

SERVICING MANUAL

JA series models

1504

1506

1508

1510

1512

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TO DISASSEMBLE / ASSEMBLE THE EXTERNAL PARTS

1. FACE PLATE

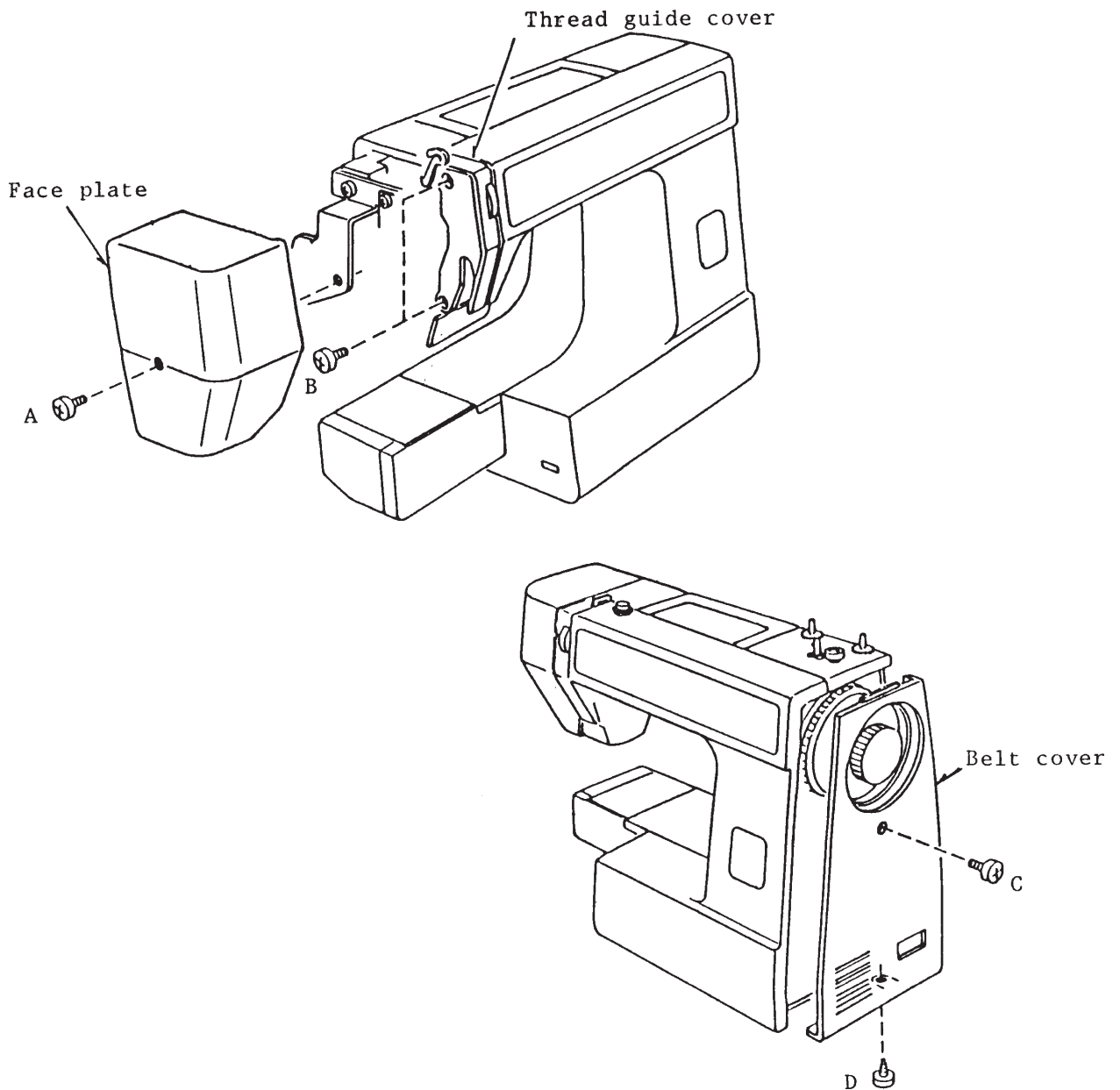
It can be removed or attached with a screw A.

2. THREAD GUIDE COVER

It can be removed or attached with two screws B.

3. BELT COVER

It can be removed or attached with two screws C & E.



TO DISASSEMBLE / ASSEMBLE THE EXTERNAL PARTS

4. TOP COVER

It can be removed or attached with a screw E.

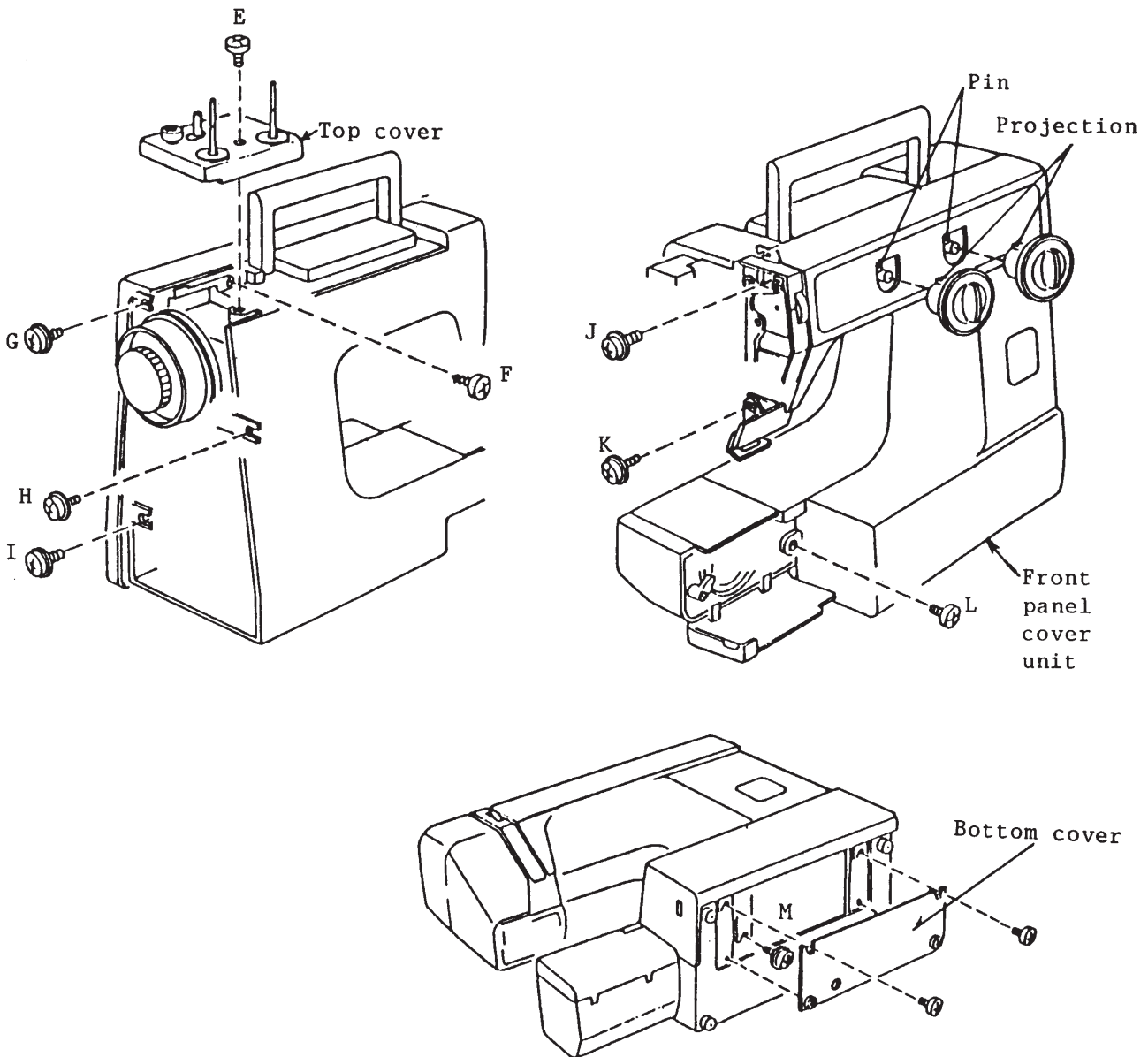
5. FRONT PANEL COVER UNIT

TO REMOVE

- (1) Remove face plate, top cover, bottom cover and belt cover.
- (2) Set the pattern selector dial at " ϕ " and the stitch length dial at "2", then remove these dials by pulling them out.
- (3) Remove the set screws F & L and loosen the screws G, H, I, J, K, M, then remove the front panel cover unit.

TO ATTACH

- (4) Attach the external parts in reverse order of the removing.
- (5) Push the dials into the dial shafts with aligning the projections on the rear sides of the dials with the pins on the shafts.

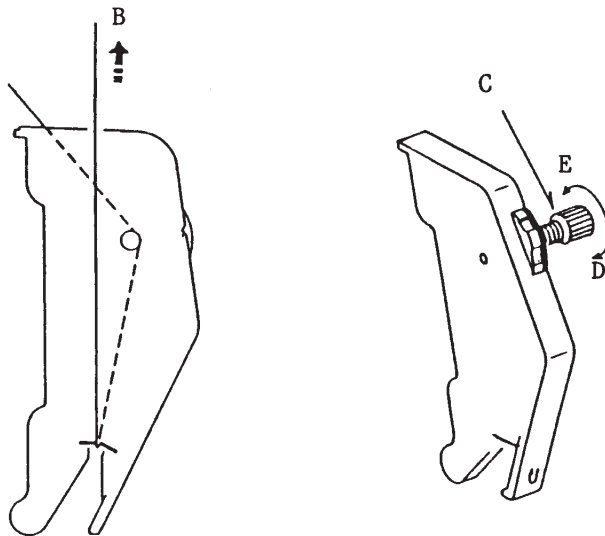


TO ADJUST THE UPPER THREAD TENSION DIAL

The standard upper thread tension should be 65-95g when pulling the thread (cotton thread #50) in the direction of B with setting the tension dial at "3". (Make sure the foot should be lowered.)

If the tension is out of the standard range, adjust it as follows:

1. Remove the front panel cover unit.
2. Turn the adjusting nut C in the direction of D when the upper thread tension is too tight.
Turn the adjusting nut C in the direction of E when the upper thread tension is too loose.
3. Attach the front panel cover unit.



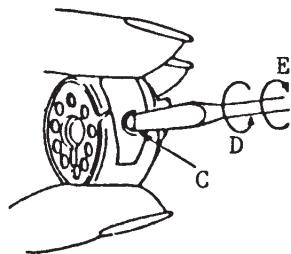
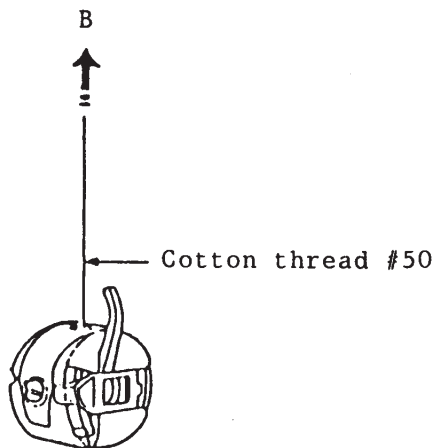
TO ADJUST THE BOBBIN TENSION

Set the bobbin in the bobbin case and pass the thread (cotton #50) through the tension spring.

The bobbin tension should be 45-55g when pulling the thread in the direction of B.

If the tension is out of the range, adjust it as follows:

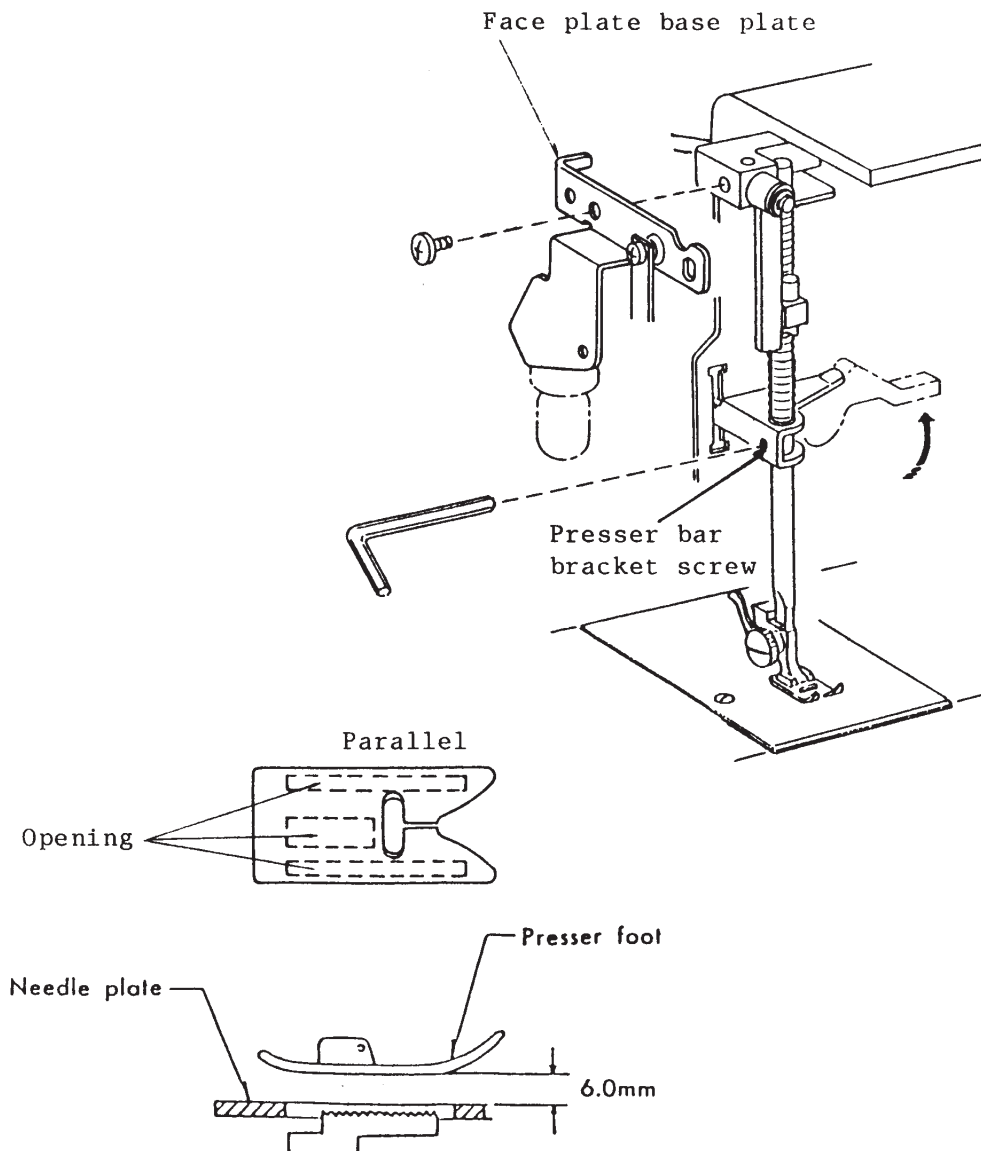
1. Turn the adjusting screw C in the direction of D when the bobbin tension is too tight.
2. Turn the adjusting screw C in the direction of E when the bobbin tension is too loose.



TO ADJUST THE PRESSER BAR HEIGHT

The standard presser bar height is 6.0mm between the bottom surface of the foot and needle plate.

1. Remove the face plate.
2. Remove the face plate base plate (with lamp socket unit).
3. Raise the presser foot and loosen the presser bar bracket screw and adjust the height (6.0mm).
4. Check if the presser foot is parallel to the openings for the feed dog on the needle plate. If not, adjust it.
5. Tighten the presser bar bracket screw while holding the presser bar to keep the foot parallel to the openings.
6. Attach the face plate base plate.
7. Attach the face plate.

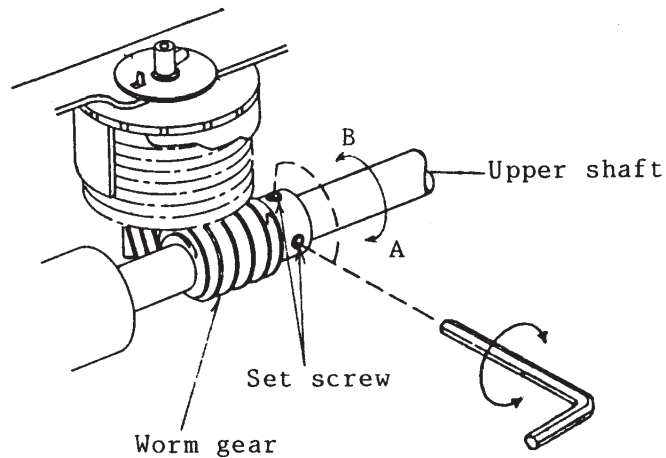
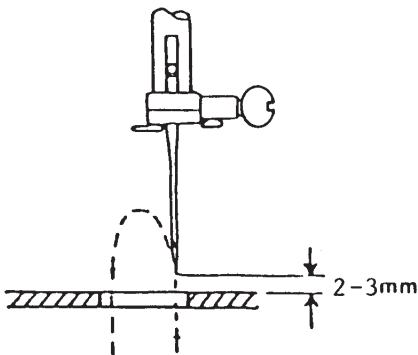


TO ADJUST THE NEEDLE SWING

If the timing of needle swing is not correctly adjusted, the needle will move sidewise while it is in the fabric.

Ideally the needle should start swing from a position 2-3mm above the needle plate in its right outflow.

1. Set the pattern selector dial at maximum zigzag and the stitch length dial at "2". Then remove the front panel cover unit.
2. Loosen the worm gear set screws (2 pcs.).
3. Hold the worm gear in place with a screw driver or wrench and turn the balance wheel slightly.
 - (a) If the needle starts swinging too soon, turn the balance wheel in the direction of A (clockwise).
 - (b) If the needle starts swinging too late, turn the balance wheel in the direction of B (counter-clockwise).
4. Tighten the worm gear set screws (2 pcs.).
5. Attach the front panel cover unit and dials.



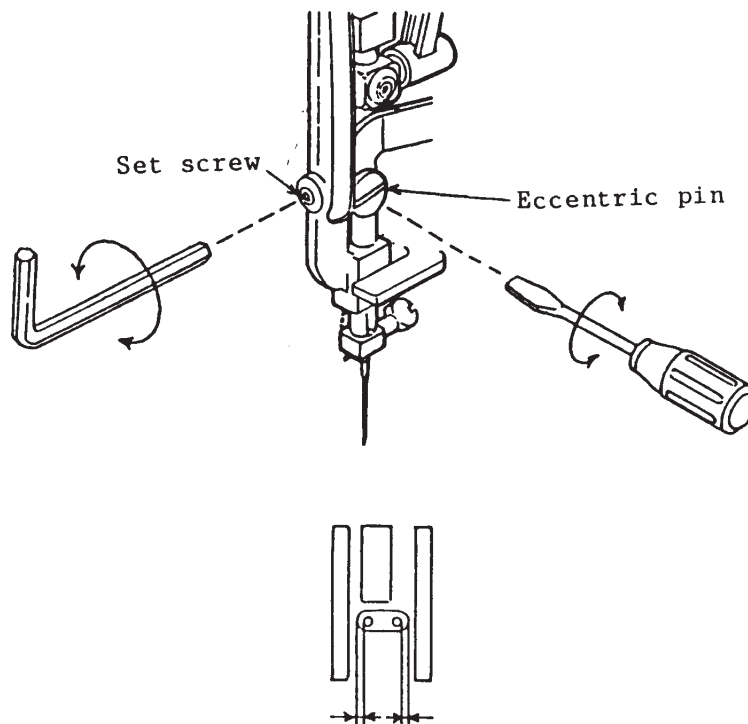
TO ADJUST THE NEEDLE DROP

When the needle swings in maximum zigzag width, the distance between the both ends of needle hole on the needle plate and the needle drop positions should be equal.

If not, make an adjustment as follows:

1. Remove the face plate.
2. Set the pattern selector dial at maximum zigzag width.
3. Loosen the set screw.
4. Turn the eccentric pin to adjust the needle drop.
5. Tighten the set screw.
6. Attach the face plate.

NOTE: Check the hook timing after this adjustment.

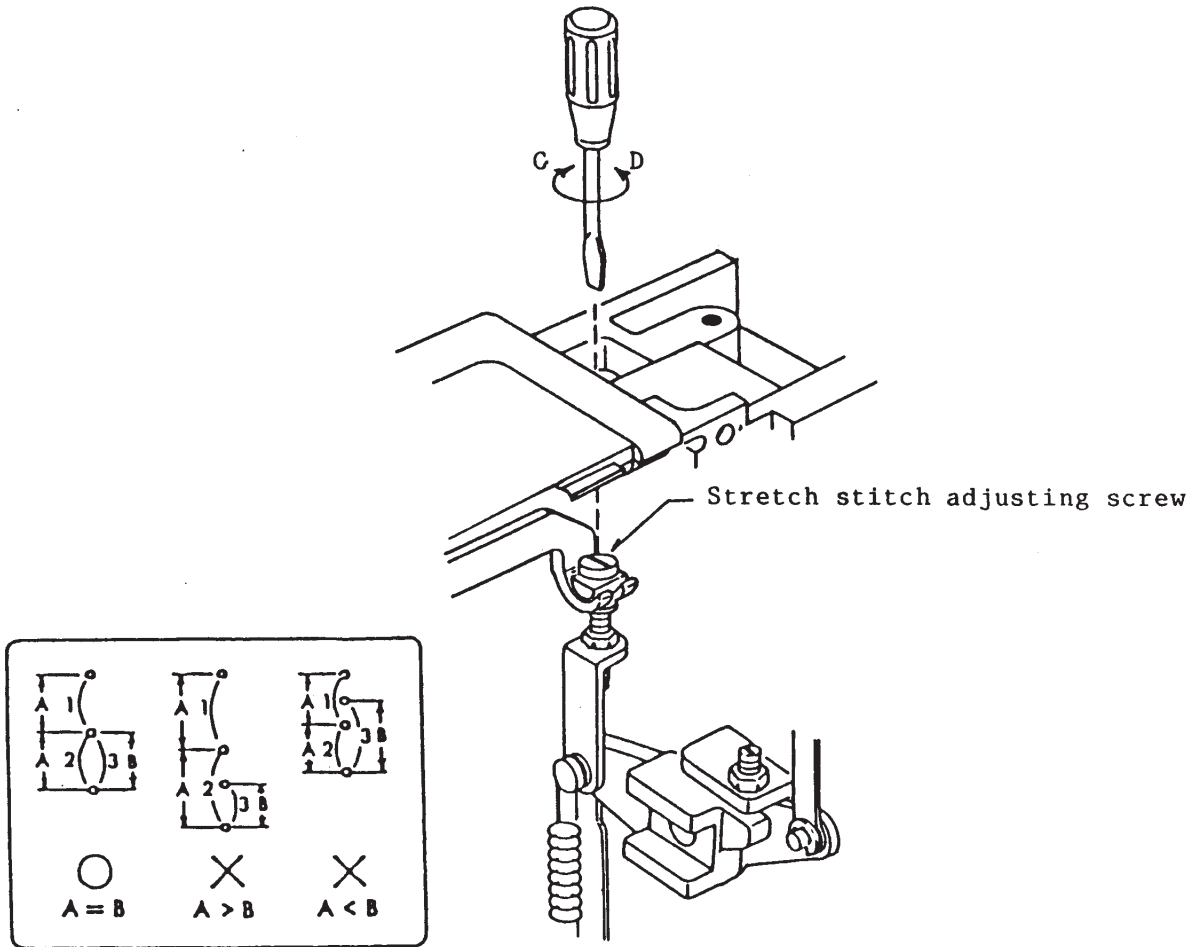


Both clearance should be equal.

TO ADJUST THE FEED BALANCE ON STRETCH STITCH
(Models JA1512, JA1510 & JA1508 only)

If the stretch stitch patterns are distorted with setting the stitch length dial at "SS", make an adjustment as follows:

1. Remove the top cover.
2. Turn the stretch stitch adjusting screw in the direction of C when the reverse stitch length B is shorter than the forward stitch length A.
Turn the stretch stitch adjusting screw in the direction of D when the reverse stitch length B is longer than the forward stitch length A.
3. Attach the top cover.



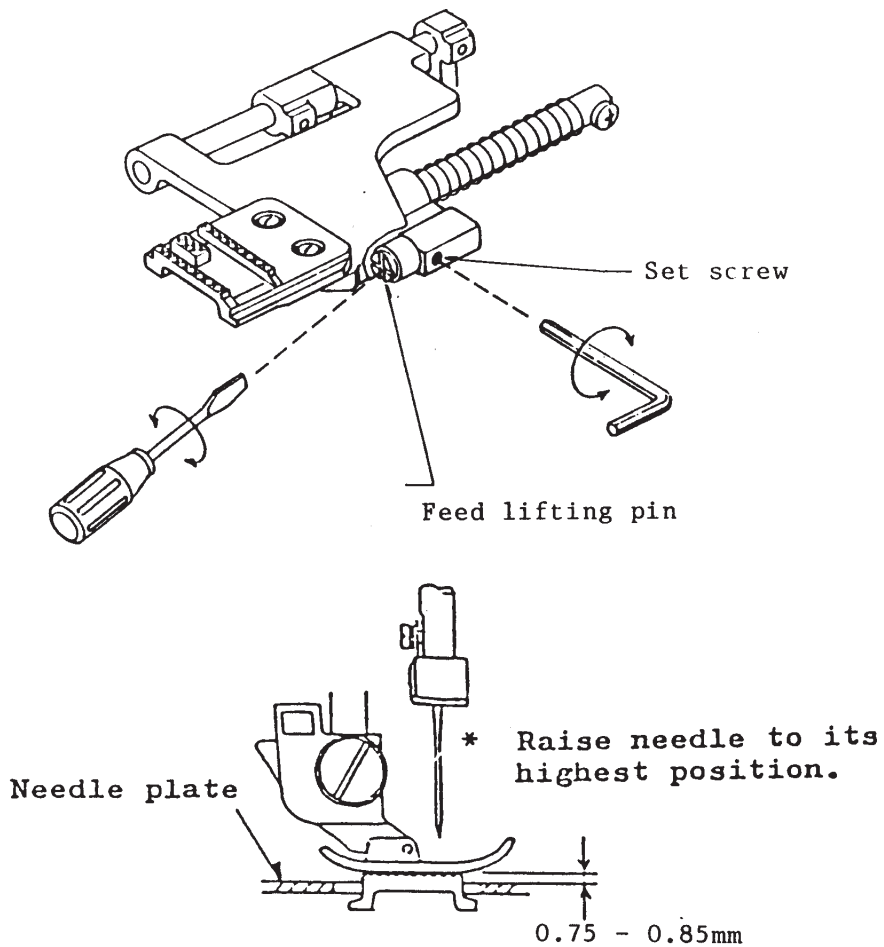
TO ADJUST THE HEIGHT OF FEED DOG

Lower the presser foot and turn the balance wheel toward you until the needle bar comes to the highest point of its travel.

In this condition, the height of the feed dog above the needle plate should be 0.75 - 0.85mm.

If it is not in the range, make an adjustment as follows:

1. Set the stitch length dial at "4".
2. Lower the presser foot and turn the balance wheel until the feed dog comes to its highest point.
3. Loosen the set screw.
4. Turn the feed lifting pin to adjust the height of feed dog (0.75-0.85mm).
5. Tighten the set screw.
6. Turn the balance wheel to recheck the height of feed dog.



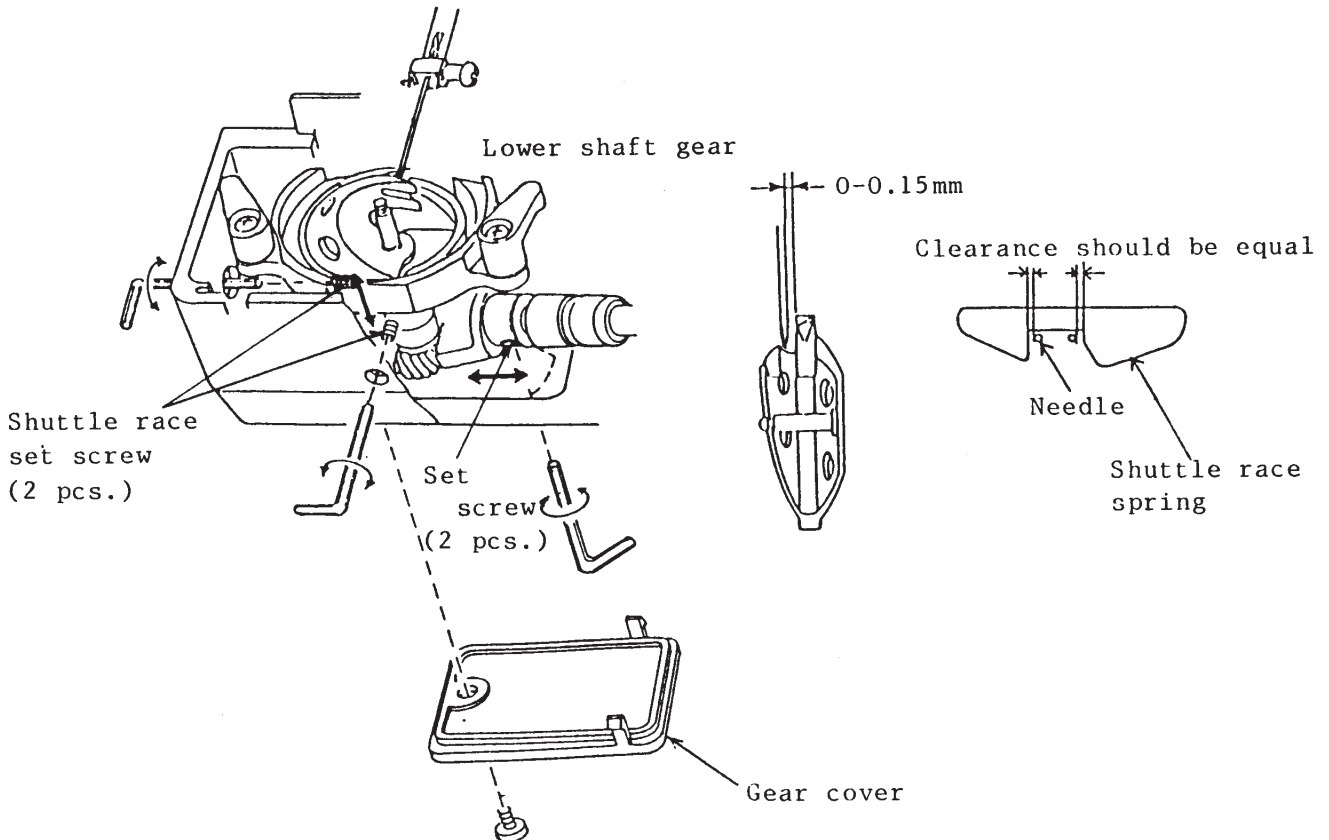
TO ADJUST THE CLEARANCE BETWEEN NEEDLE AND HOOK

The clearance between needle and shuttle hook should be 0 - 0.15mm.
If not, make an adjustment as follows:

1. Set the pattern selector dial at maximum zigzag width.
2. Remove the extension table and the gear cover.
3. Loosen the two set screws on lower shaft gear and slide the gear about 0.5mm to the right to make a slack between gears.
Then, tighten the screws temporarily.
4. Lower the needle at the left needle position and loosen the two shuttle race set screws. Move the shuttle race unit axially either forward or backward to adjust the clearance between the needle and the shuttle hook in the range of 0 - 0.15mm.
5. Turn the balance wheel to check if the clearance between the needle and inner edges of the shuttle race spring at the left and right needle drops are equal. If not, make an adjustment by turning the shuttle race unit.
6. Tighten the two shuttle race set screws.
7. Loosen the set screws on lower shaft gear and slide the gear back to the original position while adjusting the backlash.
8. Tighten the screws firmly.

NOTE: The backlash play should be less than 0.3mm and lower shaft turns smoothly.

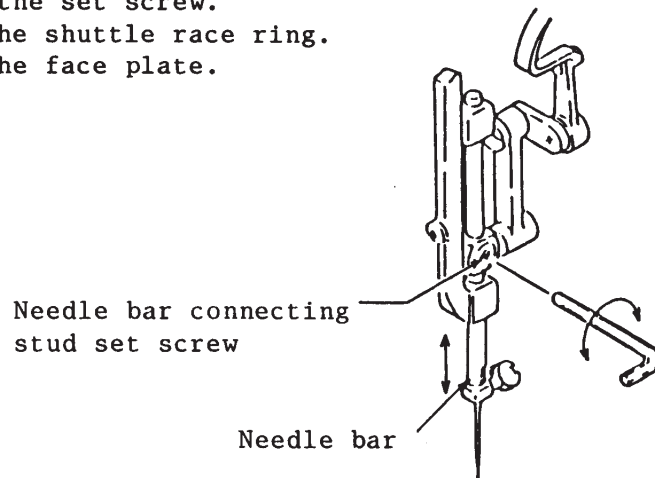
After the adjustment, check the hook timing.



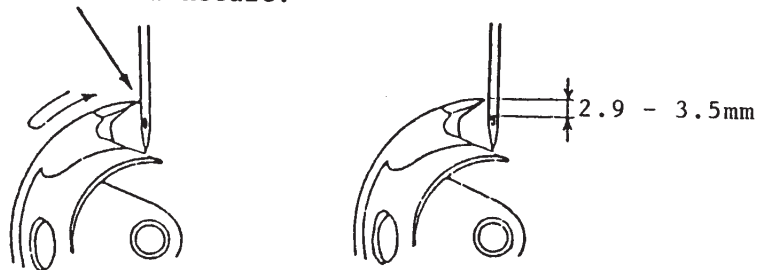
TO ADJUST THE NEEDLE BAR HEIGHT

The standard distance between the upper edge of needle eye and the tip of shuttle hook should be in the range of 2.9-3.5mm when the tip of shuttle hook meets the left side of the needle in ascending travel of needle from its left and lowest position.

1. Remove the face plate.
2. Set the pattern selector dial at "P".
3. Remove the shuttle race ring.
4. Turn the balance wheel toward you until tip of shuttle hook meets the left side of the needle.
5. Loosen the needle bar connecting stud set screw.
6. Adjust the height of the needle bar by moving the needle bar upward or downward without turning it.
7. Tighten the set screw.
8. Attach the shuttle race ring.
9. Attach the face plate.



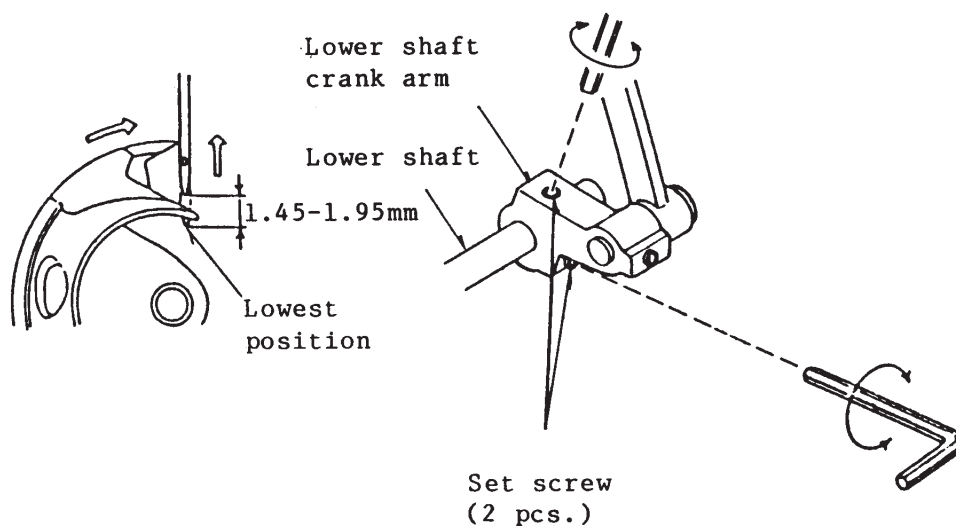
Tip of shuttle hook meets left side of needle.



TO ADJUST THE HOOK TIMING

The standard height of needle point from its lowest point of travel should be in the range of 1.45 - 1.95mm when the tip of shuttle hook meets exactly the left side of needle at left needle position.

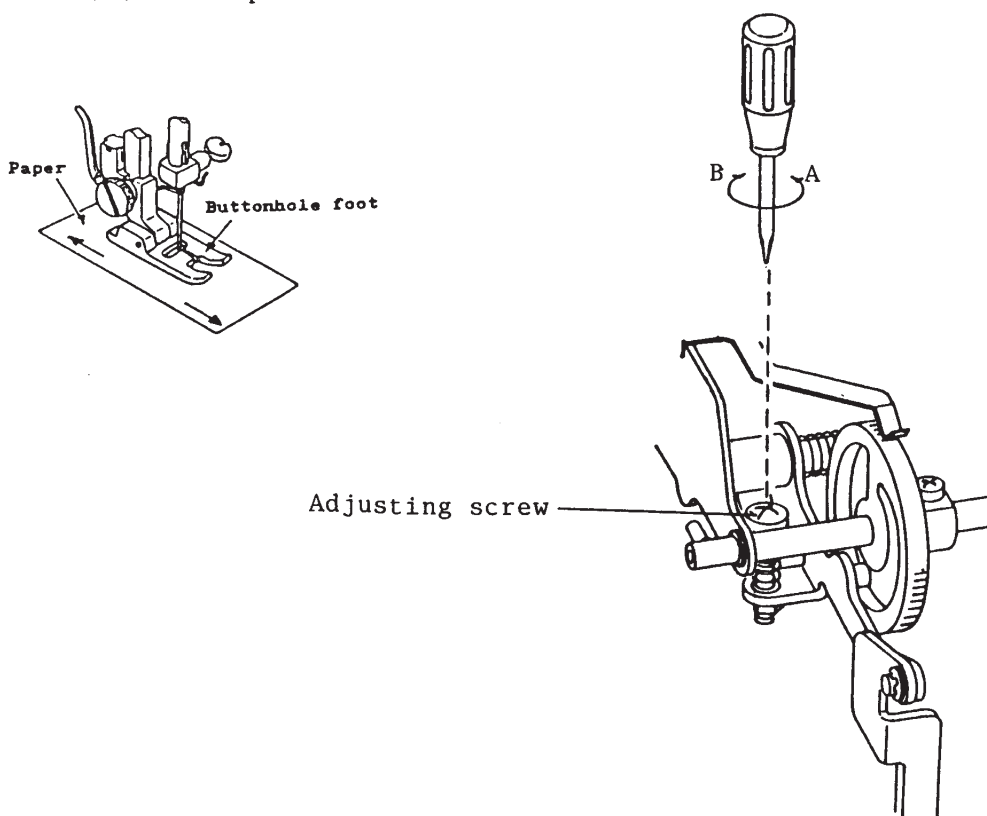
1. Set the pattern selector dial at "P".
2. Remove the front panel cover unit.
3. Remove the motor.
4. Remove the shuttle race ring.
5. Turn the balance wheel toward you until the tip of shuttle hook meets the left side of needle.
6. Loosen the lower shaft crank arm set screws(2 pcs.).
7. While holding the shuttle hook not to turn, turn the balance wheel toward you until the needle comes to its lowest position.
Then, further turn the balance wheel to raise the needle about 1.7mm from its lowest position.
8. Tighten the set screws.
9. Turn the balance wheel toward you to check if the height is the range of 1.45 - 1.95mm.
If it is not in the range, repeat the above procedure.
10. Attach the shuttle race ring.
11. Attach the motor and adjust the belt tension.
12. Attach the front panel cover unit.



TO ADJUST THE BARTACK FEED OF BUTTONHOLE

If the material is fed forward or backward when sewing bartack on buttonhole, make an adjustment as follows:

1. Set the pattern selector dial at "2□4" and the stitch length dial at "4". Then, remove the dials and the front panel cover unit.
2. Place a piece of paper under the foot and turn the balance wheel. If the paper is fed forward, turn the adjusting screw counter-clockwise (in the direction A). If the paper is fed backward, turn the adjusting screw clockwise (in the direction B).
3. Attach the front panel cover unit and dials.

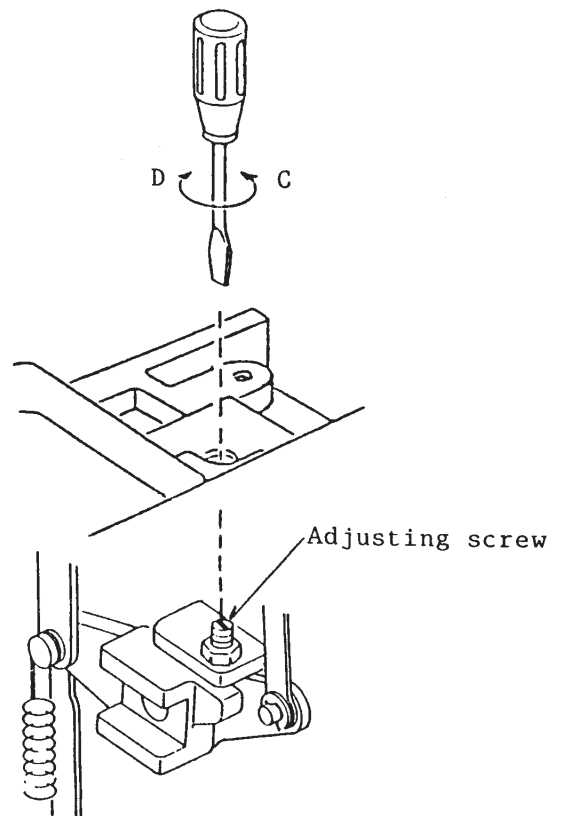
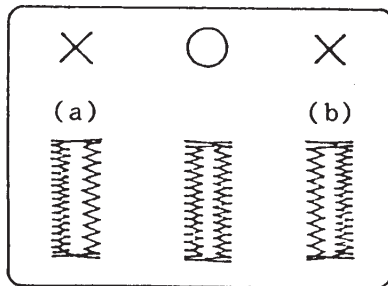
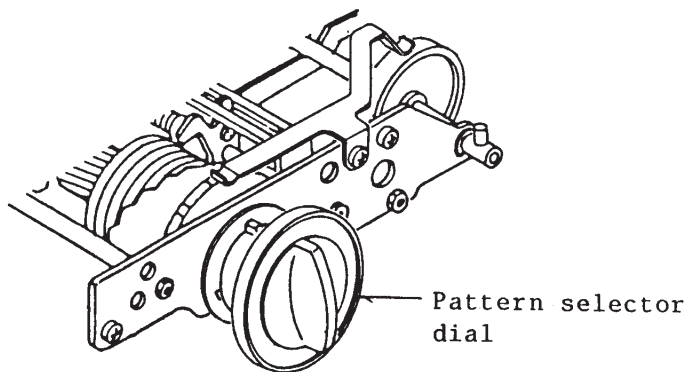


TO ADJUST THE BUTTONHOLE FEED BALANCE

When sewing buttonhole, the stitches on each side of buttonhole should be the same stitch density.

The range of 9-11 stitches in the right side row against 10 stitches in the left side row is considered acceptable.

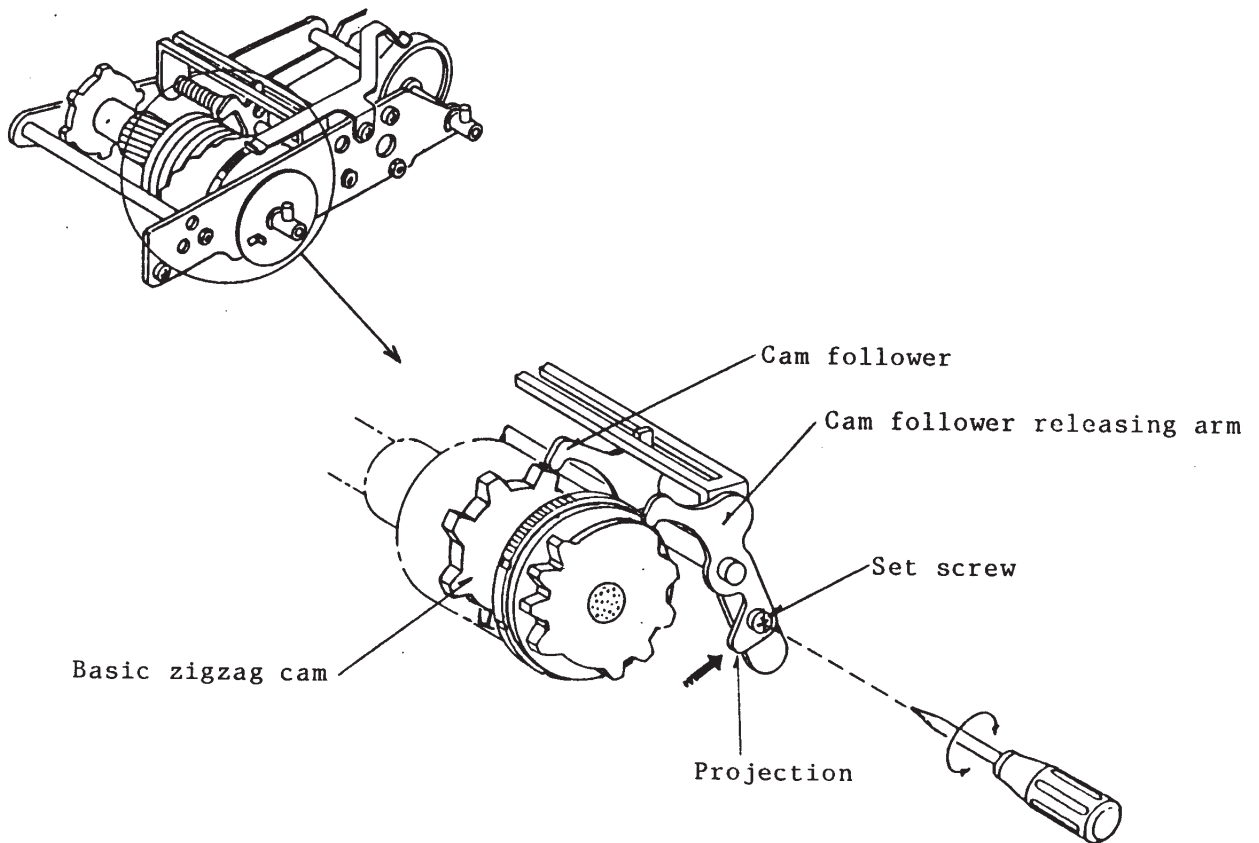
1. Remove the top cover.
2. Set the pattern selector dial at "10", the stitch length dial at "4".
3. (a) If right side row is coarser than left side row, turn the adjusting screw counter-clockwise (in the direction C).
(b) If left side row is coarser than right side row, turn the adjusting screw clockwise (in the direction D).
4. Attach the top cover.



TO ADJUST THE DISENGAGEMENT CLEARANCE OF CAM FOLLOWER

Too narrow clearance between the cam follower and the top convex of basic zigzag cam, which is found in the fifth part of layer-built cam, may often cause difficulty in turning of the pattern selector dial or zigzagging in straight stitch setting.

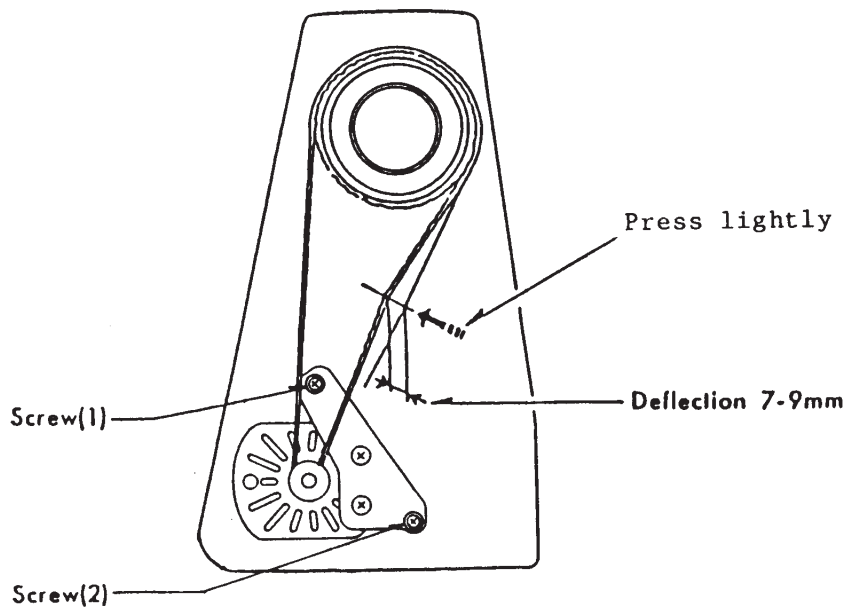
1. Set the pattern selector dial at "P".
Then, remove the both dials and front panel cover unit.
2. Turn the balance wheel toward you until cam follower comes up to the top convex of basic zigzag cam as shown.
3. Loosen the set screw.
4. Push the convex part of the cam follower releasing arm in the direction of arrow until the releasing arm touches to the pattern selector cam.
Then, tighten the set screw.
5. Attach the front panel cover unit and dials.



TO ADJUST THE MOTOR BELT TENSION

If there is a deflection of about 7 to 9mm on the belt by pressing it lightly as shown in the drawing, the tension on the belt is correct.

1. Remove the belt cover.
2. Loosen the motor bracket set screws (2 pcs.) and adjust the tension on the belt. Then, tighten the set screws firmly.
3. Attach the belt cover.

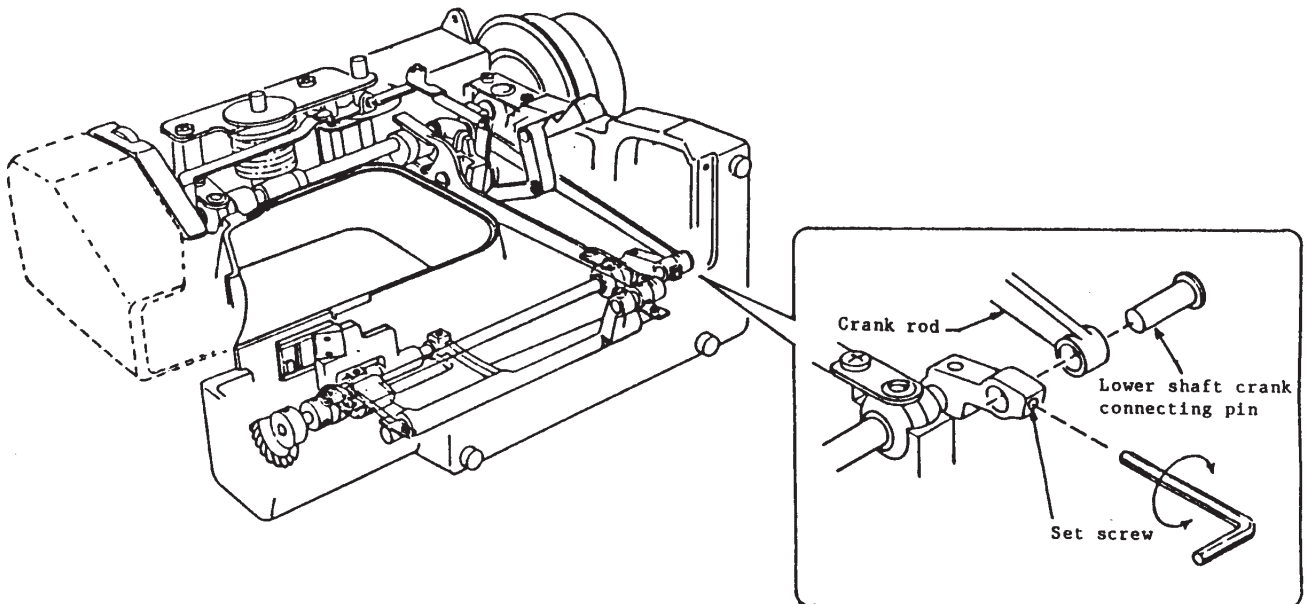


TO ADJUST THE UPPER & LOWER SHAFT BUSHINGS

If the machine runs extremely slow even pressing the foot control fully, the upper or lower shaft or both shafts may be tight.

In this case, check and adjust as follows:

1. Remove face plate, top cover, belt cover and front panel cover unit.
2. Loosen the set screw and remove the lower shaft crank connecting pin. Then, turn the balance wheel by hand to find out which shaft is tight.

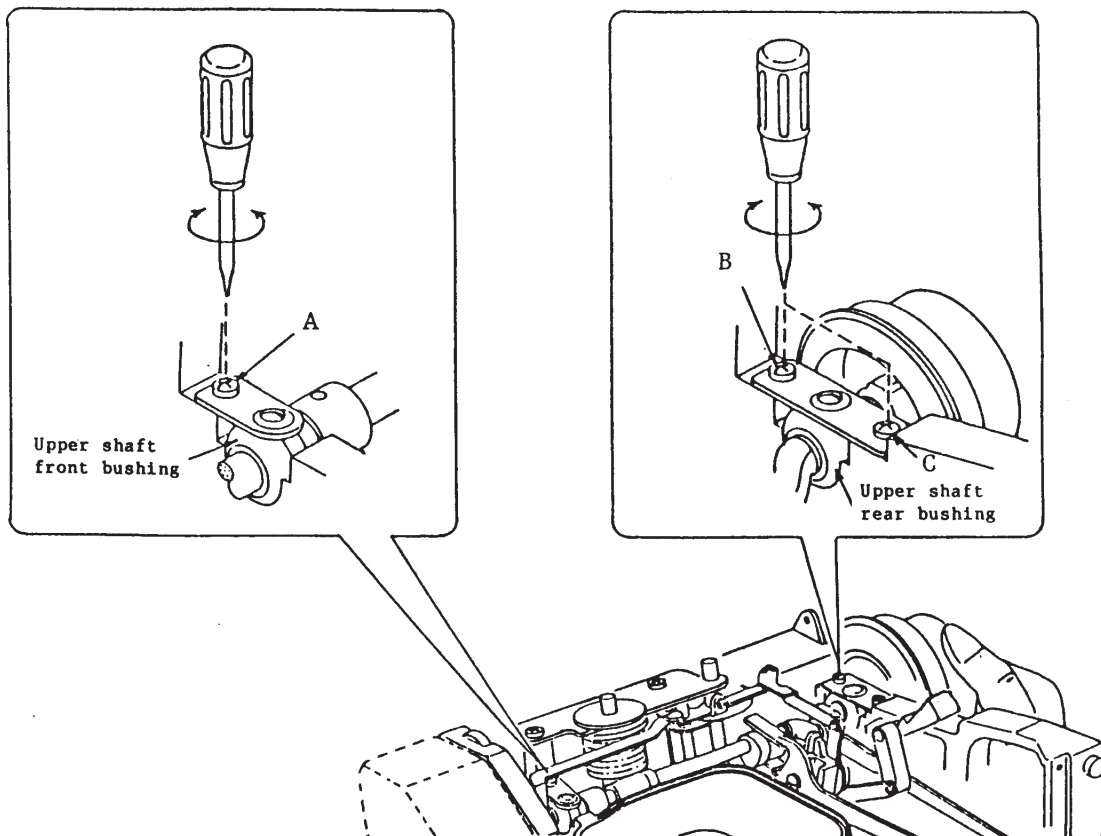


TO ADJUST THE UPPER & LOWER SHAFT BUSHINGS

3. If the upper shaft is tight.....

- (1) Loosen the set screws A, B & C.
- (2) While turning the balance wheel, gradually tighten the set screws.
(Do not tighten any one of the screws firmly but tighten each screw evenly and repeat the procedure until they are firmly tightened.)
- (3) Insert the lower shaft crank connecting pin in and tighten the set screw.
Then, check if the balance wheel turns smoothly.

NOTE: If it is still tight after repeating the above procedure, give a slight shock on the upper shaft front bushing.



TO ADJUST THE UPPER & LOWER SHAFT BUSHINGS

4. If the lower shaft is tight.....

(1) Loosen the set screws D & E.

(2) While oscillating the lower shaft crank by hand, gradually tighten the set screws alternately.

Make sure the crank moves smoothly. If not, repeat above procedure.

(3) Insert the lower shaft crank connecting pin in and tighten the set screw. Then, check if the balance wheel turns smoothly.

NOTE: If it is still tight after repeating the above procedure, give a slight shock on the lower shaft bushings.

