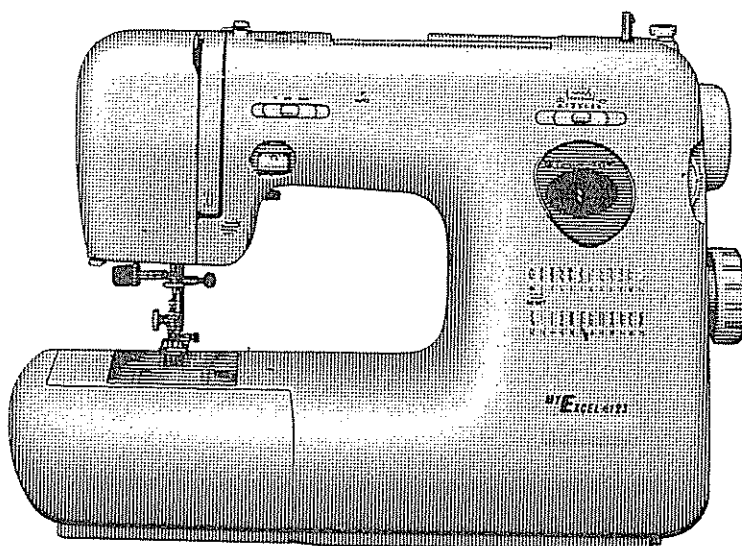


SERVICING MANUAL



MY/Excel 4123

www.promelectroavtomat.ru

CONTENTS

WHAT TO DO WHEN

I. REMOVAL AND ATTACHMENT OF EXTERNAL PARTS	1 ~ 7
■ Face Plate	1
■ Top Cover	2
■ Belt Cover	3
■ Bed Cover	4
■ Base	5
■ Rear Cover	6
■ Front Cover	7
II. ADJUSTMENT PART / REPLACEMENT	8 ~ 27
ADJUSTMENT OF PRESSER BAR DIRECTION AND HEIGHT	8
ADJUSTMENT OF TIMING OF LATERAL NEEDLE SWING	9
ADJUSTMENT OF NEEDLE DROP POSITION IN NEEDLE PLATE HOLE	10
ADJUSTMENT OF CLEARANCE BETWEEN NEEDLE AND ROTARY HOOK	11
ADJUSTMENT OF BACKLASH BETWEEN HOOK DRIVE SHAFT GEAR AND LOWER SHAFT GEAR	12
ADJUSTMENT OF NEEDLE BAR HEIGHT	13
ADJUSTMENT OF HOOK TIMING	14
CORRECTION OF NEEDLE POSITION MISALIGNMENT	15
CORRECTION OF STAGGERED STRAIGHT STITCH	16
ADJUSTMENT OF FEED DOG HEIGHT	17
ADJUSTMENT OF STRETCH STITCH FEED BALANCE	18
ADJUSTMENT OF ZERO FEEDING	19
ADJUSTMENT OF BUTTONHOLE FEED BALANCE	20
ADJUSTMENT OF NEEDLE BAR STOP POSITION	21
ADJUSTMENT OF NEEDLE DROP POSITION AT "  "	22
ADJUSTMENT OF NEEDLE THREAD TENSION	23
REPLACEMENT AND ADJUSTMENT OF THREADER	24
ADJUSTMENT OF BH FUNCTION (1)	25
ADJUSTMENT OF BH FUNCTION (2)	26
ADJUSTMENT OF BH FUNCTION (3)	27
III. REPLACEMENT OF ELECTRIC PARTS	28 ~ 37
CORD CONNECTION	28
REPLACEMENT OF CIRCUIT BOARD B AND FUSE	29
REPLACEMENT OF CIRCUIT BOARD LD2 (PATTERN INDICATOR LED)	30
REPLACEMENT OF MOTOR	31
REPLACEMENT OF LAMP SWITCH	32
REPLACEMENT OF MACHINE SOCKET	33
REPLACEMENT OF BOBBIN WINDER SWITCH	34
REPLACEMENT OF UPPER SHAFT SENSOR	35
REPLACEMENT OF BH LIMITER SWITCH	36
REPLACEMENT OF CIRCUIT BOARD F, SLIDE VOLUME, AND CIRCUIT BOARD LD1 (THREAD TENSION LED)	37

Condition	Cause	How to Fix
4. Breaking bobbin thread	1. Incorrectly threaded bobbin holder. 2. Too much thread is around the bobbin. 3. Lint is stuck inside the bobbin holder. 4. Thread quality is too low. 5. Thread is jamming around the bobbin.	Thread the bobbin holder correctly. Adjust the position of the bobbin winder stopper. Clean the hook race. Change to a high quality sewing thread. Clear out the jamming thread.
5. Needle breaks	1. Needle is hitting the needle plate. 2. Needle is bent or worn. 3. Needle is hitting the hook race. 4. Fabric moves while needle is piercing it, or needle zigzags while in fabric. 5. Fabric is being pulled too strongly while sewing.	See "ADJUSTMENT OF NEEDLE DROP POSITION IN NEEDLE PLATE HOLE" (page 10). Change the needle. See "ADJUSTMENT OF CLEARANCE BETWEEN NEEDLE AND ROTARY HOOK" (page 11). See "ADJUSTMENT OF TIMING OF LATERAL NEEDLE SWING" (page 9). Guide the fabric gently while sewing.
6. Noisy operation	1. Backlash between the hook drive shaft gear and lower shaft gear is too great. 2. Lower shaft gear is loose. 3. Inappropriate motor belt tension. 4. Not enough oil. 5. Upper shaft gear is loose.	See "ADJUSTMENT OF BACKLASH BETWEEN HOOK DRIVE SHAFT GEAR AND LOWER SHAFT GEAR" (page 12). Eliminate the looseness. Adjust the motor belt tension. (See "REPLACEMENT OF MOTOR" on page 31.) Oil all moving parts. Eliminate the looseness.
7. Deformation pattern	1. Inappropriate feed balance. 2. Inappropriate adjustment of timing of lateral needle swing. 3. Upper thread tension is too strong.	See "ADJUSTMENT OF STRETCH STITCH FEED BALANCE" (page 18). See "ADJUSTMENT OF TIMING OF LATERAL NEEDLE SWING" (page 9). Adjust the upper thread tension correctly.
8. Buttonhole stitching	1. The length of sewed buttonhole is inappropriate. 2. The stop function of buttonhole stitching is ineffective. 3. Stitch density is irregular.	Adjust the length. (See "ADJUSTMENT OF BH FUNCTION (1), (2)" on pages 25 and 26). Correct the stop function. (See "ADJUSTMENT OF BH FUNCTION (3)" on page 27.) See "ADJUSTMENT OF BUTTONHOLE FEED BALANCE" (page 20).

WHAT TO DO WHEN

Condition	Cause	How to Fix
1. Skipping stitches	1. Needle is not inserted properly. 2. Needle is bent or worn. 3. Incorrectly threaded. 4. Needle or thread is inappropriate for fabric being sewn. 5. Sewing on stretch fabric. 6. Pressure of presser foot is too weak. 7. Inappropriate needle bar height. 8. Inappropriate needle to hook timing. 9. Inappropriate needle to hook clearance.	Insert the needle properly. Change the needle. Rethread. Use the recommended sewing needle and thread. Use a #11 blue tip needle. Operate the pressure lever to intensify the pressure. See "ADJUSTMENT OF NEEDLE BAR HEIGHT" (page 13). See "ADJUSTMENT OF HOOK TIMING" (page 14). See "ADJUSTMENT OF CLEARANCE BETWEEN NEEDLE AND ROTARY HOOK" (page 11).
2. Fabric not moving	1. Pressure of presser foot is too weak. 2. Incorrect F.D. height 3. Feed dog is put down. 4. Thread on bottom side of fabric is jammed up. 5. Feed dog teeth are worn.	Set the pressure lever to the proper position. See "ADJUSTMENT OF FEED DOG HEIGHT" (page 17). Operate the drop lever to put up the feed dog. Make sure to bring both needle thread and bobbin thread under the presser foot when starting sewing. Change the feed dog.
3. Breaking upper thread	1. Initial sewing speed is too fast. 2. Thread path is incorrect. 3. Needle is bent or dull. 4. Upper thread tension is too strong. 5. Needle size is inappropriate for fabric and thread. 6. Needle eye is worn. 7. Needle hole in needle plate is worn or burred.	Start with medium speed. Use the proper thread path. Replace with a new needle. Adjust the upper thread tension correctly. Use appropriate needle for fabric and thread in use. Change the needle. Remove the needle plate and repair the needle hole to eliminate wear and burrs.

REMOVAL AND ATTACHMENT OF EXTERNAL PARTS (1/7)

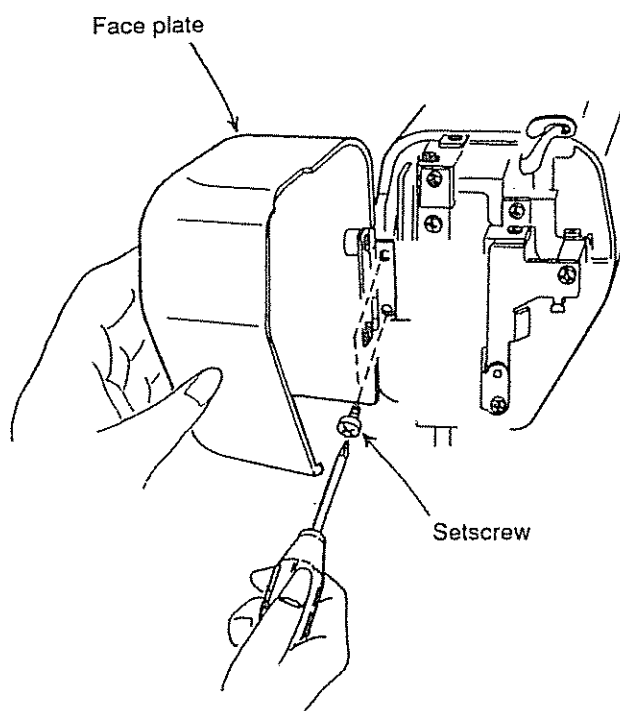
■ Face Plate

< To Remove >

- (1) Remove the two setscrews, and detach the face plate.

< To Attach >

- (2) Temporarily tighten the two setscrews to attach the face plate.
- (3) Close the face plate, and level it with the rear cover, top cover, and thread tension dial, and then completely tighten the two setscrews.



REMOVAL AND ATTACHMENT OF EXTERNAL PARTS (2/7)

■ Top Cover

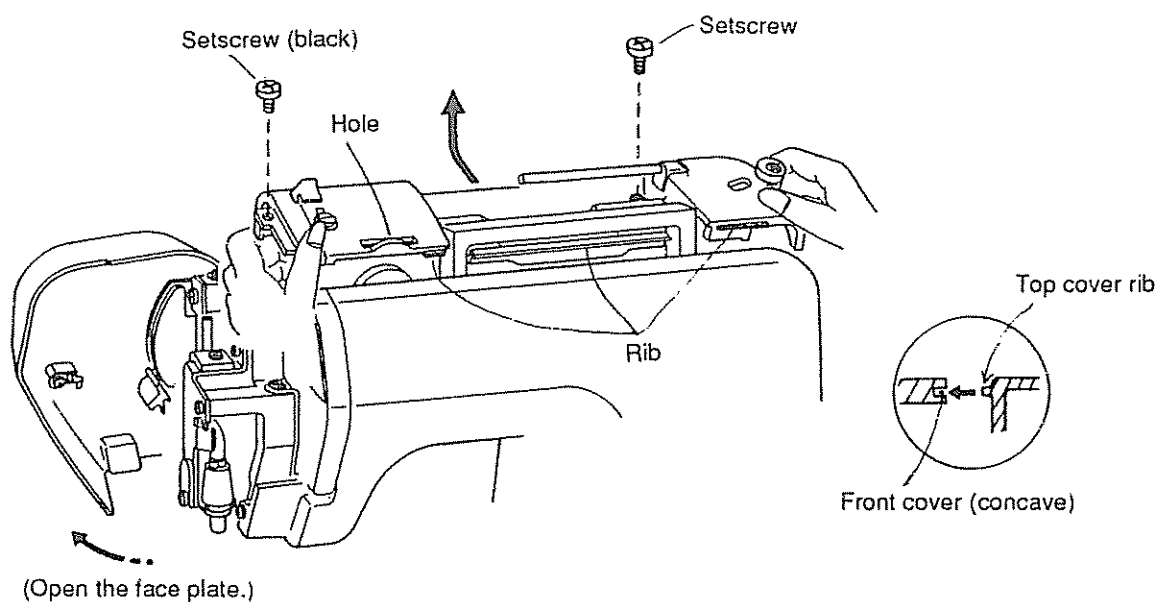
< To Remove >

- (1) Remove the two setscrews.
- (2) Raise the carrying handle, and pull out the top cover and thread tension dial from the front cover in the arrow direction.

< To Attach >

- (3) Put the hole in the thread tension dial, and the ribs in the front cover (concave).
- (4) Tighten the two setscrews.

Note: After attaching the top cover, make sure that there is no interference with the thread tension dial.



REMOVAL AND ATTACHMENT OF EXTERNAL PARTS (3/7)

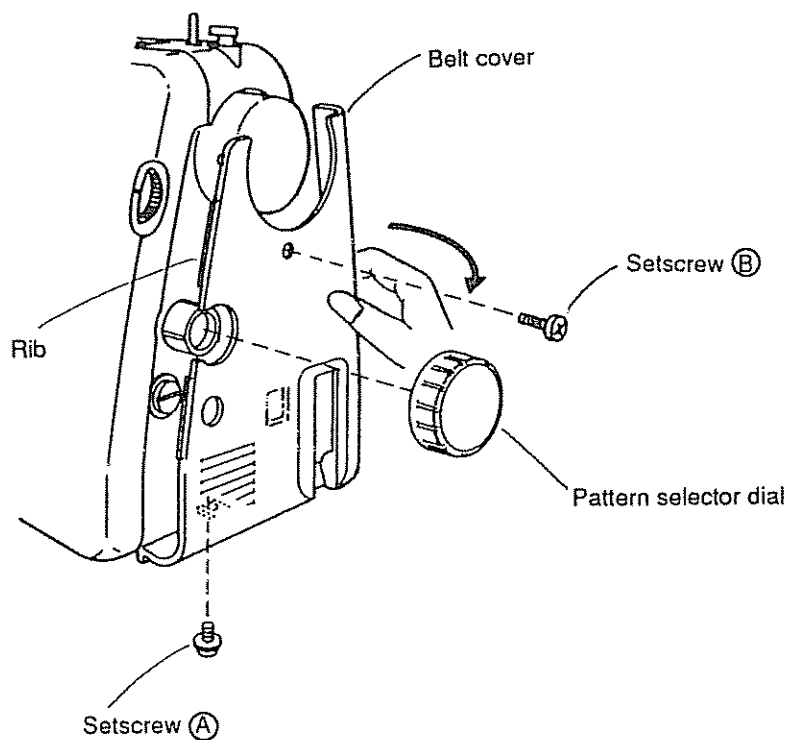
■ Belt Cover

< To Remove >

- (1) Pull out the pattern selector dial.
- (2) Loosen the setscrew (A) and remove the setscrew (B).
Separate the rib from the front panel, and detach the belt cover.

< To Attach >

- (3) To attach the belt cover, follow the removing procedure in the reverse order, beware of the following point.
 - The clearance around the balance wheel should be uniform without interference.



REMOVAL AND ATTACHMENT OF EXTERNAL PARTS (4/7)

■ Bed Cover

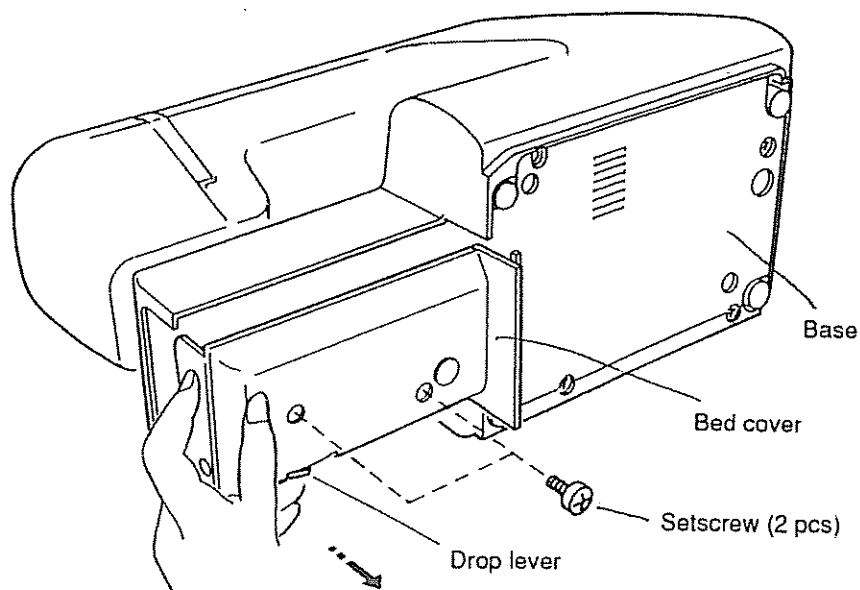
< To Remove >

- (1) Remove the base. (See page 5)
- (2) Remove the two setscrews and detach the bed cover.

< To Attach >

- (3) Move the drop lever to the left and tighten the two setscrews to attach the bed cover.
- (4) Attach the base.

Note: After attaching the bed cover, turn the balance wheel and confirm that the feed dog moves up and down.



REMOVAL AND ATTACHMENT OF EXTERNAL PARTS (5/7)

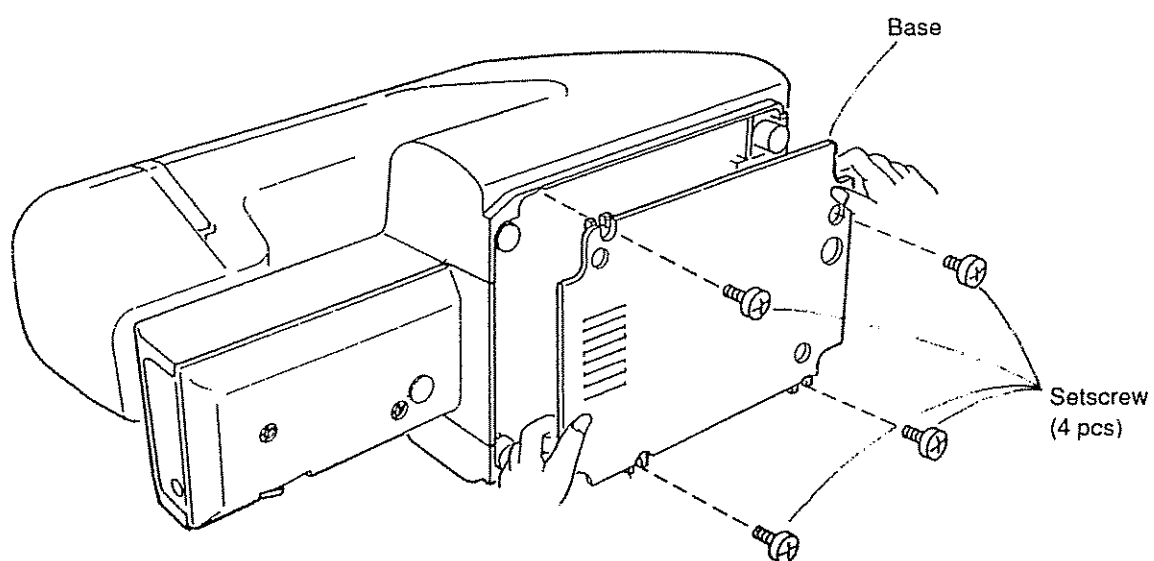
■ Base

< To Remove >

- (1) Remove the four setscrews, and detach the base.

< To Attach >

- (2) Attach the base with the four setscrews.



REMOVAL AND ATTACHMENT OF EXTERNAL PARTS (6/7)

■ Rear Cover

< To Remove >

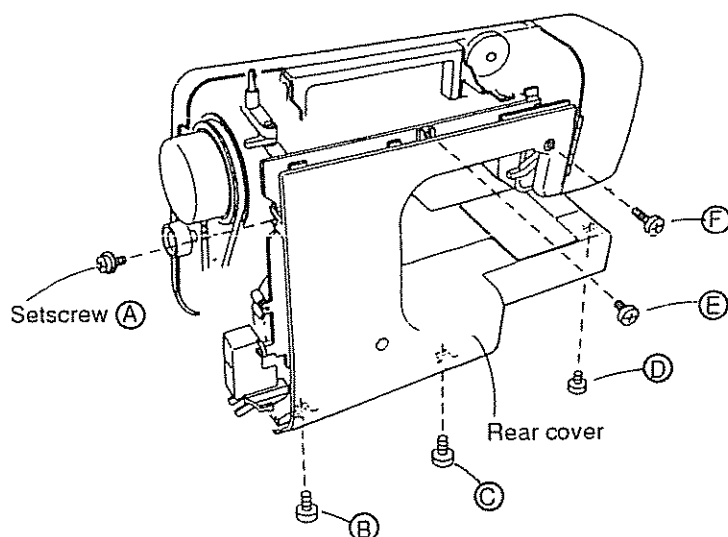
- (1) Remove the top cover, belt cover, and bed cover. (See pages 2, 3, and 4)
- (2) Loosen the setscrew (A), and remove the setscrews (B) to (F), and then detach the rear cover.

The rear cover detaching procedure is as follows;

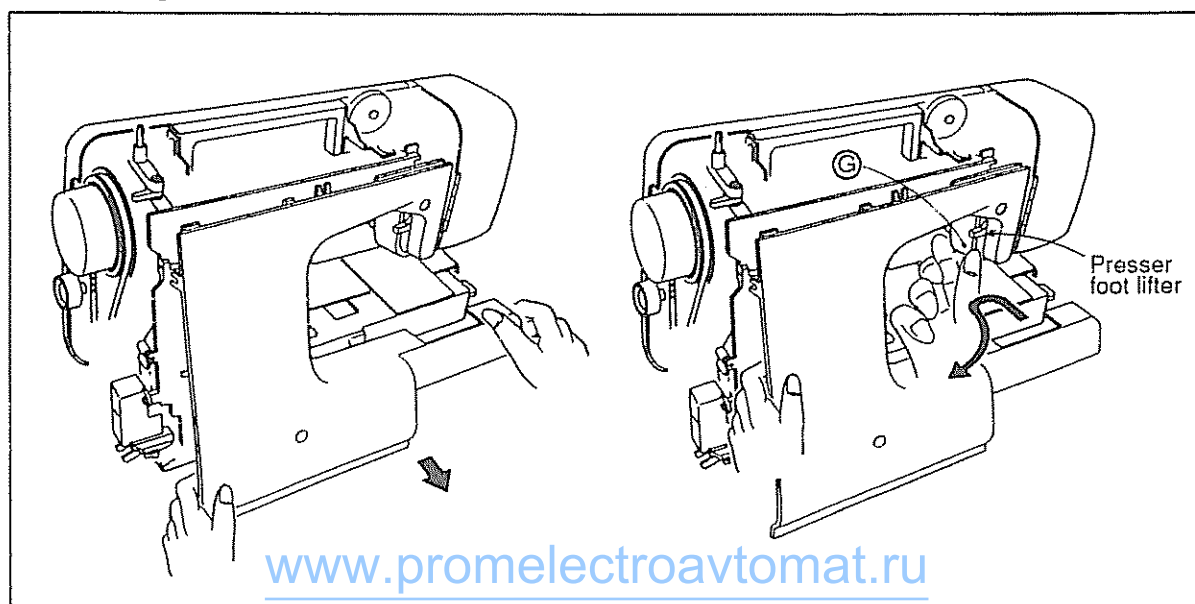
- 1) Pull out the lower side of the rear cover.
- 2) While pushing the part (G) in the figure below backward, shift it to the left, and pull out the presser foot lifter, and then detach the rear cover.

< To Attach >

- (3) To attach the rear cover, reverse the above-mentioned removing procedure.



— Detaching Procedure —



www.promelectroavtomat.ru

REMOVAL AND ATTACHMENT OF EXTERNAL PARTS (7/7)

■ Front Cover

< To Remove >

(1) Detach the top cover, belt cover, and bed cover. (See pages 2, 3 and 4)

(2) Loosen the setscrews (A) to (E), and remove the setscrews (F) and (G).

The removing procedure is as follows;

1) Pull out the lower side of the front cover.

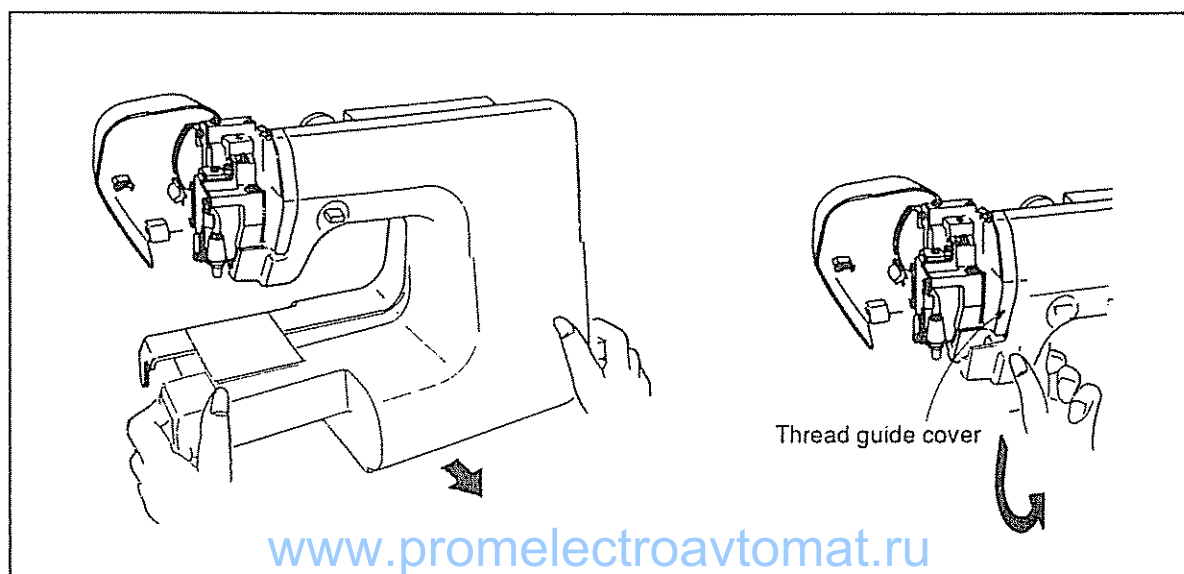
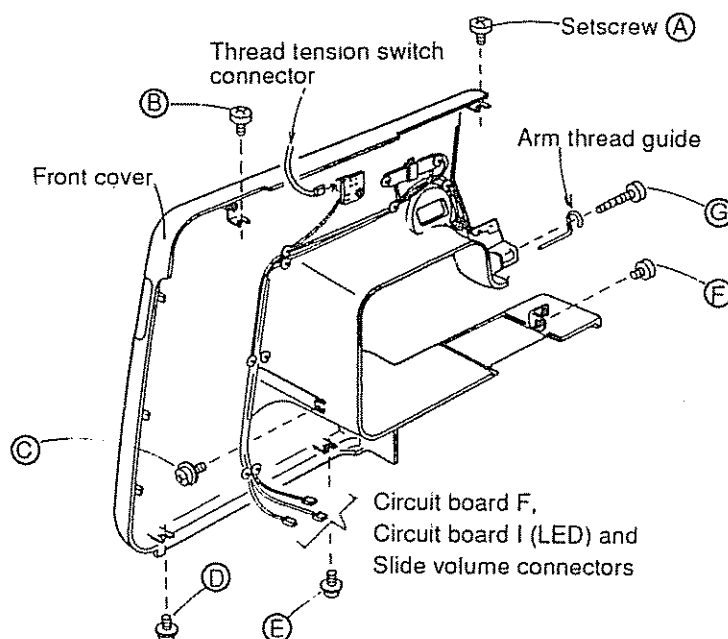
2) Separate the lower side of the thread guide cover, and detach the thread guide cover.

(3) Unplug the bobbin winder switch connector, circuit board I (LED) connector, slide volume connector and circuit board F connector, and detach the front cover.

< To Attach >

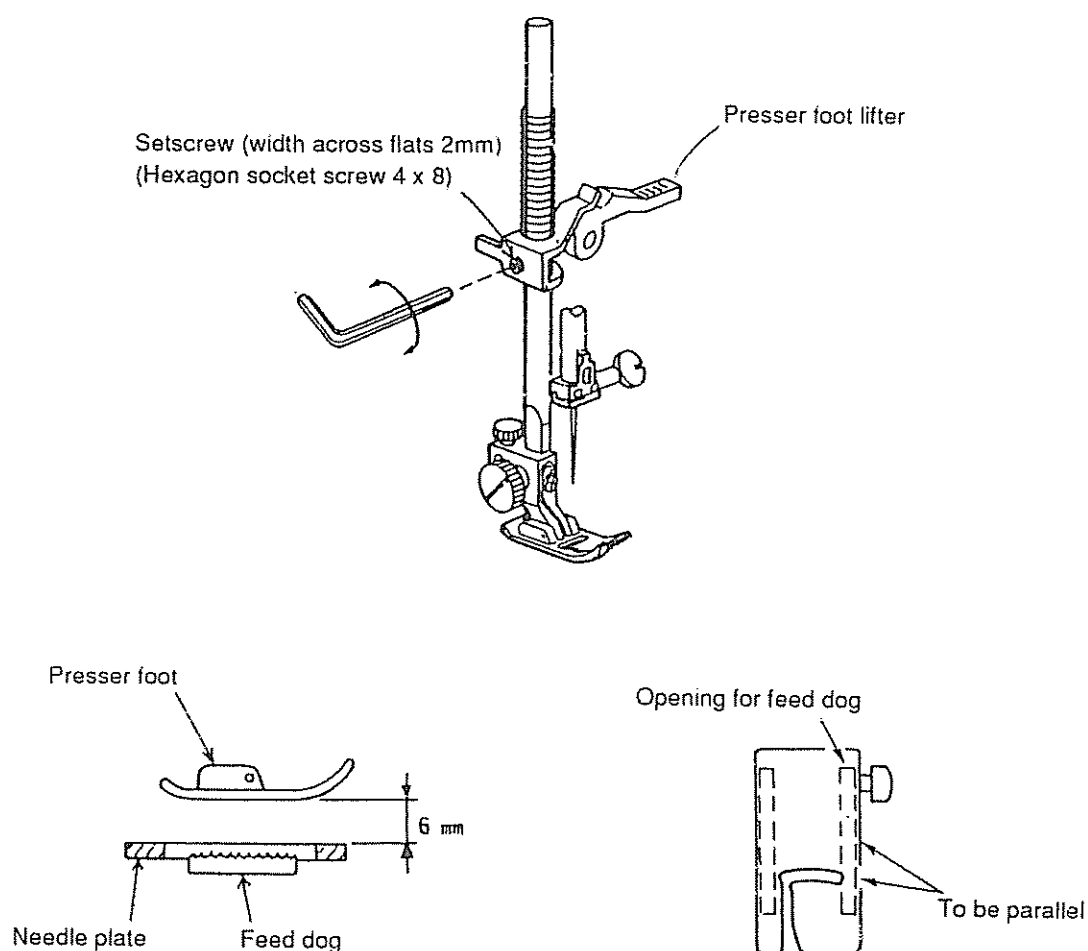
(4) To attach the front panel, reverse the above-mentioned removing procedure.

* There are the electrical parts for 751DE-23BH only.



ADJUSTMENT OF PRESSER BAR DIRECTION AND HEIGHT

- The clearance between the presser foot and needle plate should be 6.0mm as a standard value, when the presser foot lifter is raised.
 - As a rule, the presser bar should be attached so that the side face of the presser foot is parallel with the openings for the feed dog in the needle plate when the presser foot lifter is lowered.
- (1) Open the face plate, and raise the presser foot lifter. Loosen the setscrew, and set the height of the presser bar to 6.0mm, and then adjust the direction of the presser bar.
 - (2) Tighten the setscrew completely.



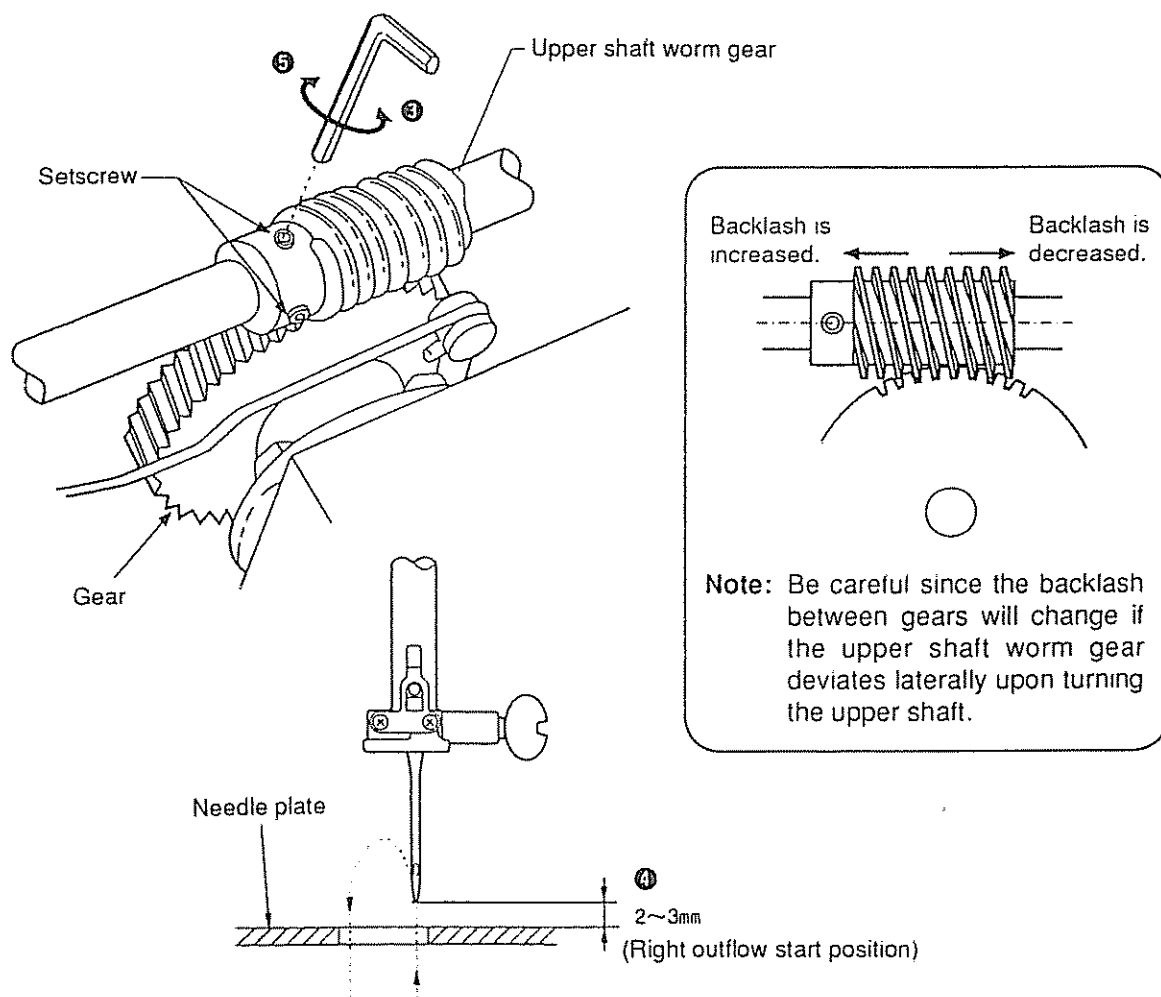
ADJUSTMENT OF TIMING OF LATERAL NEEDLE SWING

- If the needle bar begins to move sidewise in zigzag stitching before the needle is separated from the fabric, or it remains moving sidewise while the needle is in the fabric, then make adjustment in the procedure given below.

As a rule, the needle should start swinging from a position 2 to 3mm above the top surface of the needle plate, and it should not swing in the fabric.

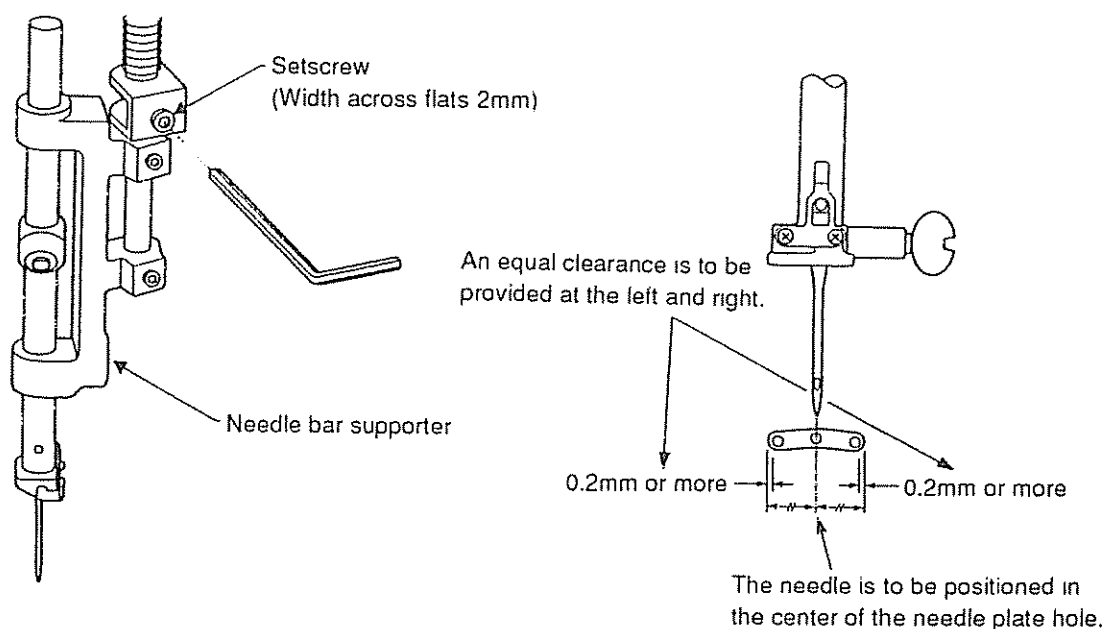
- (1) Remove the top cover. (See "REMOVAL AND ATTACHMENT OF EXTERNAL PARTS" on page 2.)
- (2) Select the maximum zigzag width.
- (3) Loosen the two setscrews.
- (4) While holding the upper shaft worm gear in place, turn the balance wheel to make adjustment so that the lateral needle swing starts from a position 2 to 3mm above the top surface of the needle plate in right outflow.
- (5) Tighten the two setscrews.
- (6) Attach the top cover.

Note: After adjustment of the timing of lateral needle swing, make sure that there is no backlash between the upper shaft worm gear and the gear, and smooth rotation is obtained.



ADJUSTMENT OF NEEDLE DROP POSITION IN NEEDLE PLATE HOLE

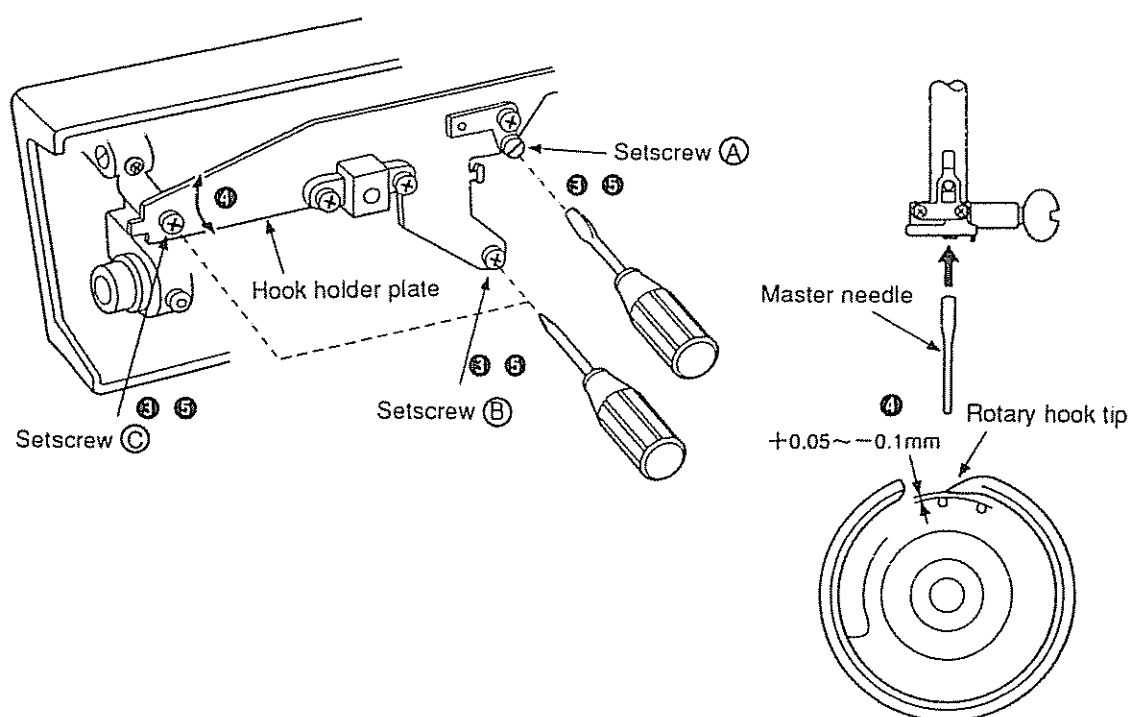
- As a rule, the needle should be positioned in the center of the needle plate hole when the pattern selector dial is set at "  " (straight stitch), and the clearance between the needle and the edge of the needle plate hole should be equal and be 0.2mm or more at the left and right needle drop positions when the pattern selector dial is set at "  " and the maximum zigzag width is selected.
 - Before adjusting the needle drop position, check the adjustment of needle drop position alignment in "  " pattern mode (page 22).
- (1) Set the pattern selector dial at "  " (straight stitch).
 - (2) Open the face plate and loosen the setscrew.
 - (3) Move the needle bar supporter to position the needle in the center of the needle plate hole.
 - (4) Tighten the setscrew.
 - (5) Set the pattern selector dial at "  " (maximum zigzag width).
 - (6) Turn the balance wheel and make sure that there is an equal clearance of 0.2mm or more between the needle and the edge of the needle plate hole at the left and right needle drop positions.



ADJUSTMENT OF CLEARANCE BETWEEN NEEDLE AND ROTARY HOOK

- The clearance between the needle and the rotary hook tip should be -0.10 to $+0.05$ mm as a standard value.

- (1) Remove the needle plate and bobbin holder, and attach the master needle, and then set the pattern selector dial at " $\geq$ " to select the maximum zigzag width.
- (2) Remove the bed cover (unit). (See "REMOVAL AND ATTACHMENT OF EXTERNAL PARTS" on page 4).
- (3) Loosen the setscrews (B) and (C), and temporarily tighten the setscrew (A).
- (4) Turn the balance wheel toward you, and adjust the portion near the setscrew (C) vertically until the clearance between the needle and the rotary hook tip is -0.1 to $+0.05$ mm at the right and left needle drop positions.
- (5) Completely tighten the setscrews (A), (B) and (C).
- (6) Check the backlash between the hook drive shaft gear and the lower shaft gear.
When the engagement is tight or the backlash is large, adjust the backlash in accordance with "ADJUSTMENT OF BACKLASH BETWEEN HOOK DRIVE SHAFT GEAR AND LOWER SHAFT GEAR" on page 12.
- (7) Attach the bed cover (unit).
- (8) Remove the master needle, and put in the bobbin holder, and then attach the needle plate.

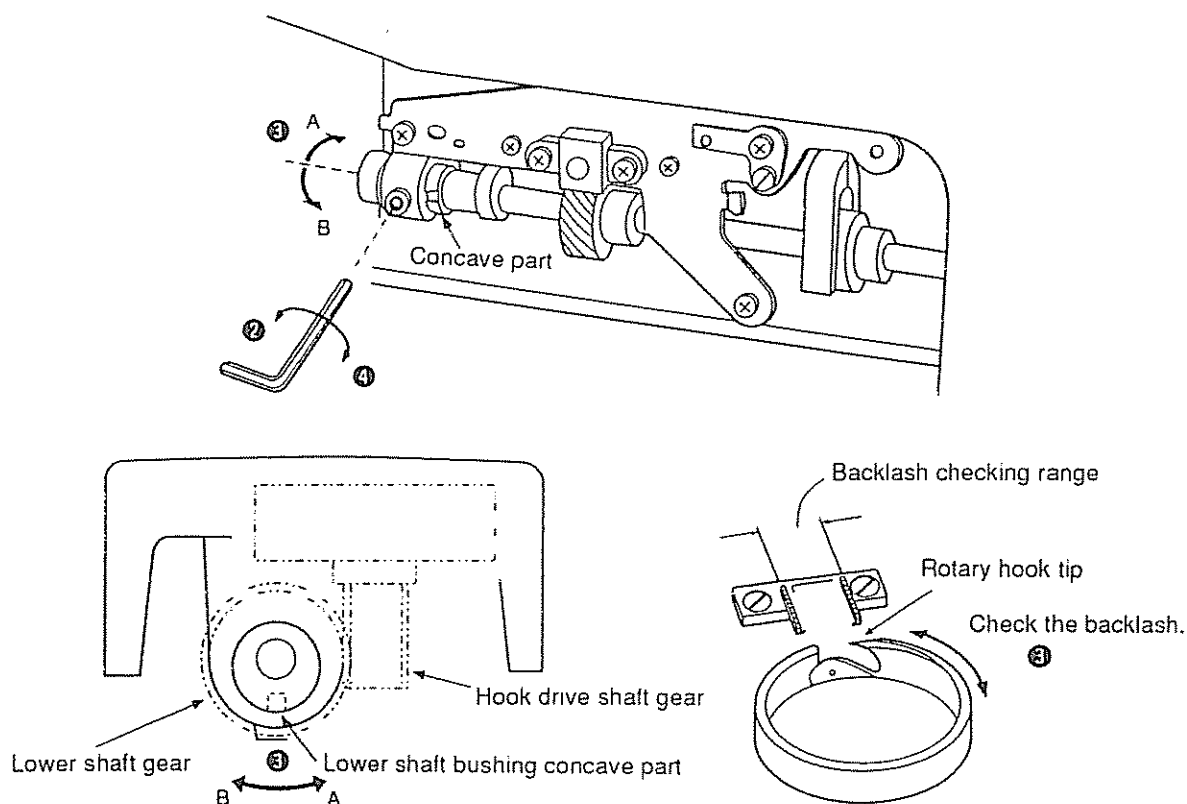


ADJUSTMENT OF BACKLASH BETWEEN HOOK DRIVE SHAFT GEAR AND LOWER SHAFT GEAR

- Engagement of the gears should be smooth and the backlash should be 0.8mm or less as a standard value when the rotary hook tip is within the width of the feed dog.

- (1) Remove the bed cover (unit). (See "REMOVAL AND ATTACHMENT OF EXTERNAL PARTS", on page 4.)
- (2) Loosen the setscrew.
- (3) If the backlash is too much, turn the lower shaft bushing concave part in the direction B.
If the backlash is not enough, turn the lower shaft bushing concave part in the direction A.
- (4) Tighten the setscrew, and attach the bed cover (unit).
(See "REMOVAL AND ATTACHMENT OF EXTERNAL PARTS" on page 4.)

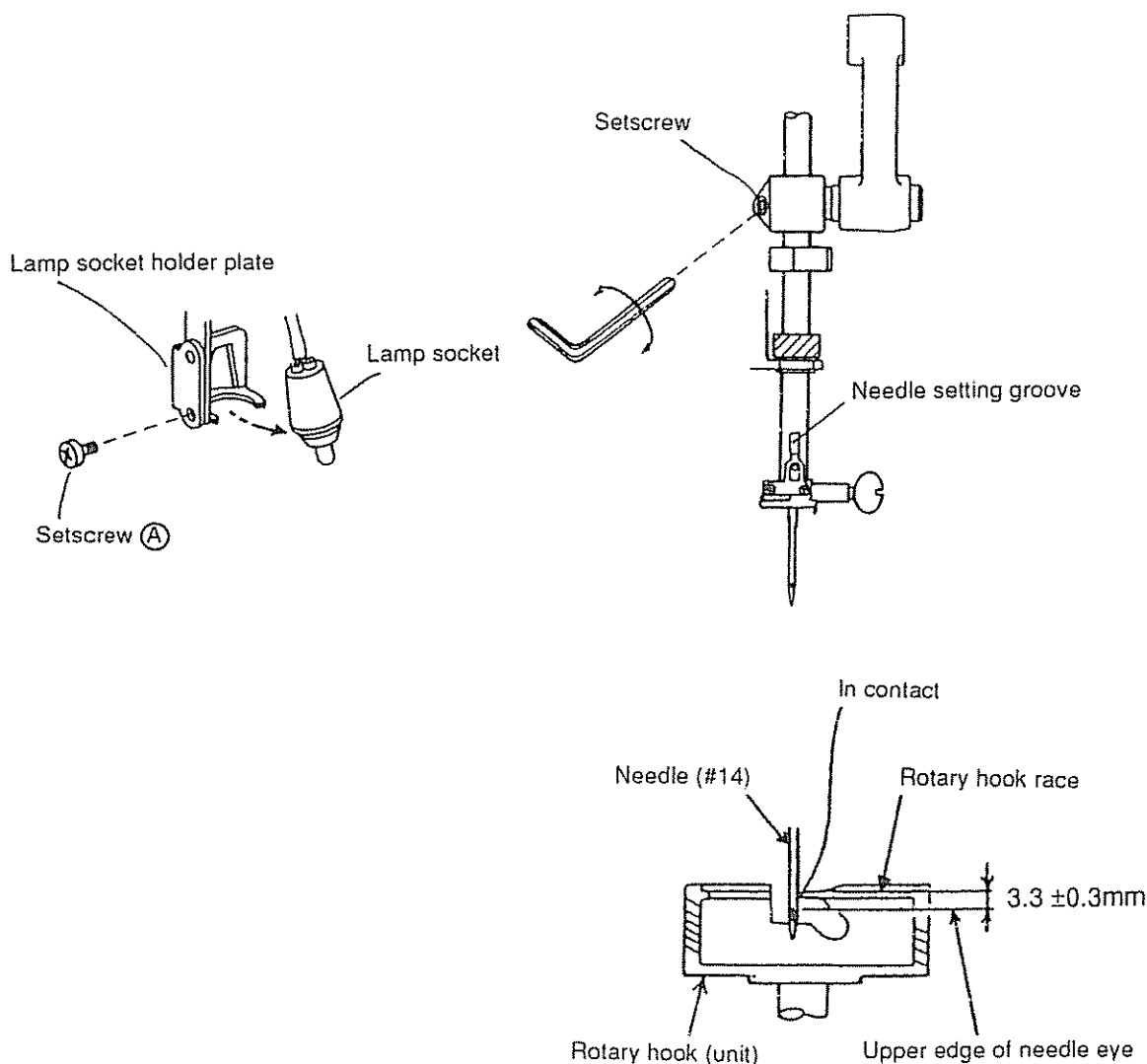
Note: After adjustment of the backlash, be sure to check and adjust the hook timing and feed dog height.



ADJUSTMENT OF NEEDLE BAR HEIGHT

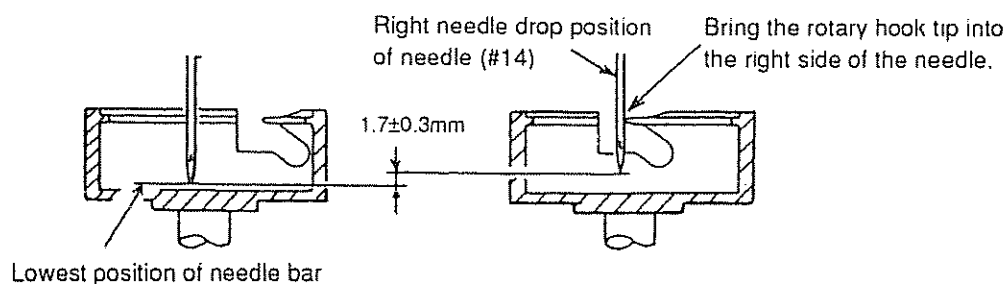
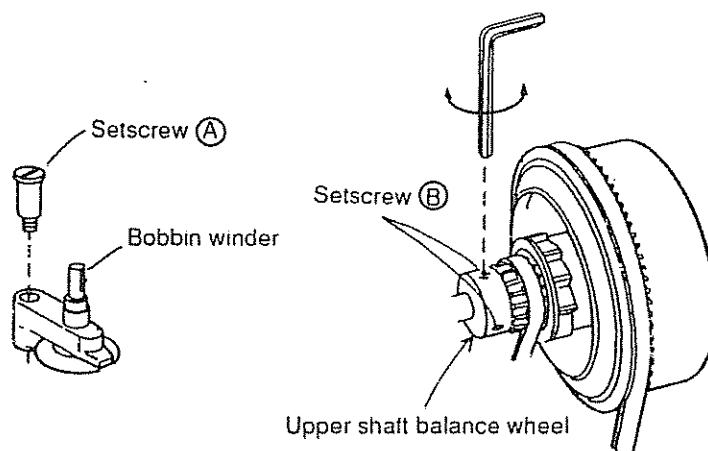
- When the tip of the rotary hook exactly meets the right side of the needle in ascending travel of the needle bar from its lowest position at the right needle drop position with the pattern selector dial set at " $\approx$ " (maximum zigzag width), the distance between the upper edge of the needle eye and the race of the rotary hook is called a needle bar height, which should be $3.3 \pm 0.3\text{mm}$ as a standard value.

- (1) Remove the needle plate and bobbin holder, and open the face plate, and then detach the lamp socket.
- (2) Remove the setscrew (A), and detach the lamp socket holder plate.
- (3) Set the pattern selector dial at " $\approx$ " (maximum zigzag width).
- (4) Turn the balance wheel toward you until the rotary hook tip exactly meets the right side of the needle at the right needle drop position.
- (5) Loosen the setscrew and move the needle bar to adjust the distance between the upper edge of needle eye and the race of rotary hook to $3.3 \pm 0.3\text{mm}$.
- (6) Tighten the setscrew with the needle setting groove facing the front.
- (7) Attach the lamp socket holder plate with the setscrew (A), and set the lamp socket.
- (8) Attach the bobbin holder and needle plate.



ADJUSTMENT OF HOOK TIMING

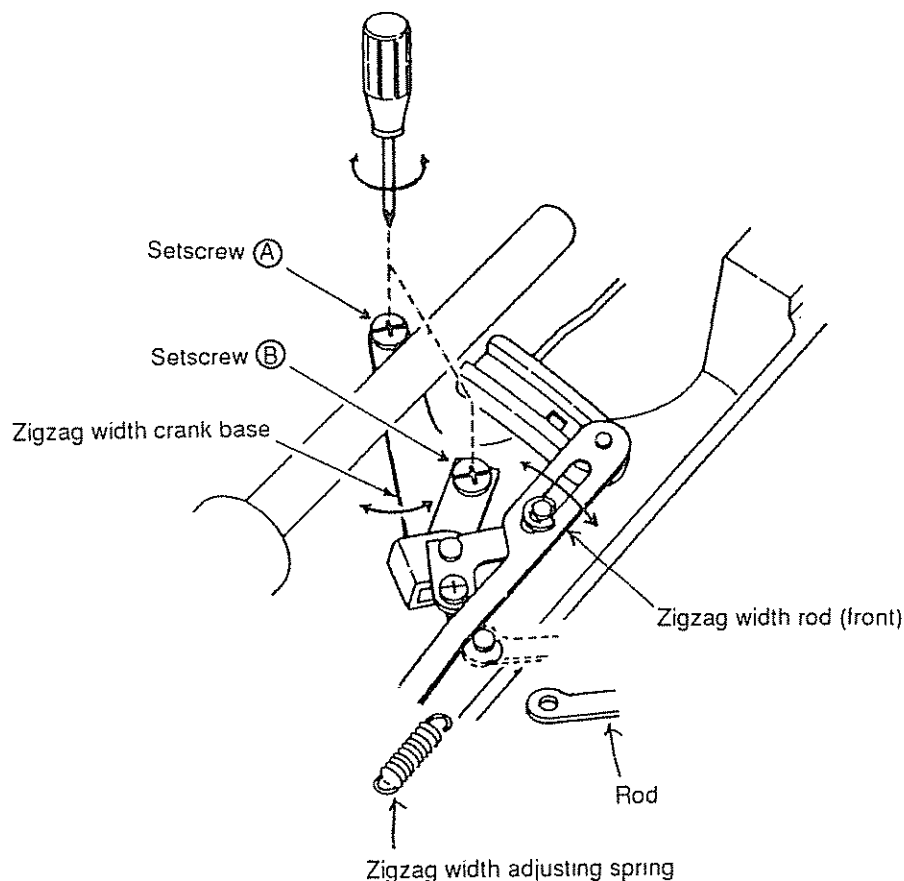
- With the needle bar swung to the right at the maximum zigzag width (at " $\approx$ " position), the amount of ascending travel of the needle bar from its lowest position to the position where the tip of the rotary hook exactly meets the right side of the needle is called a hook timing, which should be $1.7 \pm 0.3\text{mm}$ as a standard value.
 - Before the adjustment, be sure to check the needle bar height.
- (1) Remove the needle plate, bobbin holder and top cover. (See page 2)
 - (2) Set the pattern selector dial at " $\approx$ " (maximum zigzag width).
 - (3) Turn the balance wheel toward you until the needle bar is moved up $1.7 \pm 0.3\text{mm}$ from its lowest position with the needle swung to the right.
 - (4) Remove the setscrew (A) and detach the bobbin winder, and then loosen the two setscrews (B).
 - (5) While holding the upper shaft by hand to prevent it from moving, turn the upper-shaft balance wheel toward you until the tip of the rotary hook exactly meets the right side of the needle.
 - (6) Tighten the two setscrews (B), and attach the bobbin winder with the setscrew (A).
 - (7) Attach the top cover, bobbin holder, and needle plate.



CORRECTION OF NEEDLE POSITION MISALIGNMENT

- If the M position of the straight stitch ("  ") deviates from the center line between the left and right needle drop positions with the maximum zigzag width selected, make adjustment in the following procedure.

- (1) Remove the top cover. (See page 2)
- (2) Set the pattern selector dial at "  ", and remove the zigzag width adjusting spring, and the zigzag width rod.
- (3) Loosen the setscrews (A) and (B). (After loosening the setscrew (A), temporarily tighten it.)
- (4) Move the zigzag width crank base until the needle bar ceases to move laterally when the zigzag width rod (front) is moved.
- (5) Tighten the setscrews (A) and (B).
- (6) Attach the top cover.

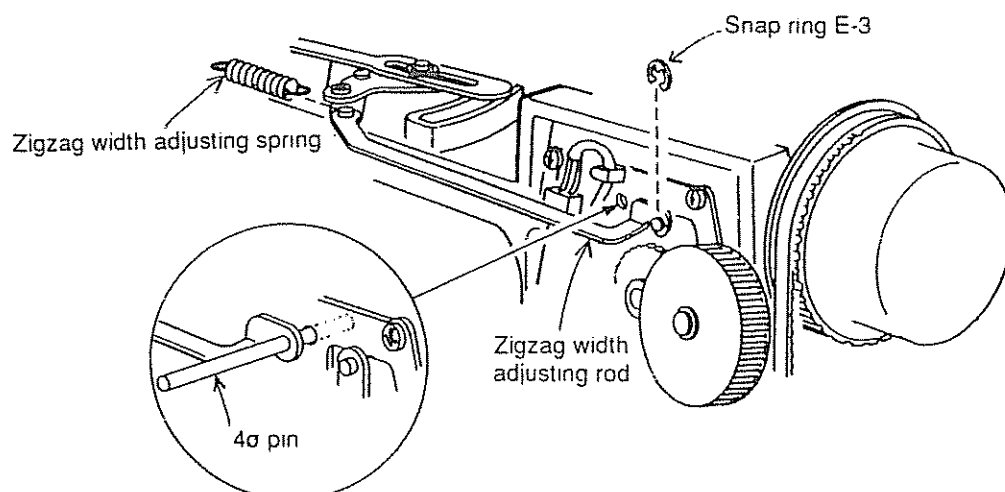
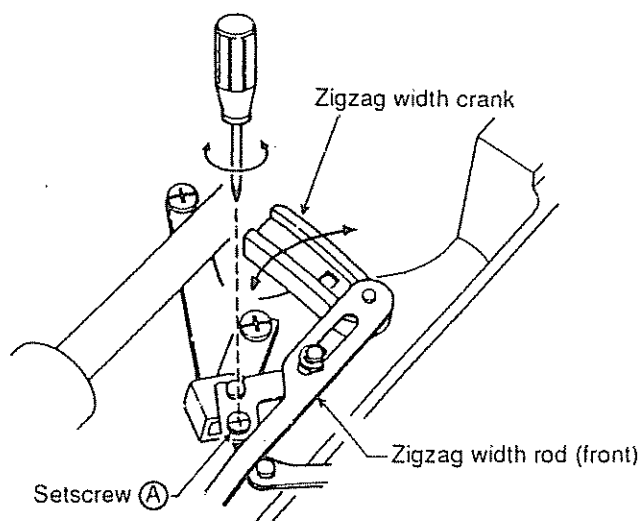


CORRECTION OF STAGGERED STRAIGHT STITCH

- If the needle bar moves laterally when the balance wheel is turned toward you with the pattern selector dial set at "  ", make adjustment in the following procedure.

- Before the adjustment, check the needle position misalignment.

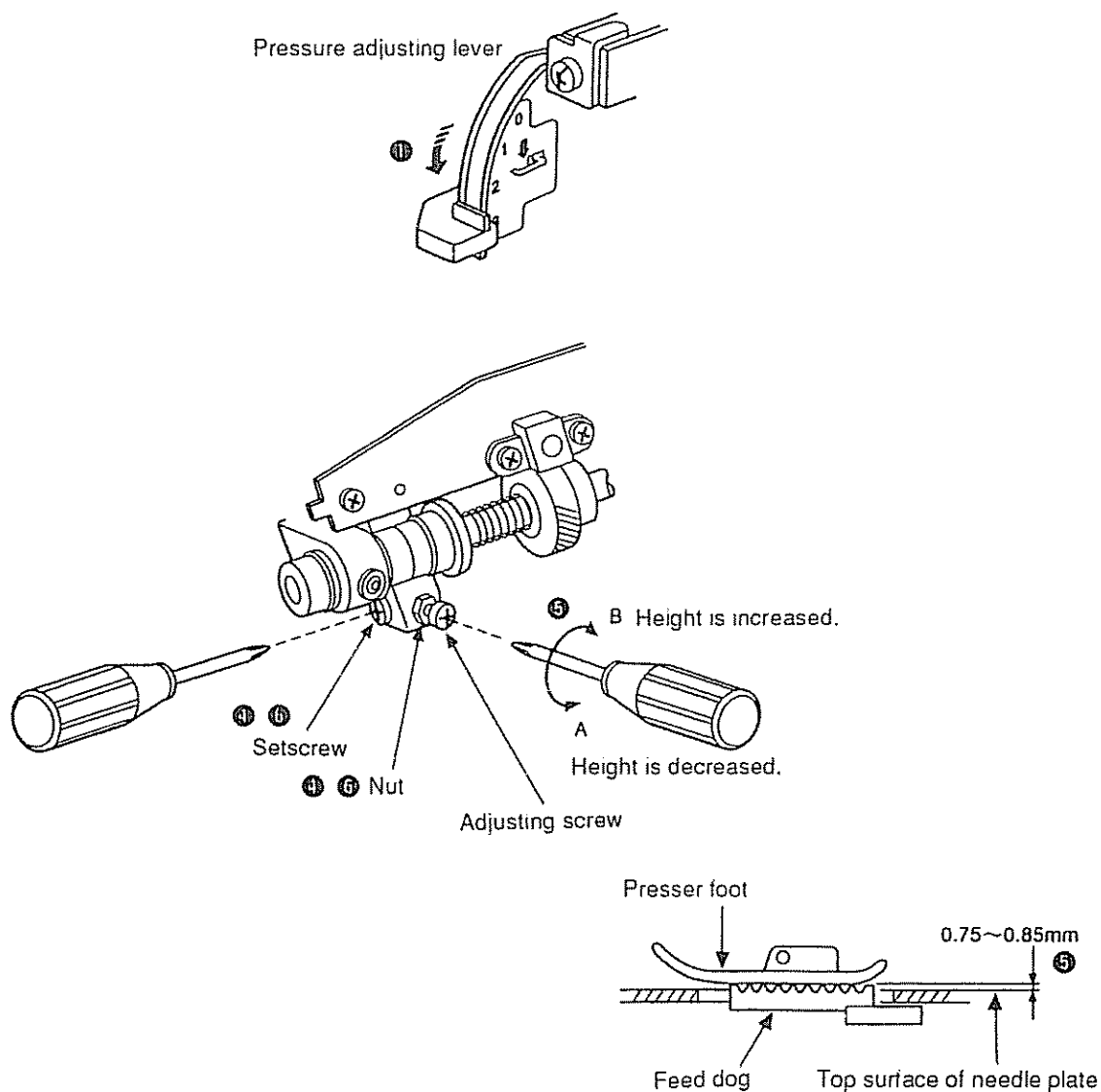
- (1) Remove the front panel. (See page 7)
- (2) Set the pattern selector dial at "  ".
- (3) Remove the snap ring E, and zigzag width adjusting spring.
- (4) Thread the pin through the zigzag width adjusting rod hole and control mechanism block hole (4ø), and loosen the setscrew (A).
- (5) Set the zigzag width rod (front) so that the needle bar may not be moved when the zigzag width crank is moved laterally while slightly bringing the zigzag width rod (front) into contact with the forward side of the zigzag width crank.
- (6) Tighten the setscrew (A).
- (7) Attach the front panel.



ADJUSTMENT OF FEED DOG HEIGHT

● When the presser foot is lowered with the pressure adjusting lever set at "3", the highest position of the feed dog should be 0.75 to 0.85mm above the top surface of the needle plate as a rule.

- (1) Set the pressure adjusting lever at "3", and lower the presser foot.
- (2) Turn the balance wheel toward you until the feed dog comes to its highest position (feed 4.0).
- (3) Detach the bed cover (unit). (See "REMOVAL AND ATTACHMENT OF EXTERNAL PARTS" on page 4.)
- (4) Loosen the setscrew and nut.
- (5) Turn the adjusting screw until the feed dog height is 0.75 to 0.85mm.
- (6) Tighten the nut and setscrew.
- (7) Attach the bed cover (unit).



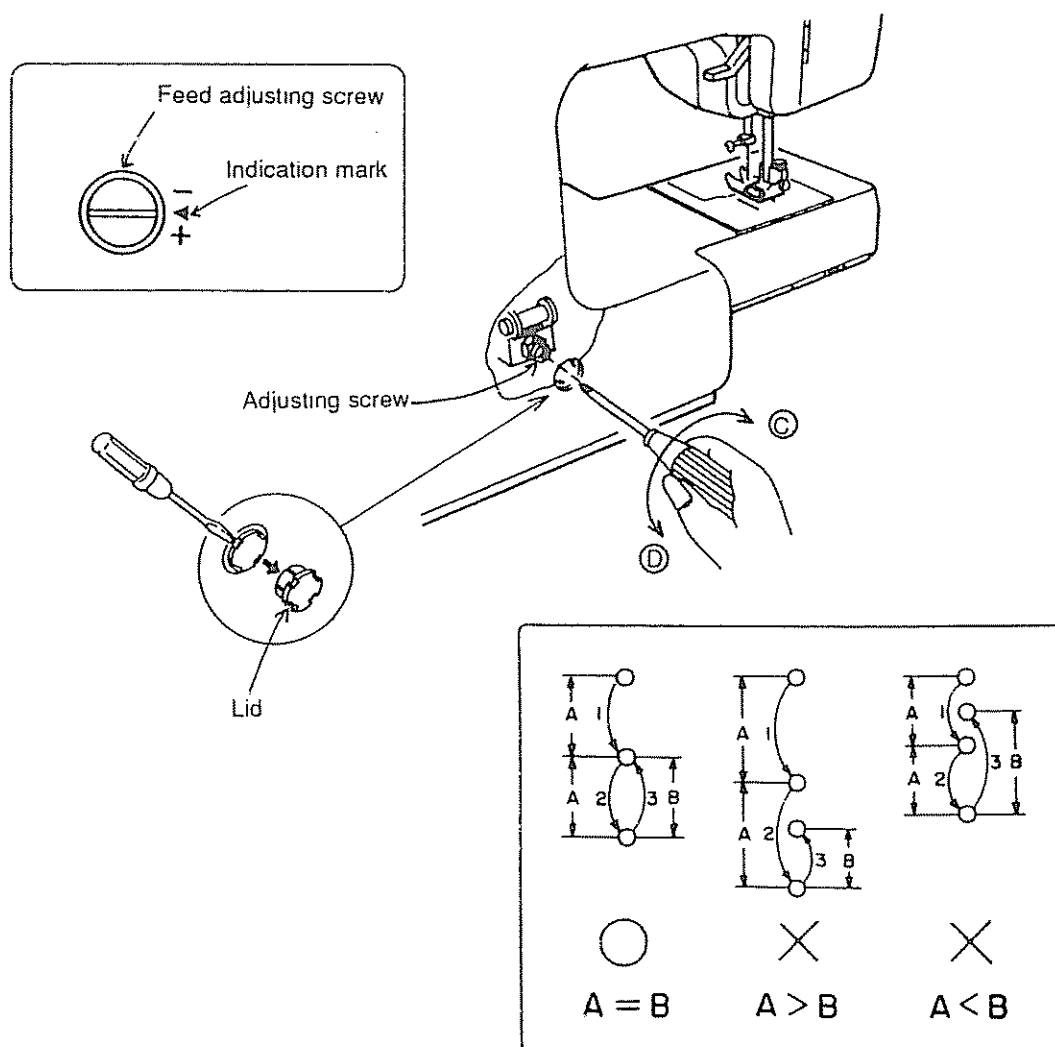
ADJUSTMENT OF STRETCH STITCH FEED BALANCE

- When a stretch stitch pattern is sewed with the feed adjusting screw set at the indication mark "◀" on the belt cover, the pattern should be formed as shown in the figure below.

If not (if there is no balance between forward feeding and backward feeding), then make adjustment in the following procedure.

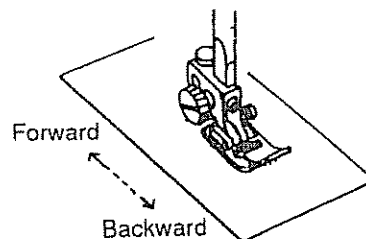
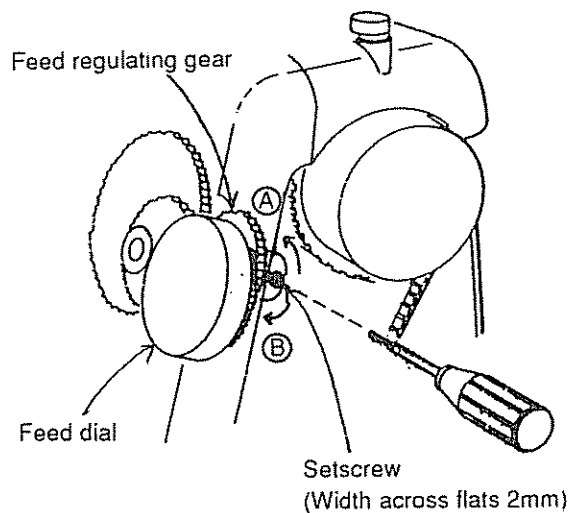
- (1) Set the pattern selector dial at "||||", and set the slot of the feed adjusting screw to the indication mark "◀" on the belt cover.
- (2) Remove the lid.
- (3) Put a piece of paper under the presser foot, and turn the balance wheel to check the needle drop position in forward feeding (A) and backward feeding (B).
- (4) If $A > B$, then turn the adjusting screw in the direction C.
If $A < B$, then turn the adjusting screw in the direction D.
- (5) Attach the cover.

Note: After the adjustment, check "ADJUSTMENT OF ZERO FEEDING" on page 19.



ADJUSTMENT OF ZERO FEEDING

- If the material is fed with the pattern selector dial set at "  " and the stitch length adjusted to "0", then make adjustment in the following procedure.
 - (1) Remove the belt cover. (See page 3)
 - (2) Set the pattern selector dial at "  ", and adjust the stitch length to "0".
 - (3) Put a piece of paper under the presser foot, and turn the balance wheel to check the direction of the paper movement.
 - (4) Loosen the setscrew of the feed regulating gear.
If the paper is fed forward, turn the gear in the direction A.
If the paper is fed backward, turn the gear in the direction B.
 - (5) Tighten the setscrew of the gear at a position where feeding stops.
 - (6) Attach the belt cover.
- * Be careful not to deviate the feed dial when turning the feed regulating gear.

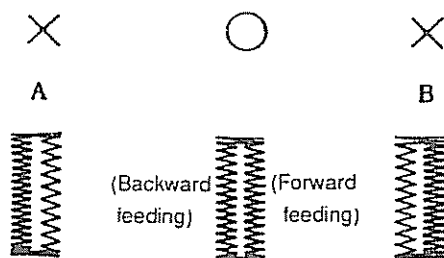
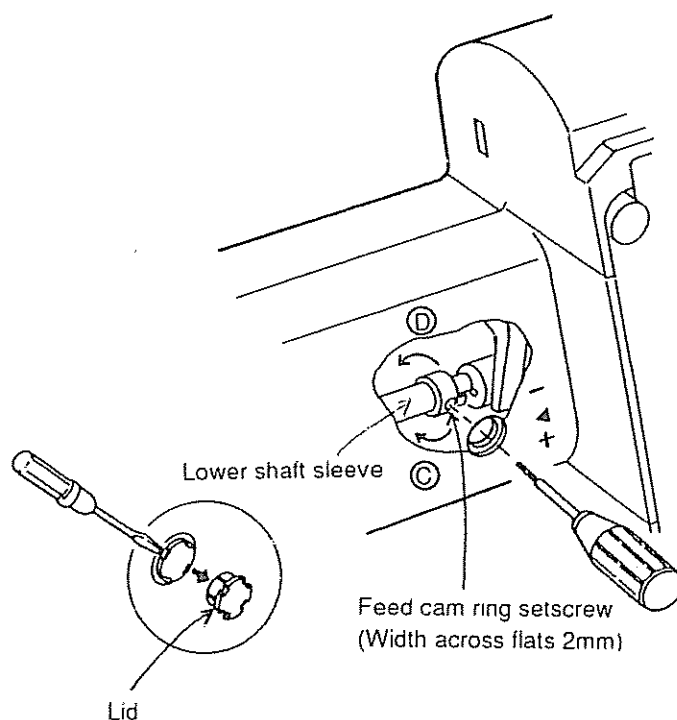


ADJUSTMENT OF BUTTONHOLE FEED BALANCE

- If there is a difference in stitch density between the right and left rows of a buttonhole, then make adjustment in the procedure given below.

As a rule, the left row (backward) should have 9 to 12 stitches as compared with 10 stitches on the right row (forward).

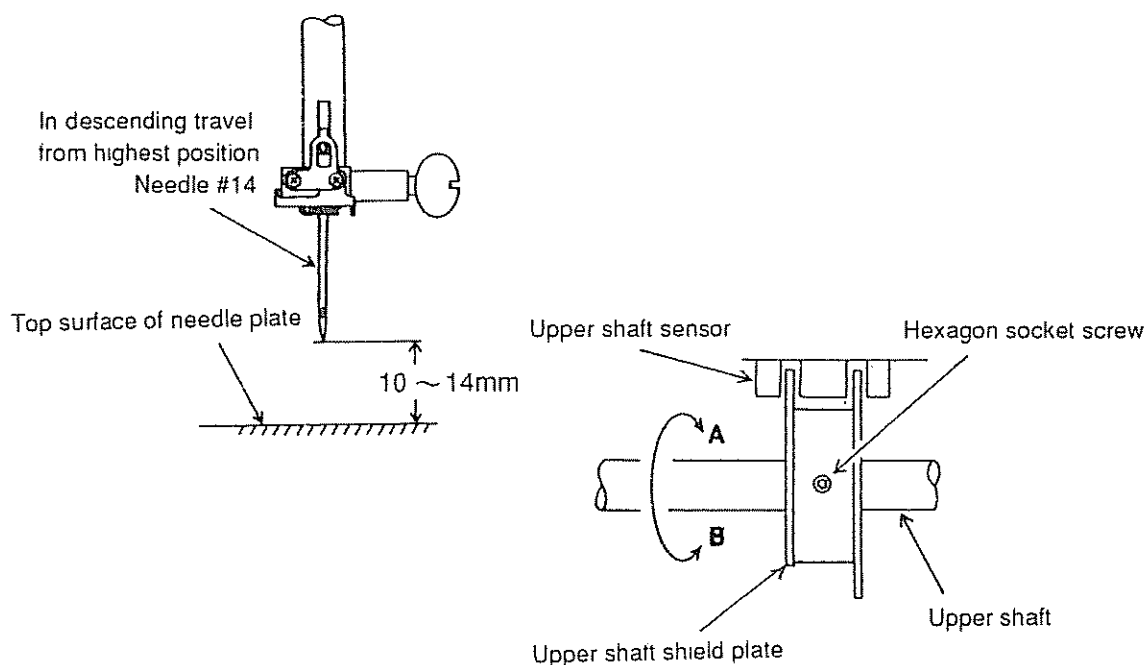
- (1) Sew a buttonhole and check the stitch density.
- (2) Remove the lid.
- (3) Loosen the setscrew of the feed cam ring. When turning the feed cam ring, bring it into contact with the lower shaft sleeve.
- (4) If the right row is denser than the left row (A), turn the ring in the direction C.
If the left row is denser than the right row (B), turn the ring in the direction D.
- (5) Tighten the setscrew of the feed cam ring, and attach the lid.



Check of buttonhole feed balance

ADJUSTMENT OF NEEDLE BAR STOP POSITION

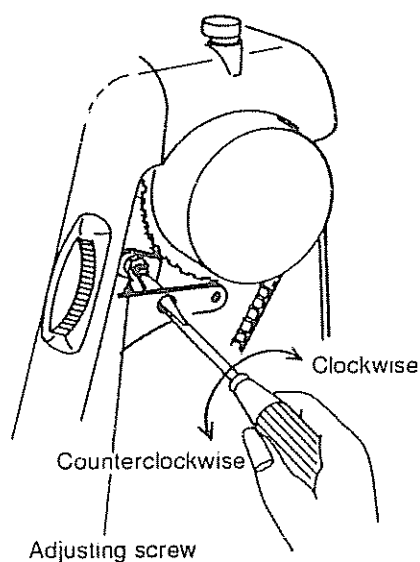
- As a rule, the needle bar should stop when the needle point is 10 to 14mm above the top surface of the needle plate.
- (1) Remove the top cover. (See page 2)
 - (2) Turn ON the power switch, and press the up/down needle position button (start/stop button) to stop the needle at its highest position.
 - (3) If the needle point is higher than 14mm above the top surface of the needle plate, loosen the setscrew, and turn the upper shaft shield plate in the direction A.
If the needle point is lower than 10mm above the top surface of the needle plate, loosen the setscrew and turn the upper shaft shield plate in the direction B.
 - (4) Repeat the same needle bar stop position check as in steps (2) and (3) several times.
(*) The standard needle bar stop position is at a distance of 10 to 14mm between the needle point and the top surface of the needle plate. However, the position can be judged functionally by whether the needle can be threaded by the threader and the thread can be passed through the thread take-up lever.
 - (5) Attach the top cover.



ADJUSTMENT OF NEEDLE DROP POSITION AT "⌡"

- If the needle drop position with the pattern "⌡" selected deviates from the left needle drop position with the pattern "⌢" (maximum zigzag width) selected, make adjustment in the following procedure.

- (1) Remove the belt cover. (See page 3)
- (2) Set the pattern selector dial at "⌢" (maximum zigzag width), and check the left needle drop position. Then, set the pattern selector dial at "⌡", and check the needle drop position. Check the deviation between both needle drop positions.
- (3) When the result is as shown in the figure (A) below, turn the adjusting screw clockwise. When the result is as shown in the figure (B) below, turn the adjusting screw counterclockwise.
- (4) Attach the belt cover.



Needle drop position with the pattern "⌢" selected.

Needle drop position with the pattern "⌡" selected.



Normal



(A)

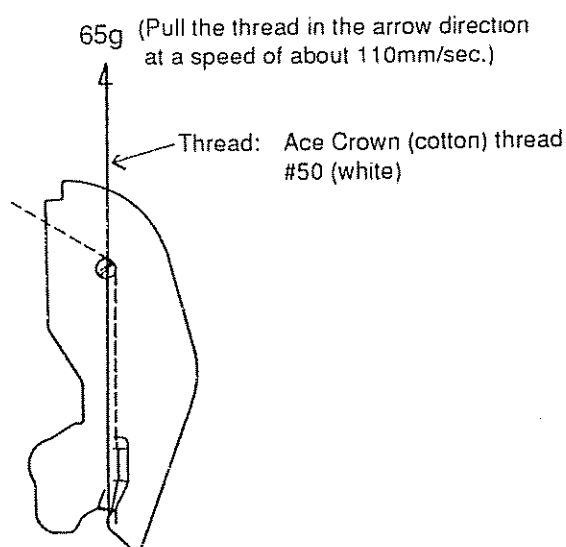
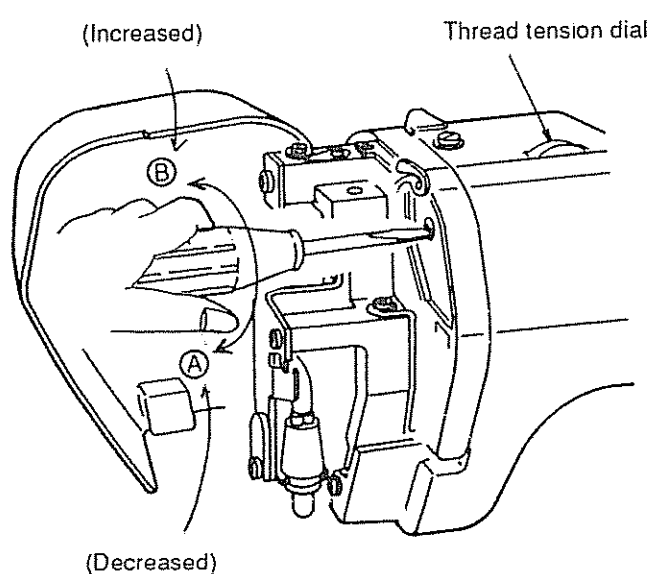


(B)

ADJUSTMENT OF NEEDLE THREAD TENSION

- When the Ace Crown (cotton) thread #50 (white) is passed and pulled up, the thread tension should be 65 ± 5 g as a standard value (the thread pulling speed: approx. 110mm/sec) with the thread tension dial set at "AUTO".

- (1) Set the thread tension dial at "AUTO".
- (2) Open the face plate, and adjust the thread tension with a blade-edge screwdriver.
 - When the thread tension is larger than 65g, turn the shaft in the direction A.
 - When the thread tension is smaller than 65g, turn the shaft in the direction B.



REPLACEMENT AND ADJUSTMENT OF THREADER

- If the hook of the threader is deformed or damaged, replace or adjust it in the procedure given below.

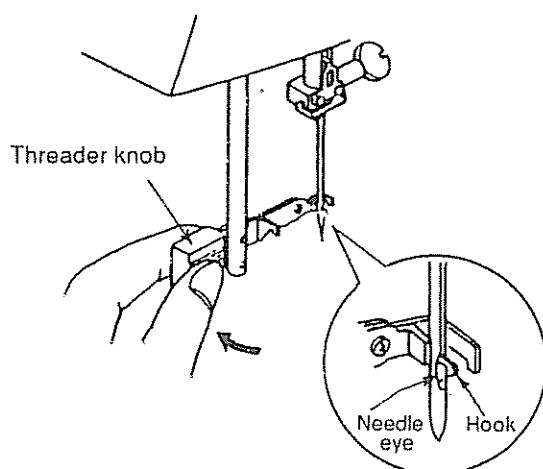
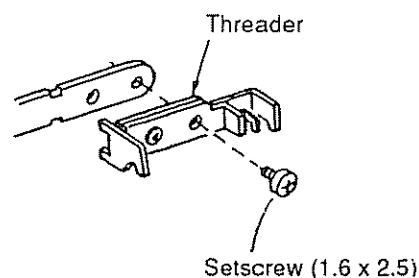
< Replacement of Threader >

- (1) Raise the needle, and lower the threader knob to the lowest position.
- (2) Loosen the setscrew, and replace the threader. (Fig. A)

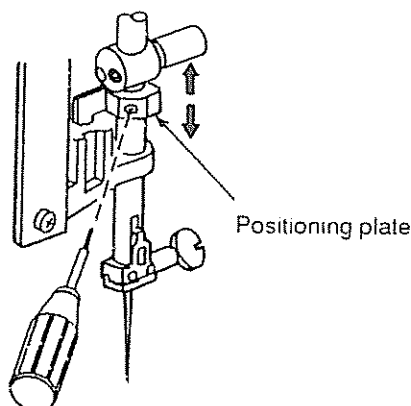
< Adjustment of Threader >

- (3) If the hook interferes with the left or right edge of the needle eye, loosen the setscrew, and move and adjust the threader. (Fig. B)
- (4) If the hook interferes with the upper edge of the needle eye, loosen the setscrew, and shift the positioning plate downward.
If the hook interferes with the lower edge of the needle eye, loosen the setscrew, and shift the positioning plate upward. (Fig. C)

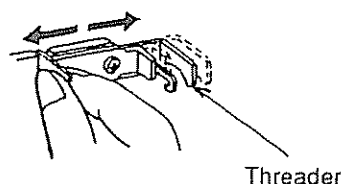
< Replacement of Threader > Fig. A



< Adjustment in Vertical Direction > Fig. C



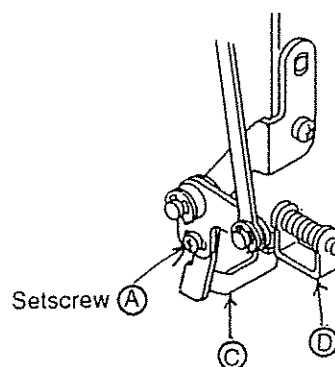
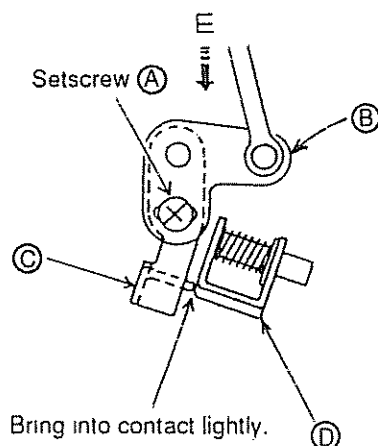
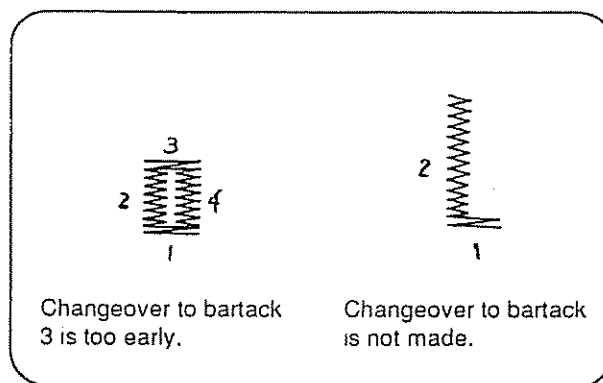
< Adjustment in Lateral Direction > Fig. B



ADJUSTMENT OF BH FUNCTION (1)

- If the sewed buttonhole is very much shorter or longer than the length set by the R foot in BH stitching, then make adjustment in the procedure given below.

- (1) Remove the belt cover. (See page 3)
- (2) Loosen the setscrew (A).
- (3) Tighten the setscrew (A) at a position where the plate (C) touches the plate (D) with the plate (B) pushed lightly in the direction E.
- (4) Attach the belt cover.



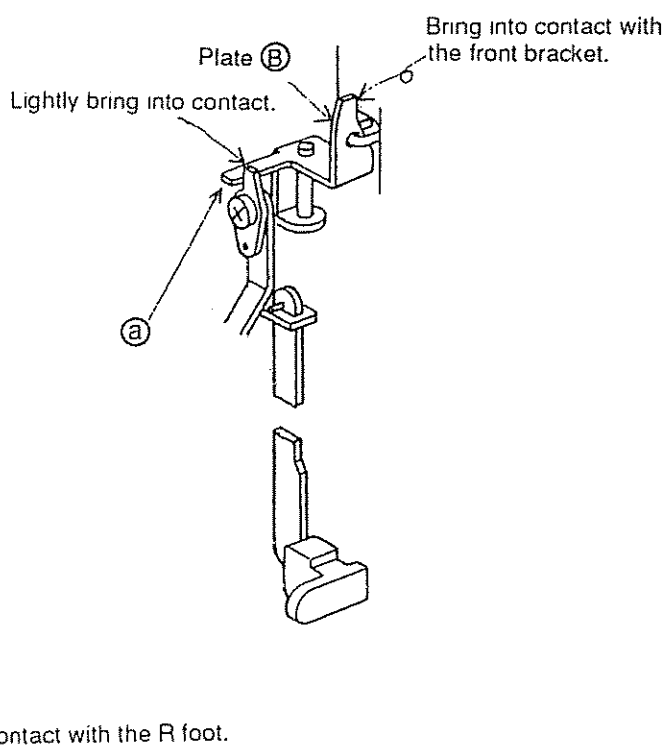
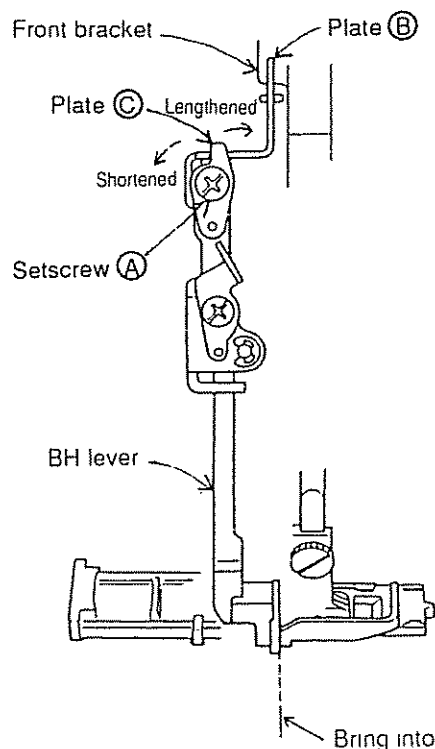
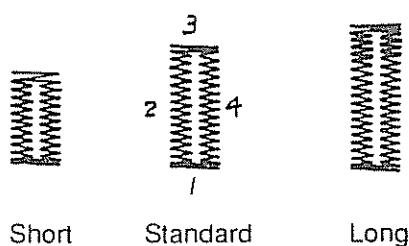
ADJUSTMENT OF BH FUNCTION (2)

● In BH stitching, the sewed buttonhole should be about 3mm longer than the length set by the R foot as a rule. If this length cannot be obtained, then make adjustment in the procedure given below.

- (1) Lower the feed dog, and attach the R foot, and then lower the presser foot lifter.
- (2) Loosen the setscrew (A).
- (3) Lower the BH lever and bring it into contact with the R foot.

In this status, bring the plate (B) into contact with the front base plate. Bring the plate (C) lightly into contact with the (a) part of the plate (B), and tighten the setscrew (A) at this position.

- (4) Lift the feed dog, and make BH stitching, and then check the length.



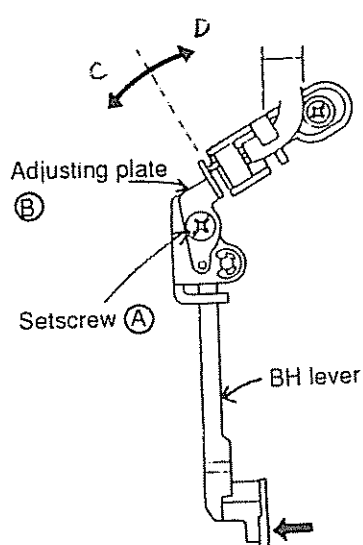
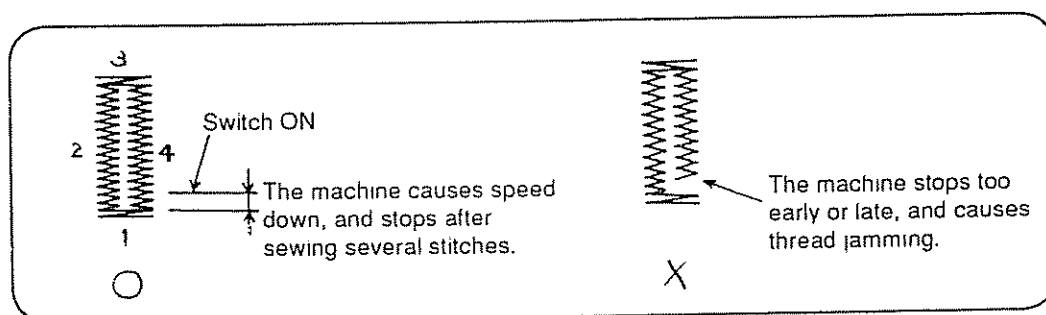
ADJUSTMENT OF BH FUNCTION (3)

- If BH stitching with the BH foot does not stop properly, then make check and adjustment in the procedure given below.

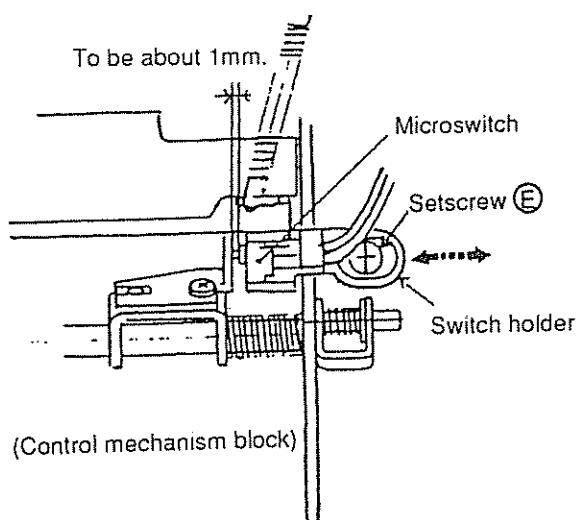
- (1) Open the face plate and loosen the setscrew (A).
- (2) If automatic stop of BH stitching is too early, move the adjusting plate (B) in the direction C.
- (3) If automatic stop of BH stitching is too late, move the adjusting plate (B) in the direction D.
- (4) Fix the adjusting plate (B) with the setscrew, and check the BH stitching.

If automatic stop in step BH4 continues to malfunction after pushing the BH lever in the direction of the arrow with a finger, the following checkup should also be made.

- (5) Remove the belt cover, and select BH stitching, and then proceed to step BH4.
- (6) Loosen the setscrew (E), and adjust the position of the switch holder (so that the switch is turned ON in step BH4), and then tighten the setscrew.
- (7) Sew a buttonhole and check the automatic stop function.
- (8) Attach the belt cover.



Front Side

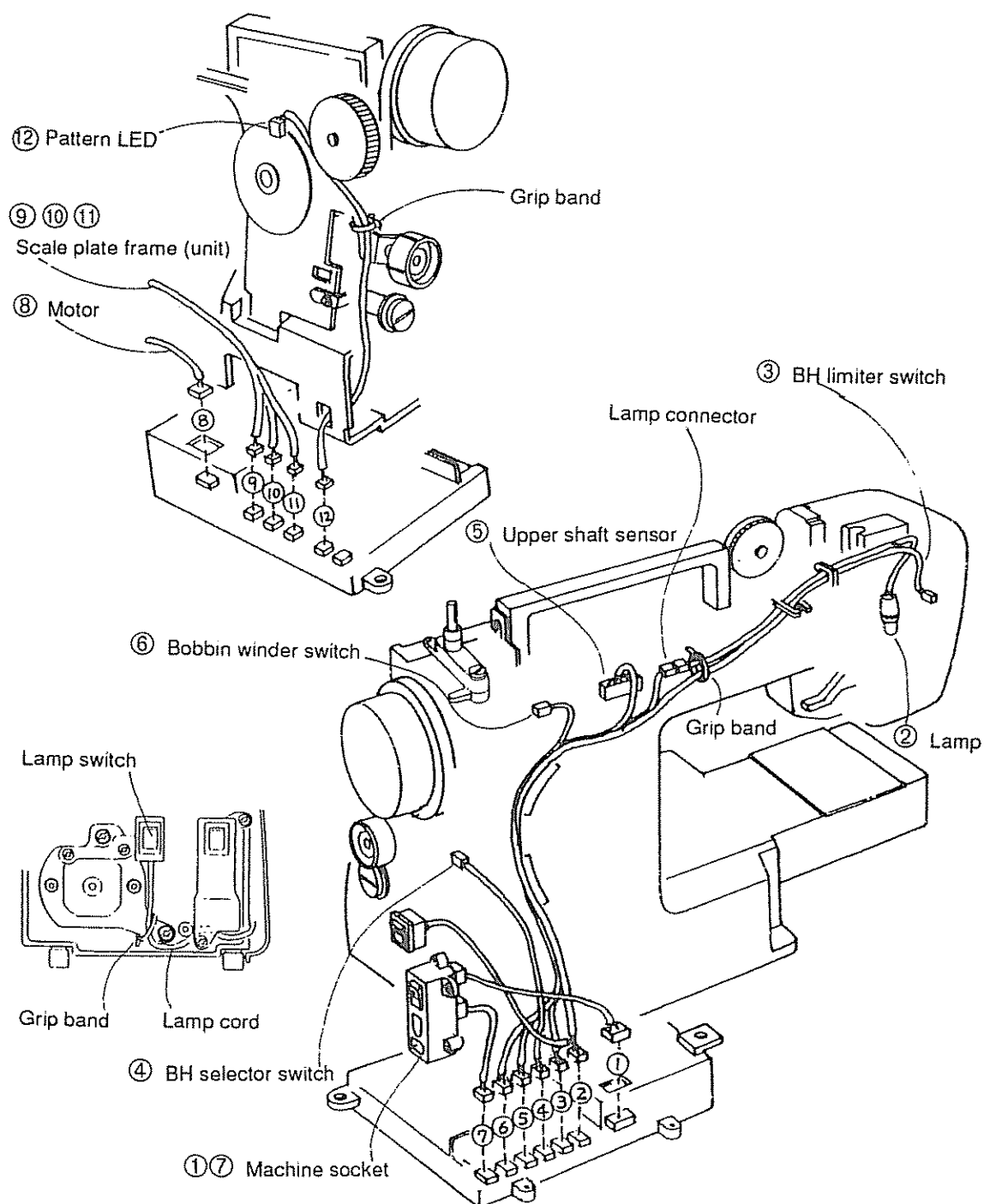


Balance Wheel Side

CORD CONNECTION

● Connector plug-in position

- | | |
|--------------------------|---|
| (1) Machine socket | (7) Machine socket |
| (2) Lamp | (8) Motor |
| (3) BH limiter switch | (9) Start-stop/Up-down needle position button |
| (4) BH selector switch | (10) Thread tension LED |
| (5) Upper shaft sensor | (11) Slide volume |
| (6) Bobbin winder switch | (12) Pattern LED |



www.promelectroavtomat.ru

REPLACEMENT OF CIRCUIT BOARD B AND FUSE

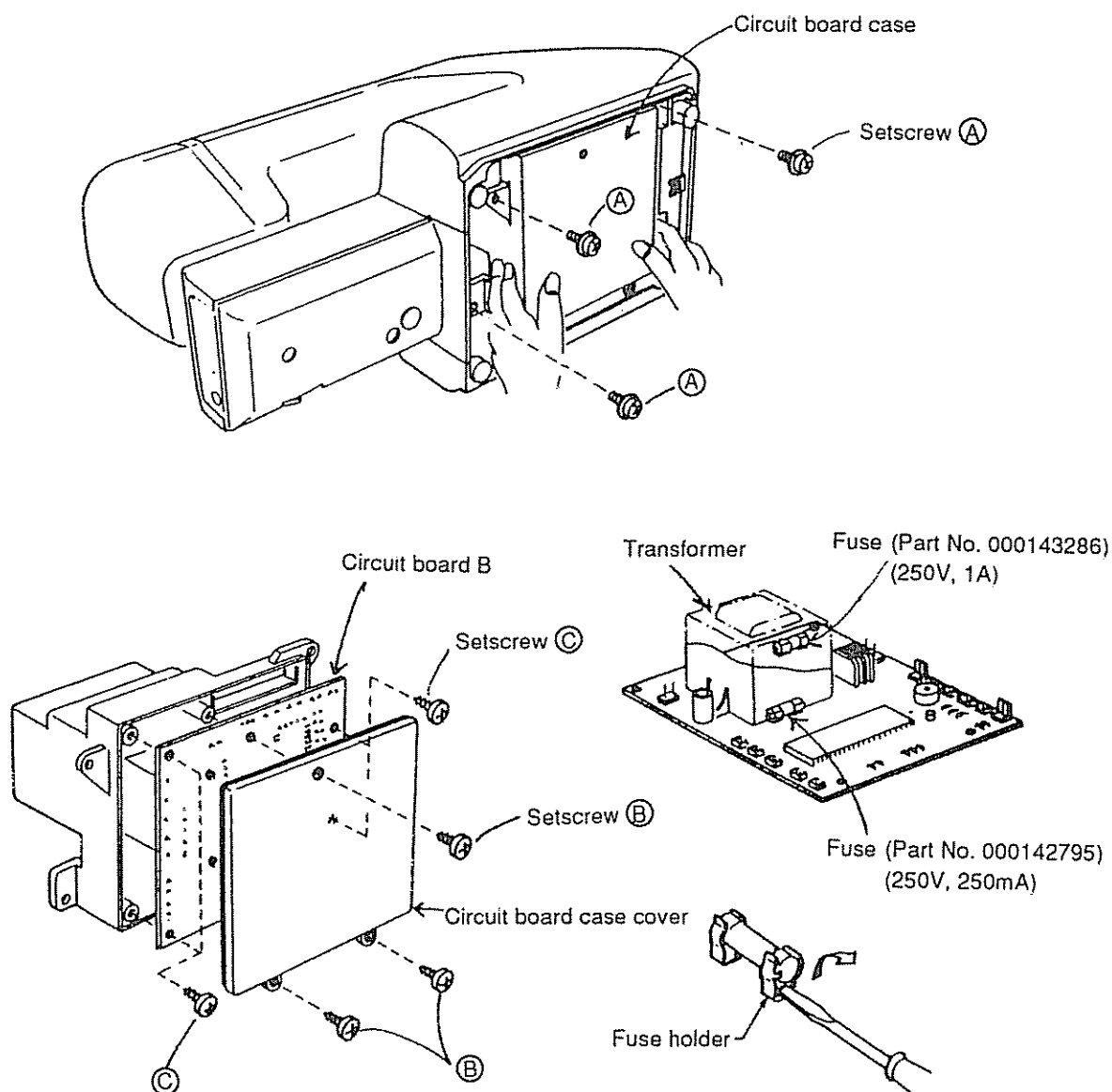
- Replace the circuit board B in the procedure given below.

< To Remove >

- (1) Detach the base. (See page 5)
- (2) Remove the three setscrews (A), and detach the circuit board case, and then unplug each connector.
- (3) Remove the three setscrews (B), and remove the circuit board case cover.
- (4) Remove the four setscrews (C), and detach the circuit board B.

< To Attach >

- (5) For attachment of the circuit board B, reverse the above removing procedure.



REPLACEMENT OF CIRCUIT BOARD LD2 (PATTERN INDICATOR LED)

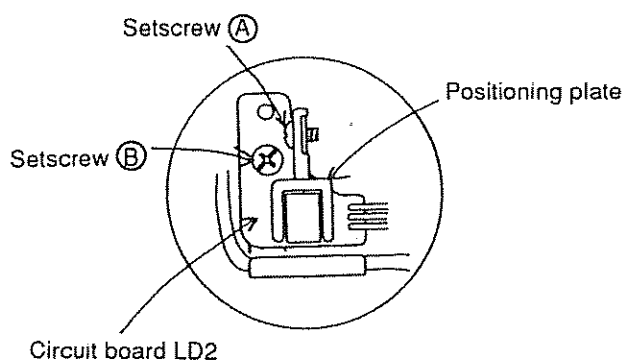
- Replace the circuit board LD2 (pattern indicator LED) in the procedure given below.

< To Remove >

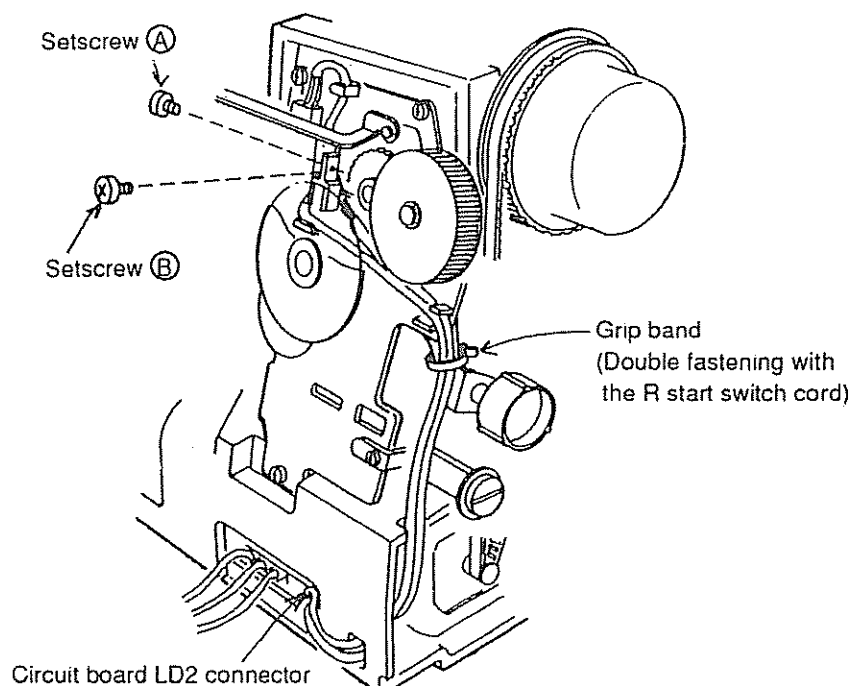
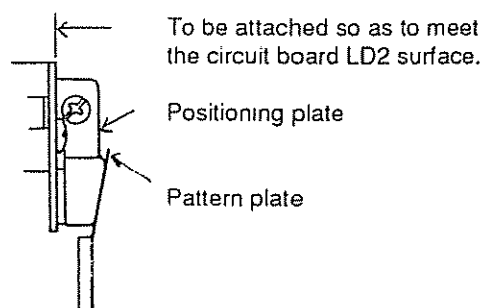
- (1) Remove the front panel. (See page 7)
- (2) Unplug the circuit board LD2 connector from the circuit board case, and remove the grip band.
- (3) Remove the setscrew (A) and detach the positioning plate.
Remove the setscrew (B) and detach the circuit board LD2.

< To Attach >

- (4) For attachment of the circuit board LD2, reverse the above removing procedure, beware of the following point.
 - The cords should be wired and the grip band should be attached in the positions shown in the figure below.



< Attaching the Positioning Plate >



www.promelectroavtomat.ru

REPLACEMENT OF MOTOR

- Replace the motor in the procedure given below.

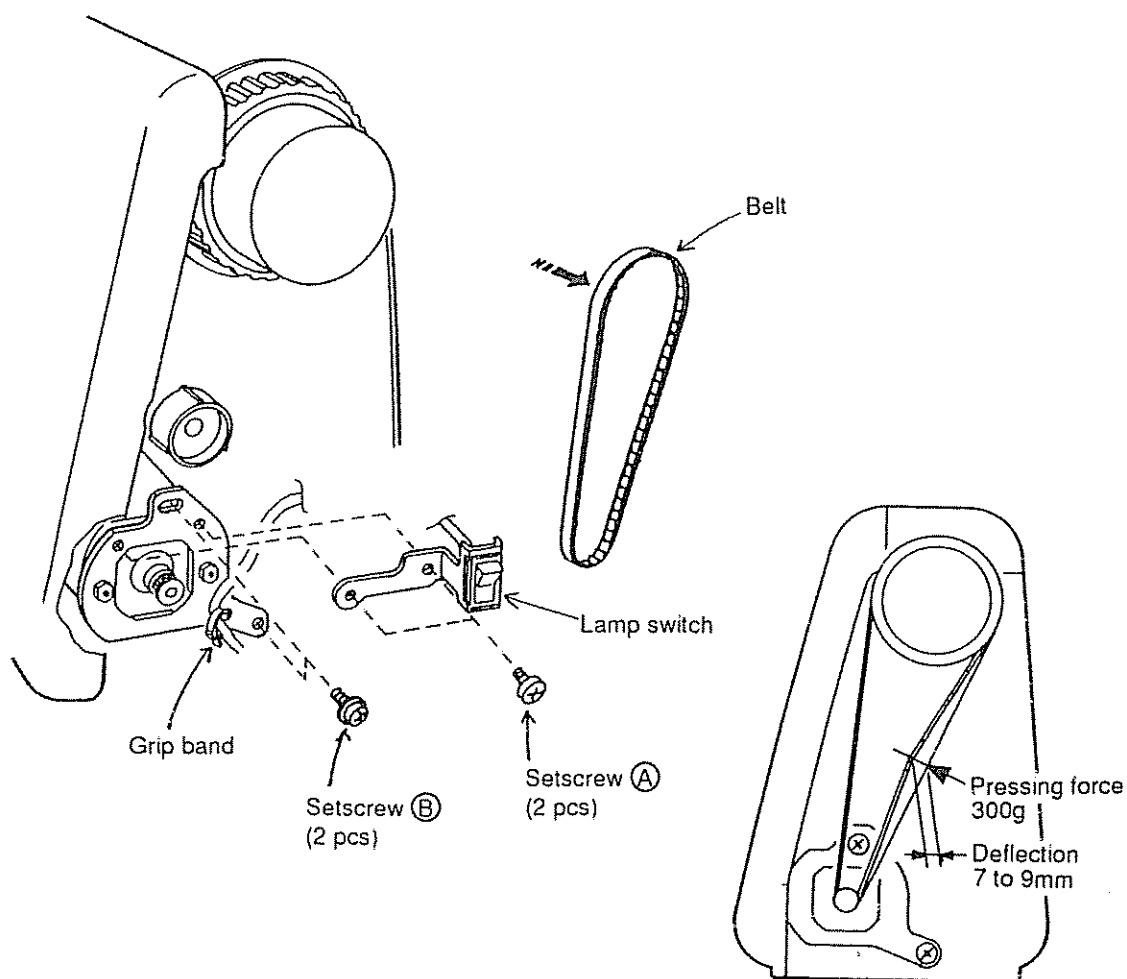
< To Remove >

- (1) Remove the top cover, belt cover, and base. (See pages 2, 3 and 5)
- (2) Detach the circuit board case, and unplug the motor connector.
- (3) Remove the motor belt.
- (4) Remove the two setscrews (A), and the grip band, and detach the lamp switch.
- (5) Remove the two setscrews (B), and take out and replace the motor.

< To Attach >

- (6) For attachment of the motor, reverse the above removing procedure, bewareing of the following point.
 - Temporarily tighten the setscrew (B), and attach the belt, and then adjust the belt tension.
(In adjustment of the belt tension, the pressing force should be 300g, and the deflection should be 7 to 9mm as a rule.)

※ There is no step (4) in other than the 751DE-23BH.



REPLACEMENT OF LAMP SWITCH

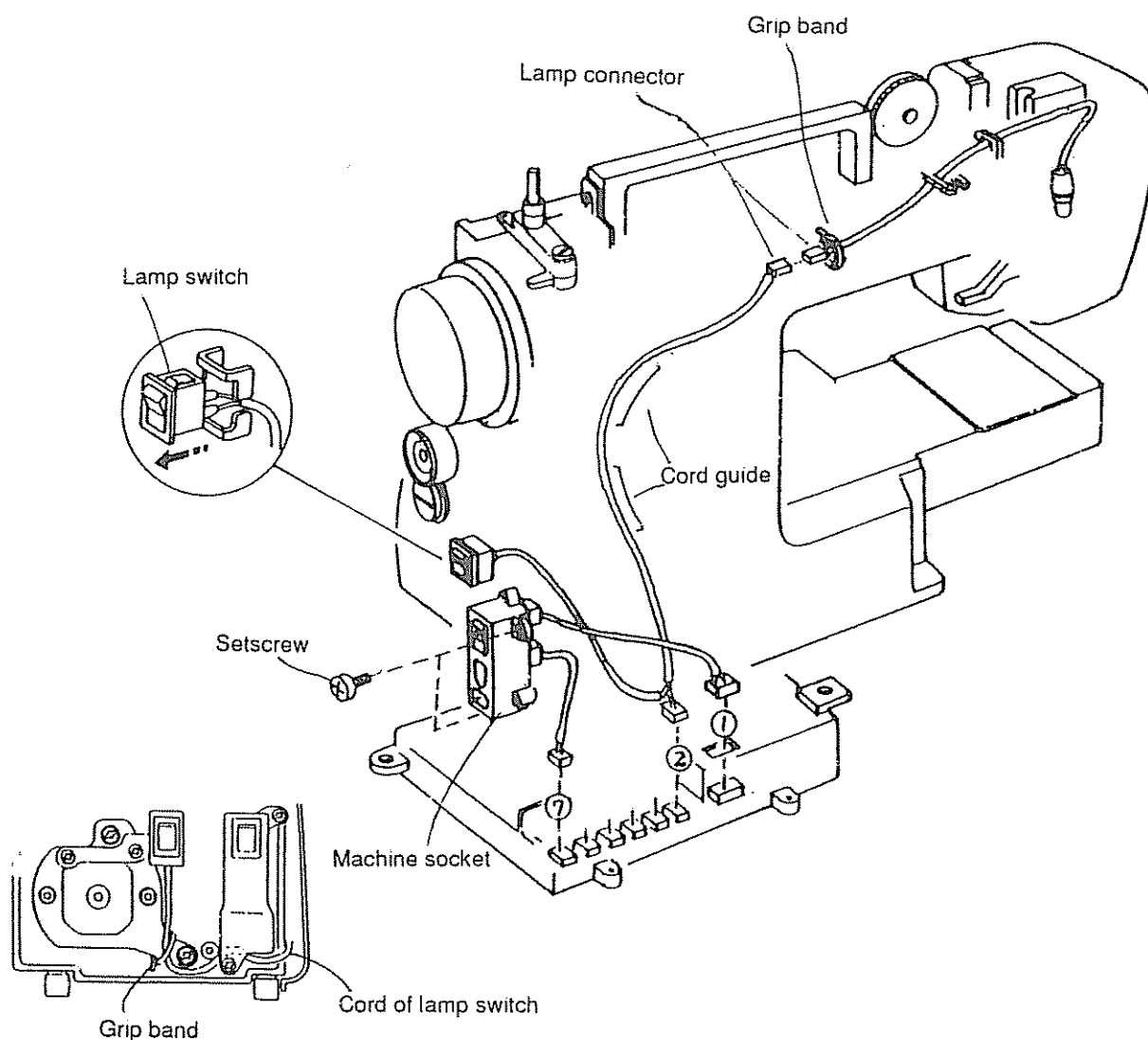
- Replace the lamp switch in the procedure given below.

< To Remove >

- (1) Remove the rear cover. (See page 6)
- (2) Remove the two setscrews, and loosen the machine socket.
- (3) Unplug the lamp connector, and unplug the connector ② from the circuit board case.
- (4) Remove the grip band, and pull out of the lamp switch in the direction of the arrow, and then replace it with a new switch.

< To Attach >

- (5) For attachment of the lamp switch, reverse the above removing procedure.
The cord wiring and attachment of the grip band should be made at the positions shown in the following figure.



REPLACEMENT OF MACHINE SOCKET

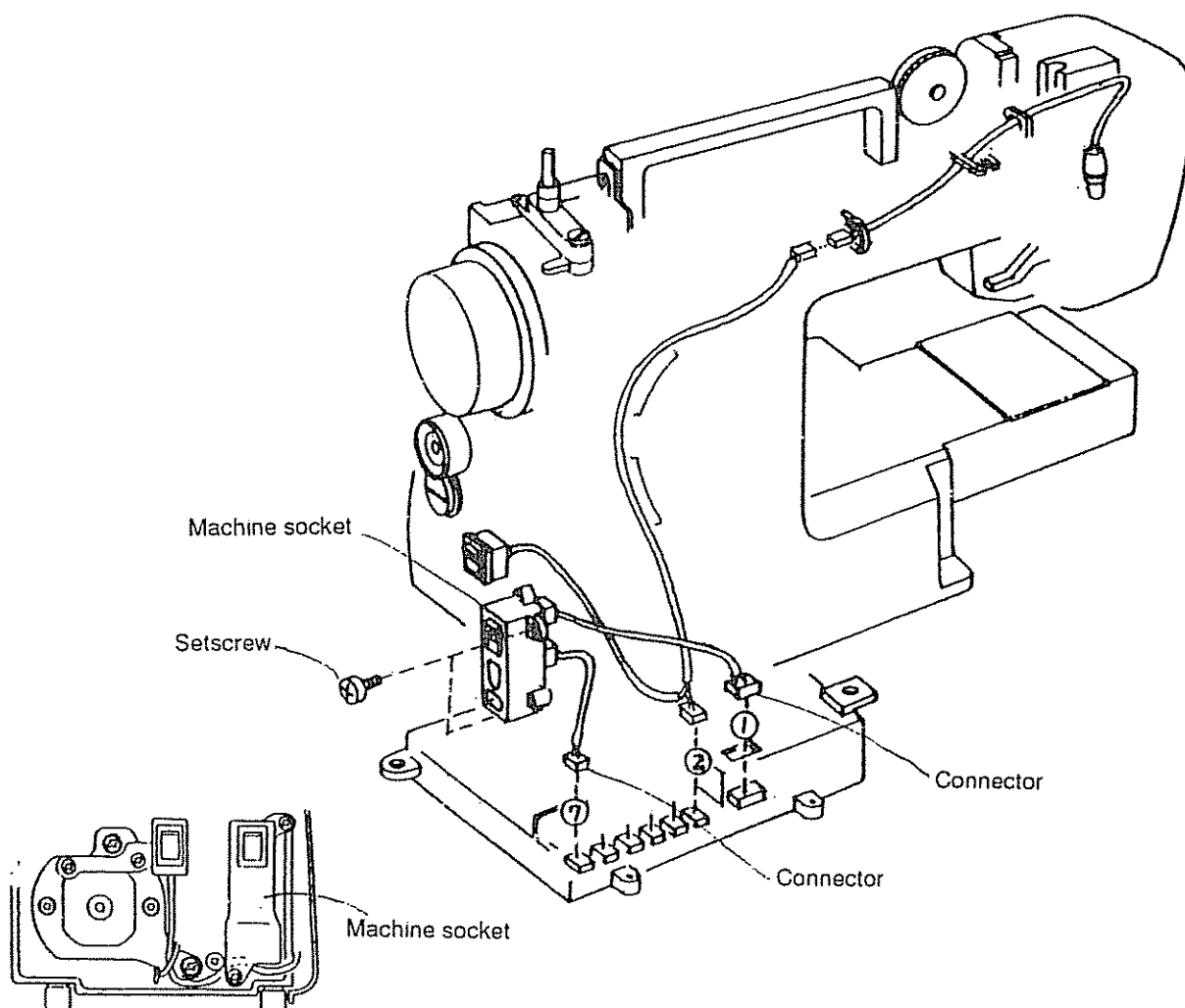
● For replacement of the machine socket, follow the procedure given below.

< To Remove >

- (1) Remove the rear cover. (See page 6)
- (2) Remove the two setscrews, and loosen the machine socket.
- (3) Unplug the connectors ① and ⑦ from the circuit board case, and detach the machine socket.

< To Attach >

- (4) For attachment of the machine socket, reverse the above removing procedure.



REPLACEMENT OF BOBBIN WINDER SWITCH

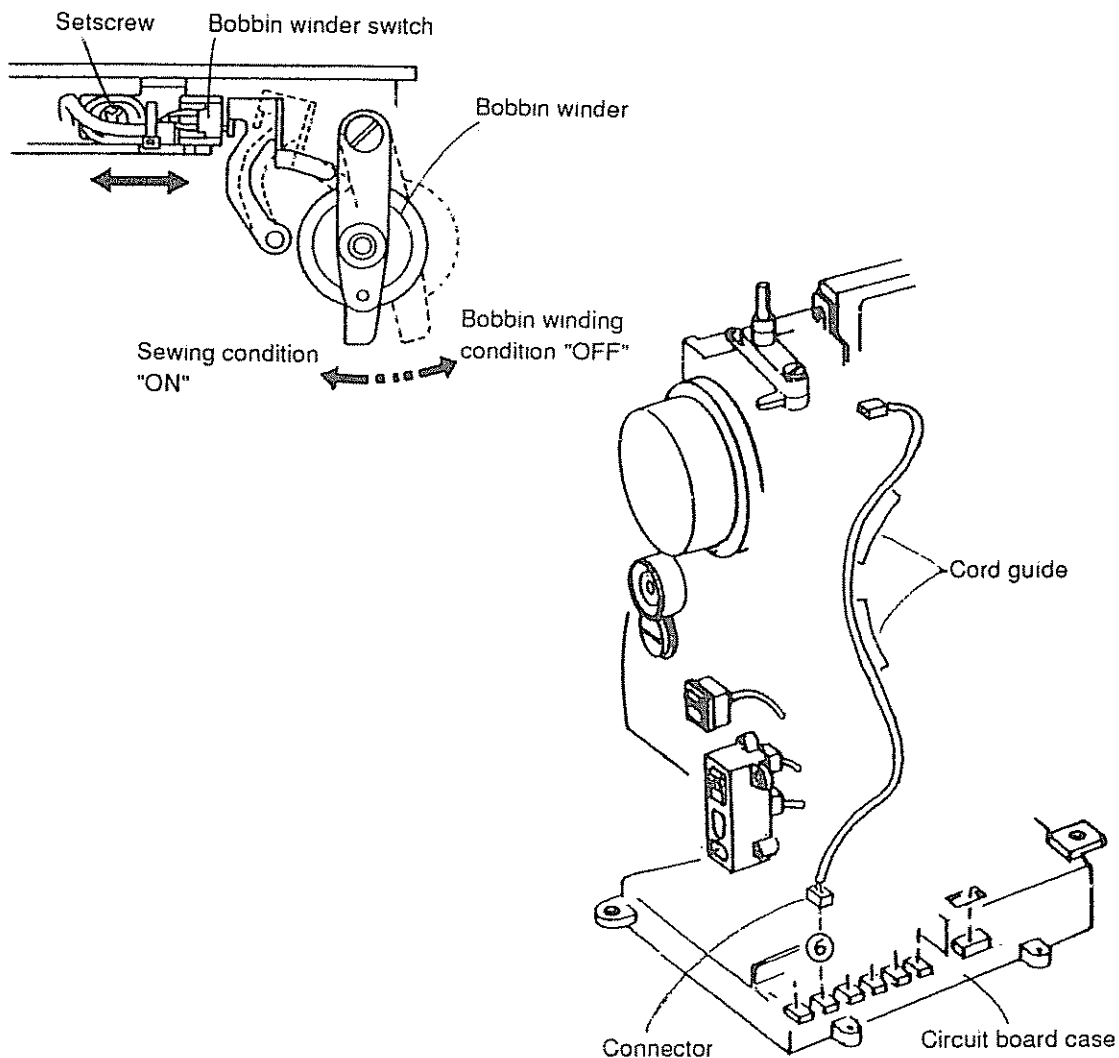
● For replacement of the bobbin winder switch, follow the procedure given below.

< To Remove >

- (1) Remove the top cover and belt cover. (See pages 2 and 3)
- (2) Detach the circuit board case, and unplug the bobbin winder switch connector.
- (3) Remove the setscrew, and replace the bobbin winder switch.

< To Attach >

- (3) For attachment of the bobbin winder switch, reverse the above removing procedure, beware of the following point.
 - After replacement of the bobbin winder switch, move and adjust the bobbin winder switch so that it is turned ON with the bobbin winder in sewing condition, and OFF with the bobbin winder in bobbin winding condition.



REPLACEMENT OF UPPER SHAFT SENSOR

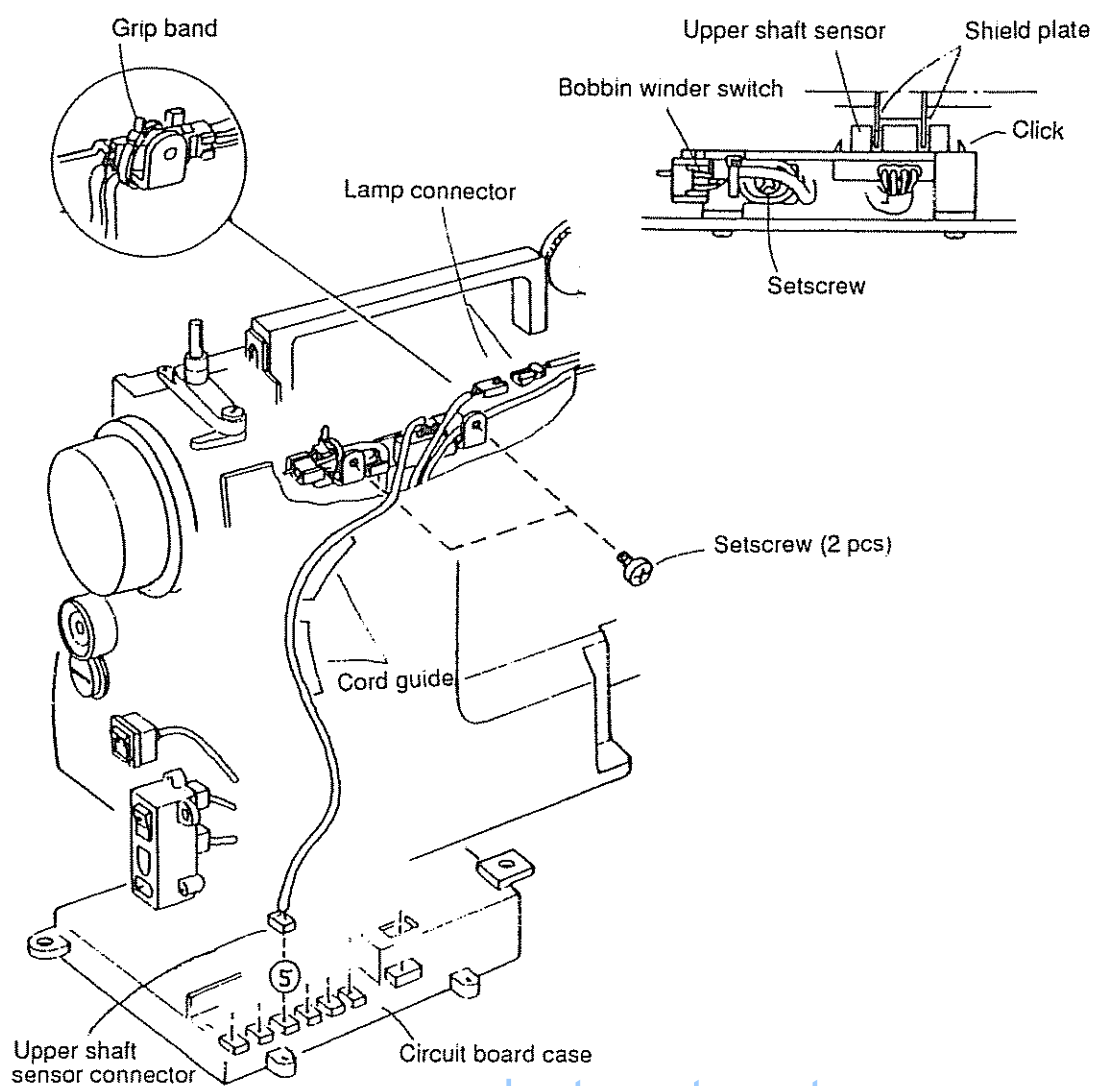
- For replacement of the upper shaft sensor, follow the procedure given below.

< To Remove >

- (1) Remove the rear cover. (See page 6).
- (2) Remove the grip band, and unplug the lamp connector.
- (3) Remove the setscrew and detach the bobbin winder switch.
- (4) Remove the two screws, and detach the holder plate.
- (5) Detach the circuit board case, and unplug the upper shaft sensor connector.
- (6) Remove the click of the upper shaft sensor from the holder plate, and replace it with a new sensor.

< To Attach >

- (7) For attachment of the upper shaft sensor, reverse the above removing procedure, beware of the following points.
 - After attaching the bobbin winder switch, make the switch ON/OFF adjustment.
 - After replacement of the upper shaft sensor, make sure that there is no interference between the sensor and shield plate, and the clearances between them are uniform.



REPLACEMENT OF BH LIMITER SWITCH

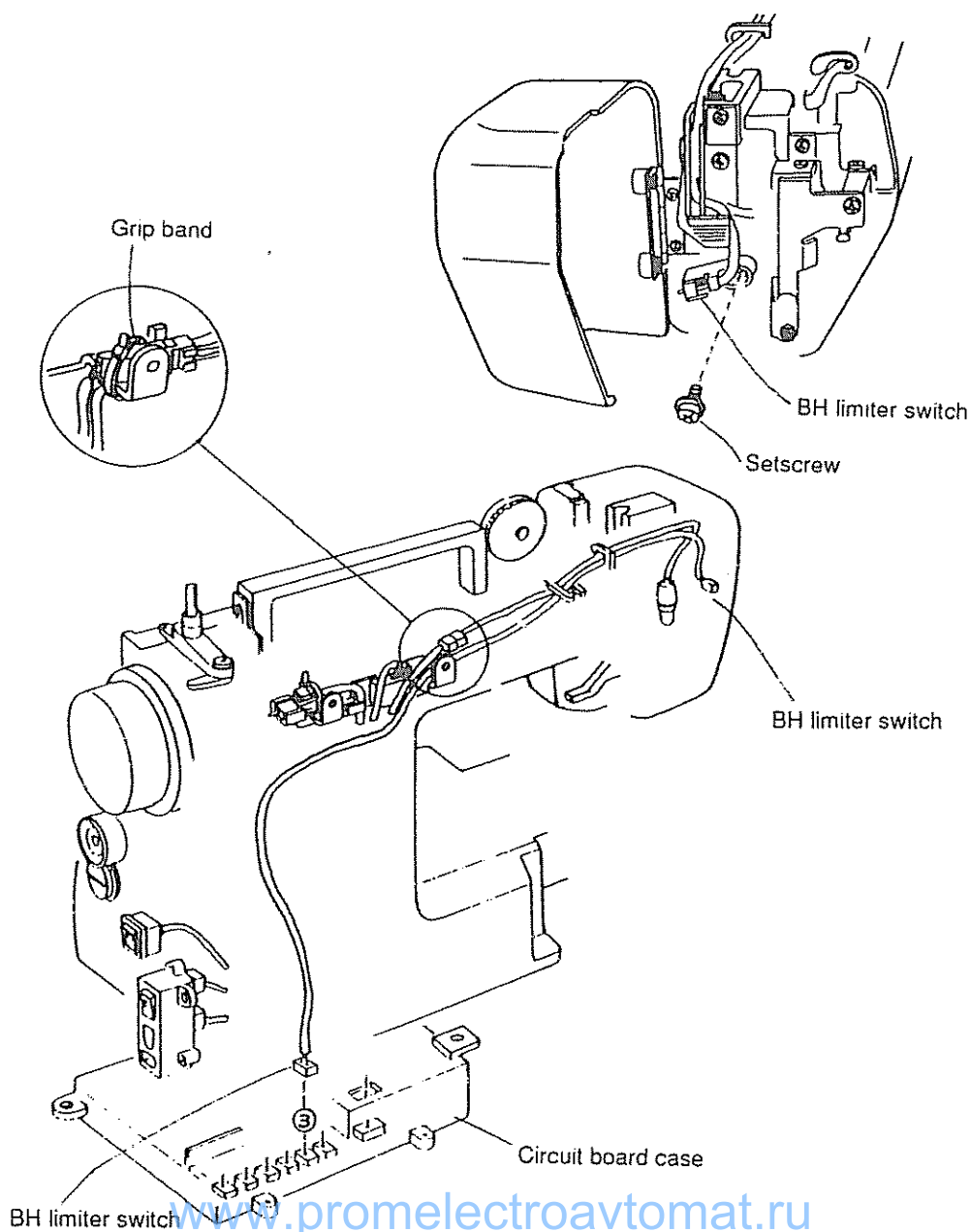
- For replacement of the BH limiter switch, follow the procedure given below.

< To Remove >

- (1) Remove the rear cover. (See page 6)
- (2) Remove the grip band.
- (3) Detach the circuit board case, and take out the BH limiter switch.
- (4) Remove the setscrew, and replace the BH limiter switch with a new switch.

< To Attach >

- (5) For attachment of the BH limiter switch, reverse the above removing procedure, beware of the following point.
 - After replacing the BH limiter switch, make the BH adjustment. (See pages 26 and 27)



REPLACEMENT OF CIRCUIT BOARD F, SLIDE VOLUME, AND CIRCUIT BOARD LD1 (THREAD TENSION LED)

- For replacement of the circuit board F, slide volume and circuit board LD1, follow the procedure given below.

(1) Remove the front panel. (See page 7)

< To Remove and Attach the Circuit Board F >

(2) Use the five snap rings CS (a) to (e) and the three setscrews (A).

< To Remove and Attach the Slide Volume >

(3) Use the snap rings CS (b), (c), (d), (e), and (f) (2 pcs).

Put the convex part of the slide volume into the groove of the slide piece, and place the insulating sheet on the circuit board, and then hold it with the two snap rings CS (f).

< To Remove and Attach the Circuit Board LD1 >

(4) Use the snap rings CS (d) and (e) and setscrew (B).

(5) Attach the front panel.

< Circuit Board LD1 >

< Slide Volume >

< Circuit Board F >

