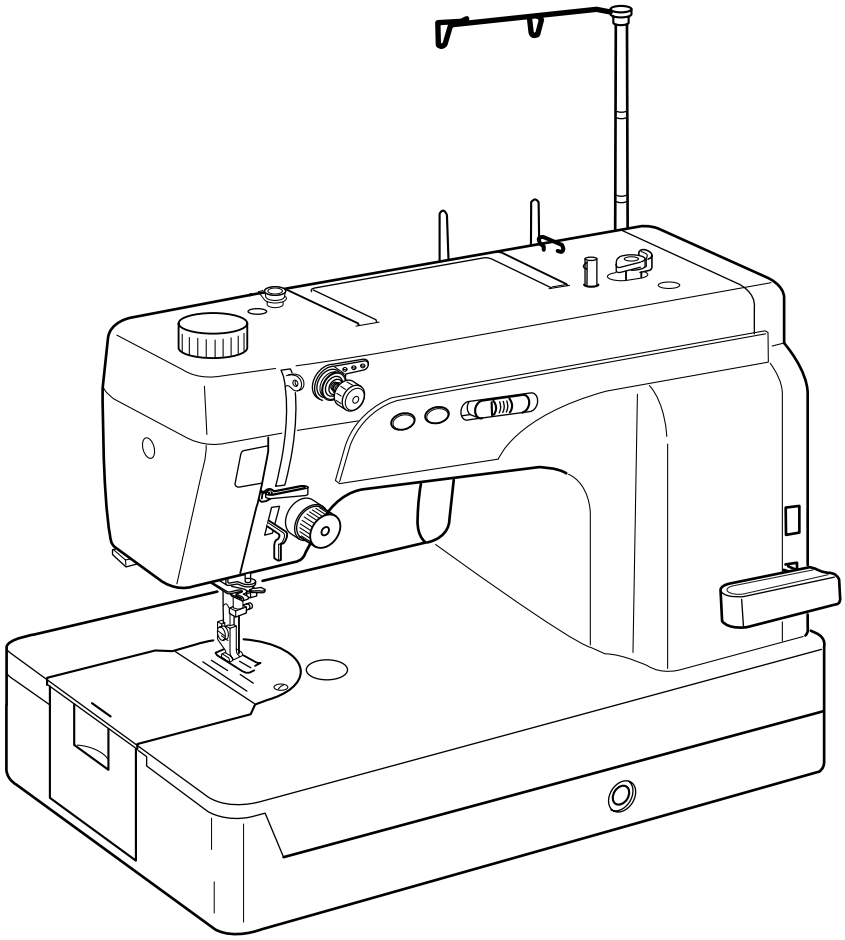
Servicing Manual



1600P, 1600-DB &1600-DBX

JANOME

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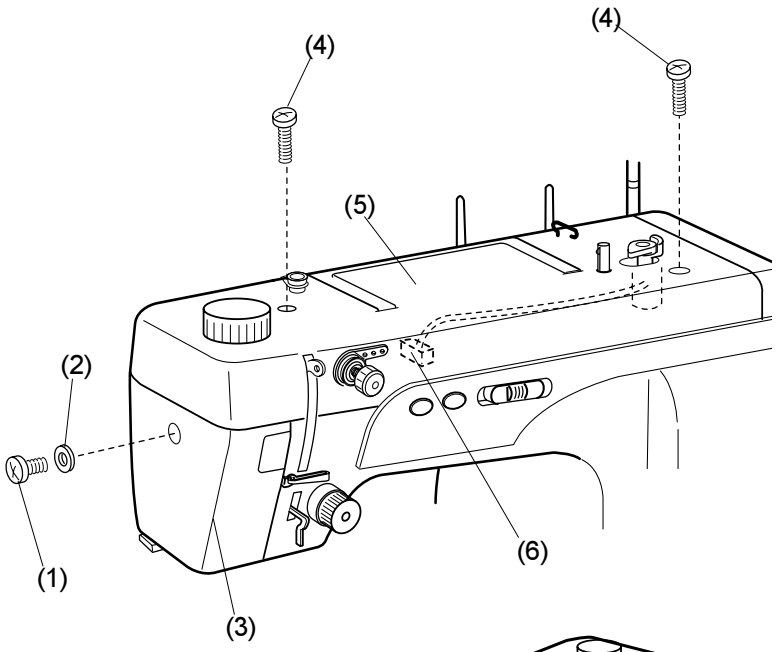
Replacing the External Parts



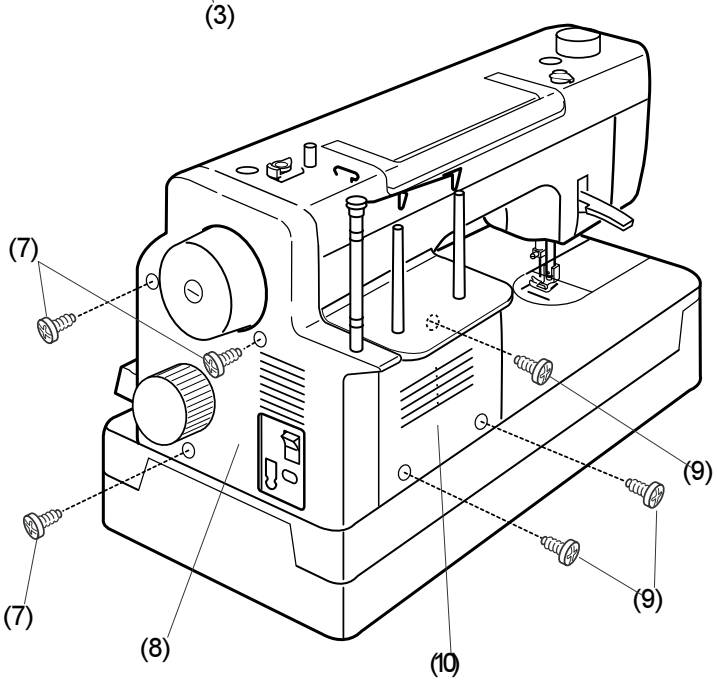
To remove:

1. Face Plate

Remove the setscrew (1) and washer (2). Remove the face plate (3).

2. Top Cover

Remove the 2 setscrews (4).
Lift the top cover (5) and pull out the motor connector (6). Remove the top cover.



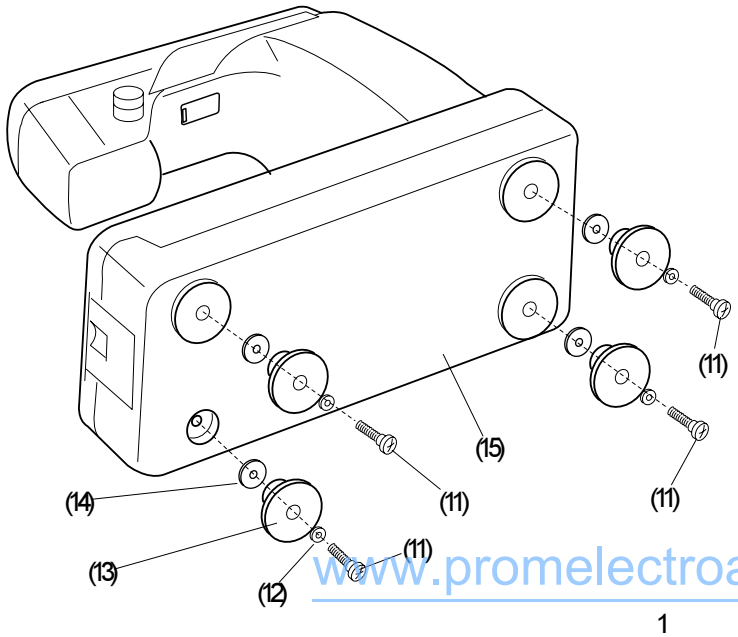
3. Belt Cover

Remove the 3 setscrews (7) and remove the belt cover (8).

NOTE:
When attaching the belt cover, engage the hooks with the motor cover.

4. Motor Cover

Remove the 3 setscrews (9) and remove the motor cover (10).



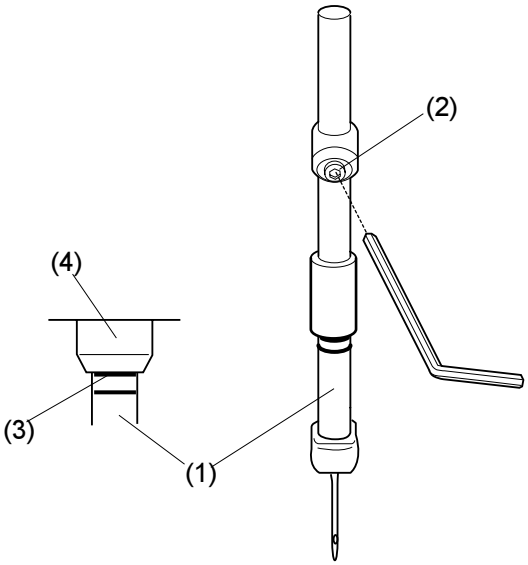
5. Base

Remove the 4 hinge screws (11), washers (12), rubber feet (13) and base washers (14). Remove the base (15).

To attach:

Follow the above procedures in reverse.

Mechanical Adjustment



1. Needle Bar Height

[1] Remove the face plate.

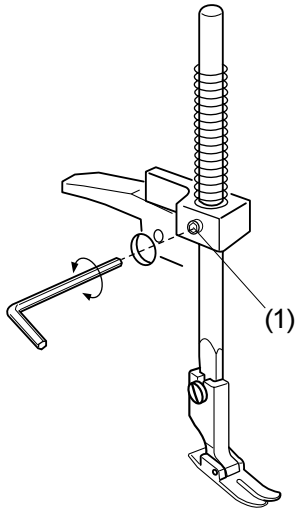
[2] Turn the handwheel to bring the needle bar (1) to the lowest position.

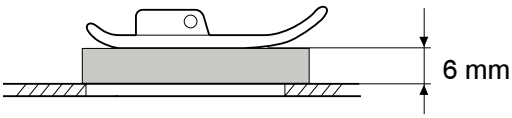
[3] Loosen the setscrew (2). Move the needle bar (1) up or down and match the upper hairline (3) with the bottom edge of the needle bar bushing (4).

NOTE:

Be sure not to rotate the needle bar when adjusting the needle bar height. The needle clamp screw should be parallel to the upper shaft.

[4] Tighten the setscrew and attach the face plate.



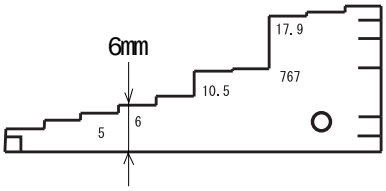


2. Presser Bar Height

The distance between the bottom of the presser foot in up position and the needle plate should be 5.7 - 6.3 mm.

[1] Remove the face plate and needle.

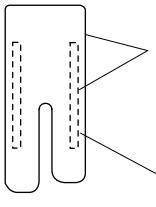
[2] Lower the feed dog below the needle plate. Place a block 6 mm thick under the presser foot and lower the presser foot lifter.
(Use the 4th step from the left of the Gauge 767G-001).



[3] Loosen the setscrew (1). Raise the presser foot lifter while holding presser bar. Tighten the setscrew (1) firmly.
Attach the needle and face plate.

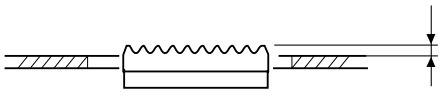
NOTE:

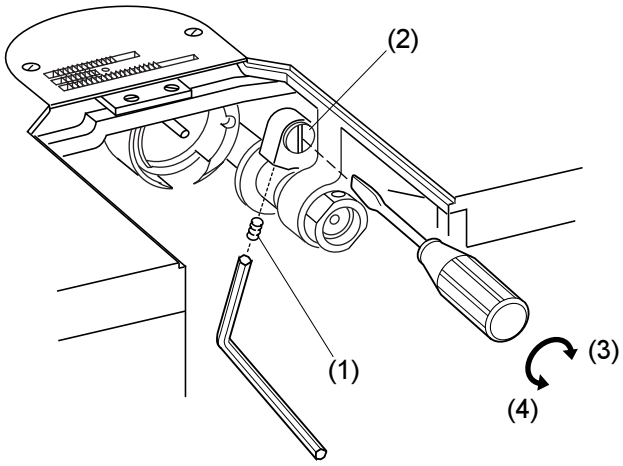
Make sure that the presser foot should be parallel to the feed dog slots (2) in the needle plate and that the needle does not touch the presser foot.



Presser foot should be parallel to the feed dog slots.

3. Feed Dog Height





When the feed dog is fully raised the height should be 0.8 - 1.0 mm above the needle plate.

[1] Set the stitch length dial at 6 (Maximum). Turn the hand wheel to bring the feed dog to the highest position.

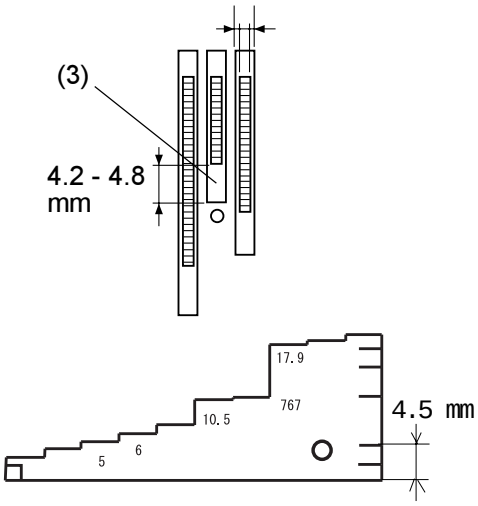
[2] Loosen the setscrew (1).

[3] Turn the eccentric pin (2) to adjust the feed dog height to 0.9 mm.
- If the feed dog is too low, turn the pin to the right (3).
- If the feed dog is too high, turn the pin to the left (4).

[4] Tighten the setscrew (1).

4. Feed Dog Alignment

Lateral gaps should be even.

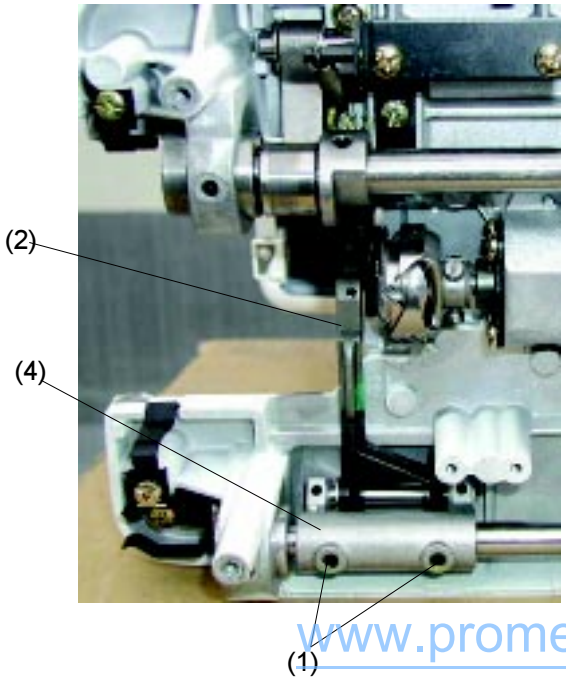


The lateral gaps between both sides of feed dogs and needle plate slots should be even.
The clearance between the front end of the center feed dog and center slot should be 4.2 - 4.8 mm when the stitch length dial is set at 0.

[1] Remove the base and lay the machine on its back.

[2] Set the stitch length dial at 0.

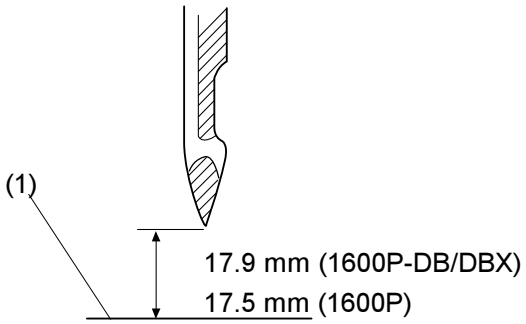
[3] Loosen the setscrews (1). Move the feed base (2) up or down to adjust the clearance (3) between the front end of the center feed dog and center slot to 4.5 mm. (Use the marking on the Gauge 767G-001). Adjust the lateral position of the feed dogs by moving the feed rock shaft (4) to the right or left if necessary.

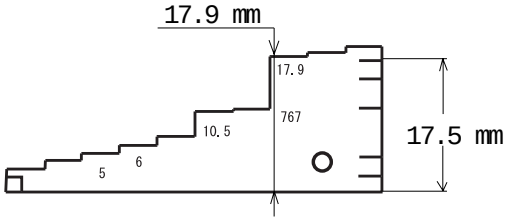


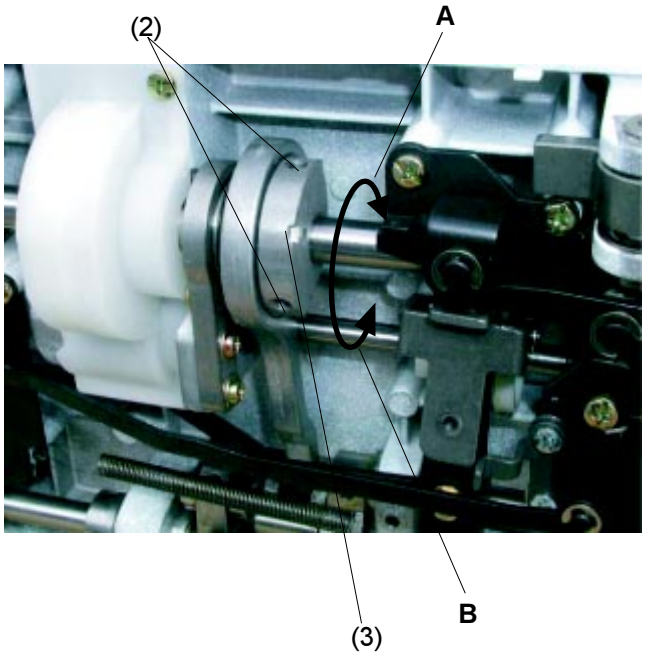
[4] Tighten the setscrews (1). Set the stitch length dial at 6 and turn the handwheel to check if the feed dogs do not touch the needle plate.

[5] Attach the base.

5. Feed Cam Timing







To Check:

[1] Lower the needle bar by turning the handwheel until the point of the needle is 17.9 mm (for 1600P-DB/DBX) or 17.5 mm (for 1600P) above the upper surface of the needle plate (1).

[2] The feed dogs should not move when moving the reverse stitch lever up and down.
If the feed dogs move, adjust the feed cam timing as follows.

To Adjust:

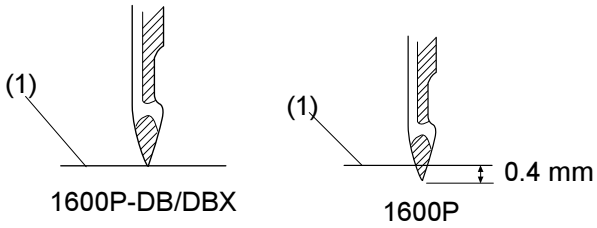
[1] Remove the base and lay the machine on its back.

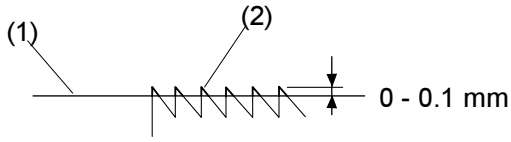
[2] Lower the needle bar until the needle point is 17.9 mm (for 1600P-DB/DBX) or 17.5 mm (for 1600P) above the needle plate (1).
(Use the third step from the right for 17.9 mm or the marking for 17.5 mm on the Gauge 767G-001).

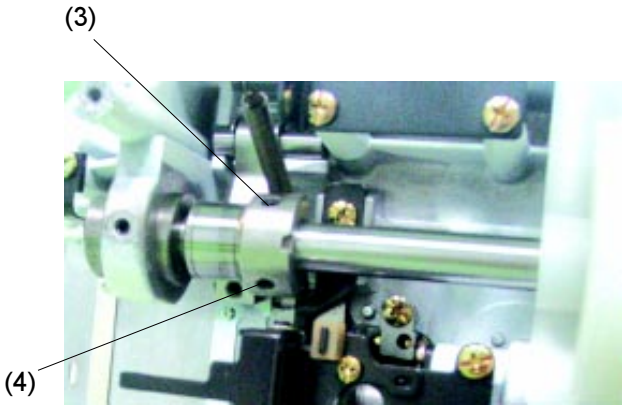
[3] Loosen the setscrews (2).
While moving the reverse stitch lever, turn the feed cam (3) in the direction either **A** or **B** until the feed dogs stop moving.

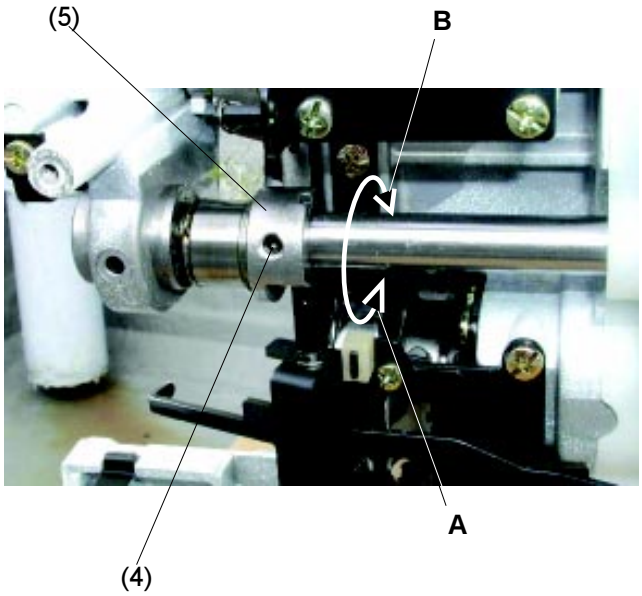
[4] Tighten the setscrews (2) and attach the base.

6. Feed Lifting Cam Timing









To check:

[1] Lower the needle bar until the point of needle is level with the upper surface of the needle plate (1) (1600P-DB/DBX) or 0.4 mm below the needle plate (1600P).

[2] The top of the feed dogs (2) should be 0 - 0.1 mm above the needle plate.

To adjust:

[1] Remove the base and lay the machine on its back.
* You may set the stitch length dial at any position.

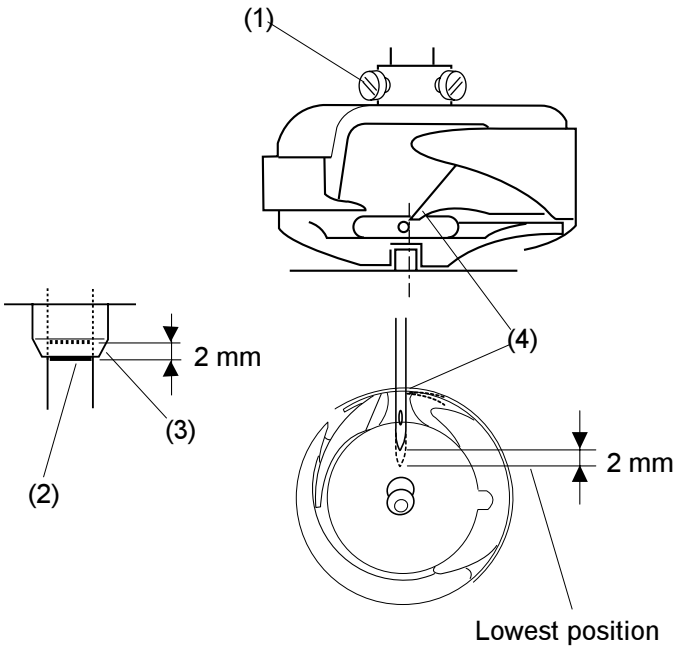
[2] Loosen the setscrew (3).
Lower the needle bar until the needle point is level with the needle plate (1)(1600P-DB/DBX) or 0.4 mm below the needle plate (1600P).

[3] Loosen the setscrew (4).

[4] If the feed dogs are higher, turn the feed lifting cam (5) in the direction **A.**
If the feed dogs are lower, turn the feed lifting cam (5) in the direction **B.**

[5] Tighten the setscrew (3) and attach the base.

7. Needle to Hook Timing



[1] Remove the needle plate.

[2] Loosen the 3 setscrews (1). Pull out the hook race very slightly (less than 0.5 mm).

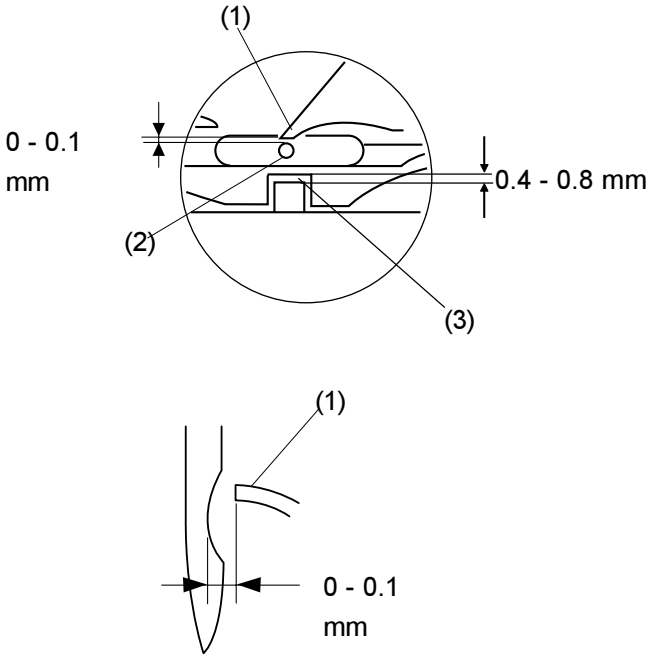
[3] Raise the needle bar from the lowest position until the lower hairline (2) of the needle bar matches the edge of the needle bar bushing (3).

NOTE:
The needle bar rises 2 mm from the lowest position.

[4] Rotate the hook to match the hook point (4) with the right side of the needle.

[5] Tighten the setscrews (1) slightly and proceed with the adjustment of the clearance between the needle and hook point.

8. Clearance between Needle and Hook Point



The clearance between the needle and hook point should be 0 - 0.1 mm.

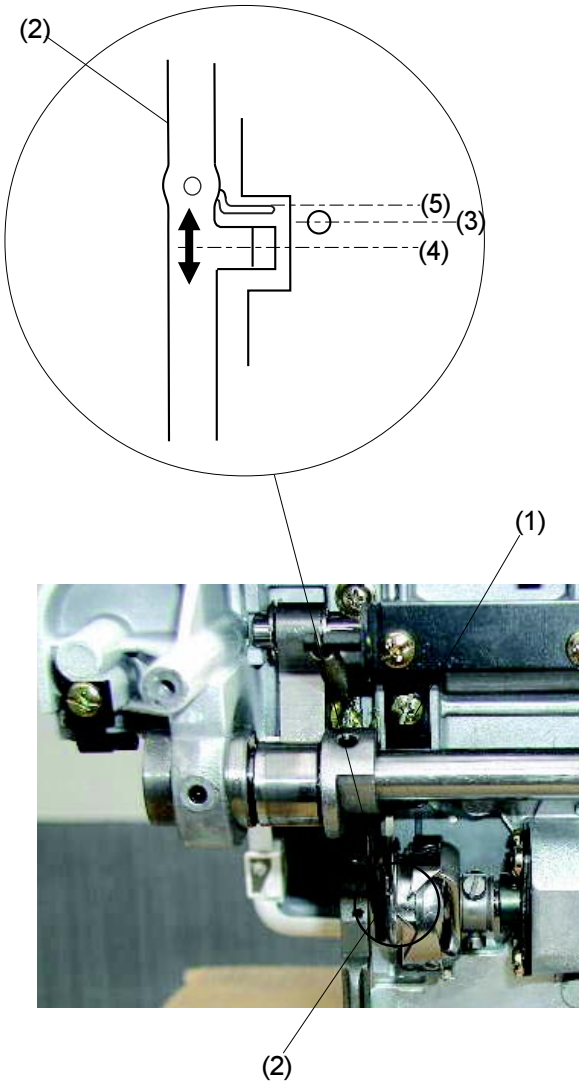
[1] Turn the handwheel to bring the hook point (1) behind the needle (2).

[2] Knock on the hook race rim lightly to make a slight clearance between the needle and hook point.

NOTE:
Do not knock on the hook body.

[3] Tighten the setscrews firmly and check the needle to hook timing and the thread path (3) (0.4 - 0.8 mm). If not, replace the hook race stopper with new one. (There is no way to adjust.)

[4] Attach the needle plate.



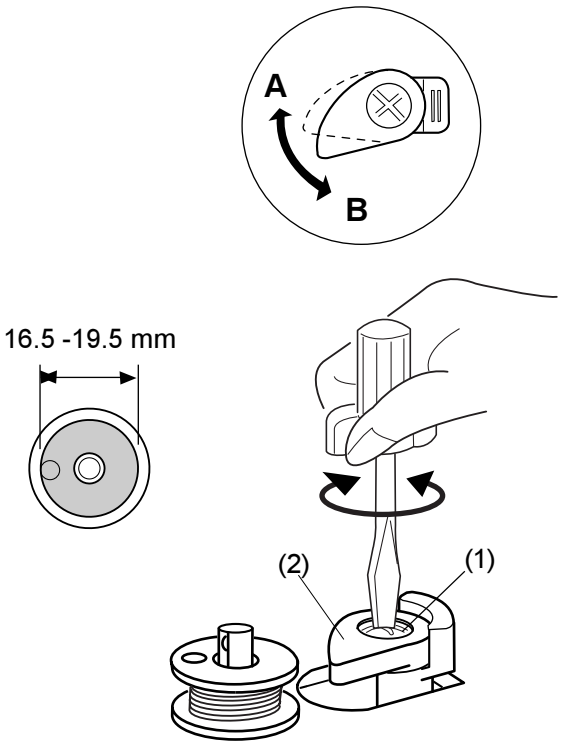
9. Hook Stopper Position

[1] Remove the base, needle plate and feed dog.

[2] Loosen the setscrew (1) and move the hook stopper (2) so that the center of the needle (3) is located between the center of the hook stopper (4) and outer side of the hook stopper spring (5).

[3] Tighten the setscrew (1) and attach the feed dog, needle plate and base.

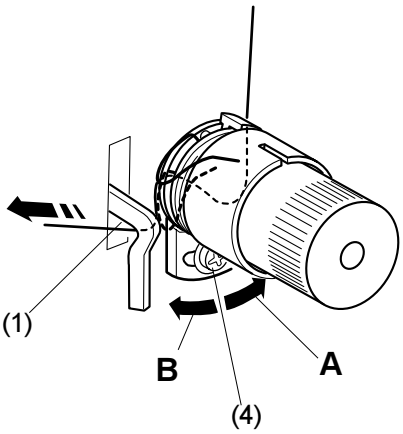
10. Bobbin Winder Stopper



The amount of thread wound on the bobbin should be 16.5 - 19.5 mm in diameter.

[1] Loosen the setscrew (1). Turn the bobbin winder stopper (2) to adjust the thread amount.
- If the amount is too much, turn the stopper in the direction **A**.
- If the amount is not enough, turn the stopper in the direction **B**.

[2] Tighten the setscrew (1) firmly.



11. Check Spring Stroke

The amount of the needle thread supplied by the check spring should be 11 - 15 mm.

[1] Thread the machine up to the thread guide (1) and lower the presser foot.
Lower the needle bar to the lowest position.

[2] Hold the thread end and mark the point (2) on the thread beside the thread guide.

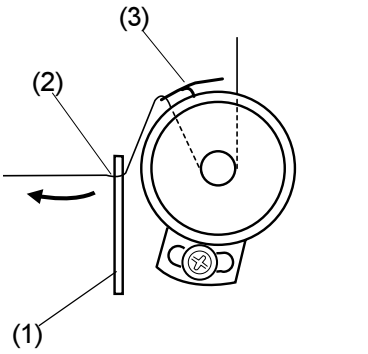
NOTE:
There should be no slack in the thread.

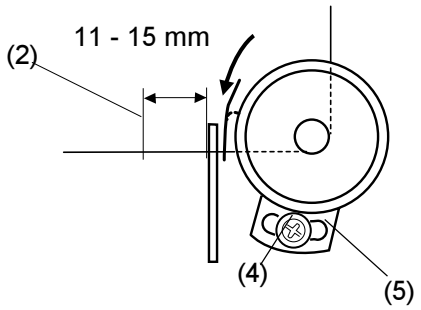
[3] Pull the thread gently to the left until it stops {the check spring (3) travels full stroke}.

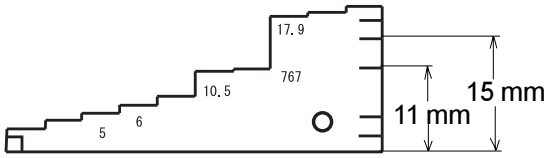
[4] Measure the length of thread drawn out.
(Use the markings on the Gauge 767G-001 for 11 mm and 15 mm).

[5] Loosen the setscrew (4) and move the tension dial guide (5) to adjust the stroke.
- If the length is too long, turn the guide in the direction **A**.
- If the length is too short, turn the guide in the direction **B**.

[6] Tighten the setscrew (4).





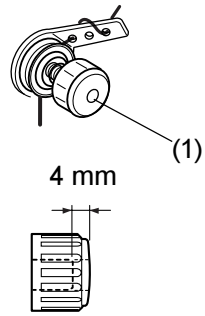


12. Pre-tension Dial

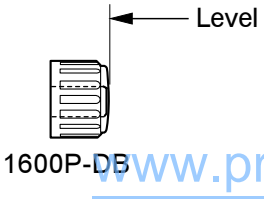
The standard position of the pretension dial is as follows:

1600P and 1600P-DBX:
The screw head (1) sinks 4 mm below the dial face.
(Use the marking on the Gauge 767G-001 for 4 mm).

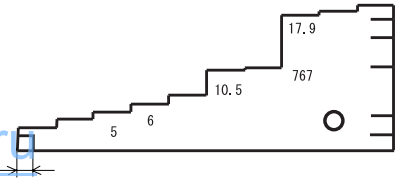
1600P-DB:
The screw head (1) is level with the dial face.



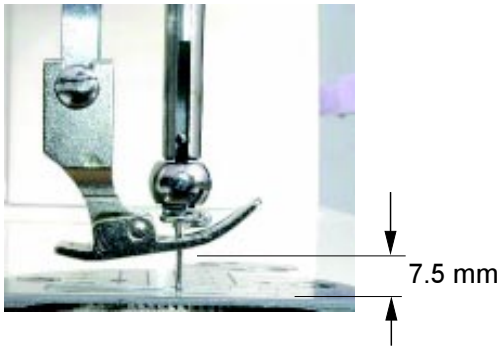
1600P and 1600P-DBX

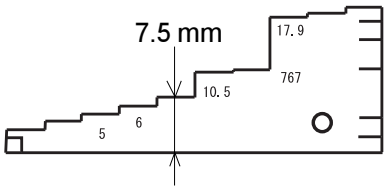


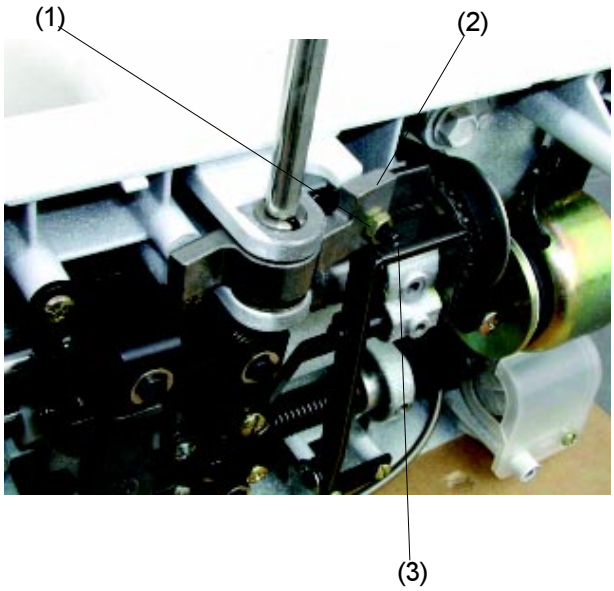
1600P-DB



13. Knee Lifter Lever







The presser foot rises 7.5 mm when it is fully raised with the knee lifter.

[1] Remove the base and lay the machine on its back.

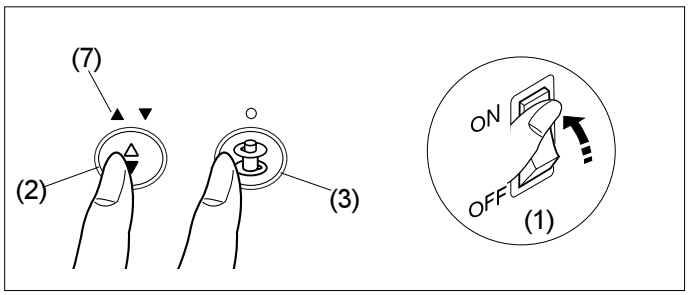
[2] Loosen the nut (1) on the knee lifter lever (2) slightly and turn the adjusting screw (3) to adjust the height.
- If it is lower than 7.5 mm, turn the adjusting screw (3) clockwise.
- If it is higher than 7.5 mm, turn the adjusting screw (3) counterclockwise.

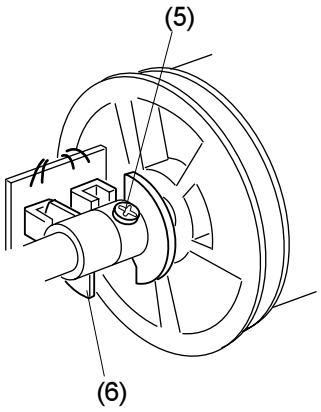
(Use the 5th step from the left of the Gauge 767G-001 for 7.5 mm).

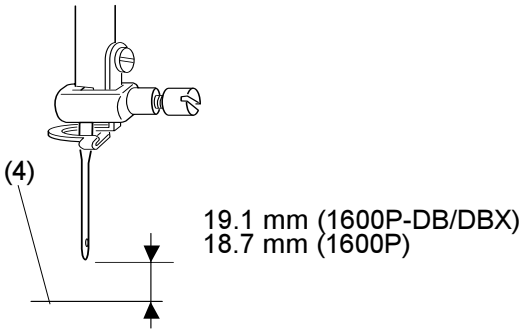
[3] Tighten the nut (1) firmly and attach the base.

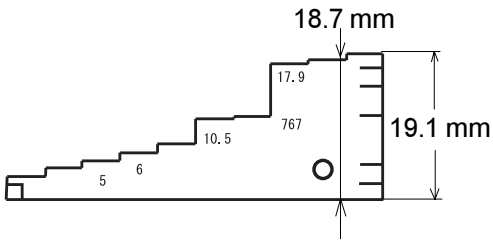
NOTE:
Lower the needle bar to the lowest position and check if the needle clamp does not hit against the presser foot when it is fully raised.

14. Needle Stop Position









[1] Turn the power switch (1) on while pressing the Up/ Down needle position button (2) and bobbin winding button (3) at the same time.

[2] Remove the top cover.

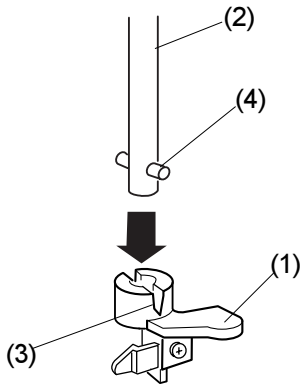
[3] Lower the needle bar by turning the hand wheel until the needle point is 19.1 mm (for 1600P-DB/DBX) or 18.7 mm (for DP-1600P) above the upper surface of the needle plate (4).
(Use the first step from the right for 19.1 mm or the second step from the right for 18.7 mm).

[4] Loosen the setscrew (5). Rotate the upper shaft shielding plate (6) toward you until the green LED (7) turns on.

[5] Tighten the setscrew (5) and turn the power switch off.

[6] Attach the top cover.

15. Needle Threader (1600P only)



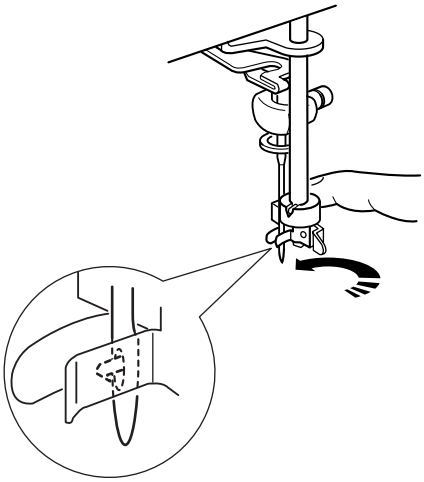
To remove:

[1] Remove the face plate.

[2] Pull the threader (1) out from the threader shaft (2).

To attach:

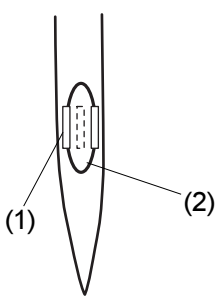
[3] Align the groove (3) of the theader with the pin (4) on the threader shaft. Push the threader up until it snaps in place.

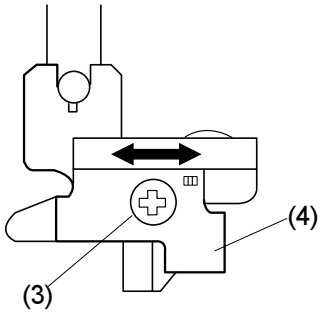


To adjust:

[1] If the threader hook (1) thrusts or hits against either left or right edge of the needle eye (2):

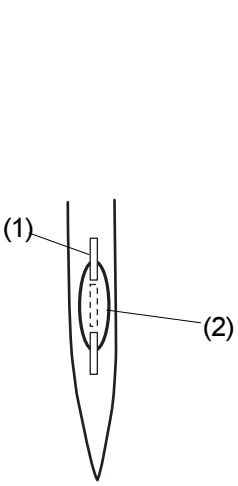
Loosen the setscrew (3). Move the threader plate (4) to adjust the lateral position of the threader hook (1).

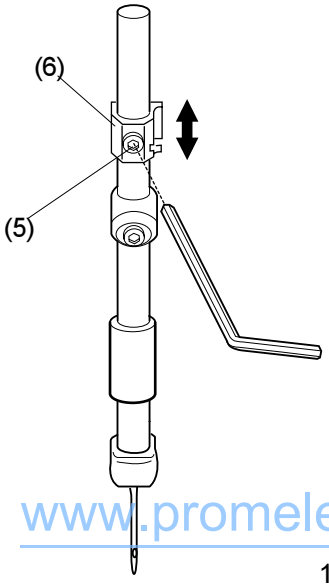




[2] If the threader hook (1) thrusts or hits against either top or bottom edge of the needle eye (2), or misses the needle eye (2):

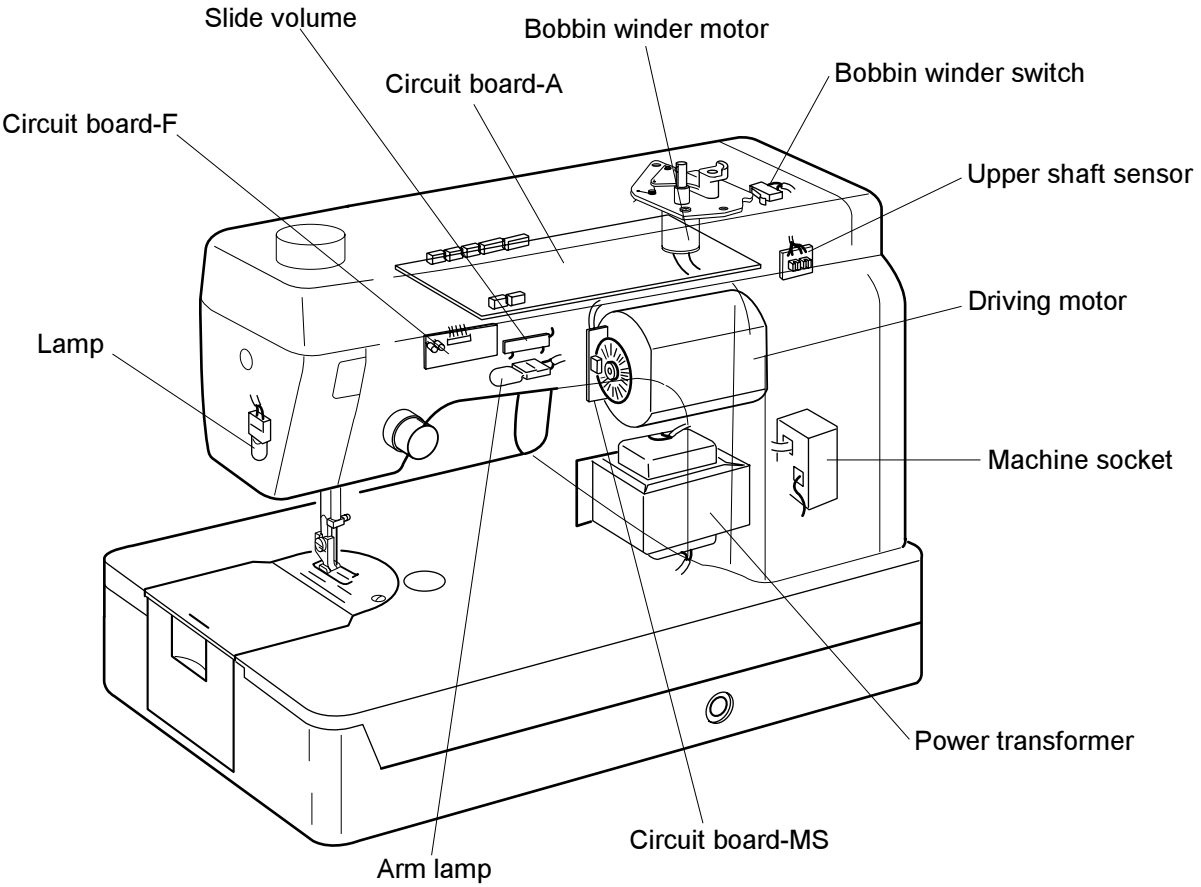
Loosen the setscrew (5). Move the threader position setting plate (6) up or down to adjust the vertical position of the threader hook (1).



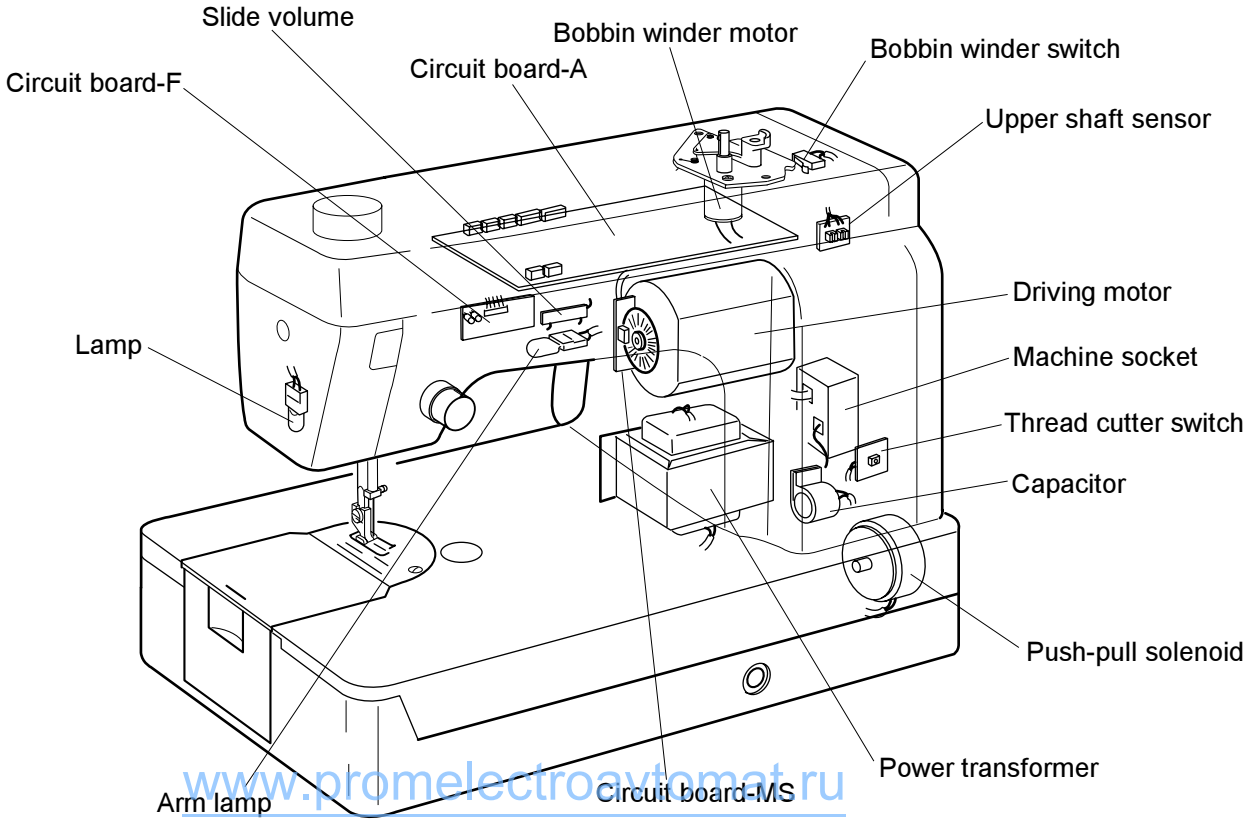


Replacing the Electronic Components

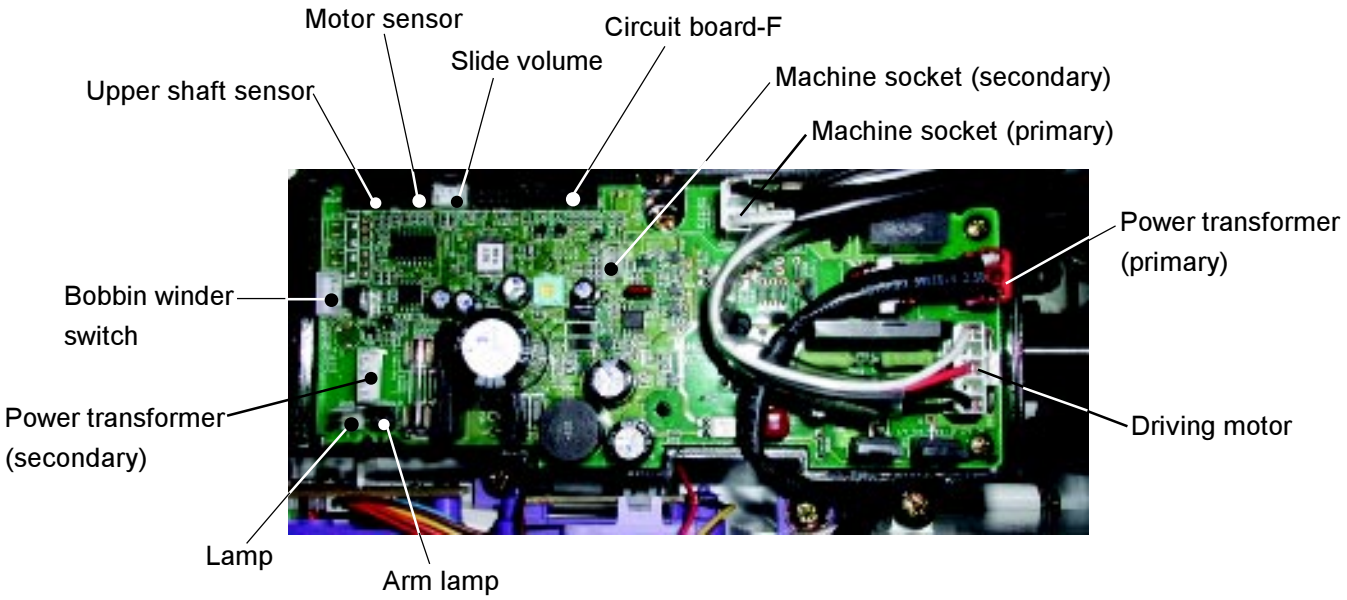
1a. Location of the Electronic Components (1600P-DB)



1b. Location of the Electronic Components (1600P and 1600P-DBX)



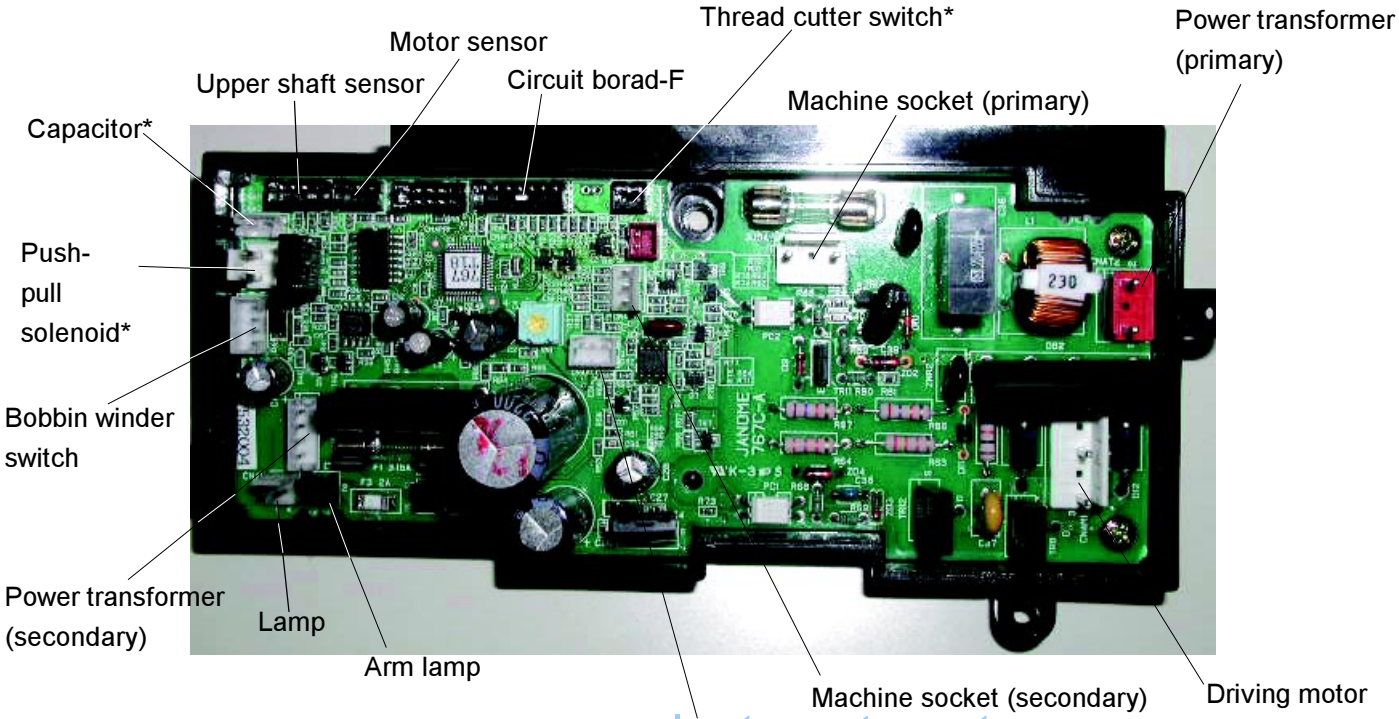
2a. Location of the Connectors (1600P-DB)



2b. Location of the Connectors (1600P and 1600P-DBX)

NOTE:

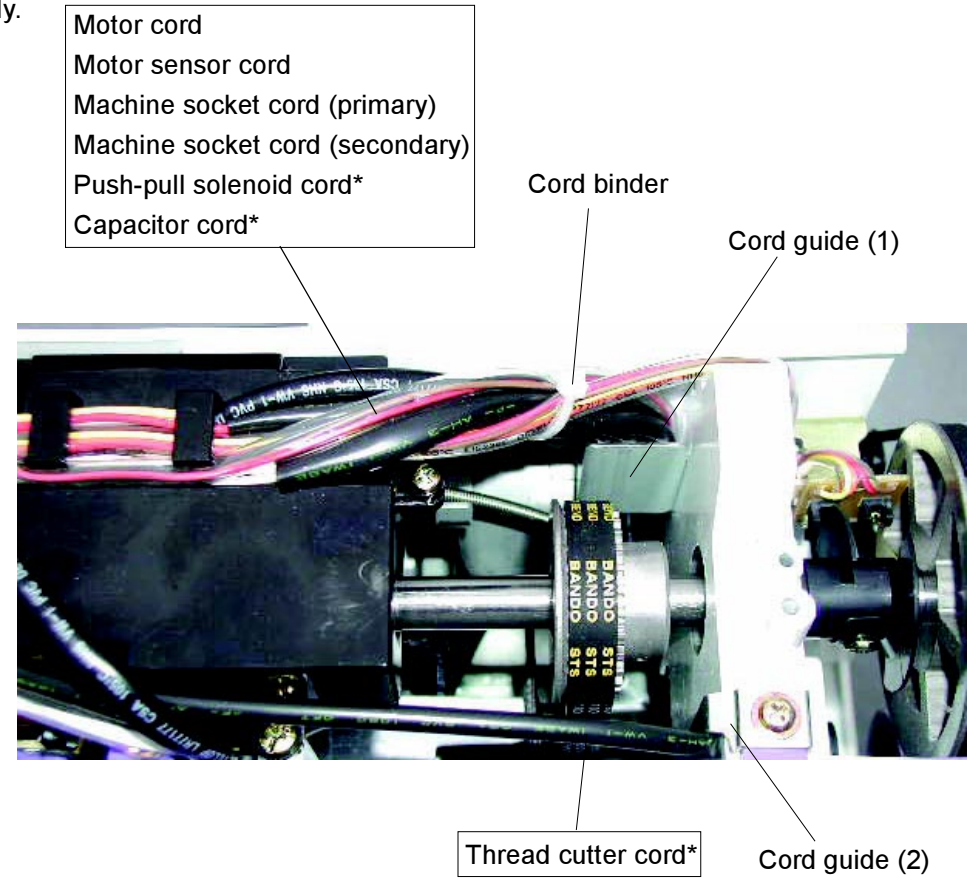
* only for 1600P and 1600-DBX

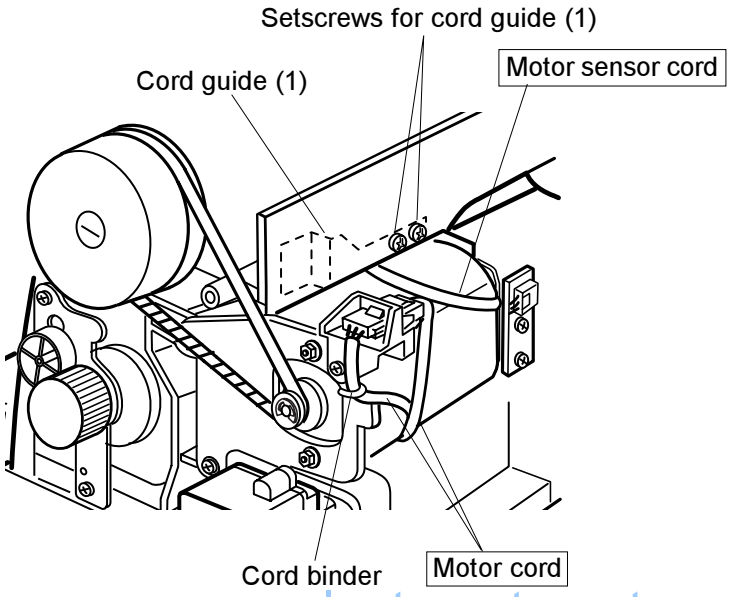


3. Internal Wiring

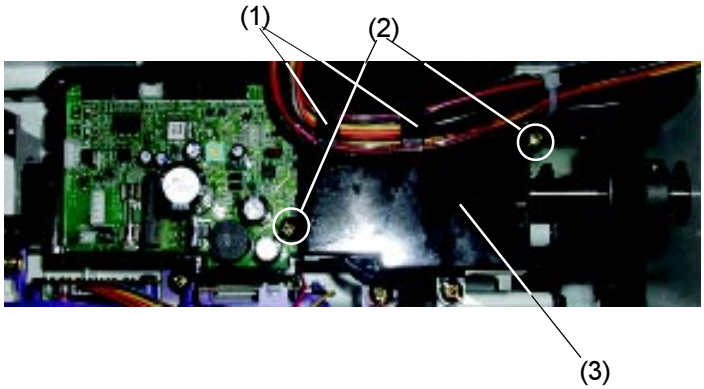
To prevent the internal wirings from contacting the moving parts or being caught in the joint of the external parts, the internal wirings should properly be routed and secured as illustrated.

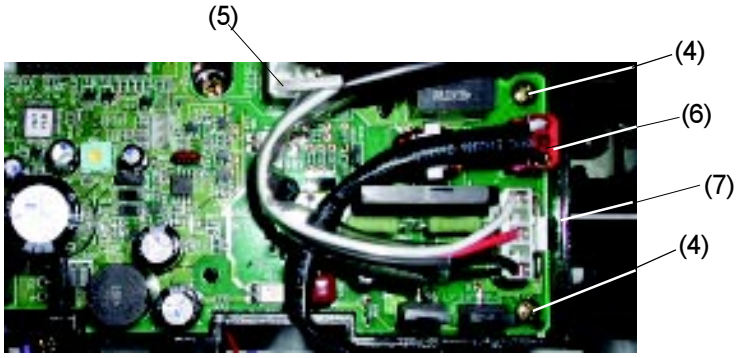
NOTE:
The item marked with * is applicable to 1600P and 1600-DBX only.





4. Circuit Board-A





To remove:

[1] Remove the top cover.

[2] Pull out connectors from the circuit board-A. Remove the cords from the cord clips (1).

[3] Remove the setscrews (2) and the board-A case lid (3).

[4] Pull out the connectors under the case lid. Remove setscrews (4) and circuit board-A.

To attach:

[5] Install the circuit board-A and secure it with the setscrews (4).

[6] Insert the following connectors:
(5) Machine socket (primary)
(6) Power transformer (primary)
(7) Driving motor

[7] Attach the board-A case lid (3) and secure it with the setscrews (2).

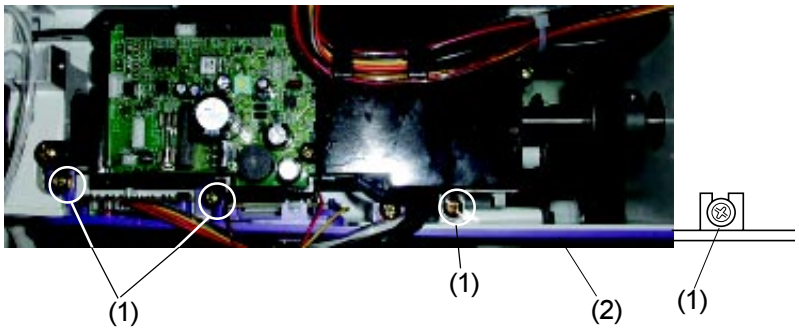
Insert the remaining connectors and secure the cords with the cord clips (1) on the case lid.

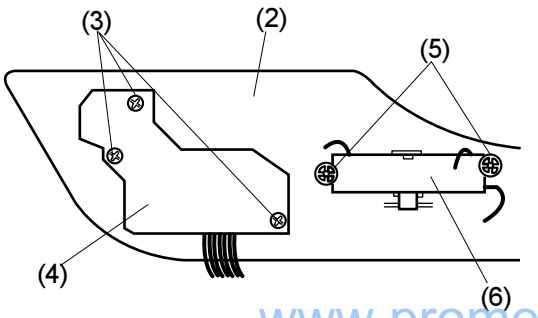
Attach the top cover.

NOTE:

Do not disconnect the connectors by pulling on cord. To disconnect, grasp the connector, not the cord.

5. Circuit Board-F and Slide Volume





[1] Remove the top cover.

[2] Loosen the 4 setscrews (1) and remove the ornamental panel (2).

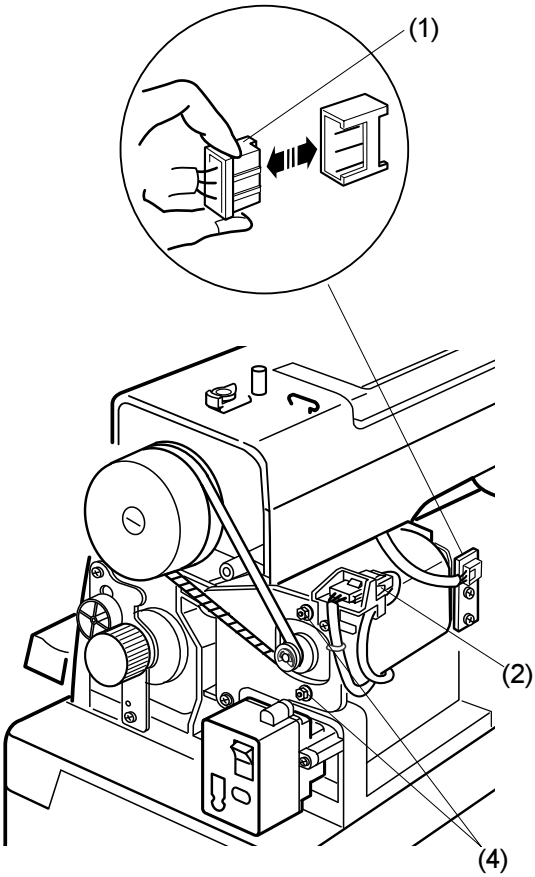
[3] Pull out the circuit board-F connector from the circuit board-A. Remove the 3 setscrews (3) and circuit board-F (4).

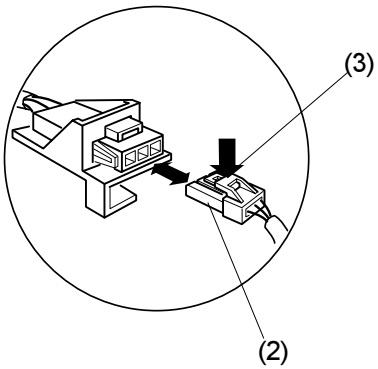
[4] Pull out the slide volume connector from the circuit board-A. Remove the CS rings (5) and slide volume (6).

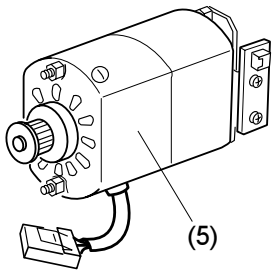
[5] To attach: follow the above procedure in reverse.

NOTE:

Do not disconnect the connectors by pulling on cord. To disconnect, grasp the connector, not the cord.







6. Driving Motor

To remove:

[1] Remove the belt cover and motor cover.

[2] Pull out the motor sensor connector (1).

[3] Pull out the motor connector (2), while pushing the connector lock (3).

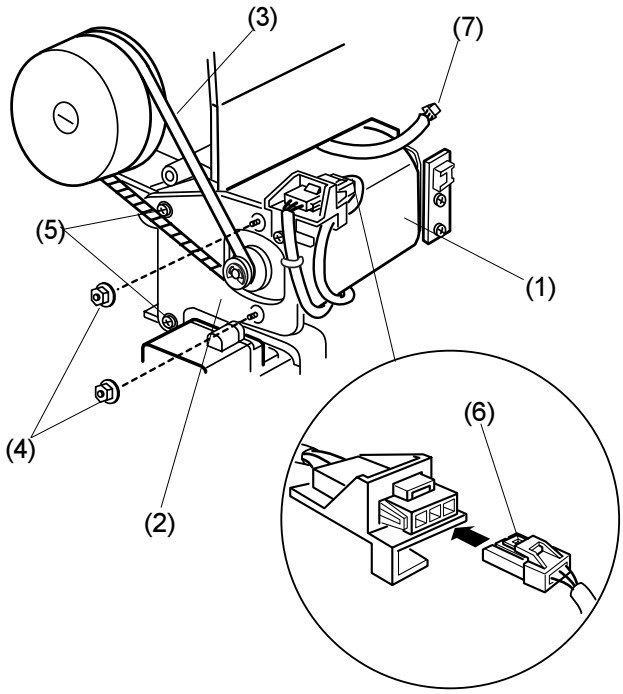
[4] Remove the nuts (4) and driving motor (5).

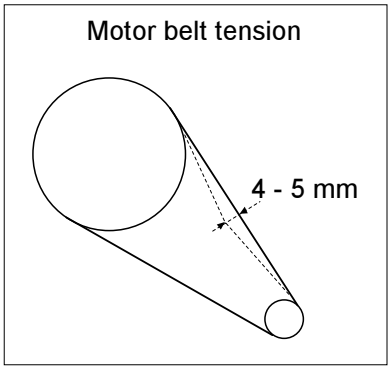
NOTE:

Do not disconnect the connectors by pulling on cord.
To disconnect, grasp the connector, not the cord.

(to be continued on next page.)

6. Driving Motor (continued)





To attach:

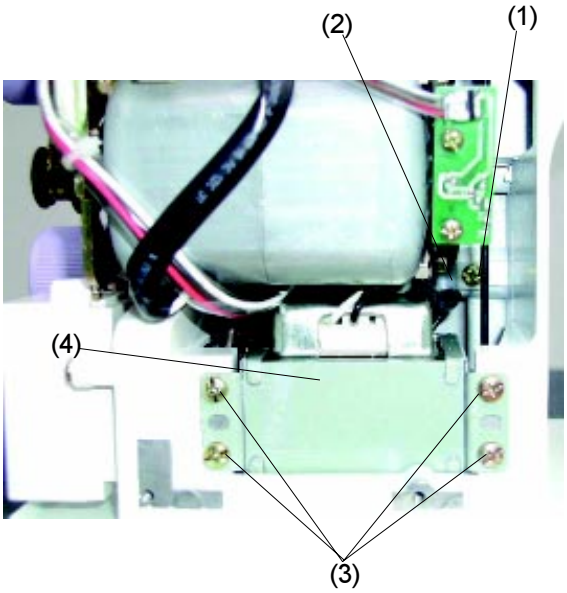
[1] Install the driving motor (1) to the motor bracket (2) and attach the motor belt (3). Tighten the nuts (4) firmly.

[2] Loosen the setscrews (5) slightly and move the motor up or down to adjust the motor belt tension.
The belt should deflect 4 - 5 mm when applying 300 grams of load to the middle of the belt.
Tighten the setscrews (5) firmly.

[3] Insert the motor connector (6) and motor sensor connector (7).

[4] Attach the motor cover and belt cover.

7. Power Transformer



[1] Remove the top cover and motor cover.

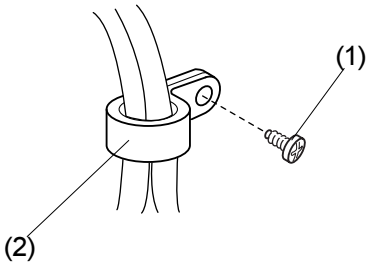
[2] Remove the board-A case lid and pull out the transformer connectors (primary and secondary) from the circuit board-A.

[3] Remove the driving motor.

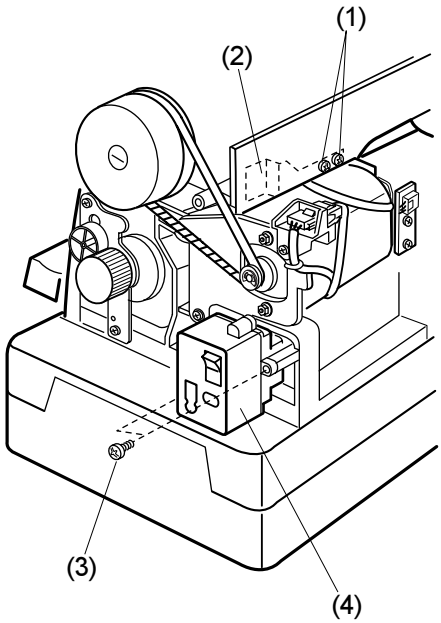
[4] Remove the setscrew (1) and cord binder (2).

[5] Remove the setscrews (3) and transformer (4).

[6] To attach: follow the above procedure in reverse.



8. Machine Socket



[1] Remove the top cover, belt cover and motor cover.

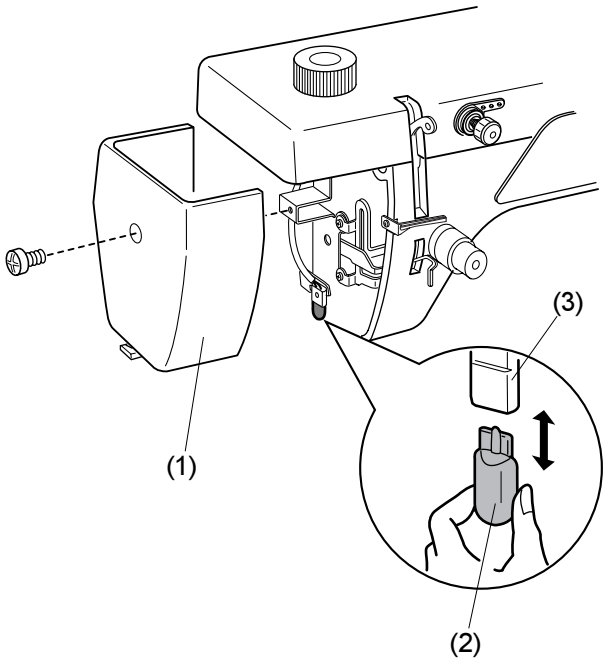
[2] Remove the board-A case lid and pull out the machine socket connectors (primary and secondary) from the circuit board-A.

[3] Remove the setscrews (1) and cord guide (2).

[4] Remove the setscrews (3) and machine socket (4).

[5] To attach: follow the above procedure in reverse.

9. Light Bulb



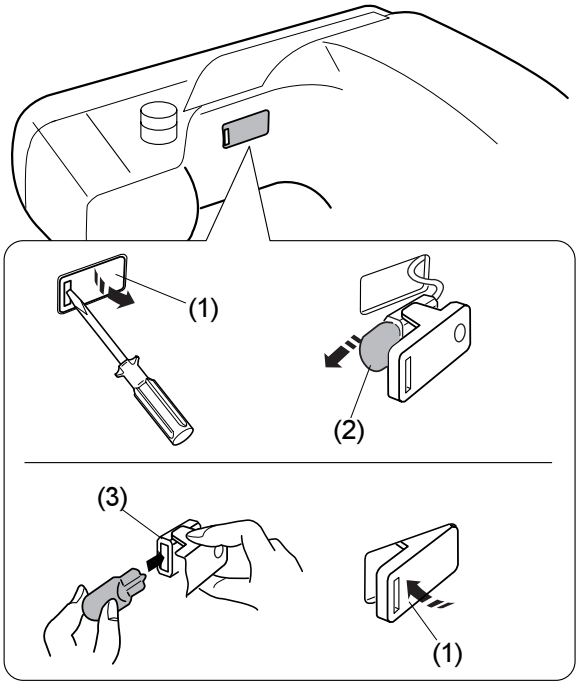
Light bulb inside of the face plate

[1] Remove the face plate (1).

[2] Pull out the light bulb (2) from the lamp socket (3).

[3] Insert a new bulb and push it into the lamp socket.

[4] Attach the face plate.



Light bulb under the sewing arm

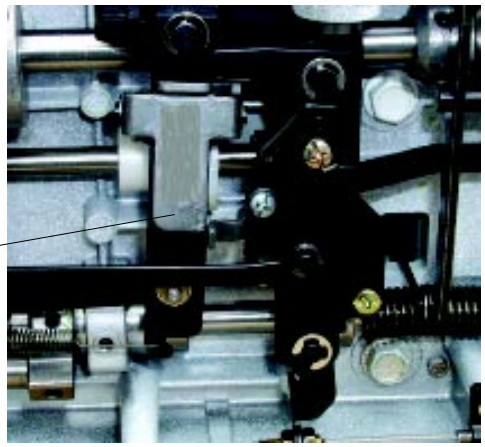
[1] Pry out the lamp window (1) with a screwdriver.

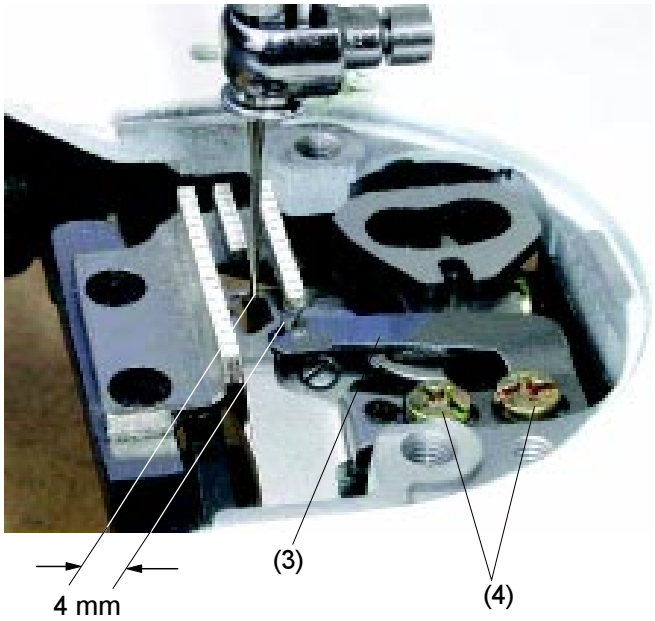
[2] Pull out the light bulb (2) from the lamp socket (3).

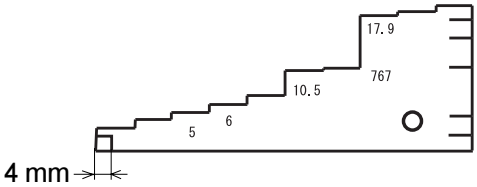
[3] Insert a new bulb and push it into the lamp socket.

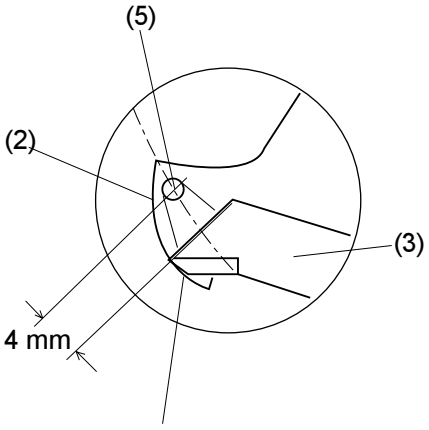
[4] Attach the lamp window into the opening of the sewing arm and push the window to fix it.

Adjustment of the Thread Cutter Mechanism (1600P and 1600P-DBX only)









Align the left edges of the thread cutter blade and the static cutter blade.

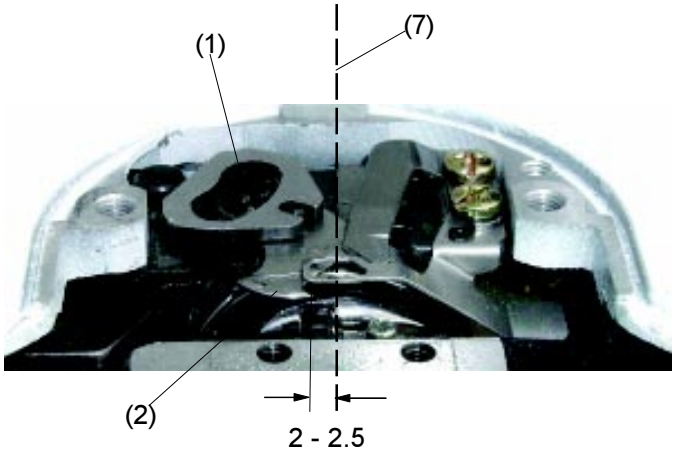
1. Static Cutter Blade

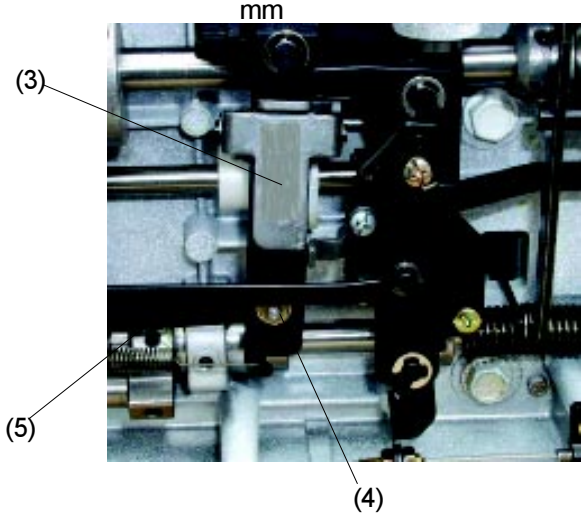
[1] Remove the needle plate and base.

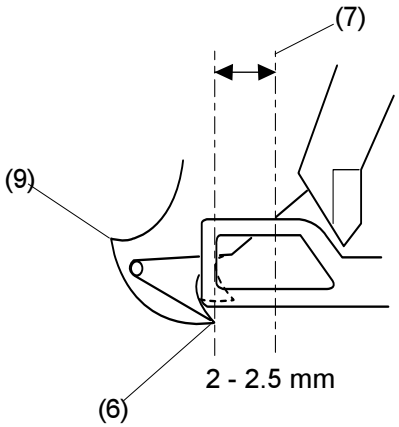
[2] Make sure that the presser foot is raised.
Lower the needle bar to the lowest position. Turn the hand wheel toward you until the tip of the needle levels with the presser foot. Continue to turn the hand wheel toward you while pushing up the link body (1) to engage the thread cutter blade (2) and bring it under the static blade (3).

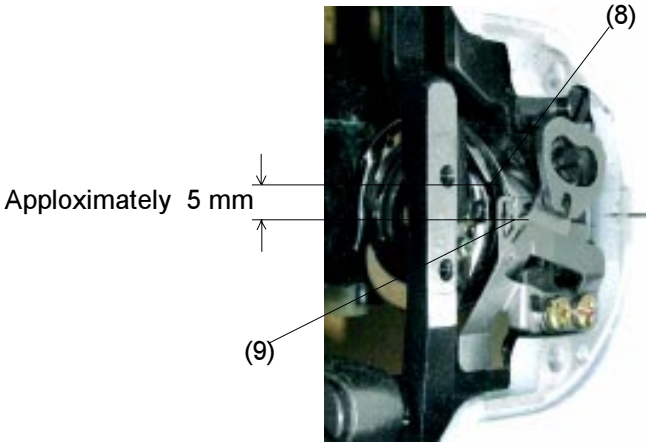
[3] Loosen the setscrews (4) and adjust the position of the static cutter blade (3) so that the distance between the center of the needle drop position (5) and the static cutter blade (3) is 4 mm and the left edges of the static blade and thread cutter blade are aligned. (Use the marking for 4 mm on the Gauge 767G-001).

[4] Tighten the setscrews (4). Attach the needle plate and base.









2. Thread Cutter Blade

To replace:

[1] Remove the needle plate, feed dog and base.

[2] Remove the static cutter blade. Remove the hinge screw (1) and thread cutter blade (2).

[3] Attach the new thread cutter blade and secure it with the hinge screw (1).

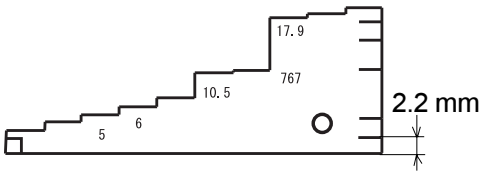
[4] Attach the static cutter blade and adjust the position of the static cutter blade and thread cutter blade.

To adjust:

[1] Raise the presser foot.
Remove the needle plate and base.

[2] Lower the needle bar to the lowest position. Turn the hand wheel toward you until the tip of the needle levels with the presser foot. Continue to turn the handwheel toward you while pushing up the link body (3) to engage the thread cutter blade (2) and bring it to the end of the stroke.

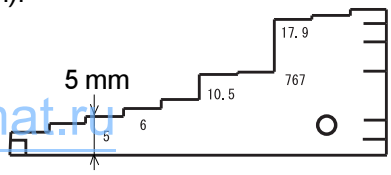
[3] Loosen the nut (4) and move the thread cutter link (5) to the left or right to adjust the position of the thread cutter blade. The point (6) of the thread cutter blade should be 2 - 2.5 mm from the center of the needle drop position (7).
(Use the marking for 2.2 mm on the Gauge 767G-001).



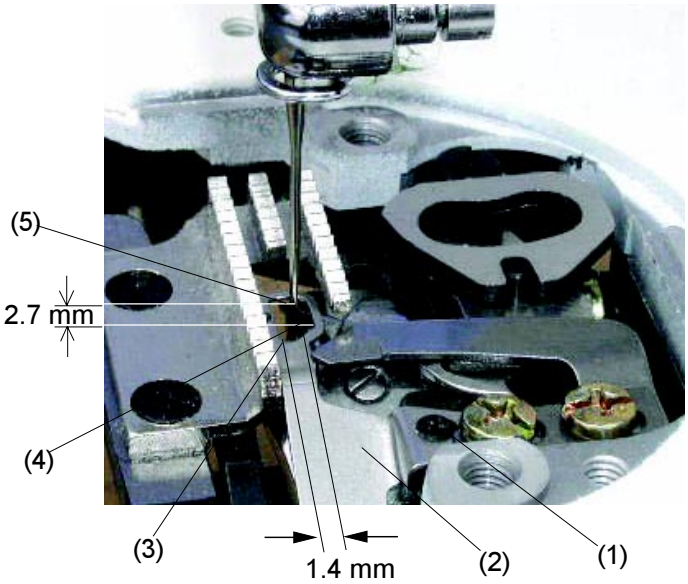
[4] Tighten the nut (4). Attach the needle plate and base.

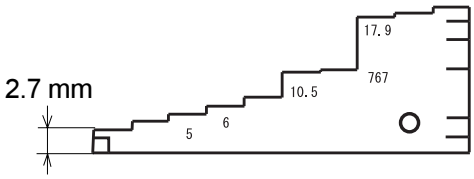
NOTE:

Check if there is approximately 5 mm distance between the tail of the hook wing (8) and the end point (9) of the thread cutter blade when the end point (9) of the thread cutter blade is aligned with the center of the needle drop position (7). (Use the third step from the left of the Gauge 767G-001 for 5 mm).



3. Thread Guide Plate



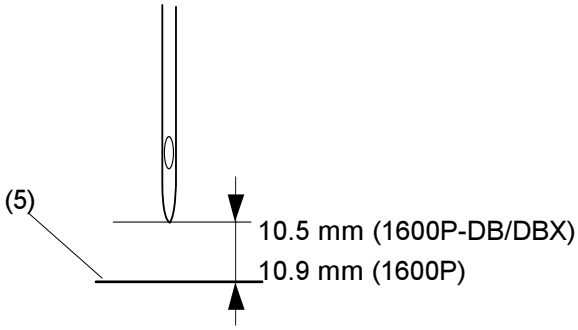


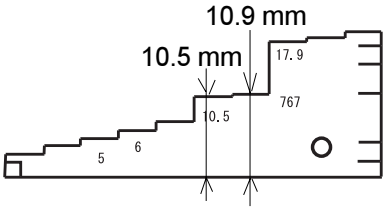
[1] Remove the needle plate.

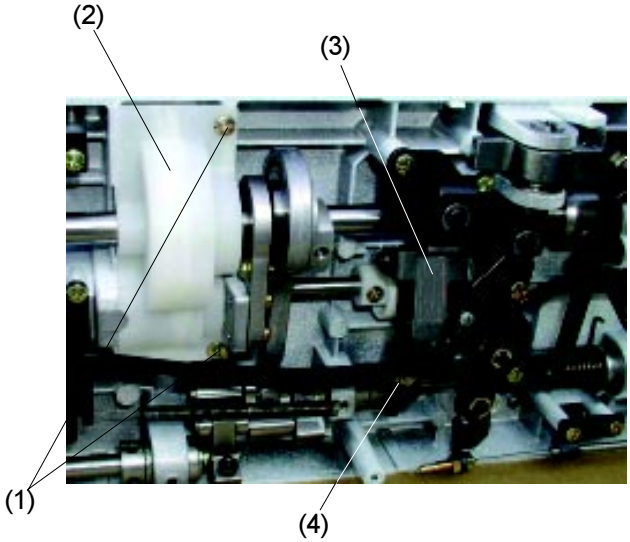
[2] Loosen the flat screw (1) and adjust the position of the thread guide plate (2).

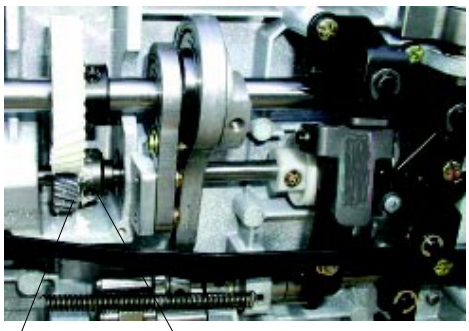
[3] The left inner edge (3) of the thread guide plate should be approximately 1.4 mm from the center of the needle drop position (4) and the back inner edge (5) of the thread guide plate should be approximately 2.7 mm from the center of the needle drop position (4). (Use the first step from the left of the Gauge 767G-001 for 2.7 mm).

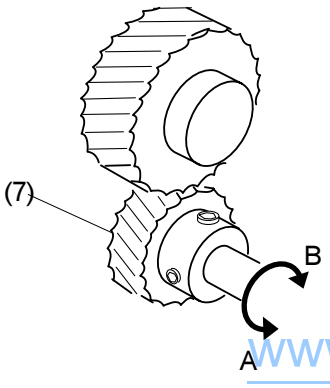
[4] Tighten the flat screw firmly. Attach the needle plate.











4. Needle to Cutter Cam Timing

[1] Remove the base.

[2] Remove the setscrews (1) and gear cover (2).

[3] Lower the needle bar to the lowest position.
Turn the hand wheel toward you until tip of the needle levels with the presser foot. Continue to turn the hand wheel toward you to raise the needle bar while pushing up the link body (3).

[4] Continue to turn the handwheel until the thread drawing arm (4) starts to move to the right.
The needle point should be 10.5 mm (1600P-DB/DBX) or 10.9 mm (1600P) above the upper surface of the needle plate (5) when the thread drawing arm starts to move.
(Use the 6th and 7th steps of the Gauge 767G-001 for 10.5 mm and 10.9mm).

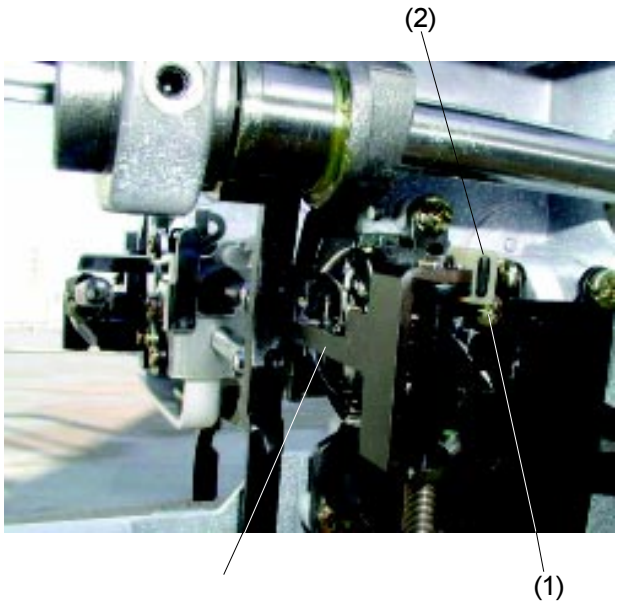
[5] Loosen the 2 setscrews (6) and turn the hook shaft gear (7) to adjust the timing.

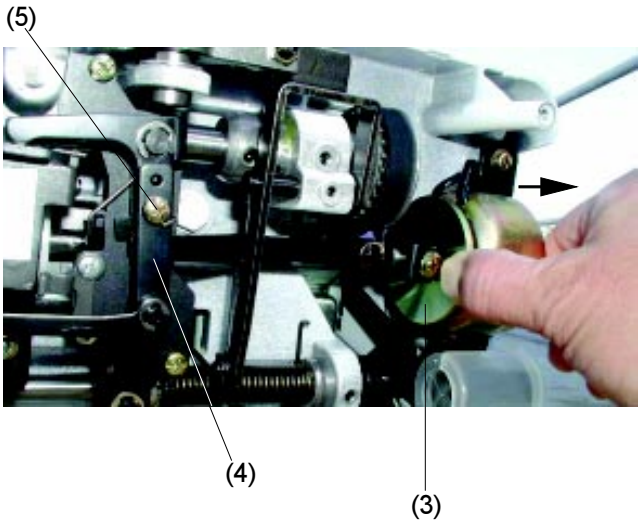
- If the needle point is too high, turn the hook shaft gear in the direction **A**.
- If the needle point is too low, turn the hook shaft gear in the direction **B**.

NOTES:
Hold the hook so that it will not rotate when turning the hook shaft gear.
Check the needle to hook timing and adjust it if necessary.

[6] Tighten the 2 setscrews (6) firmly. Attach the gear cover (2) and secure it with the setscrews (1).
Attach the base.

5. Thread Drawing Lever





[1] Remove the base.

[2] Loosen the setscrew (1) and free the stopper (2).

[3] Turn the handwheel toward you to raise the needle bar from the lowest position until the needle point is 10.9 mm (1600P-DB/DBX) or 10.5 mm (1600P) above the upper surface of the needle plate.

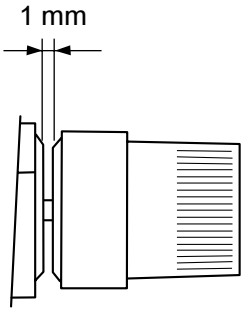
[4] Push the solenoid disk (3) fully to swing the thread drawing lever (4).
Loosen the setscrew (5) and move the thread drawing arm (6) to the left or right so that the tip of the thread drawing lever (4) lightly contacts with the bobbin.

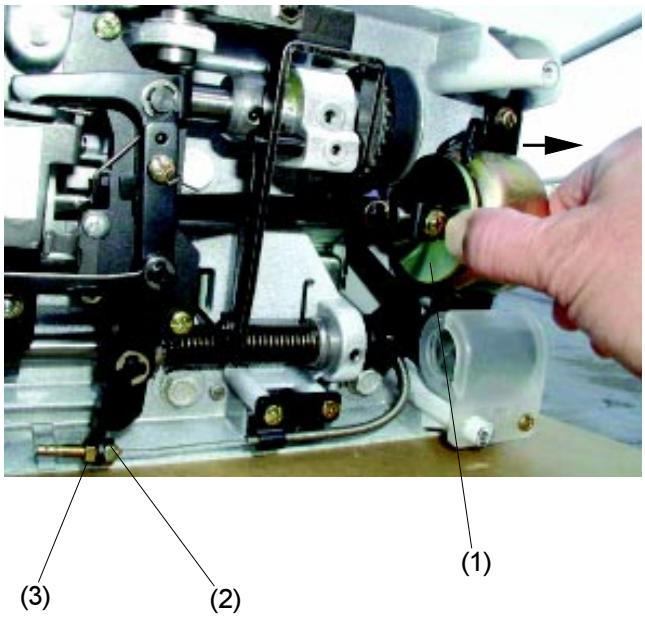
[5] Tighten the setscrew (5).

[6] Restore the stopper (2) and press it against the thread drawing lever (4), while pushing the solenoid disk (3).
Tighten the setscrew (1) firmly.

[7] Attach the base.

6. Auto Tension Release





[1] Turn the handwheel toward you to raise the needle bar until the needle point is just above the needle plate.

[2] Lower the presser foot.
Set the tension dial at 4 and push the solenoid disk (1) fully to the right. The tension disks should open 1 mm.

[3] Loosen the lock nut (2) and turn the adjusting nut (3) to adjust the gap between the tension disks.

- If the gap is too wide, tun the adjusting nut counter-clockwise.
- If the gap is too narrow, tun the adjusting nut clock-wise.

[4] Tighten the lock nut (2).

Thread Cutter Troubleshooting (1600P and 1600P-DBX only)

The needle thread is not cut.	The static cutter is dull.	Replace or grind the static cutter blade.
	The static cutter blade is out of position.	Adjust the position of the static cutter blade (see page 21).
	Skipped stitch before thread cutting.	Reset the needle at the proper angle. Reduce the check spring stroke (see page 11). Adjust the needle to hook timing (see page 6).
The bobbin thread is not cut.	The thread cutter blade is out of position.	Adjust the stroke of the thread cutter blade (see page 22).
	The thread guide plate is out of position.	Adjust the position of the thread guide plate (see page 23).
	The proper hook is not used.	Use the proper hook.
The thread slips out the needle eye when starting sewing.	The needle to cutter cam timing is too late.	Adjust the needle to cutter cam timing (see page 24).
	The thread drawing lever is out of position.	Adjust the thread drawing lever position (see page 25).
The needle thread bunches up on the wrong side of the fabric at the beginning of the seam.	A too long tail of the needle thread is left after thread cutting.	Adjust the needle to cutter cam timing (see page 24). Adjust the position of the static cutter blade (see page 21).
The tail of the needle thread appears on the right side of the fabric.	The pretention is too loose.	Tighten the pretension.
	The needle to cutter cam timing is too late.	Adjust the needle to cutter cam timing (see page 24).
	The static cutter blade is out of position.	Adjust the position of the static cutter blade (see page 21).
Skipped stitches at the beginning of the seam due to a too short tail of the thread after thread cutting.	The auto tension release is not enough.	Adjust the auto tension release (see page 26).
	The needle to cutter cam timing is too early.	Adjust the needle to cutter cam timing (see page 24).
	The thread drawing lever is out of position.	Adjust the thread drawing lever position (see page 25).
	The static cutter blade is out of position.	Adjust the static cutter blade position (see page 21).