.) (Needle thread remains 2 to 3 cm on the wrong side of the cloth.)</p>	<p>① The thread path, needle point, hook point or bobbin case positioning finger has scratches. ② The needle thread tension is too high. ③ The needle hits the hook point. ④ Lubrication to hook is inadequate. ⑤ The needle thread tension is too low. ⑥ The thread take-up spring has an excessively high tension while it has an excessively small stroke. ⑦ The timing between the needle and hook is too early or late. ⑧ The bobbin races frequently.</p>	<p>○ Remove the scratches on the bobbin case positioning finger. ○ Properly adjust the needle thread tension. ○ See "23. NEEDLE-TO-HOOK RELATIONSHIP". ○ Properly adjust the lubrication. ○ See "9. LUBRICATION". ○ Properly adjust the needle thread tension. ○ Decrease the tension, and increase the stroke. ○ See "23. NEEDLE-TO-HOOK RELATIONSHIP". ○ Increase the spring pressure. Alternatively, reduce the thread trimming speed.</p>
<p>2. Stitch skipping</p>	<p>① The clearance between the needle and the hook point is too large. ② The timing between the needle and the hook point is too early or late. ③ The presser foot pressure is too low. ④ The clearance between the top edge of the needle eyelet and the hook point is not correct. ⑤ The size of the needle is wrong. ⑥ A synthetic fiber thread or thin thread is used.</p>	<p>○ See "23. NEEDLE-TO-HOOK RELATIONSHIP". ○ See "23. NEEDLE-TO-HOOK RELATIONSHIP". ○ Increase the presser foot pressure. ○ Replace the needle by one which is one grade thicker. ○ Wind the thread round the needle as illustrated.</p> 
<p>3. Loose stitches</p>	<p>① The thread has not been passed through the notch of the bobbin case tension spring. ② The thread path is poorly finished. ③ The bobbin does not rotate smoothly. ④ The bobbin thread tension is too low. ⑤ The bobbin thread has been wound too tight. ⑥ An untwisted synthetic thread is used. ⑦ A coated cloth or nylon yarn is used.</p>	<p>○ Properly thread the bobbin case. ○ Grind it using a fine sand paper or a buff. ○ Replace the bobbin or hook. ○ Properly adjust the tension. ○ Decrease the bobbin thread winding tension. ○ Slightly reduce the sewing speed. (2,000 s.p.m.) ○ Use a ball-point needle.</p>
<p>4. A few stitches are skipped</p>	<p>① The bobbin thread is too short. ② The bobbin thread breaks. ③ A nylon thread is used when sewing light-weight material.</p>	<p>○ Replace the bobbin by a standard one (aluminum). ○ Decrease the bobbin thread tension and the thread trimming speed. ○ Use the soft start function.</p>
<p>5. The thread slips off the needle upon being trimmed.</p>	<p>① The tension of the auxiliary thread tension controller is too high. ② The thread trimming timing is too early. ③ The returning force of the thread take-up spring is too high. ④ The feed dog and walking foot cut thread. ⑤ The operating stroke of the picker is small.</p>	<p>○ Decrease the tension. ○ See "27. ADJUSTING THE THREAD TRIMMING CAM". ○ See "14. THREADING THE MACHINE HEAD". ○ Replace the thread guide. ○ Change the walking foot. ○ See "30. ADJUSTING THE OPERATING VOLUME OF THE PICKER".</p>
<p>6. The needle thread cannot be trimmed. (The bobbin thread can be trimmed.)</p>	<p>① The last stitch has been skipped. (The clearance between the needle and the hook is too large.)</p>	<p>○ See "23. NEEDLE-TO-HOOK RELATIONSHIP".</p>
<p>7. Both needle and bobbin threads cannot be trimmed.</p>	<p>① The thread trimming timing is wrong. ② The knife has been damaged. ③ The knife pressure is inadequate. ④ The movement of the rotary knife is short. ⑤ The thread trimming solenoid fails to work.</p>	<p>○ See "27. ADJUSTING THE THREAD TRIMMING TIMING". ○ Replace the knife. ○ Increase the knife pressure. ○ See "29. ADJUSTING MAX. MOVING POSITION OF THE ROTARY KNIFE". ○ Check the motor solenoid for proper operation.</p>
<p>8. Thread cannot be trimmed sharply.</p>	<p>① The thread trimming timing is wrong. ② The knife pressure is inadequate. ③ The knife blade is blunt.</p>	<p>○ See "27. ADJUSTING THREAD TRIMMING TIMING". ○ Increase the knife pressure. ○ Replace the knife.</p>

Trouble	Cause	Corrective measures
9. Chain off thread doesn't come out	① Breakage due to thread frayed caused by standing and flapping of thread. ② Breakage between the bottom face of the presser foot and the contact face with throat plate.	<ul style="list-style-type: none"> <li>○ Use the furnished thread guide and the presser foot with a slot.</li> </ul>
10. Stepped part is clogged.	① The presser foot slips when riding on the stepped part.	<ul style="list-style-type: none"> <li>○ Use B1524-245-00B presser foot (option) and B1470-245-00B walking foot (option).</li> </ul>
11. When the alternate lift is increased, the pitch cannot be achieved as per the scale.	① Sewing speed is too fast, resulting in reducing the feed force.	<ul style="list-style-type: none"> <li>○ Reduce the sewing speed.</li> </ul>



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