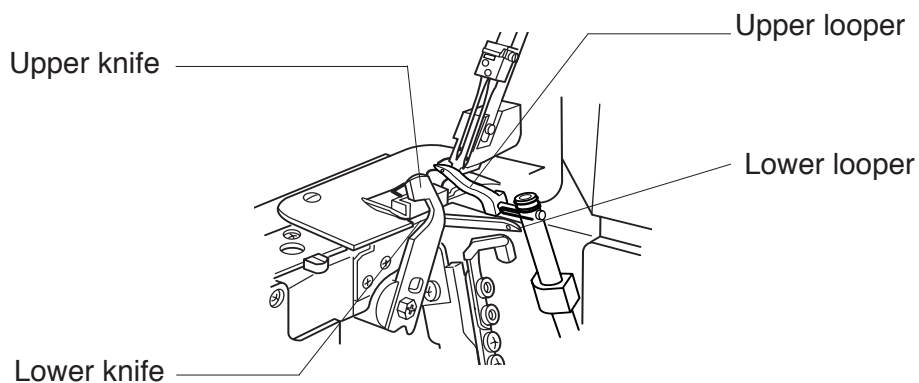
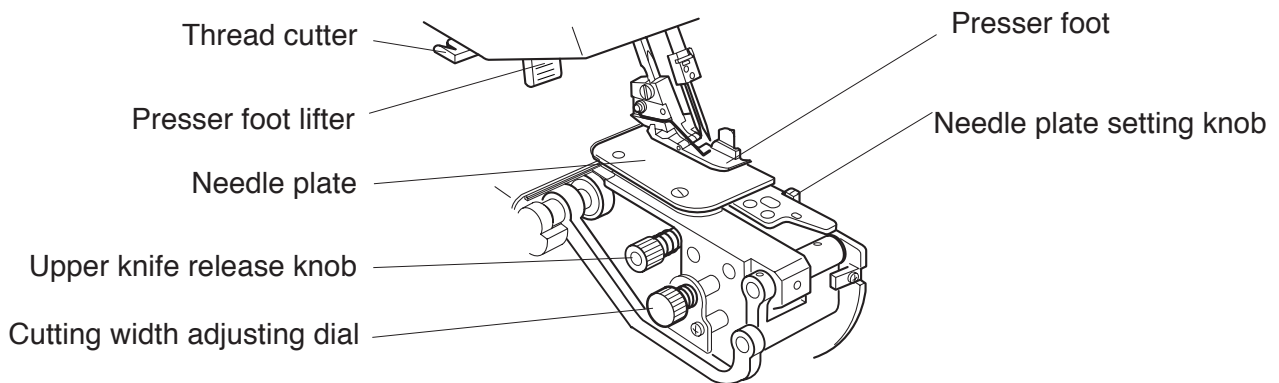
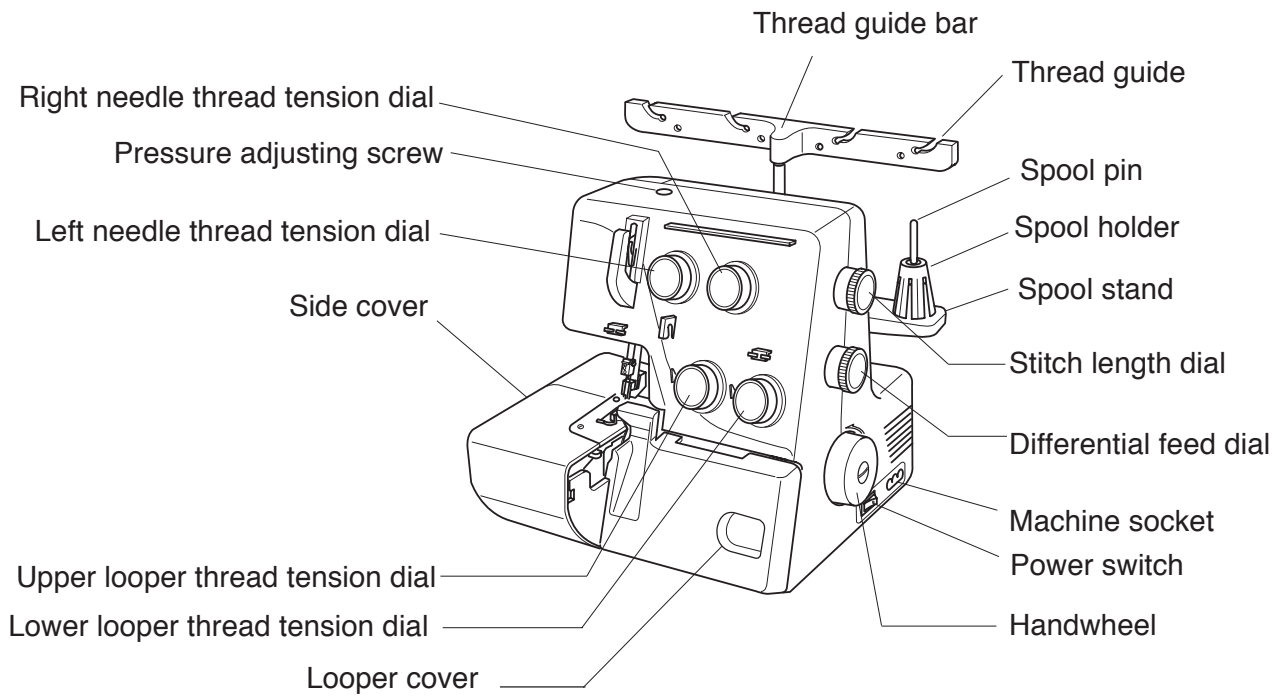
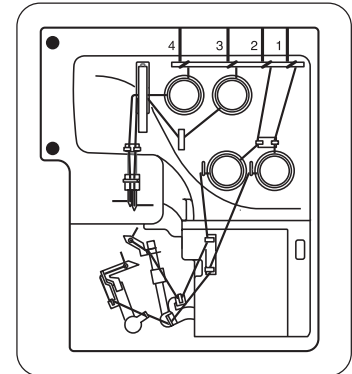
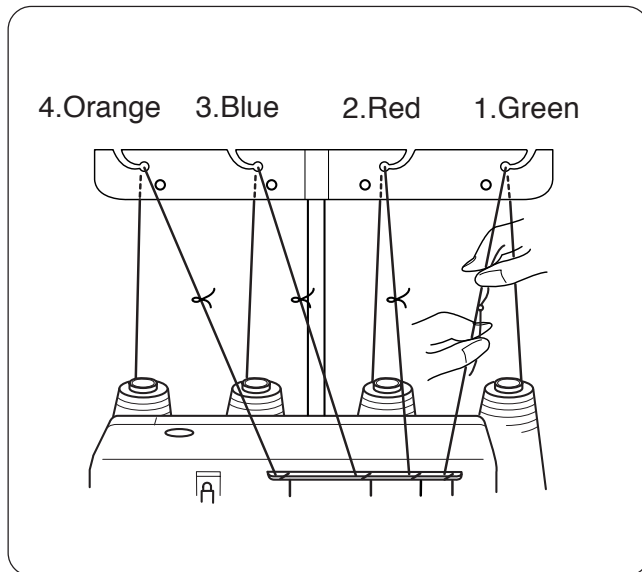


LOCATE AND IDENTIFY THE PARTS



THREADING THE MACHINE



Threading chart
(Located behind looper cover)

For your convenience, your kenmore overlock has been pre-threaded.

To prepare to sew with your choice of threads, follow these simple instructions:

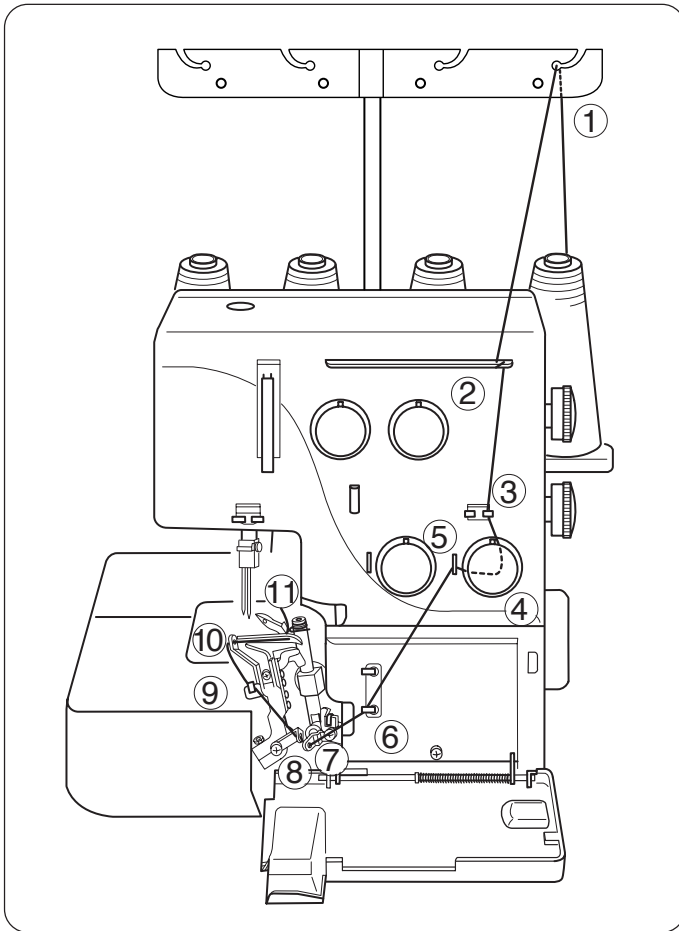
- * Make sure to turn the power switch off and unplug the machine.
- * Raise telescoping thread guide bar.
- * Open looper cover.
- * Place spool cones on spool holder.
- * Tie farthest cone on the right to green, 2nd from right to red, 3rd from right to blue and remaining spool on left to orange.
- * Raise the presser foot.
- * Set tension dials to 0.
- * Turn handwheel away from you once or twice until needles are in the full up position. This releases threads.
- * Draw all threads to the rear until a knot of the needle thread approaches the needle eye.
- * Cut the knots and pull the needle threads a few inches more.
- * Insert the thread through the needle eye.
- * Pull the looper threads until the knots have gone through the upper and lower looper.
- * Pull all threads under the presser foot and to the back.
- * Set all tension dials back to 3.
- * Lower presser foot and turn handwheel toward you chain off 3 or 4 stitches.
- * Connect the machine to the power supply and turn the power switch on.
- * You are ready to serge.

THREADING THE LOWER LOOPER

Open the looper cover and side cover.

Place the spool of thread on the right side spool pin.

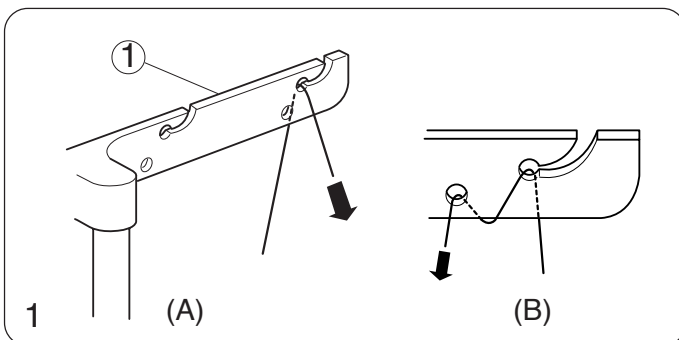
- * The points to thread for lower looper are marked in green.
- * A convenient threading chart is placed on the machine body inside the looper cover.



1. Draw the thread through the right side thread guide from back to front: (A)

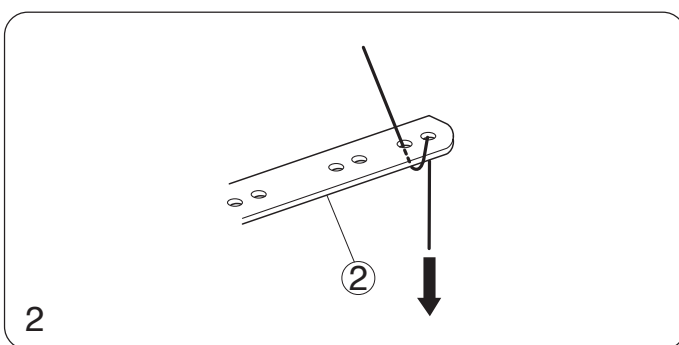
- * If the thread is coming out from the thread guide groove, pass the thread through the thread guide hole again as shown: (B)

① Thread guide



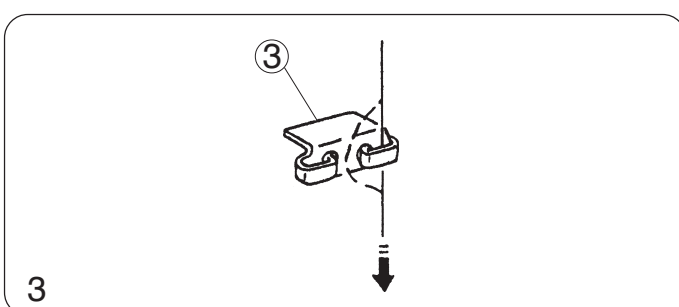
2. Pass the thread through the holes on the right side of the thread guide plate as illustrated.

② Thread guide plate



3. Pass the thread through the right side of the looper thread guide, sliding the thread from left to right.

③ Looper thread guide



4. Insert the thread between tension discs from the right. Then pull both sides of the thread firmly to insert it between tension discs.
5. Pass the thread through lower looper thread guide (1).

- ④ Lower looper thread tension dial
- ⑤ Lower looper thread guide (1)

* Make sure that the thread is between the tension discs.

- (1) Thread
- (2) Tension discs

6. Pass the thread through lower looper thread guide (2).
7. Pass the thread through the looper thread take-up lever (lower).
8. Pass the thread through lower looper thread guide (3).
9. Pass the thread through lower looper thread guide (4).

- ⑥ Lower looper thread guide (2)
- ⑦ Looper thread take-up lever (lower)
- ⑧ Lower looper thread guide (3)
- ⑨ Lower looper thread guide (4)

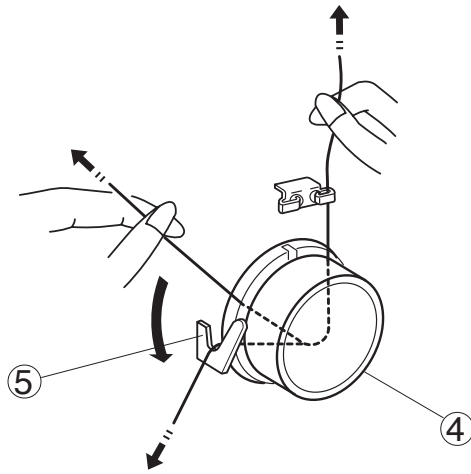
10. Turn the handwheel toward you until the lower looper comes to the right, and pass the threader through the hole on lower looper thread guide (5).

Hook the end of the thread on the threader.

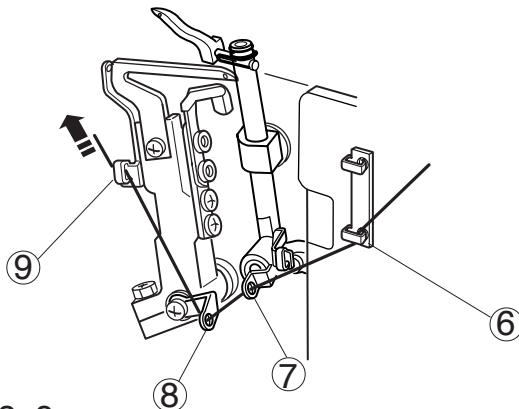
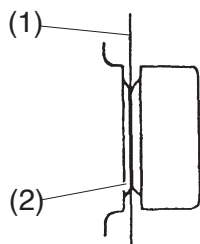
* Looper threader is optional.

* If you don't have the looper threader, turn the handwheel towards you until the lower looper comes to its most left position. Thread lower looper thread guide (5) from the left side with a pair of tweezers. Then, turn the handwheel towards you to move the lower looper to the right position.

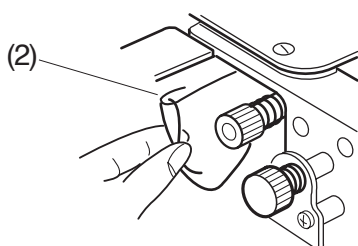
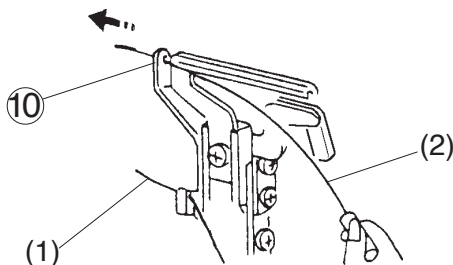
- ⑩ Lower looper thread guide (5)
- (1) Lower looper thread
- (2) Looper threader



4 5



6 7 8 9



10

11. Pull the threader to pass the thread through the hole of lower looper thread guide (5).

Remove the thread from the threader, and draw the thread through the hole on the lower looper 10 cm (4") or more with a pair of tweezers.

* For threading without the looper threader, draw the thread from the right side of lower looper thread guide (5) with a pair of tweezers.

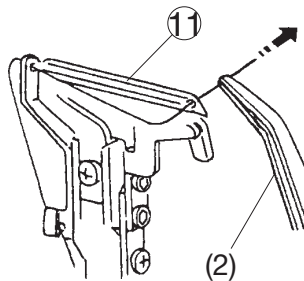
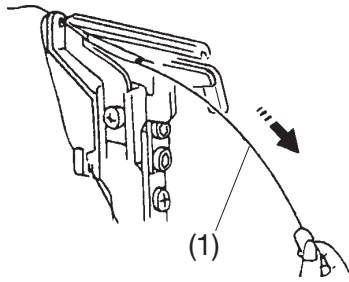
* And draw the thread through the hole on the lower looper 10 cm (4") or more with a pair of tweezers.

⑪ Lower looper

(1) Looper threader

(2) Tweezers

11



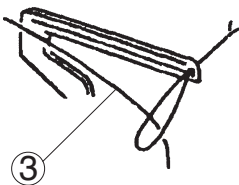
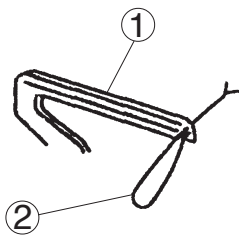
NOTE: How to thread woolly nylon/polyester thread.

* The illustration at left shows one of the easiest ways to pass woolly nylon/polyester thread through the lower looper.

① Lower looper

② Ordinary thread

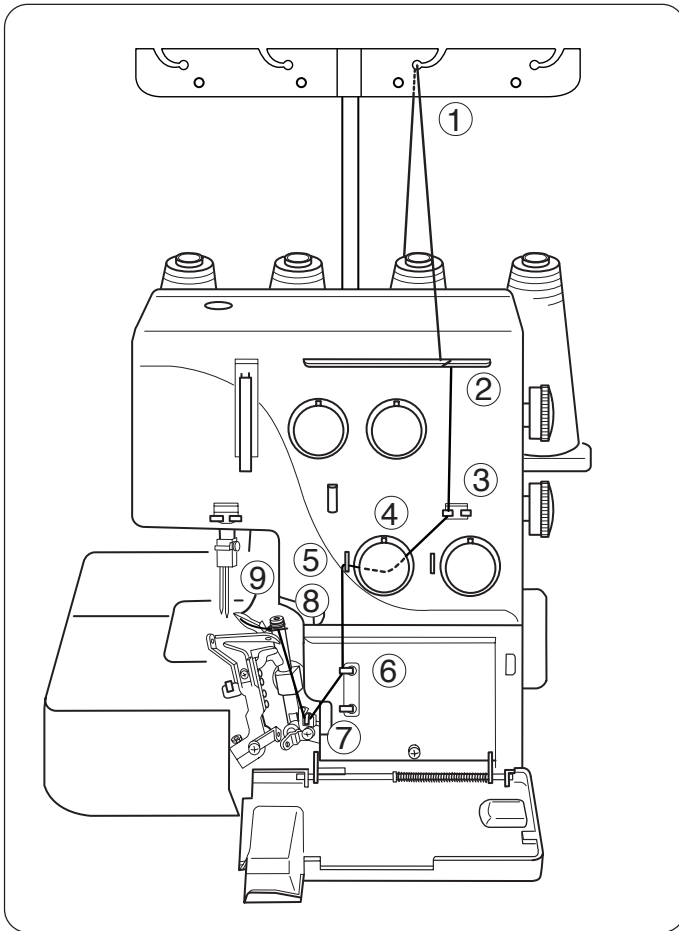
③ Woolly nylon/polyester thread



THREADING THE UPPER LOOPER

Place a spool of thread on the spool pin second from the right.

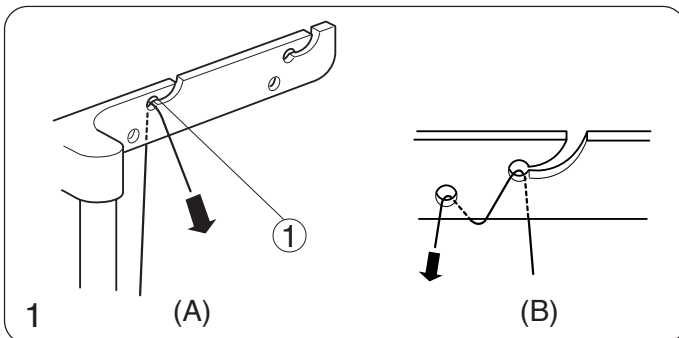
- * The points to thread for upper looper are marked in red.
- * A convenient threading chart is placed on the machine body inside the looper cover.



1. Draw the thread through the thread guide second from the right from back to front: (A)

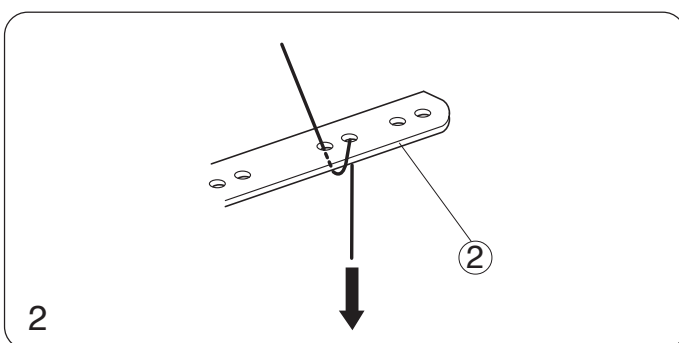
- * If the thread is coming out from the thread guide groove, pass the thread through the thread guide hole again as shown: (B)

① Thread guide



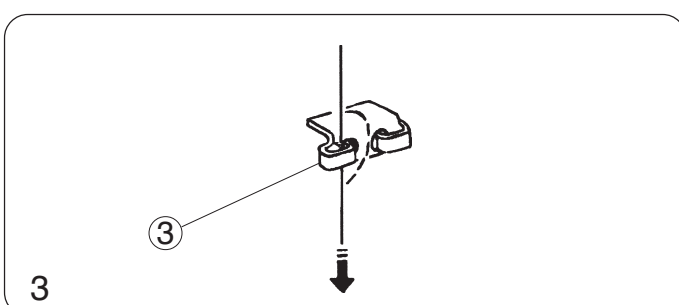
2. Pass the thread through the holes in the second row from the right of thread guide plate as illustrated.

② Thread guide plate



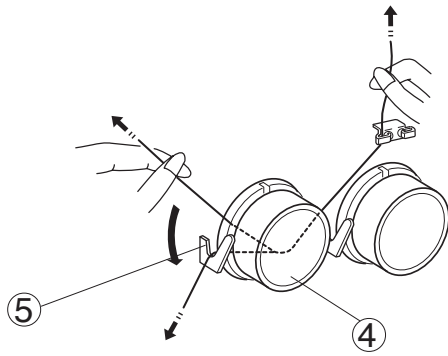
3. Pass the thread through the left side of looper thread guide sliding the thread from right to left.

③ Looper thread guide



4. Insert the thread between tension discs from the right. Then pull both sides of thread.
5. Pass the thread through upper looper thread guide (1)

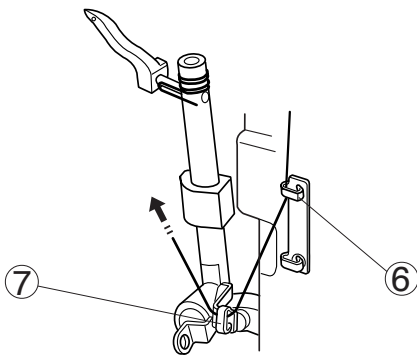
- ④ Upper looper thread tension dial
- ⑤ Upper looper thread guide (1)



4 5

6. Pass the thread through upper looper thread guide (2).
7. Pass the thread through the looper thread take-up lever (upper).

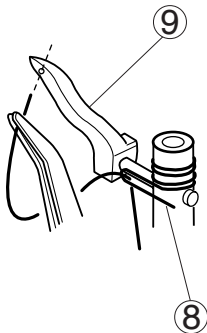
- ⑥ Upper looper thread guide (2)
- ⑦ Looper thread take-up lever (upper)



6 7

8. Pass the thread through upper looper thread guide (3).
9. Holding the end of the thread with a pair of tweezers, pass it through the hole on the upper looper. Pull 10 cm (4") or more of thread through the hole.

- ⑧ Upper looper thread guide (3)
- ⑨ Upper looper



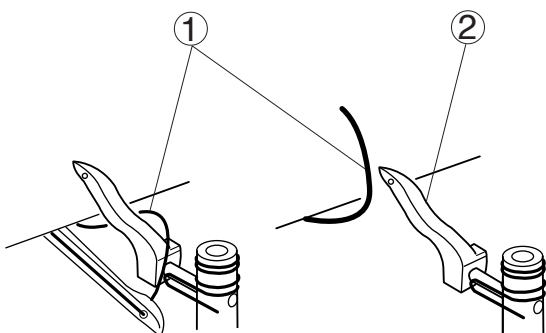
8 9

NOTE:

- * When you thread the upper looper only, to avoid tangled threads pull out both threads over the needle plate and under the presser foot.

Turn the handwheel toward you until the upper looper comes to the middle point of its travel, and unhook the thread of the lower looper from the upper looper. Thread the upper looper.

- ① Lower looper thread
- ② Upper looper

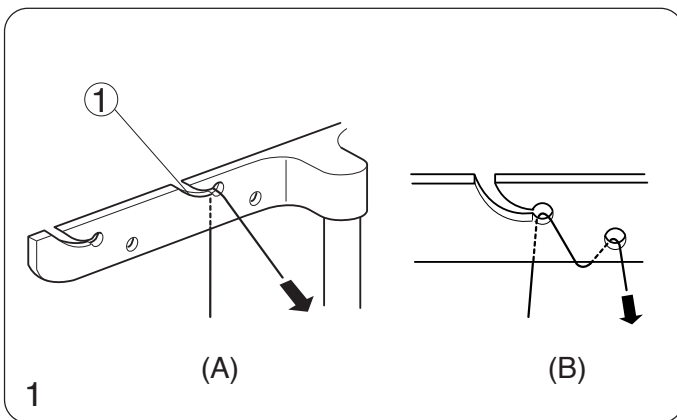
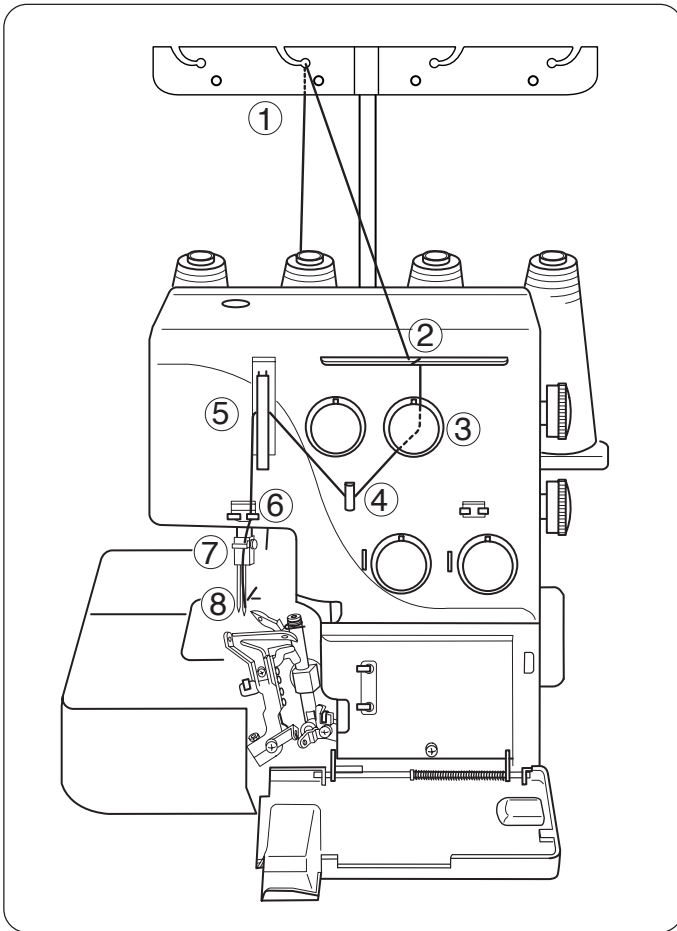


THREADING THE NEEDLE ON THE RIGHT

Place the spool of thread on the spool pin second from the left.

* The points to thread for needle on the right are marked in blue.

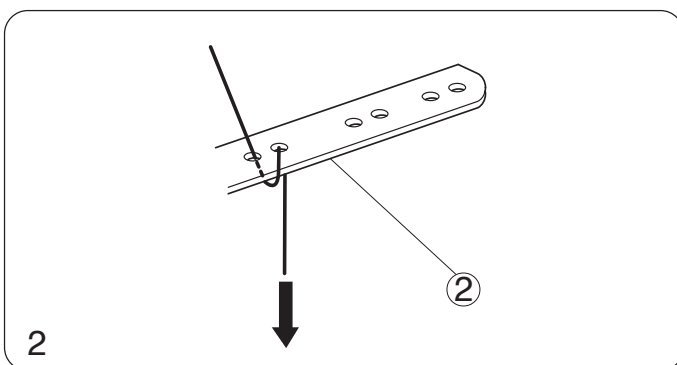
* A convenient threading chart is placed on the machine body inside the looper cover.



1. Draw the thread through the thread guide second from the left from back to front: (A)

* If the thread is coming out from the thread guide groove, pass the thread through the thread guide hole again as shown: (B)

① Thread guide

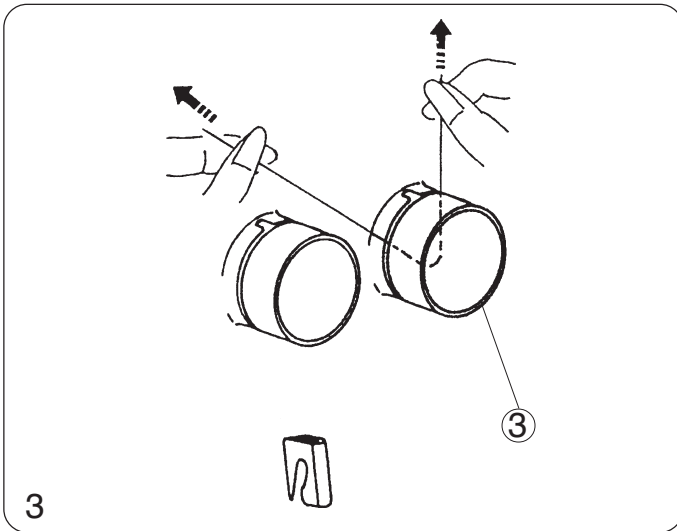


2. Pass the thread through the holes in the second row from the left of the thread guide plate as illustrated.

② Thread guide plate

3. Insert the thread between tension discs from the right. Then pull both sides of thread.

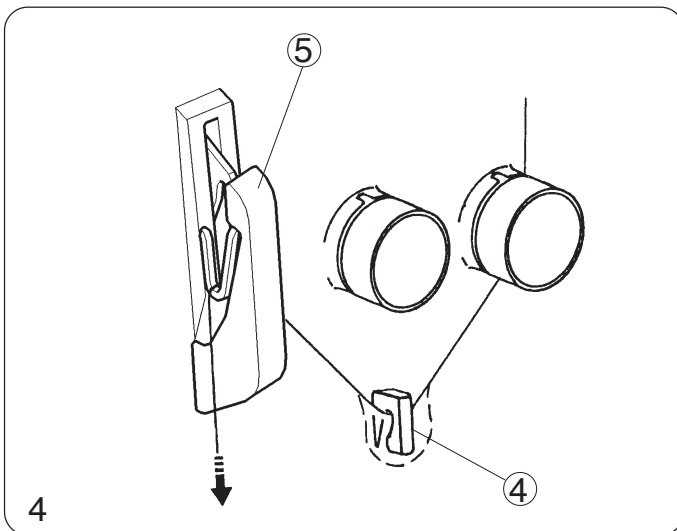
③ Right needle thread tension dial



4. Turn the handwheel toward you to bring the needle bar to its highest position, then pass the thread through the right needle thread guide and the thread take-up lever cover.

④ Right needle thread guide

⑤ Thread take-up lever cover



5. Pass the thread through the needle thread guide sliding the thread from left to right.

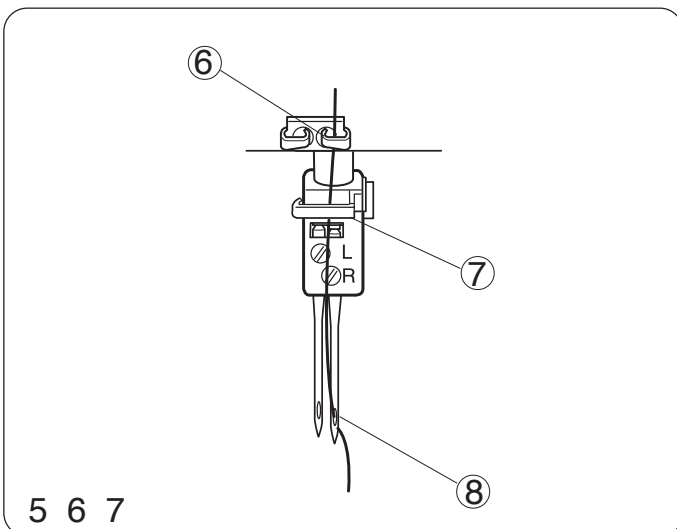
6. Pass it through the needle bar thread guide from left to right.

7. Thread the right needle from front to back and pull the thread about 10 cm (4") from the eye of the needle to the back.

⑥ Needle thread guide

⑦ Needle bar thread guide

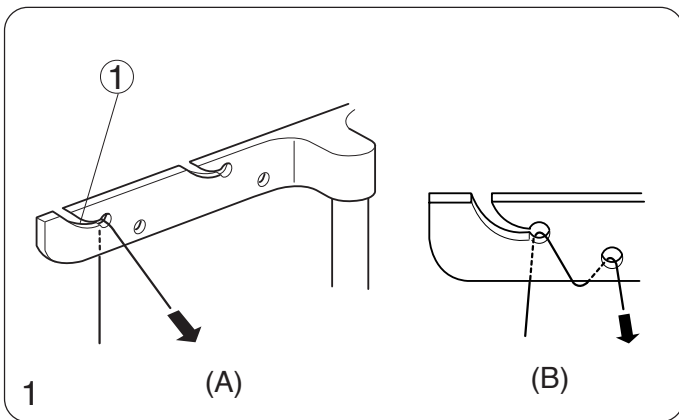
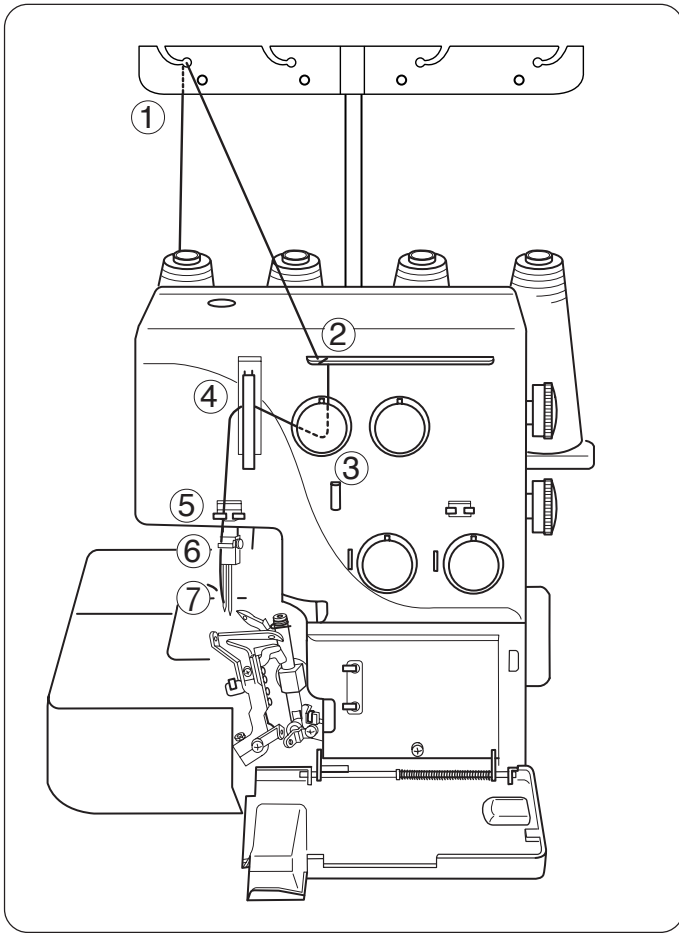
⑧ Right needle



THREADING THE NEEDLE ON THE LEFT

Place the spool of thread on the left side spool pin.

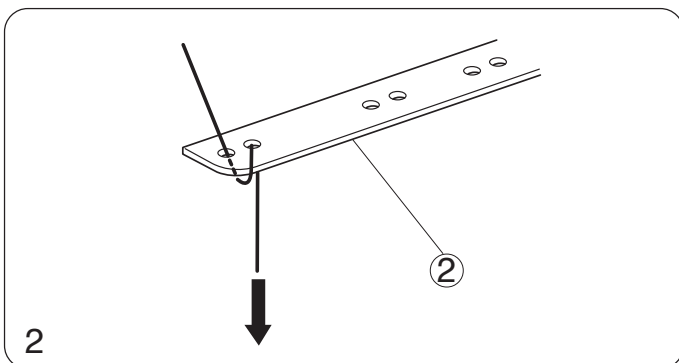
- * The points to thread for needle on the left are marked in orange.
- * A convenient threading chart is placed on the machine body inside the looper cover.



1. Draw the thread through the thread guide on the left from back to front: (A)

- * If the thread is coming out from the thread guide groove, pass the thread through the thread guide hole again as shown: (B)

① Thread guide

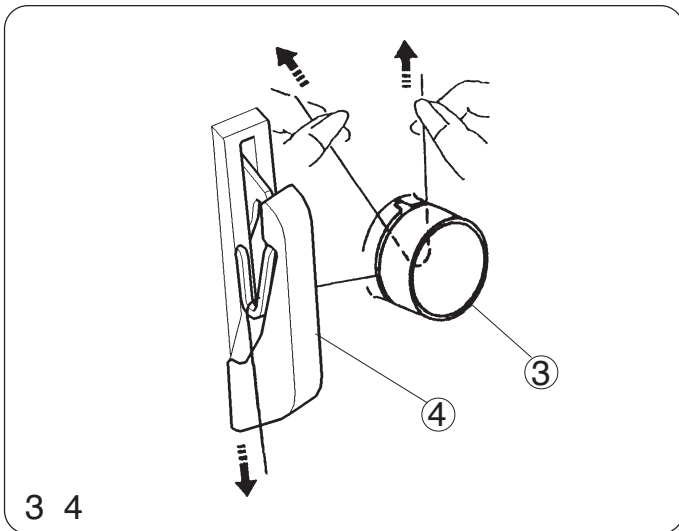


2. Pass the thread through the holes on the left of thread guide plate as illustrated.

② Thread guide plate

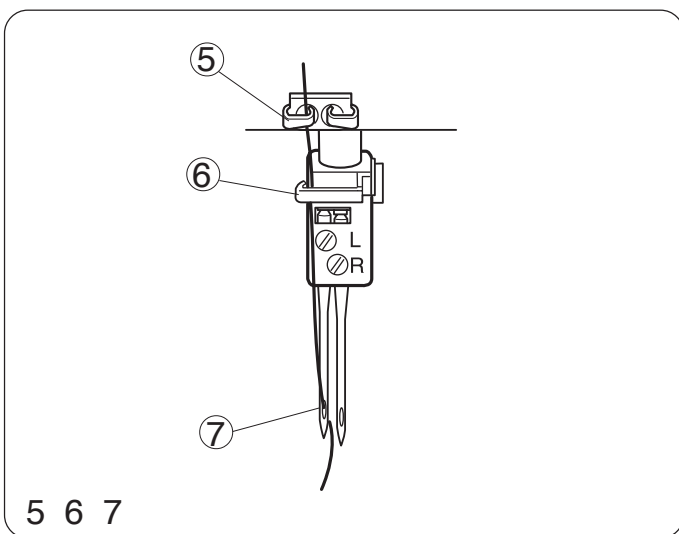
3. Insert the thread between tension discs from the right. Then pull both sides of thread.
4. Turn the handwheel toward you to bring the needle bar to its highest position, then pass the thread through the thread take-up lever cover.

- ③ Left needle thread tension dial
- ④ Thread take-up lever cover



5. Pass the thread through the needle thread guide sliding the thread from right to left.
6. Pass it through the needle bar thread guide from left to right.
7. Thread the left needle from front to back and pull the thread about 10 cm (4") from the eye of the needle to the back.

- ⑤ Needle thread guide
- ⑥ Needle bar thread guide
- ⑦ Left needle



- Gently pull all four thread ends towards the back of the machine.
- Run threads under the presser foot and lower the presser foot.
- Close side cover and looper cover.
- Turn handwheel toward you to chain off three or four stitches.

The sewing preparation is now complete.

WHAT TO DO WHEN

1. Sewing machine condition

Condition	Cause	How to fix	Reference
1. The machine dose not run or it runs slow.	1. The power switch is not turned on. 2. The foot control plug is not connected securely. 3. The power supply plug is not connected securely. 4. The motor is out of order. 5. The foot control is out of order or cables are damaged. 6. The motor belt is broken. 7. The motor belt tension is too tight. 8. Accumulated lint is blocking the feed dog movement. 9. The main shaft does not turn smoothly. 10. The machine needs oiling. 11. Grease or oil has curdled.	Turn on the switch. Plug the connector into the sewing machine securely. Insert the power supply plug into the wall outlet securely. Replace the motor and adjust the belt tension. Replace the foot control. Replace the motor belt and adjust the belt tension. Adjust the motor belt tension properly. Clean the feed dog . Adjust the lateral play of the main shaft. Apply oil to all moving parts. Wash away a curd and apply proper grease and oil.	P. 44 P. 44 P. 43 P. 45 P. 45
2. The sewing light will not come on	1. The power switch is not turned on. 2. Light bulb is burned out.	Turn on the switch. Replace the light bulb.	P. 46
3. Noisy operation	1. The machine nees oiling. 2. Something is blocking the moving parts. 3. The lateral play of the main shaft is excssive. 4. The upper knife position is not correct. 5. Knives are dull. 6. Needle(s) is/are dull.	Apply oil to all movingparts. Remove the foreign object. Adjust the lateral play of the main shaft. Adjust the position of the upper knife. Replace the knives. Replace the needle(s).	P. 45 P. 43 P. 39

Condition	Cause	How to fix	Reference
3. Noisy operation	6. The needle is thrusting hard against the front needle guard.	Adjust the clearance between the needle and lower looper. (The needle slightly touches the front needle guard in a normal condition.)	P. 29~31
4. Excessive vibration	1. A table top is not even. 2. Rubber feet are not properly attached to the machine. 3. The machine is not stuck on the table top with sucker rubber feet. 4. The rubber feet are aged and do not absorb vibration. 5. The lateral play of the main shaft is excessive.	Use the machine on a flat table. Attach the rubber feet with the set screws securely. Use the machine on the smooth table top. Replace the rubber feet. Adjust the lateral play of the main.	P.43

2. Poor stitch results

If stitching result is poor, do the following procedures.

Items to check	Solution
1. Is the correct needle used? 2. Is the size of the needle and thread suitable for the fabric being sewn? 3. Is the machine threaded properly? 4. Check thread tension.	Use the HA-1SP ball-point needles, size #14 or #11. Consult the owner's manual for appropriate size. Re-thread the machine. (Refer to pages 3-13) Consult the owner's manual for standard tension settings. * You may need a fine tuning of tension settings depending on your sewing conditions.
5. Is the needle bent or dull? 6. Is the guide needle on the needle plate worn or damaged?	Change the needle. Change the needle plate.

(1) Sewing condition

Condition	Cause	How to fix	Reference
1. Sewing results are not satisfactory.	1. Thread is not inserted properly into the thread tension discs. 2. The looper thread guide is out of position. 3. Thread spool is not secured.	Re-thread properly. Adjust the position of the looper thread guide. Place thread spool securely.	P.40
2. Sewing on thick fabrics is not satisfactory.	1. Stitch length is too short (dense). 2. Presser foot pressure is too weak.	Increase stitch length. Adjust pressure with the presser adjusting screw.	
3. Sewing on fine fabrics is not satisfactory.	1. Presser foot pressure is too strong. 2. Stitch length is too long.	Adjust pressure with the presser adjusting screw. Decrease the stitch length.	
4. Skipping stitches	1. Needle is not inserted properly. 2. The clearance between the needle and lower looper is excessive. 3. The clearance between the upper looper and lower looper is excessive. 4. The clearance between the needle and upper looper is excessive. 5. Needle bar height is not correct. 6. Timing of lower looper is not correct. 7. Position of upper looper is not adjusted properly. 8. Timing of the upper and lower loopers is not correct. 9. The tip of upper looper or lower looper is dull.	Insert the needle properly. Adjust the clearance. Adjust the clearance. Adjust the clearance. Adjust the needle bar height. Adjust lower looper timing. Adjust upper looper position. Adjust timing of the upper and lower looper. Replace the upper looper or lower looper.	P. 29~31 P. 37 P. 38 P. 23 P. 35 P. 34 P. 36

Condition	Cause	How to fix	Reference
5. Breaking thread	1. Wrong threading path. 2. Tip of the upper looper or lower looper is dull or worn. 3. Needle is not inserted properly. 4. The looper thread guide is out of position. 5. Threads are jamming in the thread path. 6. Needle eye is worn. 7. Poor quality thread is used. 8. Needle is thrusting the needle plate, upper looper or lower looper.	Re-thread the machine (refer to pages 3-13). Replace the upper or lower looper. Insert the needle properly. Adjust the looper thread guide position. Check the threading and fix jamming. Replace the needle. Use high quality sewing thread. Replace the needle or adjust the clearance.	P. 40 P. 29~32,38
6. Stitches are not balanced.	1. The looper thread guide is out of position. 2. Poor quality thread is used. 3. The thread guide bar is not aligned with the spools.	Adjust the looper thread guide position. Use high quality sewing thread. Align the thread guide with the spools.	P.40
7. Needle breaks.	1. Needle is not inserted properly. 2. Fabric is being pulled too hard while sewing. 3. The needle thrusts hard against front needle guard. 4. Needle is thrusting hard against the lower looper. 5. Needle is thrusting hard against the upper looper. 6. Improper clearance between needle and fixed needle guard. 7. Feed dog timing is not correct.	Insert the needle properly. Do not pull the fabric, but let it be fed naturally. Adjust the clearance between the needle and lower looper. Adjust the clearance between the needle and lower looper. Adjust the clearance between the needle and upper looper. Adjust clearance between needle and needle guard. Adjust feed dog timing.	P. 29~31 P. 29~31 P. 38 P.29~32 P. 26
8. Puckering	1. The looper thread guide is out of position. 2. Wrong needle plate is used. 3. Feed dog timing is not correct. 4. Presser foot pressure is too strong. 5. Differential feed ratio is not suitable for the fabric being sewn.	Adjust the looper thread guide position. Replace the needle plate. Adjust the feed dog timing. Adjust the presser with the adjust screw. Adjust the differential feed ratio.	P. 40 P. 26

(2) Feeding and cutting fabric.

Condition	Cause	How to fix	Reference
1. Fabric is not fed efficiently.	1. Presser foot is in up position. 2. Stitch length is too short. 3. Presser foot pressure is too weak. 4. Accumulated lint is blocking the feed dog movement. 5. Feed dog height is not correct. 6. Feed dog is worn or damaged. 7. Differential feed ratio is not suitable for the fabric being sewn. 8. Feed dog timing is not correct. 9. Knife are dull.	Lower the presser foot. Increase the stitch length. Adjust the pressure with the adjusting screw. Clear the feed dog. Adjust the feed dog height. Replace the feed dog. Adjust the differential feed ratio. Adjust feed dog timing. * Adjust the the knife position. * Adjust knife timing. * Replace the knives.	P. 25 P. 26 P. 39 P. 27 P. 39
2. Uneven feeding.	1. Presser foot pressure is weak. 2. Knife are dull. 3. Feed dog timing is not correct.	Adjust pressure with the presser adjusting screw. Adjust the knives or replace them. Adjust feed dog timing.	P. 39 P. 26
3. Differential feed is not effective	1. Feed dog height is not correct. 2. Feed dog timing is not correct. 3. Knives are dull. 4. Presser foot pressure is too weak. 5. Height of the main and sub feed dogs are not even.	Adjust the feed dog height. Adjust the feed dog timing. Adjust the knife or replace them. Adjust the pressure with the adjusting screw. Adjust the feed dog height.	P. 25 P. 26 P. 39 P. 25
4. Knives are dull.	1. Knife blades are not overlapping enough. 2. Something is caught between the knife blades. 3. Knife edge is dull or damaged. 4. Presser foot pressure is too weak.	Increase the overlap of the blades. Remove the foreign object. Replace the knife. Adjust the pressure with the adjusting screw.	P. 39 P. 39

SERVICE ACCESS

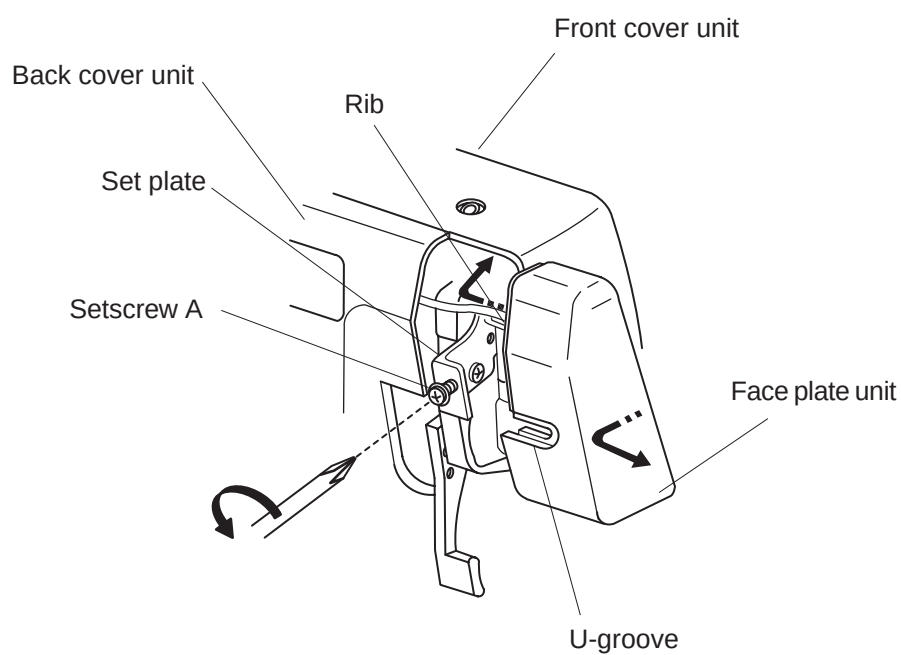
FACE PLATE UNIT

To remove:

1. Loosen the set screw A and remove the face plate unit.

To attach:

2. Fit the U-groove of the face plate between the setscrew A and set plate, put the rib of face plate into the front cover unit and back cover unit and tighten the setscrew.



SERVICE ACCESS

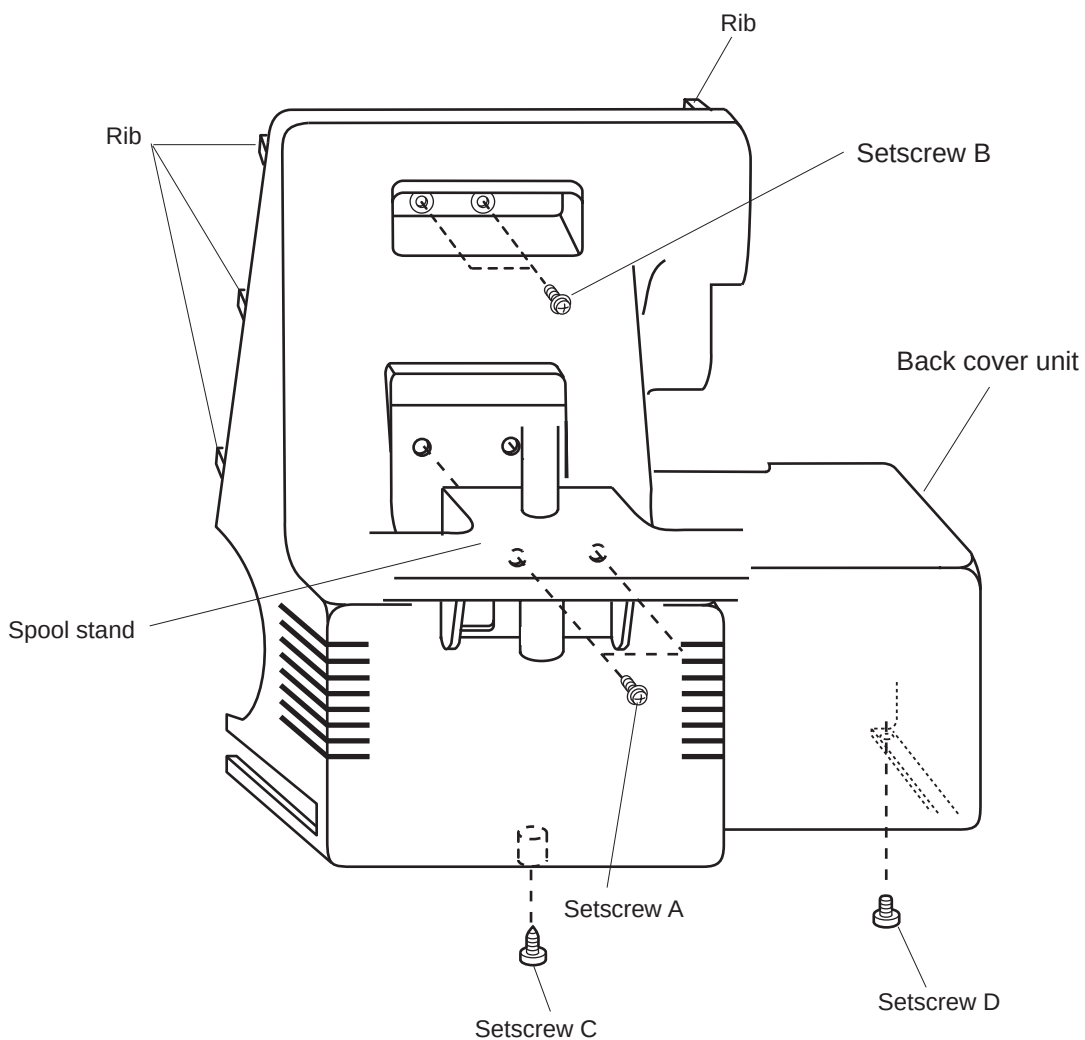
BACK COVER UNIT

To remove:

1. Remove setscrews A and the spool stand.
2. Remove setscrews B,C and D.
3. Remove the back cover unit.

To attach:

4. Put the ribs of back cover into the front cover unit and tighten setscrews B, C and D.
5. Attach the spool stand with setscrew A.



SERVICE ACCESS

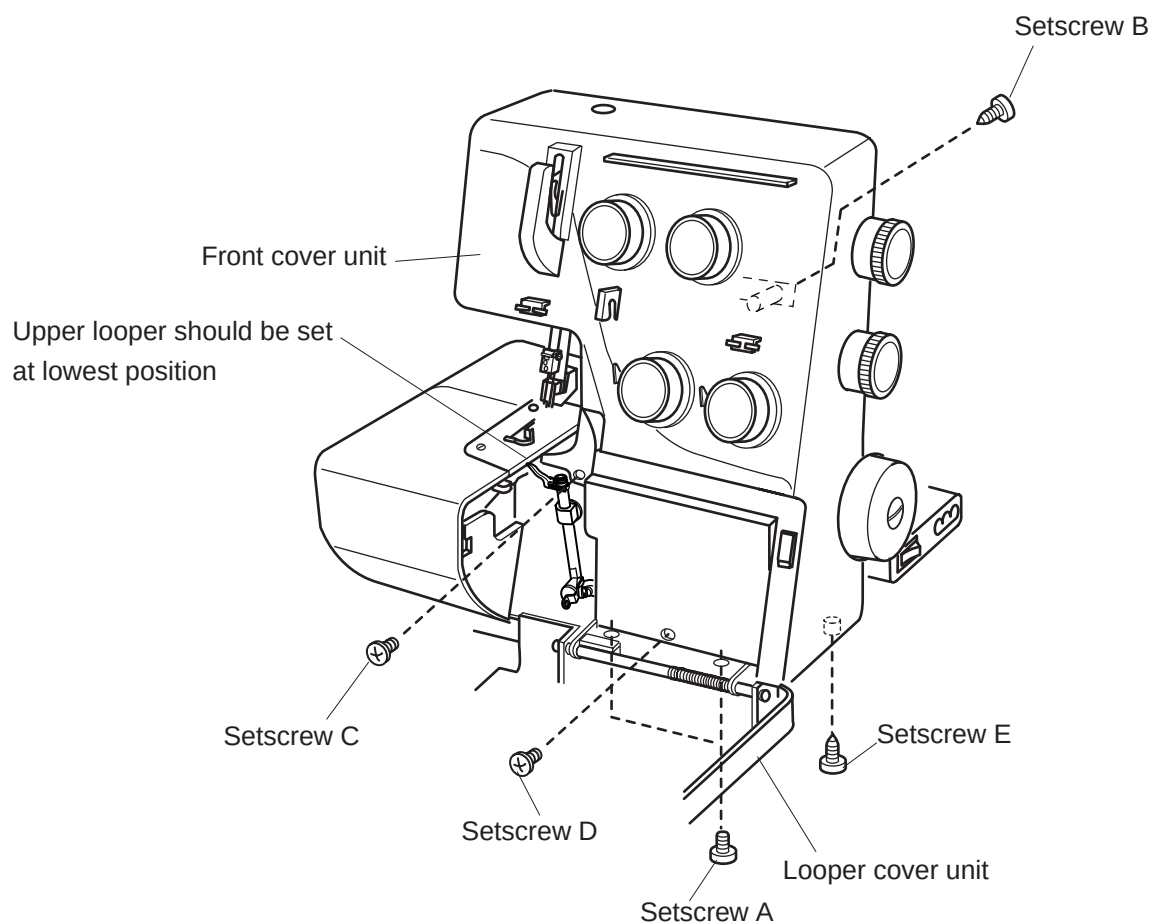
FRONT COVER UNIT

To remove:

1. Remove setscrews A and the looper cover unit.
2. Remove the face plate unit and the back cover unit.
3. Turn the hand wheel toward you with your hand, and set the upper looper at lowest position, and remove setscrews B, C, D, E and the front cover unit.

To attach:

4. Attach the front cover unit with setscrews B, C, D and E.
5. Attach the looper cover unit with setscrew A.
6. Attach the back cover unit and face plate unit.



SERVICE ACCESS

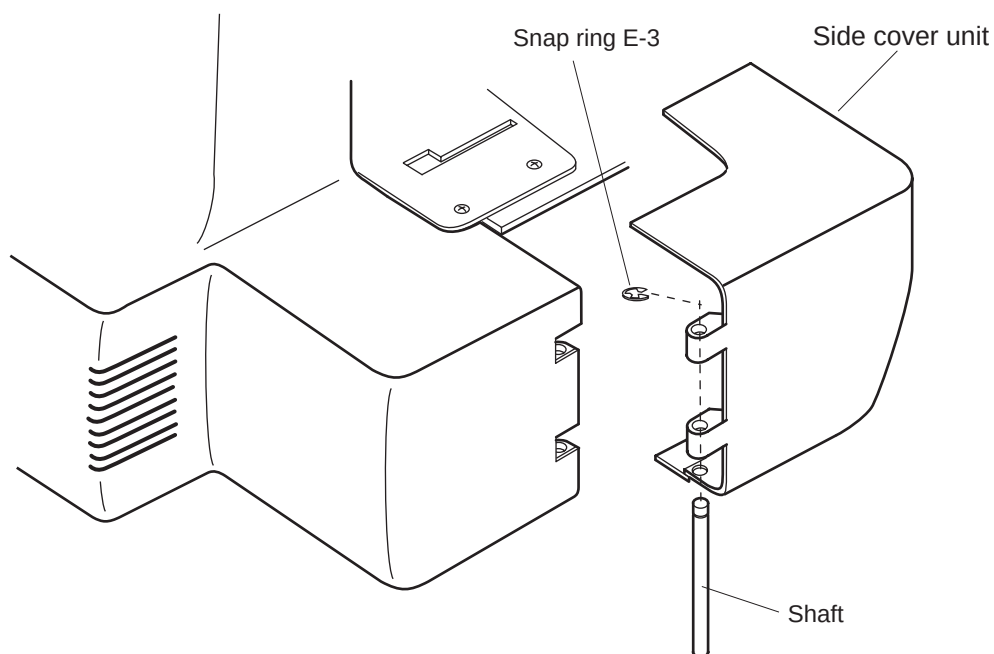
SIDE COVER UNIT

To remove:

1. Open the side cover unit. Remove the snap ring E-3 and pull out the shaft.

To attach:

2. Attach the side cover unit and insert the shaft and attach the snap ring.



SERVICE ACCESS

MACHINE BASE

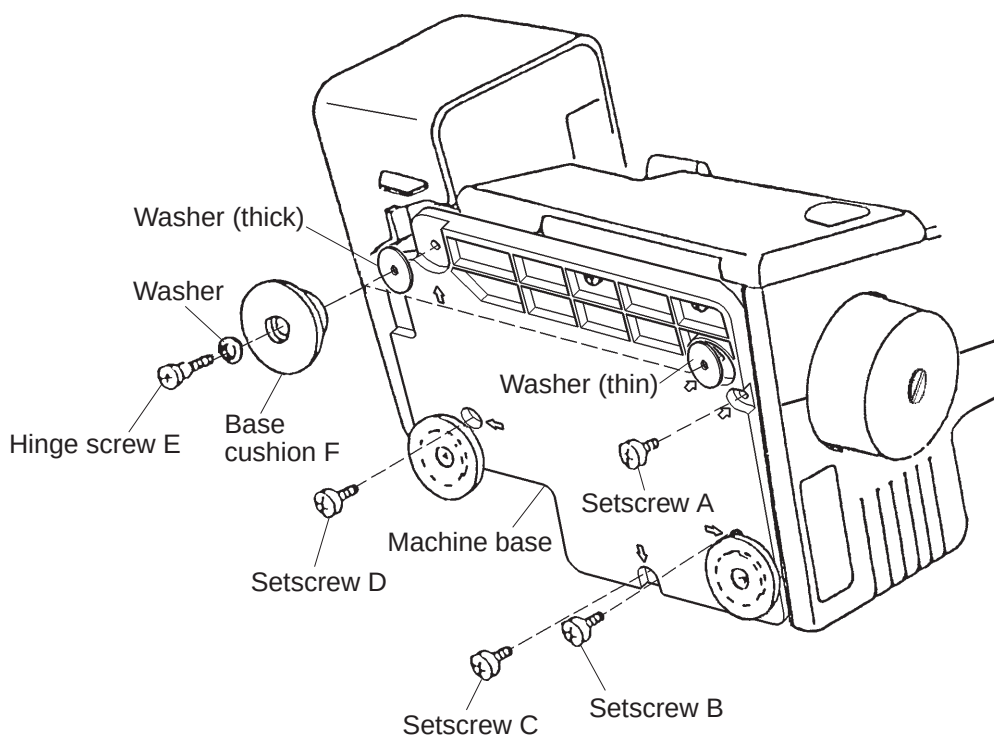
To remove:

1. Remove setscrews A, B, C, D and two hinge screws E, and remove two base cushions F and washers.
2. Remove the machine base.

NOTE: Do not remove the remaining two base cushions.

To attach:

3. Attach the machine base unit, and tighten setscrews A, B, C and D.
4. Attach the two base cushions F, washers, and tighten hinge screws E.



MECHANICAL ADJUSTMENT

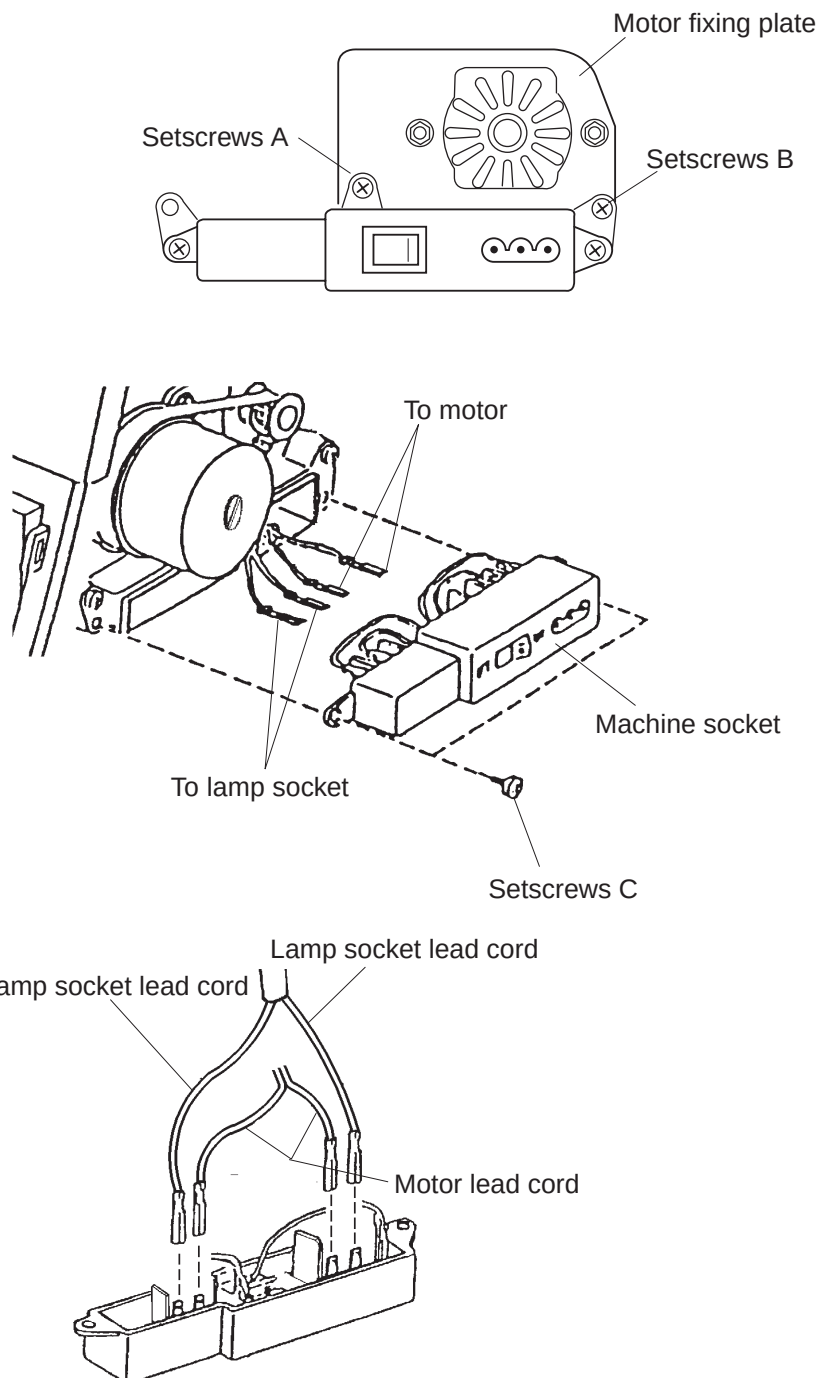
MACHINE SOCKET

To remove:

1. Remove the back cover unit.
2. Remove the setscrews (A, B) and the machine socket unit from the motor fixing plate.
3. Remove the two setscrews C, and pull out the cord connectors.

To attach:

4. Insert the cord connectors as shown below.
5. Attach the machine socket, and tighten the two setscrews C.
6. Attach the machine socket unit on the motor fixing plate and tighten the setscrews (A, B).
7. Attach the back cover unit.



MECHANICAL ADJUSTMENT

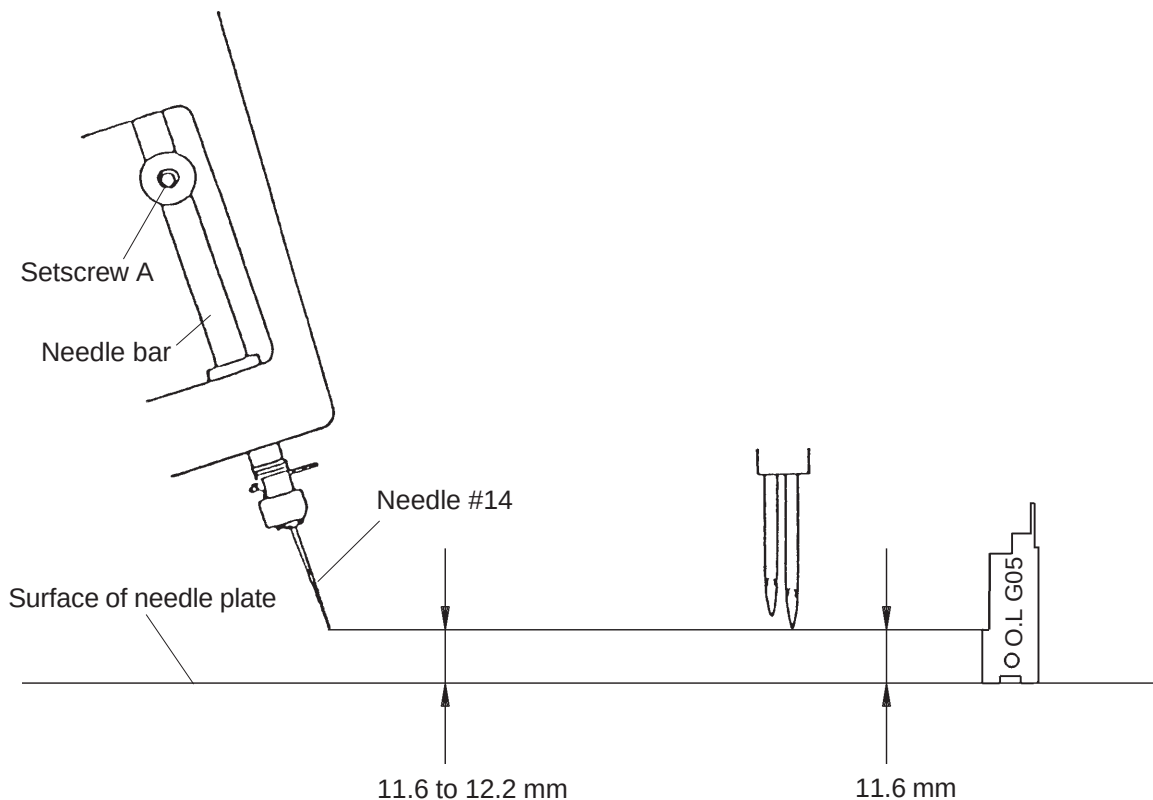
NEEDLE BAR HEIGHT

Correct Setting:

The distance between the tip of needle on the right and the surface of needle plate should be 11.6 to 12.2 mm when the needle bar is at the highest position.

To adjust:

1. Remove the looper cover unit, face plate unit, back cover unit and front cover unit.
2. Turn the handwheel toward you with your hand, and set the needle bar at the highest position.
3. Loosen the set screw A to adjust the height, and tighten set screw A after the adjustment is done.
4. Turn the handwheel toward you one cycle, and recheck the needle bar height.
5. Attach the front cover unit, looper cover unit, back cover unit and face plate unit.



MECHANICAL ADJUSTMENT

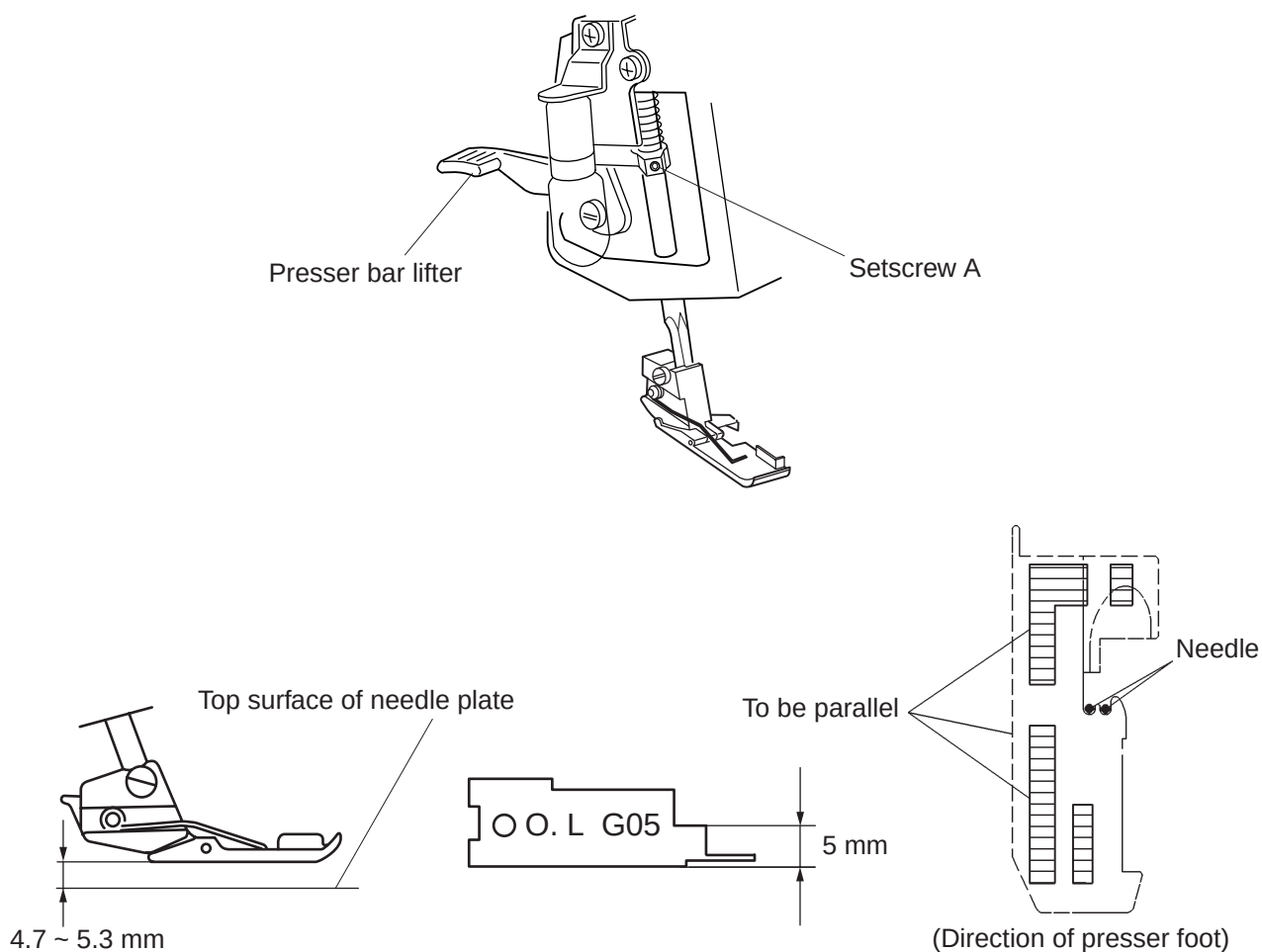
PRESSER BAR HEIGHT

Correct Setting:

The distance between the surface of needle plate and bottom of presser foot should be 4.7 to 5.3 mm when the presser bar lifter is raised.

To adjust:

1. Remove the looper cover unit, face plate unit, back cover unit and front cover unit.
2. Raise the presser bar lifter and loosen set screw A.
Then adjust the presser bar height (Use the service gauge O.L G05.). The presser foot should be parallel with the slots of the needle plate.
3. Tighten the set screw A.
4. Attach the front cover unit, looper cover unit, back cover unit and face plate unit.



MECHANICAL ADJUSTMENT

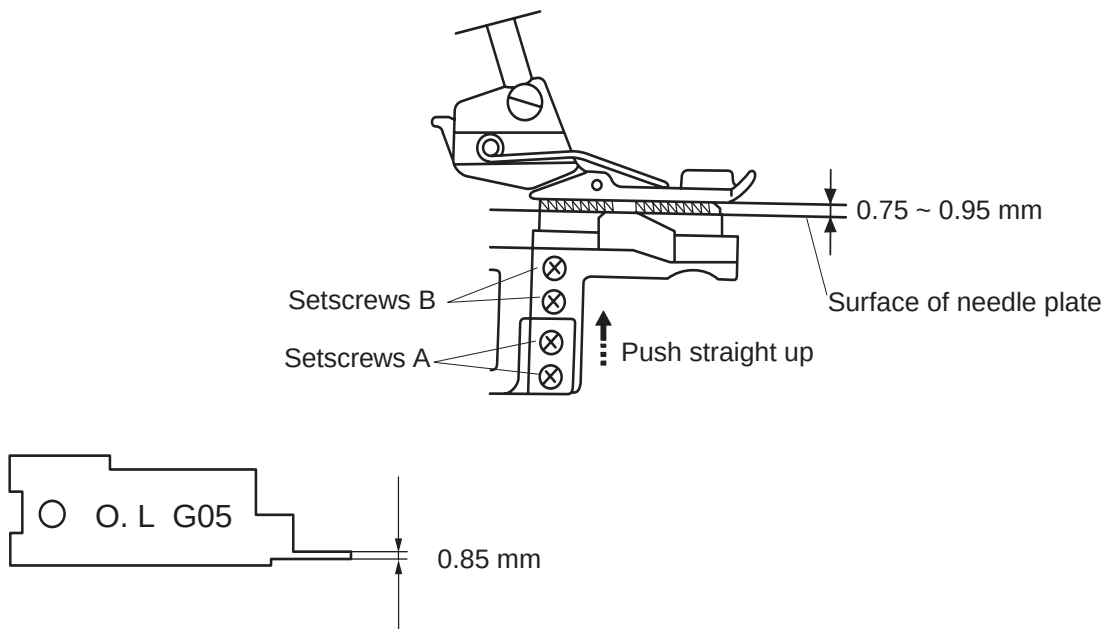
FEED DOG HEIGHT

Correct Setting:

When the presser foot is lowered and feed dogs are at their highest position, the distance between the surface of needle plate and bottom of presser foot should be 0.75 to 0.95 mm.

To adjust:

1. Set the stitch length dial at " 3 " and the differential feed dial at " 1.0 " .
2. Remove the back cover unit.
3. Lower the presser foot and raise the feed dogs to their highest position by turning the handwheel.
4. Loosen the main & sub feed dog screws A, B (4 pcs.)
5. Push the main feed dog straight up and adjust the distance between the surface of needle plate and bottom of presser foot to 0.85 mm (Use the service gauge O.L G05.), then tighten set screws A (2 pcs.)
6. Turning the handwheel to get the top of the main feed dog is level with the surface of the needle plate in the downward motion. Push the sub feed dog straight up until its top surface is to be level with the top surface of needle plate. Then tighten the set screws B of the sub feed dog.
7. Turn the handwheel to check if the the feed dog height.
8. Attach the back cover unit.



MECHANICAL ADJUSTMENT

TIMING OF THE NEEDLE AND THE FEED DOG

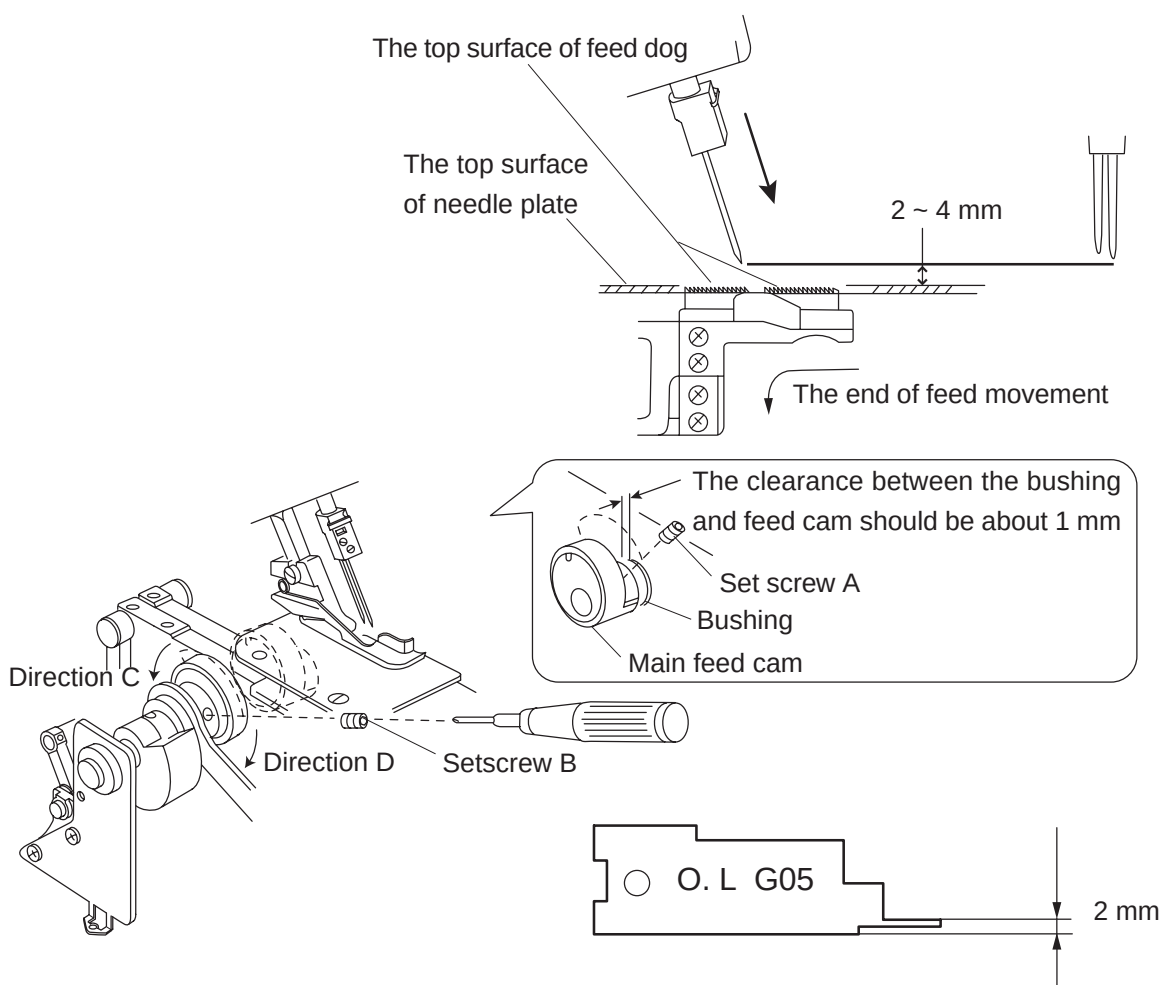
Correct Setting:

With the presser foot lowered, the top of the feed dog should be level with the needle plate at the end of feeding movement, when the tip of the right needle is 2-4 mm above the needle plate.

Before adjustment, check if the needle bar height and the feed dog height are correct.

To adjust:

1. Set the stitch length dial at “ 3 ” and differential feed dial at “ 1.0 ” .
2. Remove the back cover unit.
3. Raise the presser foot and turn the handwheel to bring the tip of right needle 3 mm above the needle plate in its downward motion.
4. Lower the presser foot, and loose two set screws A for the main feed cam and two setscrews B for the sub feed cam. Turn the main and sub feed cams to adjust the feed dog position then tighten the setscrews.
 - Turn the feed cams in the direction C if the feed dog is lower than the surface of the needle plate.
 - Turn the feed cams in the direction D if the feed dog is higher than the surface of the needle plate.
5. Be sure that the clearance between the bushing and main feed cam is about 1 mm.
Attach the back cover unit.



MECHANICAL ADJUSTMENT

TIMING OF THE NEEDLE AND THE UPPER KNIFE

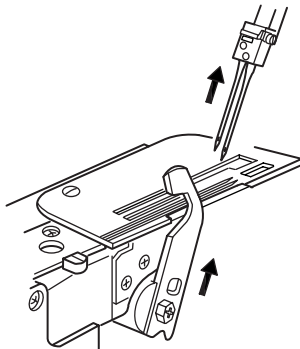
Correct Setting:

The upper knife timing is the same as that of the needle bar. In fact, when the needle bar is at highest position, the upper knife should be also at its highest position.

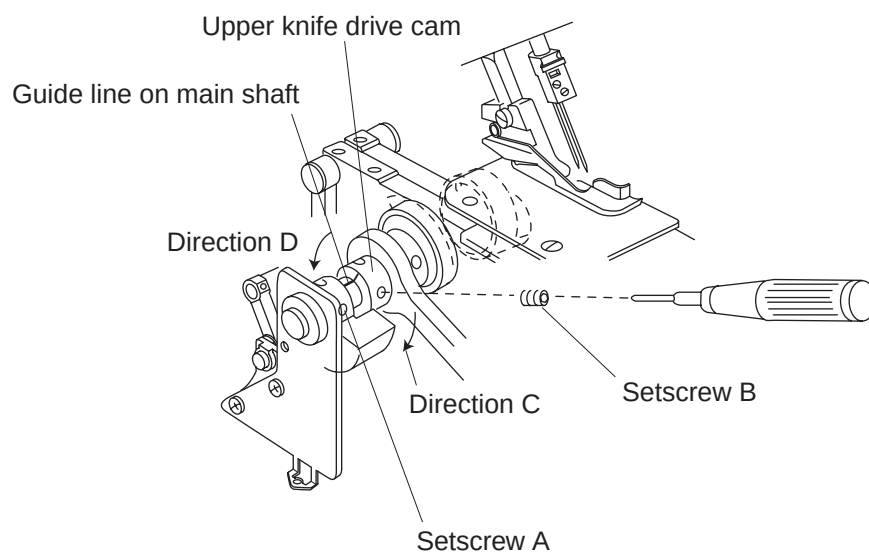
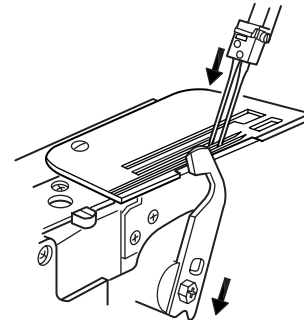
To adjust:

1. Remove the back cover unit.
2. Loosen two setscrews A, and move the balance weight to left.
3. Loosen two setscrews B, and adjust the needle and upper knife timing.
 - Turn the upper knife drive cam to the direction C when the upper knife timing is being delay.
 - Turn the upper knife drive cam to the direction D when the upper knife timing is too soon.
4. Tighten the two setscrews B firmly. Move the balance weight to right.
Match the guide line on the balance weight with the one of the main shaft correctly.
Then tighten the twoscrews A.
5. Turn the handwheel toward you one cycle, and recheck the needle and the upper knife timing.
6. Attach the back cover unit.

When the needle bar goes up,
the upper knife goes up.



When the needle bar goes down,
the upper knife also goes down.



MECHANICAL ADJUSTMENT

HEIGHT OF THE LOWER LOOPER

Correct Setting:

The tip of the lower looper is 65.7 mm from the center of the lower shaft as shown below.

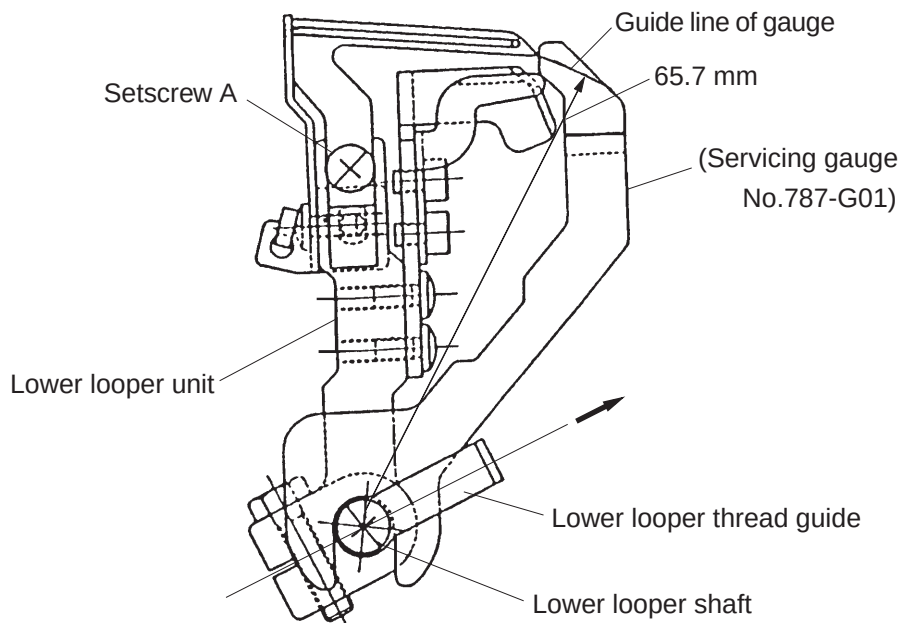
To adjust:

1. Set the upper knife in down position and loosen the setscrew A.
2. Turn the handwheel to get the lower looper in the leftmost position.
3. Set the lower looper height gauge No. 787-G02 on the lower looper shaft as shown.

NOTE: If there is not enough clearance between the lower looper unit and the lower looper thread guide, remove the lower looper thread guide.

After the adjustment, attach the lower looper thread guide on the lower looper shaft as shown.

4. Move the lower looper up or down to match the tip of the looper with the guide line on the gauge.
5. Insert the gauge downwards into the lower looper shaft as shown.
6. Tighten setscrew A.
7. Remove the gauge and set the upper knife in up position.



MECHANICAL ADJUSTMENT

CLEARANCE BETWEEN THE NEEDLES AND THE LOWER LOOPER/NEEDLE GUARDS

Correct Setting:

Both right and left needles should have an equal clearance from the front edge of the opening on the needle plate.

The standard clearance between each needle and the lower looper is 0 mm to 0.5 mm.

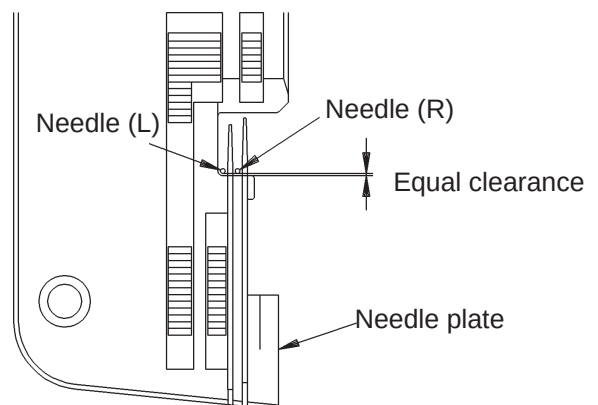
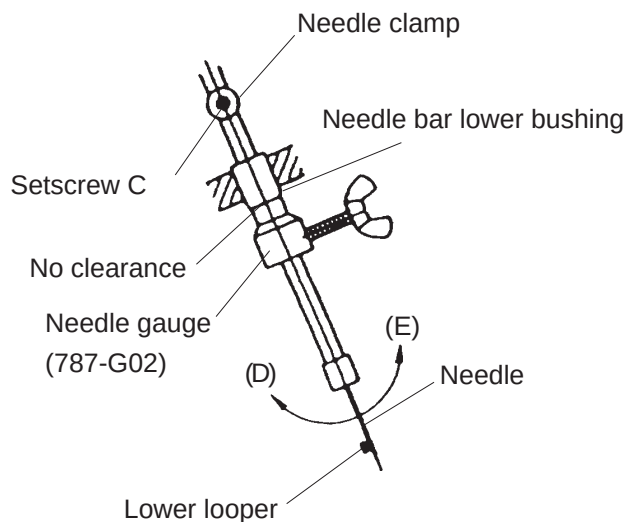
The standard clearance between each needle and the rear needle guard is 0 mm to 0.2 mm.

Both needles slightly touch the front needle guard in a normal condition.

1. Clearance between needles and the opening of the needle plate

To adjust:

1. Remove the looper cover unit, face plate unit, back cover unit front cover unit and presser foot.
Replace the #14 needles with #11 needles.
2. Attach the needle gauge #787-G02 as shown to prevent change of needle bar height during the adjustment.
Loosen the set screw C. Turn the needle bar in the direction D or E to get an equal clearance between needles and the edge of the opening of the needle plate while pushing up the needle bar to prevent a change of needle bar height.
Retighten the set screw C and remove the needle gauge.

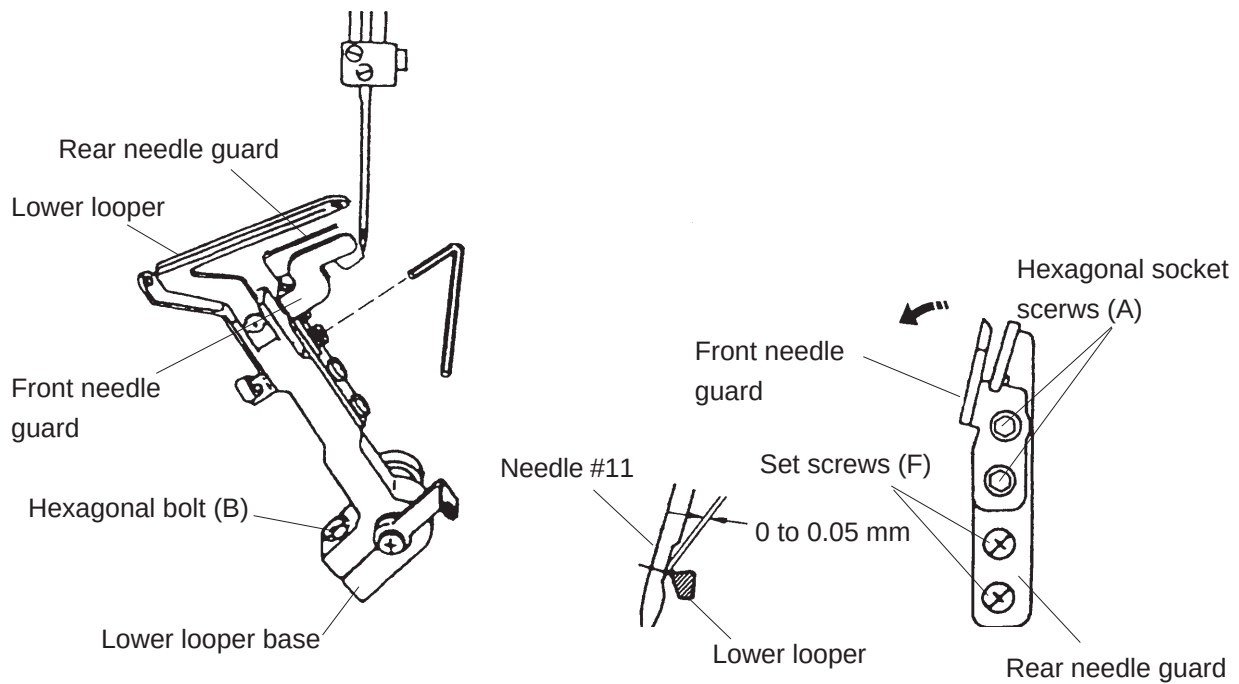


MECHANICAL ADJUSTMENT

CLEARANCE BETWEEN THE NEEDLES AND THE LOWER LOOPER/NEEDLE GUARDS

2. Clearance between needles and the lower looper

1. Remove the left needle only.
2. Turn the handwheel towards you to bring the tip of the lower looper from the left hand to the rear side of the right needle.
3. Loosen the hexagonal socket screws A on the front needle guard and move it away from the needle.
4. Next, loosen the hexagonal bolt B, and slide the lower looper base back or forth along the lower looper shaft to get the clearance between the right needle and the lower looper.
The clearance should be 0 mm to 0.05 mm.
Retighten the hexagonal bolt B.

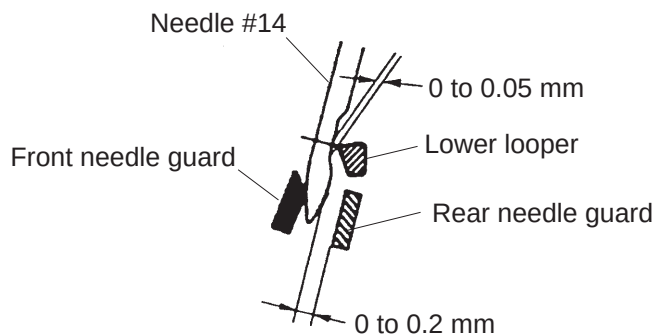


MECHANICAL ADJUSTMENT

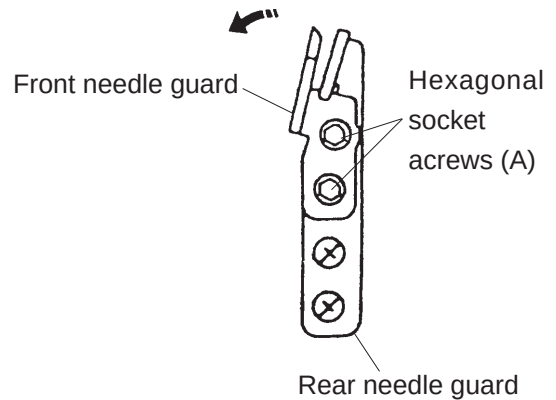
CLEARANCE BETWEEN THE NEEDLES AND THE LOWER LOOPER/NEEDLE GUARDS (3 of 3)

3. Clearance between needles and the rear needle guard

1. Change the right needle from #11 to #14.
2. Push the the front needle guard against the needle to get the clearance between the needle and the lower looper. The clearance should be 0 mm to 0.05 mm.
3. Attach #14 needle on the left and turn the handwheel towards you to check the clearance between the left needle and looper. Tighten the hexagonal socket screws A.
Make sure the front needle guard is touching the needle slightly and the rear needle guard is not touching the needle.
4. Check the timing between the needle and the lower looper.
5. Recheck the needle bar height and the clearance between the needle and the lower looper.



(Rear needle guard is not touching the needle.)



MECHANICAL ADJUSTMENT

CLEARANCE BETWEEN THE NEEDLES AND THE FIXED NEEDLE GUARD

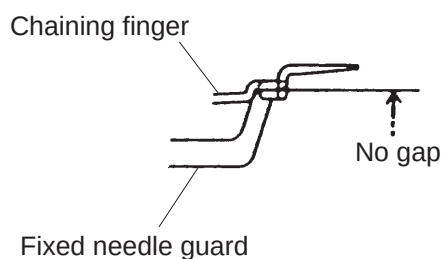
Correct Setting:

The clearance between needle and the fixed needle guard should be 0.1 to 0.4 mm.

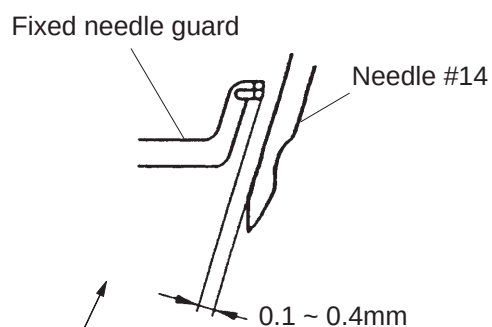
To adjust:

1. Remove the presser foot and the needle plate and lower the needle to its lowest position.
2. Loosen the setscrew A and adjust the position of the fixed needle guard.
3. Tighten the setscrew A.
4. Attach the needle plate and the presser foot.

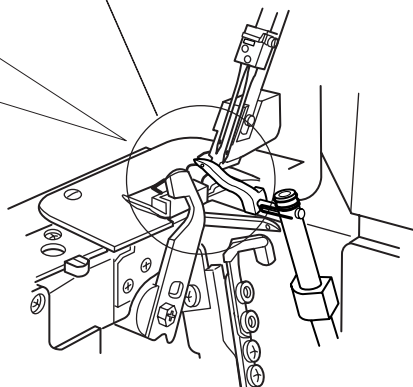
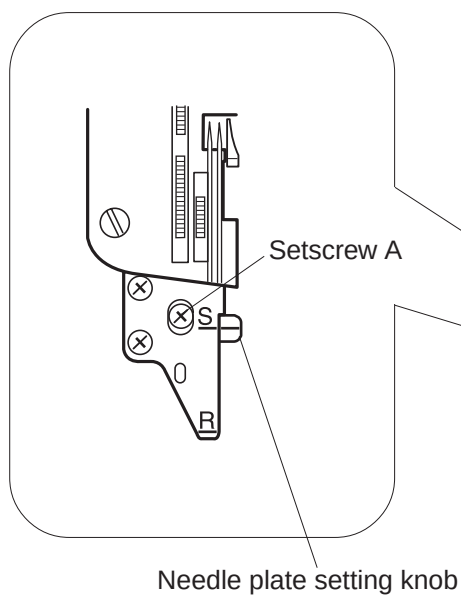
Needle plate setting knob should be at "S".



The clearance between the needle and fixed needle guard



Fixed needle guard details



MECHANICAL ADJUSTMENT

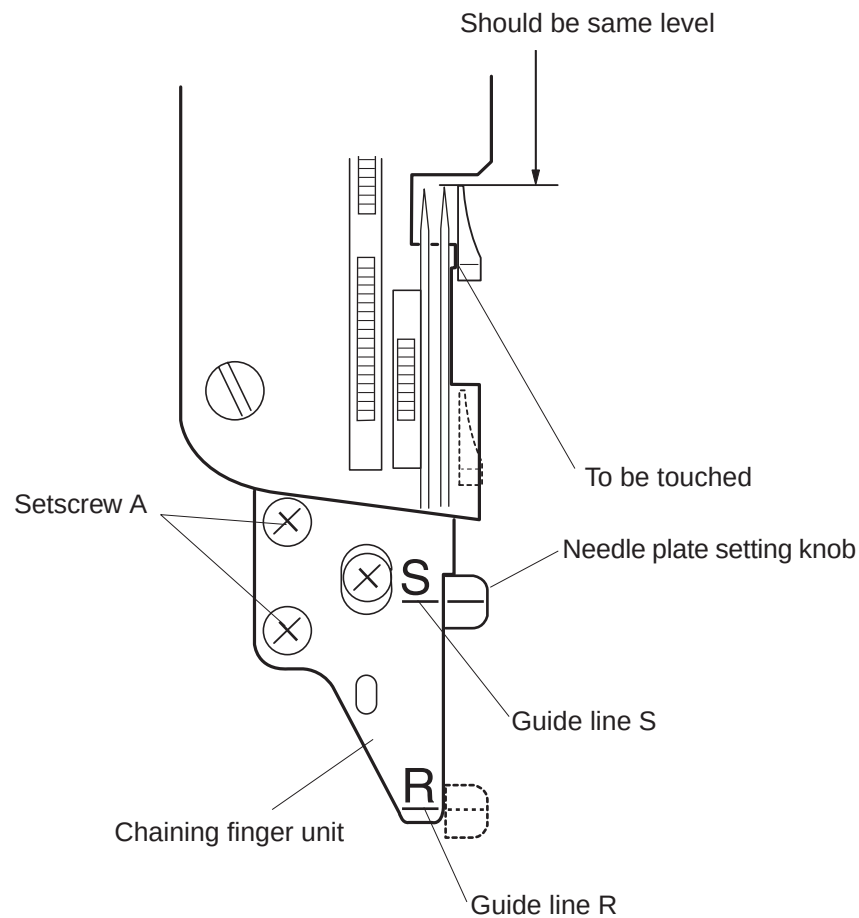
POSITION OF THE CHAINING FINGER

Correct Setting:

There should be no gap between the chaining finger and the side of needle plate, and tip of chaining finger should be the same level with the tip of the needle on the needle plate when the needle plate setting knob is set at "S".

To adjust:

1. Remove the presser foot.
2. Set the needle plate setting knob at "S".
3. Loosen two setscrews A, and move chaining finger unit to the correct position.
4. Tighten two setscrews A.
5. Shift the needle plate setting knob from "S" to "R" and vice versa, then check the position of chaining finger.
6. Attach the presser foot.



MECHANICAL ADJUSTMENT

POSITION OF THE UPPER LOOPER

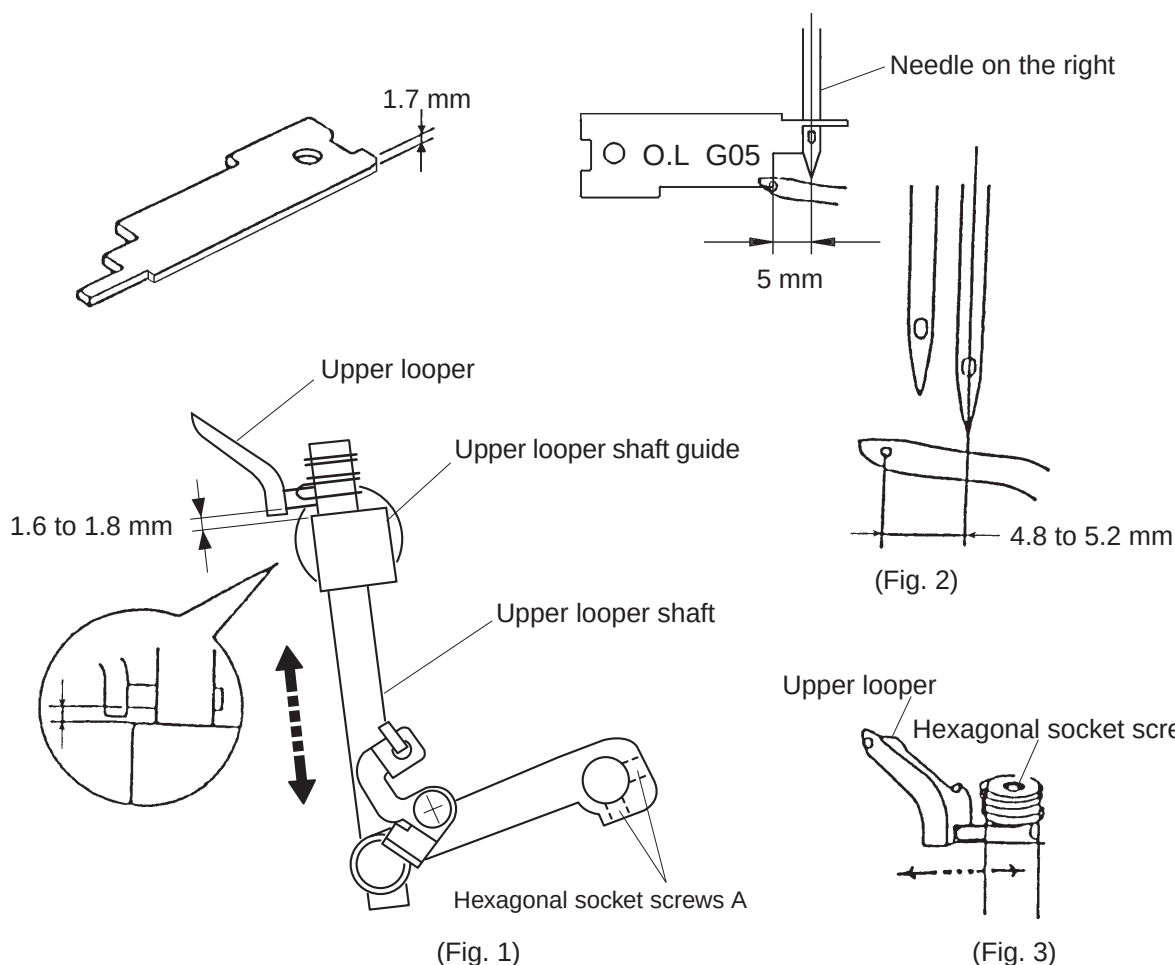
Correct Setting:

The clearance between the bottom of the upper looper and the upper looper shaft guide should be 1.6 to 1.8 mm when the upper looper is at its lowest position.

The distance between the center of needle on the right and the center of looper eye should be 4.8 to 5.2 mm when the upper looper is at its leftmost position.

To adjust:

1. Remove the machine base. Turn the handwheel to bring the upper looper to its lowest position.
2. Loosen the hexagonal socket screws A, and move the upper looper shaft up or down to adjust the clearance between upper looper shaft guide and bottom of upper looper. The distance should be 1.6 to 1.8 mm as shown in Fig. 1.
3. Tighten the hexagonal socket screws A.
4. Turn the handwheel to bring the upper looper to the leftmost position.
5. Loosen the hexagonal socket screw B, and slide the upper looper to adjust the distance between the center of needle and center of upper looper eye as shown in Fig. 2 and Fig. 3.
6. Tighten the hexagonal socket screw B.
7. Check the upper and lower loopers timing and clearance between upper and lower loopers.



MECHANICAL ADJUSTMENT

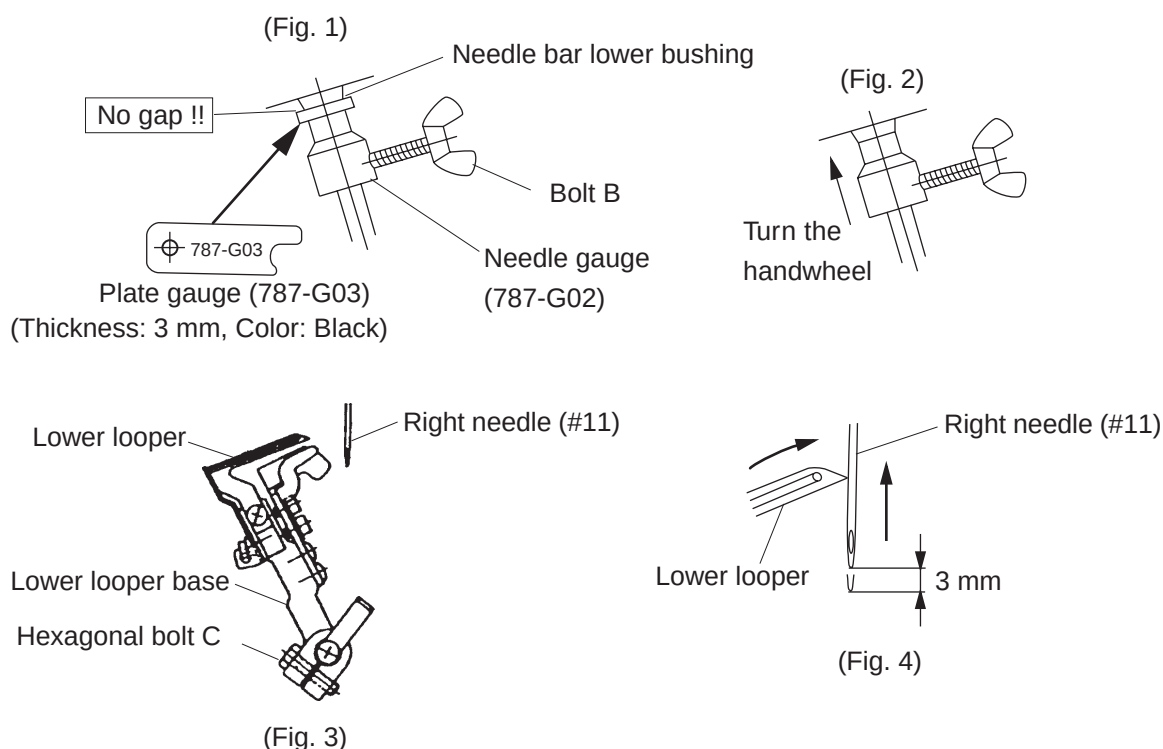
TIMING OF THE NEEDLE AND THE LOWER LOOPER

Correct Setting:

The tip of the #11 needle on the right should be 2.8 to 3.2 mm above from its lowest position when the tip of the lower looper meets the left side of the needle.

To adjust:

1. Remove the presser foot, needle plate and needle on the left.
2. Replace needle on the right with a #11 needle.
3. Turn the handwheel toward you to bring the needle to the lowest position.
4. Set the two guages (787-G02, 787-G03), as shown in Fig. 1 and tighten bolt B.
Be sure that there should be no gap between the gauges and the needle bar lower bushing.
5. Remove plate gauge (787-G03). Then turn handwheel toward you until the gauge contacts with the needle bar lower bushing, as shown in Fig. 2.
6. Loosen the hexagonal bolt C just enough to move the lower looper base.
Swing the lower looper until the tip of the lower looper meets the left side of needle (#11), as shown in Fig. 3 and Fig. 4.
Tighten hexagonal bolt C.
7. Remove the gauge (787 - G02).
 - Check the clearance between the needle and lower looper.
 - Check the clearance between the loopers.
8. Replace the needle on the right with a #14 needle.
9. Attach the needle on the left, needle plate and presser foot.
 - Be careful not to tighten the bolt B too much.



MECHANICAL ADJUSTMENT

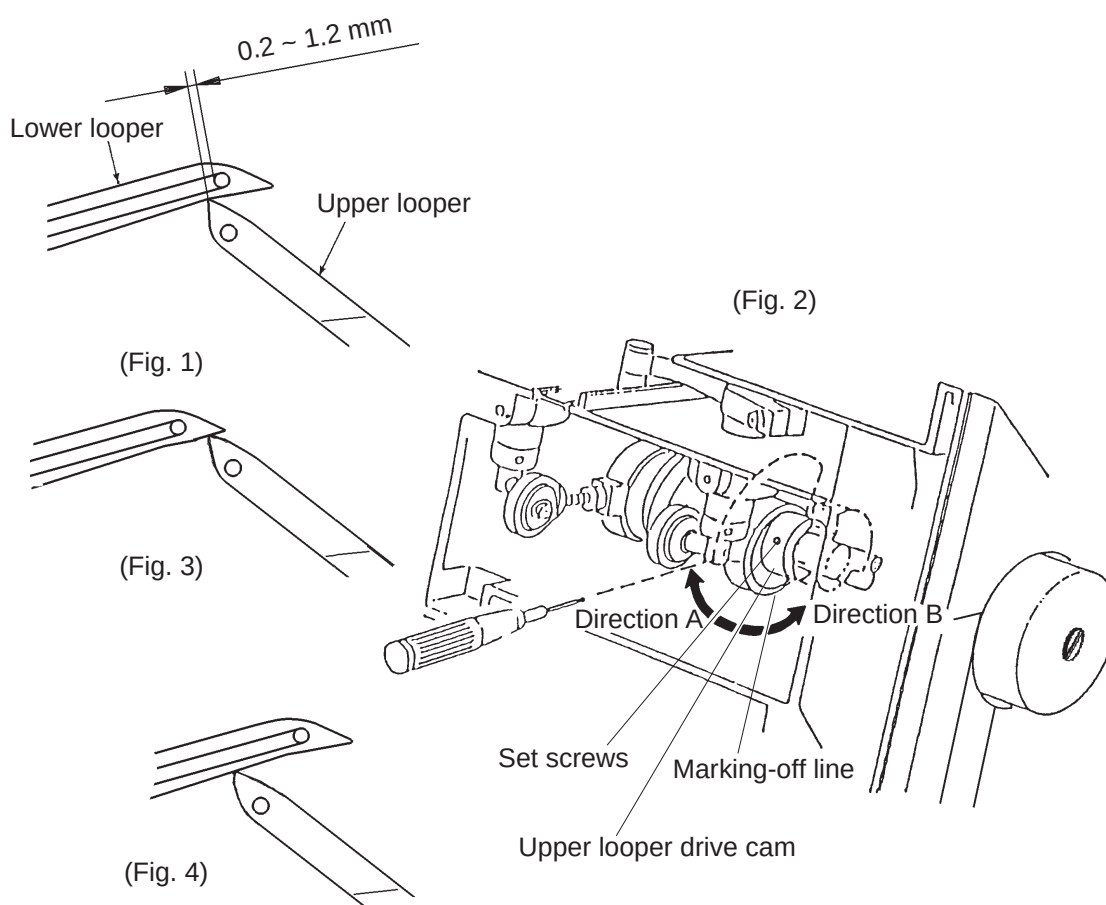
TIMING OF THE UPPER AND LOWER LOOPERS

Correct Setting:

The distance between the tip of the upper looper and the left side of the lower looper eye should be 0.2 to 1.2 mm when the tip of the upper looper meets the lower edge of the lower looper in its travel from the left to the right as shown in Fig. 1.

To adjust:

1. Before proceeding with this adjustment, check the lower looper timing and position of upper looper.
2. Remove the machine base.
3. Turn the handwheel until the tip of the upper looper meets the lower edge of the lower looper.
Loosen two setscrews, and adjust the timing by turning the upper looper drive cam as follows:
In the direction A— if the timing of upper looper is too early as shown in Fig. 3.
In the direction B— if the timing of upper looper is delayed as shown in Fig. 4.
4. Tighten two setscrews.
5. Check the clearance between the loopers.
6. Attach the machine base.



MECHANICAL ADJUSTMENT

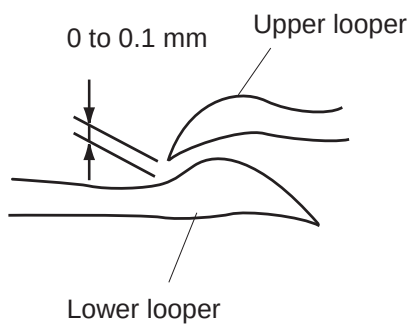
CLEARANCE BETWEEN THE LOOPERS

Correct Setting:

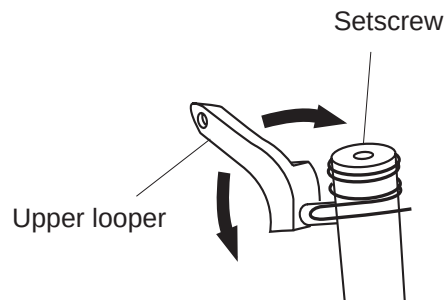
The clearance between the upper and lower loopers should be 0 to 0.1 mm when the loopers come to the position as shown in Fig. 1.

To adjust:

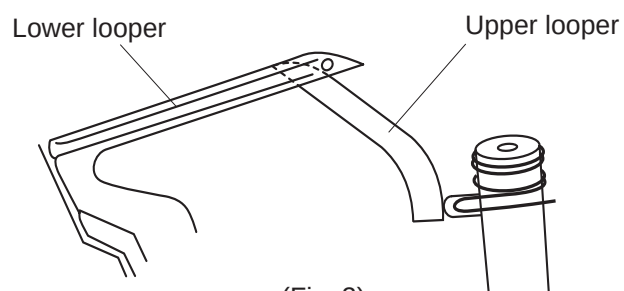
1. Remove the presser foot and needle plate.
2. Turn the handwheel until the upper looper comes behind the lower looper as shown in Fig. 2.
3. Loosen setscrew, and turn the upper looper to adjust the clearance as shown in Fig. 3.
4. Tighten the setscrew firmly.
5. Check the clearance between the upper looper and needles.
6. Attach the needle plate and presser foot.



(Fig. 1)



(Fig. 3)



(Fig. 2)

MECHANICAL ADJUSTMENT

CLEARANCE BETWEEN THE NEEDLE AND THE UPPER LOOPER

Correct Setting:

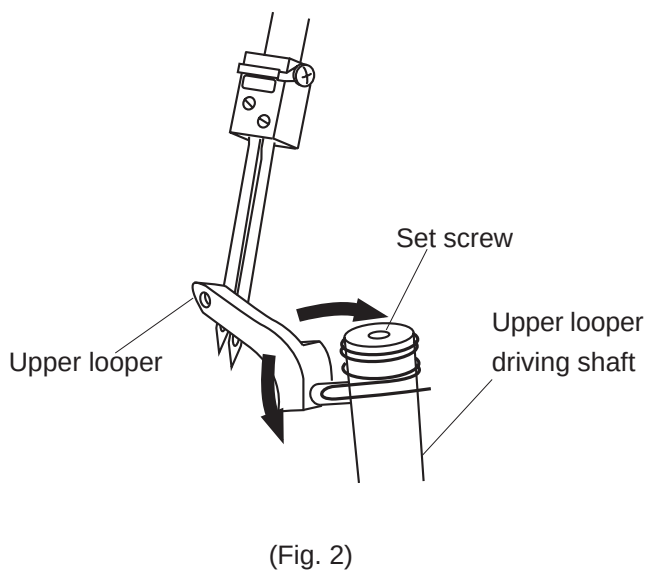
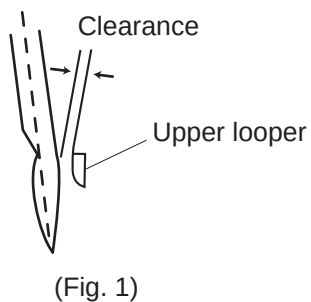
When the upper looper meets with needle, the clearance should be:

0 to + 0.1 mm at the needle on the left.

-0.05 to + 0.05 mm at the needle on the right.

To adjust:

1. Turn the handwheel toward you to bring the needle just behind the upper looper in the downward travel.
2. Loosen the setscrew, and turn the upper looper to adjust the clearance as shown in the Fig. 2.
3. Tighten the setscrew.
4. Check the clearance between the loopers.



MECHANICAL ADJUSTMENT

POSITION OF THE KNIVES

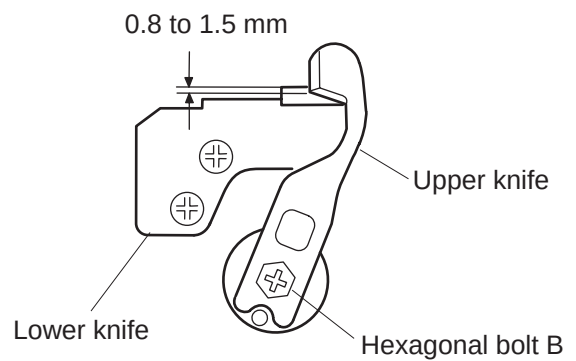
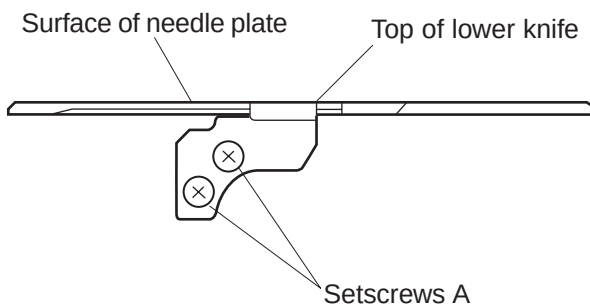
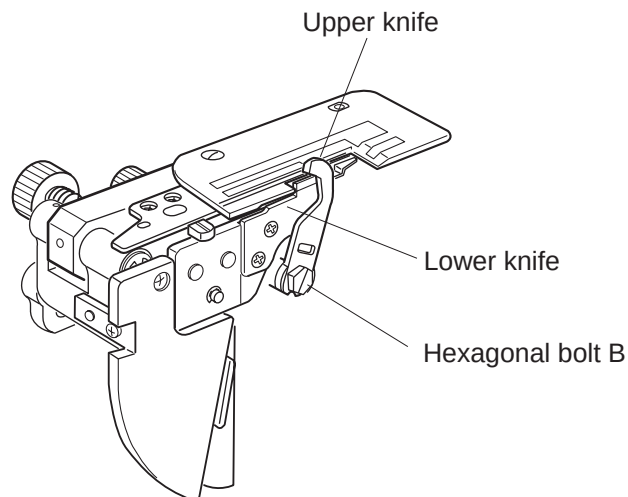
Correct Setting:

The edge of the lower knife should be level with the surface of needle plate.

The front lower corner of the upper knife should be 0.8 to 1.5 mm below the edge of the lower knife when the upper knife is at the lowest position.

To adjust:

1. Before proceeding with this adjustment, check the upper knife timing.
2. Loosen the two setscrews A, and adjust the lower knife position.
3. Turn the handwheel to bring upper knife to the lowest position.
4. Loosen the hexagonal bolt B, and adjust the position of upper knife.
5. Tighten the hexagonal bolt B.



MECHANICAL ADJUSTMENT

POSITION OF THE LOWER LOOPER THREAD GUIDE

Lower Looper Thread Guide (3)

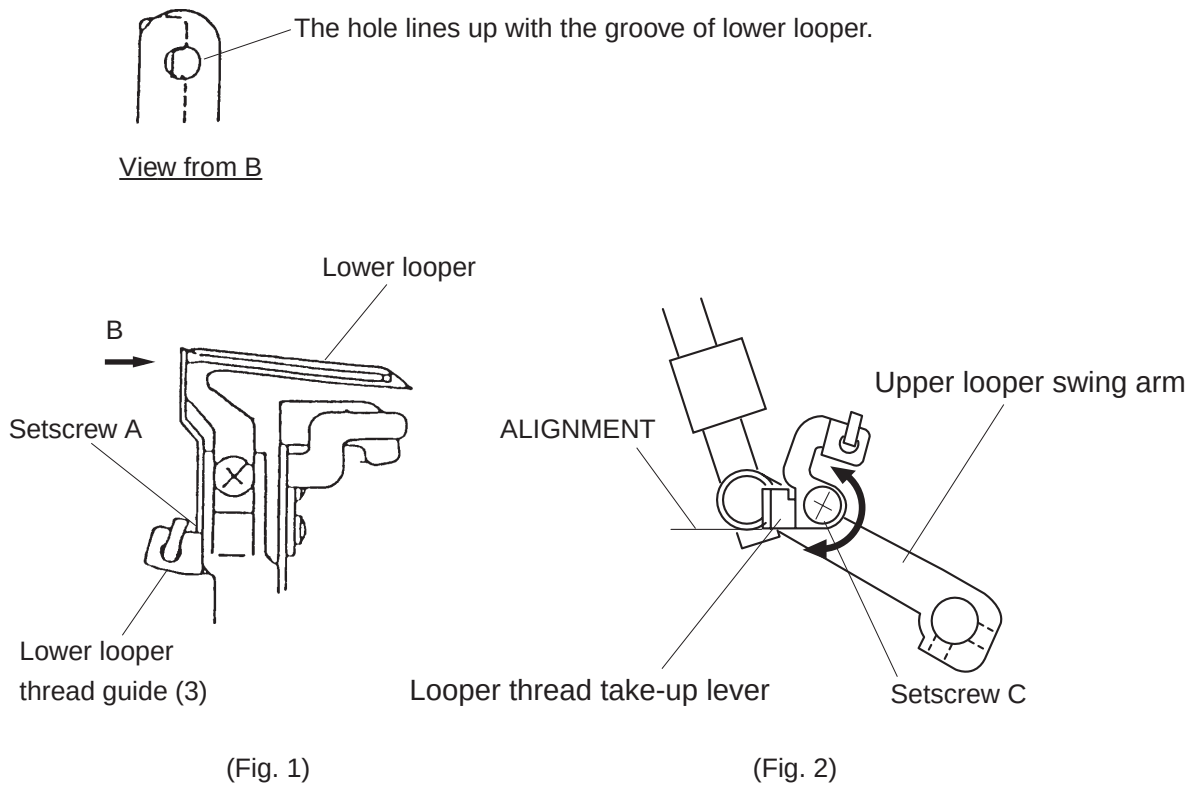
Loosen the setscrew A, and adjust the lower looper thread guide (3) so that the hole of the thread guide lines up with the groove of lower looper as shown in Fig. 1.

NOTE: After adjustment, make sure that the lower looper thread guide (3) does not interfere with the arm or feed dog.

Looper Thread take-up lever

Loosen the setscrew C, and rotate the looper thread take-up lever so that the bottom sides of the looper thread take-up lever and the upper looper swing arm align each other.

Tighten the setscrew C to secure the position.



MECHANICAL ADJUSTMENT

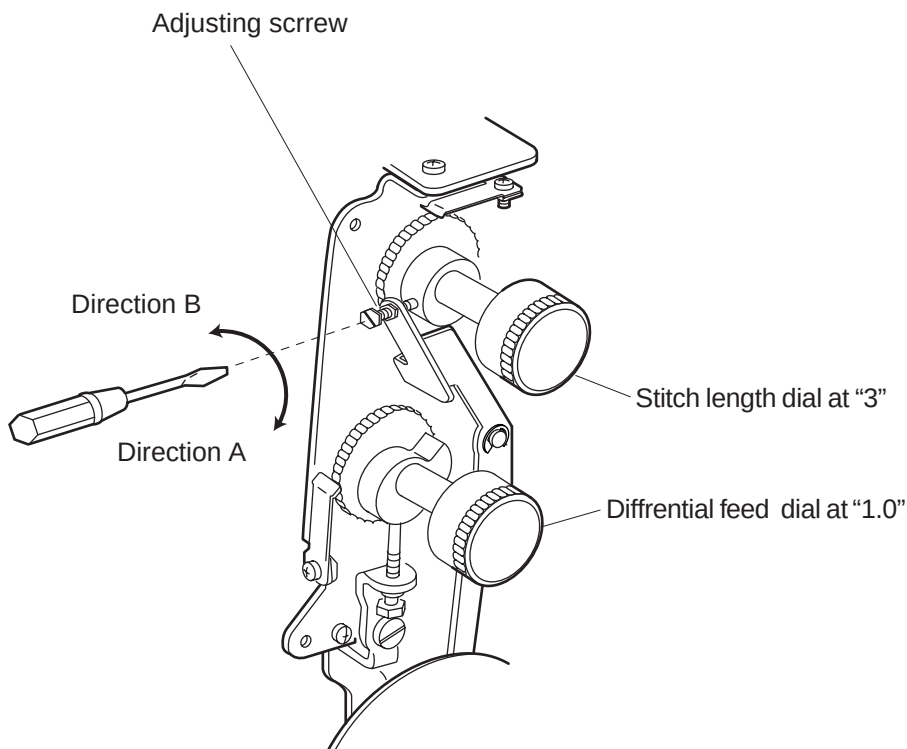
STITCH LENGTH

Correct Setting:

The actual stitch length should be 2.8 to 3.0 mm when the stitch length dial is set at “ 3 ” and differential feed dial at “ 1.0 ”.

To adjust:

1. Set the stitch length dial at “ 3 ” and the differential feed dial at “ 1.0 ”.
2. Remove the looper cover unit, face plate unit, back cover unit and front cover unit.
3. If the actual stitch length is longer than 3.0 mm, turn the adjusting screw in the direction A.
If the actual stitch length is smaller than 2.8 mm, turn the adjusting screw in the direction B.
4. Attach the front cover unit, looper cover unit, back cover unit and face plate unit.



MECHANICAL ADJUSTMENT

THREAD TENSION DIALS

Thread tension dials are already adjusted for general sewing at factory, however, if you wish stronger or weaker settings for special sewing, it can be altered as follow:

To adjust:

1. Pull out the thread tension dial.
2. To alter the tension settings, turn the tension lead screw as follows:
 - In the direction A to get weaker thread tension.
 - In the direction B to get stronger thread tension.
3. Insert the tension dial with number “3” in the up position.

Standard Settings for general sewing:

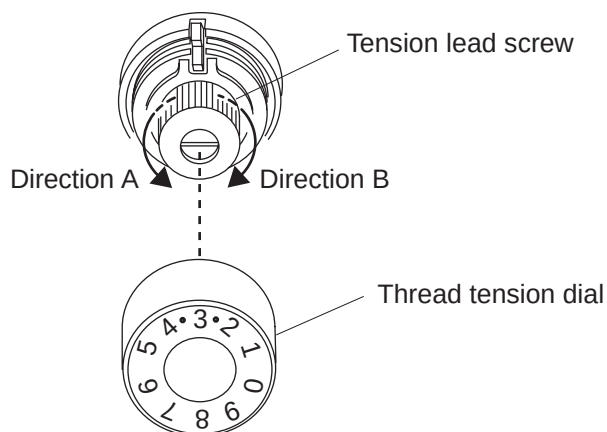
The standard tension measured with the No. 50 polyester thread should be as follows;

Dial set at “3”:

Needle (Left)	: 33 - 53 gr
needle (Right)	: 14 - 24 gr
Upper looper	: 11 - 21 gr
Lower looper	: 23 - 33 gr

Dial set at “9”:

Needle (Left)	: 150 gr or more
Needle (Right)	: 57 gr or more
Upper looper	: 45 gr or more
Lower looper	: 140 gr or more



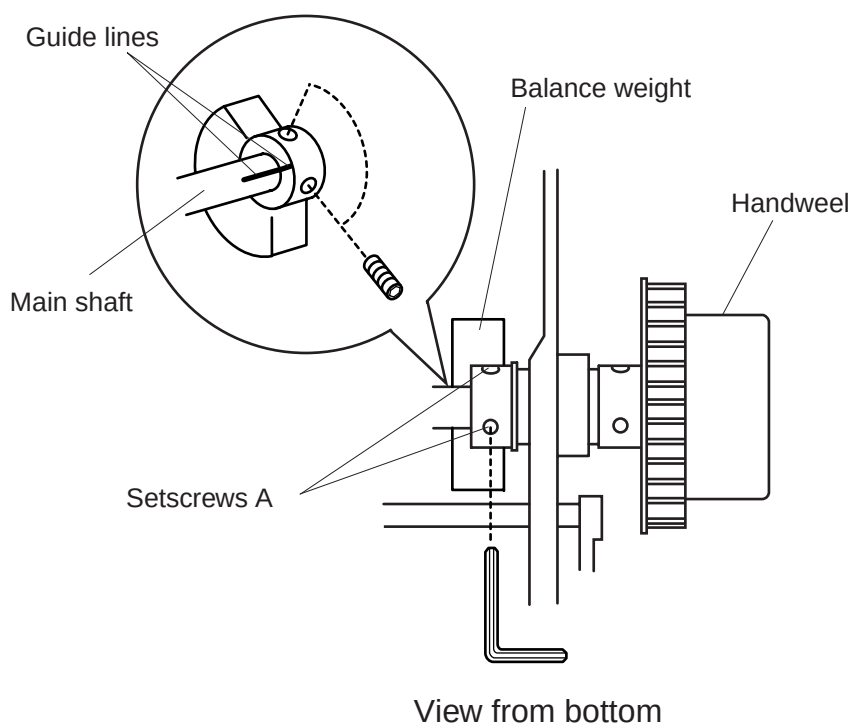
MECHANICAL ADJUSTMENT

PLAY OF MAIN SHAFT

The main shaft should turn smoothly without a detectable lateral play.

To adjust:

1. Remove the looper cover unit, and front cover unit.
2. Remove the belt from the handwheel pulley.
3. From the bottom of the machine, loosen setscrews A on the balance weight (right).
Press the balance weight to right against the bushing and tighten the setscrews A. Be sure to keep the guide lines on the balance weight and main shaft aligned.
5. Attach the front cover unit and looper cover unit.



MECHANICAL ADJUSTMENT

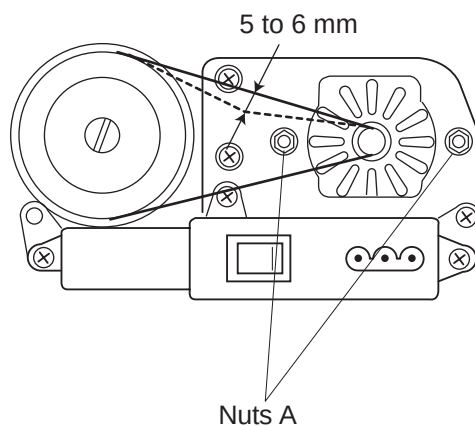
MOTOR BELT TENSION

Correct Setting:

To check for proper belt tension, press the belt in the middle of the span lightly with your finger (approximately 300 gr). The belt should bend 5 to 6 mm.

To adjust:

1. Remove the looper cover unit, face plate unit, back cover unit and front cover unit.
2. Loosen the 2 nuts A, then tighten them a little. Adjust the belt tension, then tighten the nuts securely.
3. Turn the handwheel a few rotations and re-check the belt tension.
4. Attach the front cover unit, looper cover unit, back cover unit and face plate unit.

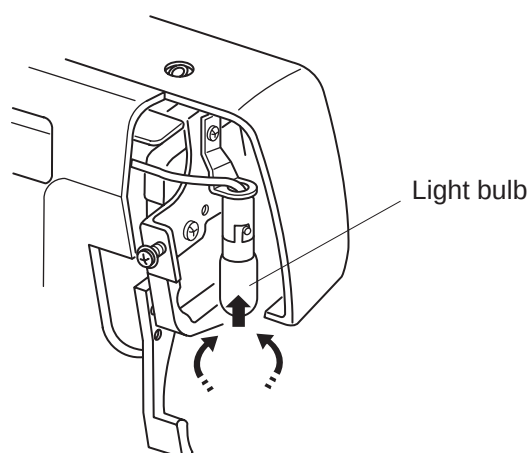
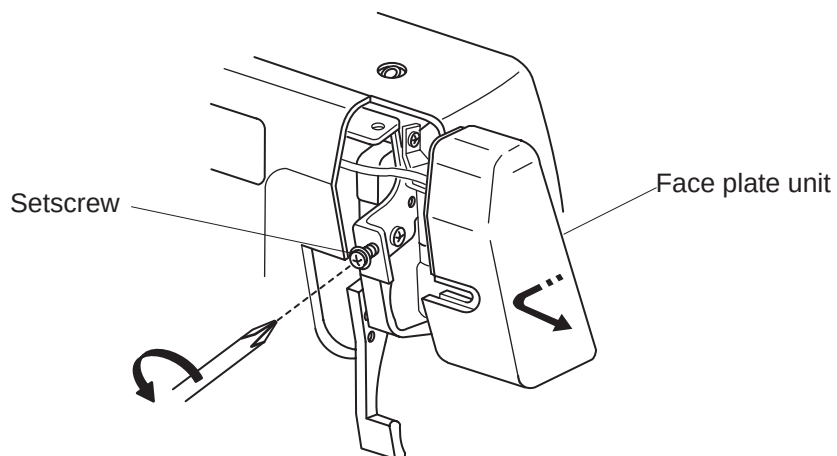


MECHANICAL ADJUSTMENT

REPLACEMENT OF LAMP

To change the lamp

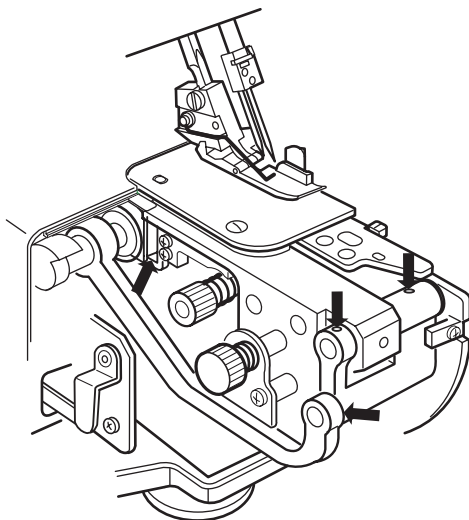
1. Loosen the face plate setscrew, and remove the face plate unit.
2. Push the bulb up and turn the bulb counterclockwise to remove it.
3. Put the new bulb in by pushing it up and turning it clockwise.
4. Attach the face plate unit.



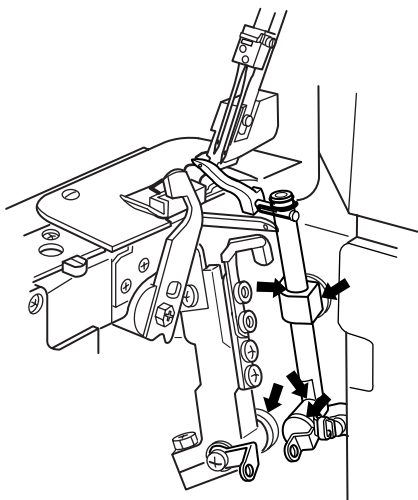
OILING

Apply a few drops of fine quality sewing machine oil to the parts indicated with arrows.

It is recommended to apply oil once a week in normal use, once in ten working-hours in continuous use.

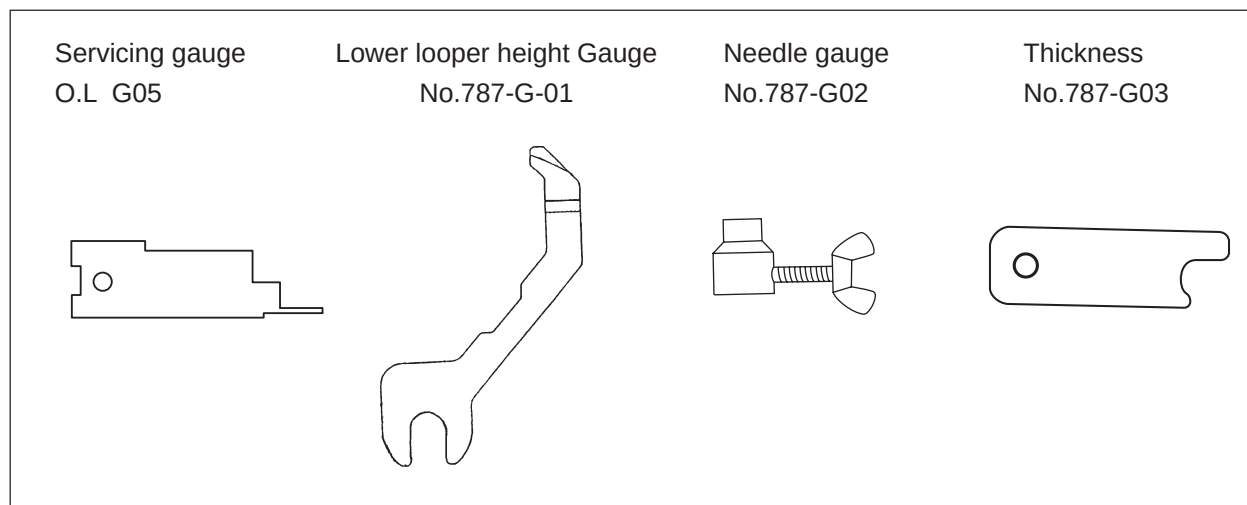


Open the side cover and apply oil.



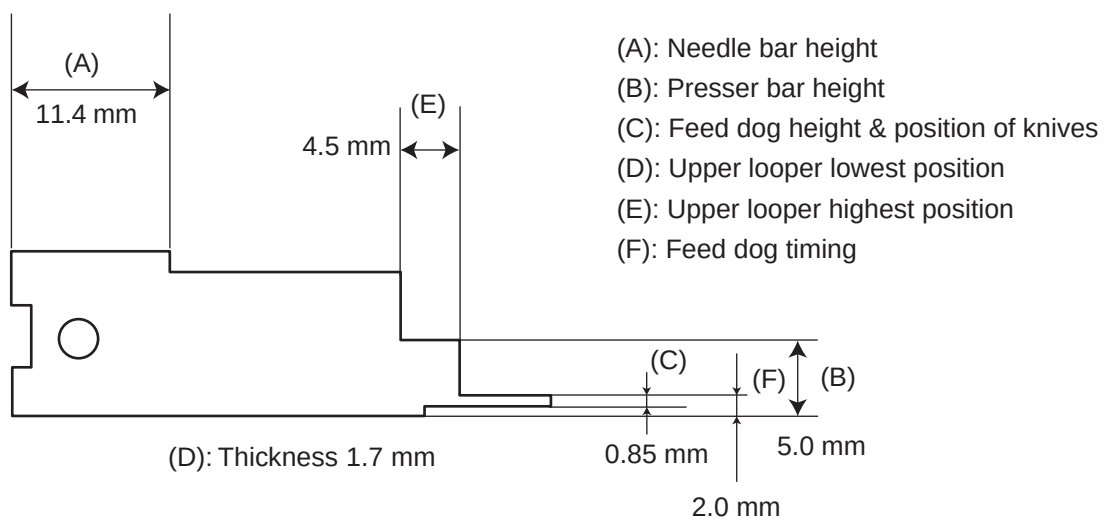
Open the looper cover and apply oil.

GAUGES FOR SERVICING

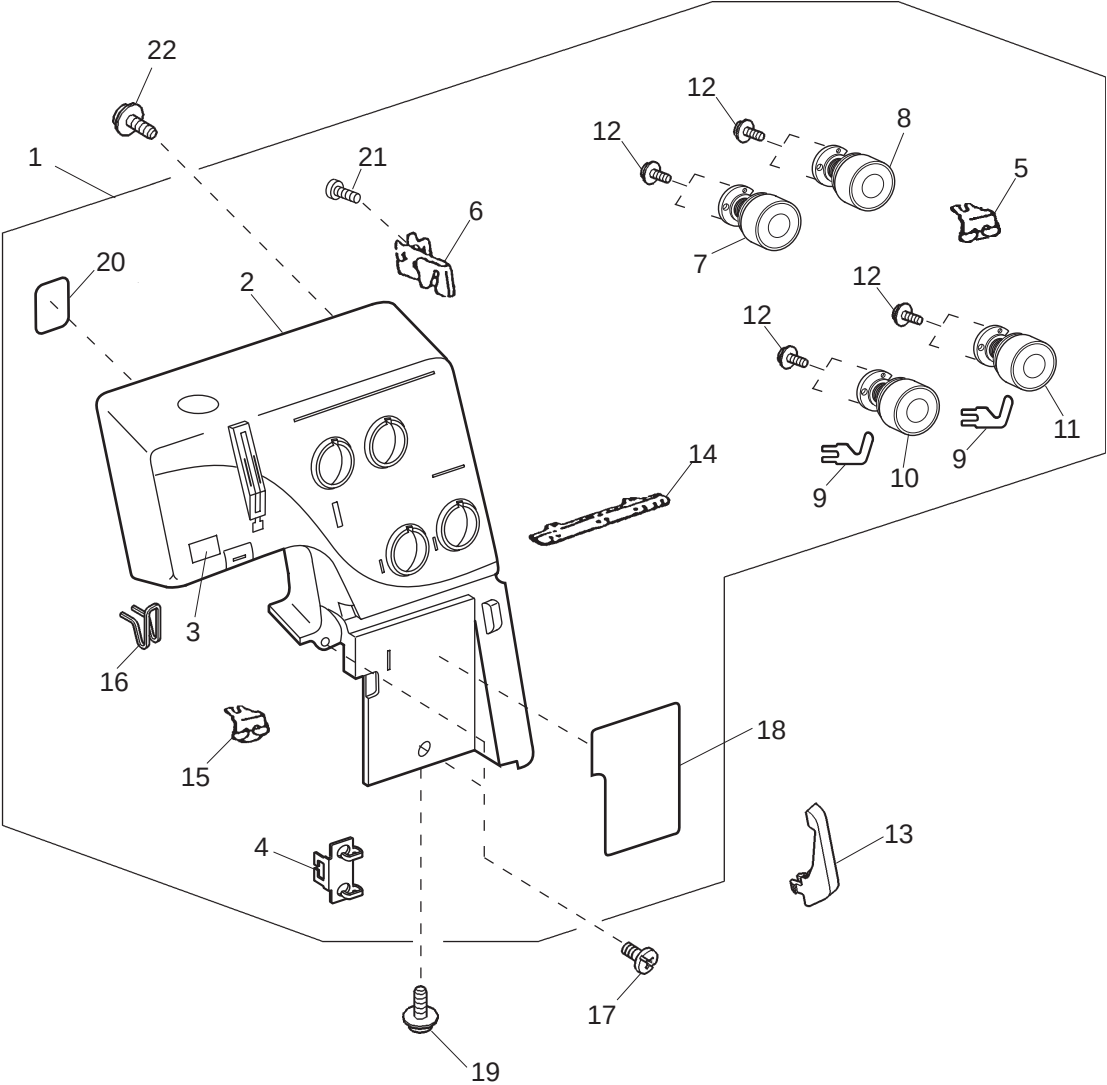


Adjusting gauge No. 8289

This gauge is used for adjusting the following characteristics:



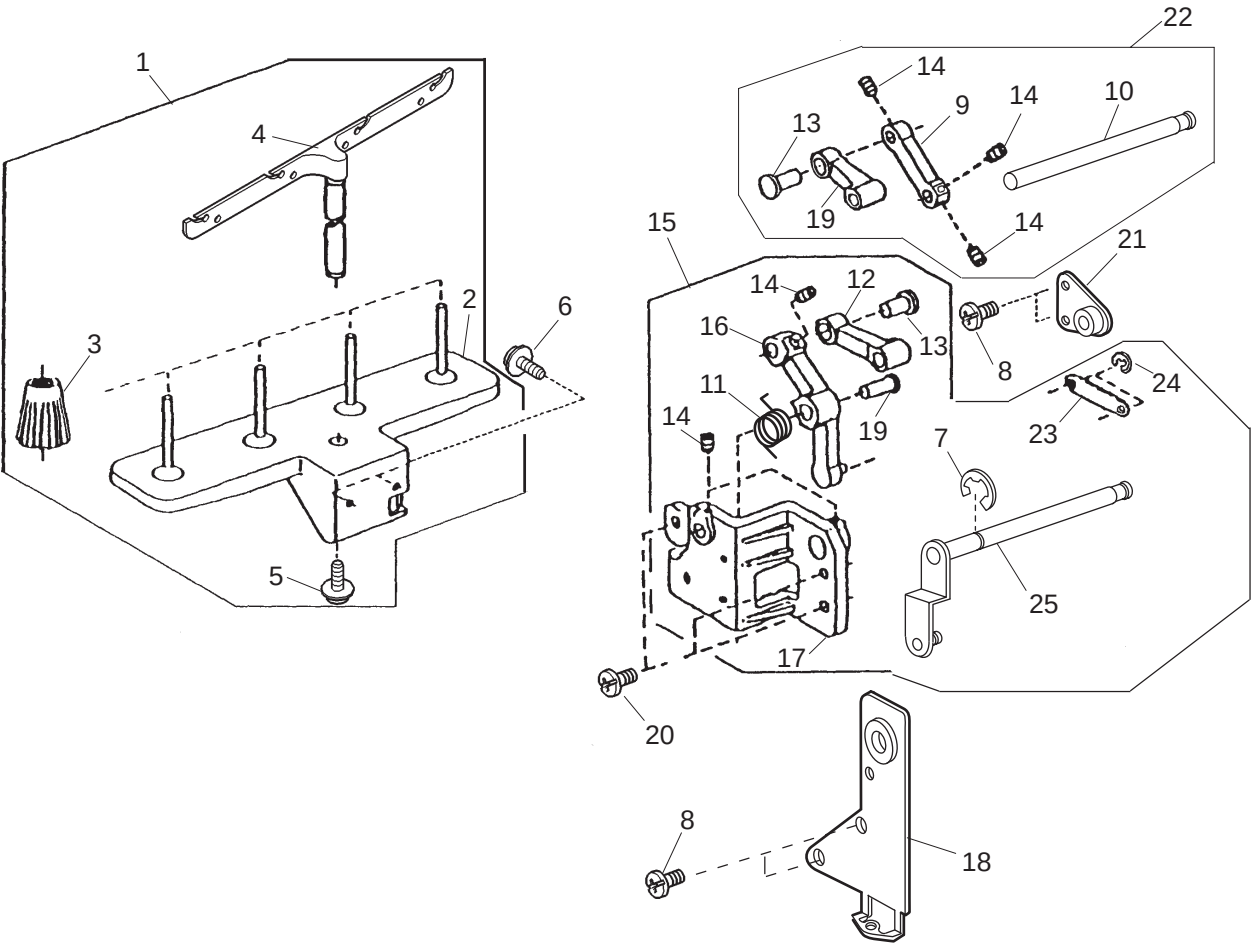
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	792607607	Front cover unit	
2	792017132	Front cover	
3	888261007	Sticker	
4	792020002	U.looper thread guide	
5	785232007	Looper thread guide	
6	792612007	Check spring cover unit	
7	785552062	L. needle tension unit	
8	785553096	R. needle tension unit	
9	792019008	Thread guide	
10	785554123	U. looper tension unit	
11	785555113	L. looper tension unit	
12	000114709	TP screw 3x6	
13	787394004	Take-up lever cover	
14	787363004	Thread guide plate	
15	785015002	Needle thread guide 2	
16	787392002	Thread guide	
17	000081016	Setscrew 4x8	
18	792021003	Sticker	
19	000198305	Tapping screw 4x10 (B)	
20	724025006	Sticker	
21	000120203	Tapping screw 3x8 (B)	
22	000161206	Tapping screw 3x10 (B)	

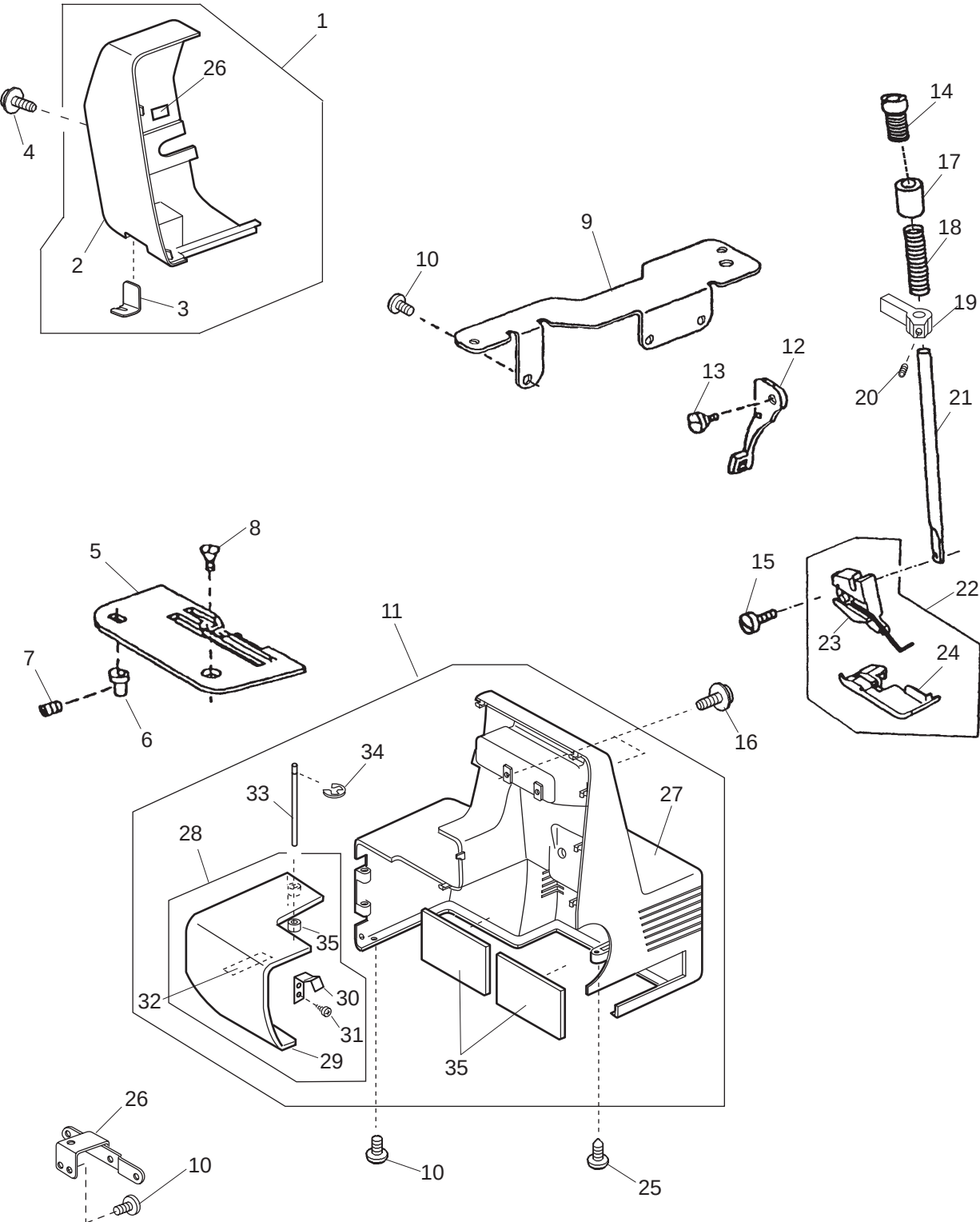
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	789606008	Spool stand unit	
2	777011003	Spool stand	
3	784223105	Spool holder	
4	789607009	Thread guide bar unit	
5	000115700	TP screw 4x10	
6	000114802	TP screw 4x12	
7	000001609	Snap ring E-5	
8	000081005	Setscrew 4x8	
9	787197005	Main feed con. arm 2	
10	787198006	Main feed con. shaft	
11	787301004	Spring	
12	787067005	Feed link	
13	787195003	Feed connecting pin	
14	000111201	H. socket screw 4x4	
15	792611006	Feed adjusting base unit	
16	787194002	Sub feed connecting arm 3	
17	787074108	Feed adjusting base	
18	792009005	Main shaft set plate (C)	
19	787076007	Con. arm pin	
20	000103509	Setscrew 4x10	
21	787077008	Con. arm support	
22	787637002	Main feed con. arm unit	
23	787081005	Feed con. arm link	
24	000002105	Snap ring E-3	
25	792034009	S. feed con arm shaft	

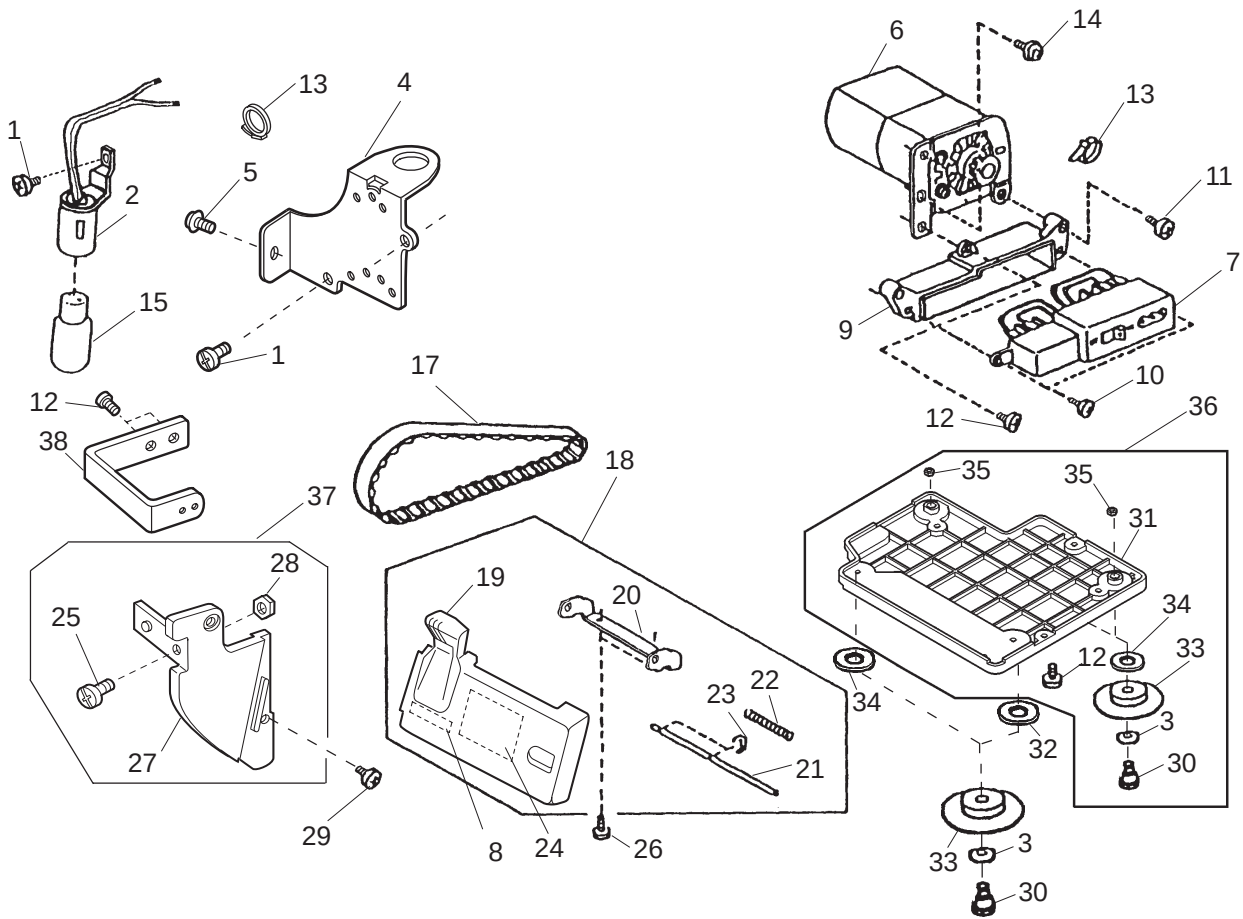
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	792602107	Face plate unit	
2	792004000	Face plate	
3	840602006	Thread cutter unit	
4	000115700	TP screw 4x10	
5	788601000	Needle plate unit	
6	789100007	Eccentric pin	
7	000111902	H. socket screw 3x4	
8	681009101	Flat screw	
9	787370004	Handle set plate	
10	000081005	Setscrew 4x8	
11	792615206	Back cover unit	
12	650032015	Presser lifter	
13	810431009	Hinge screw	
14	777013005	Pressure adjusting screw	
15	660106001	Setscrew	
16	000115618	TP screw 4x8	
17	777002001	Bushing	
18	787020006	Presser bar spring	
19	789117007	Presser bar bracket	
20	000111304	H. socket screw 5x5	
21	787019002	Presser bar	
22	788501009	Presser foot unit	
23	787541008	Foot holder unit	
24	788502000	Presser foot unit	
25	000198305	Tapping screw 4 x 10 (B)	
26	787294003	Back cover set plate	
27	792022004	Back cover	
28	792608103	Side cover unit	
29	792023005	Side cover	
30	787163002	Side cover spring	
31	000120203	Tapping screw 3x8 (B)	
32	830312016	Caution sticker	
33	792024006	Side cover shaft	
34	000002105	Snap ring E-3	
35	794110006	Rubber	
36	100411104	Lamp sticker	

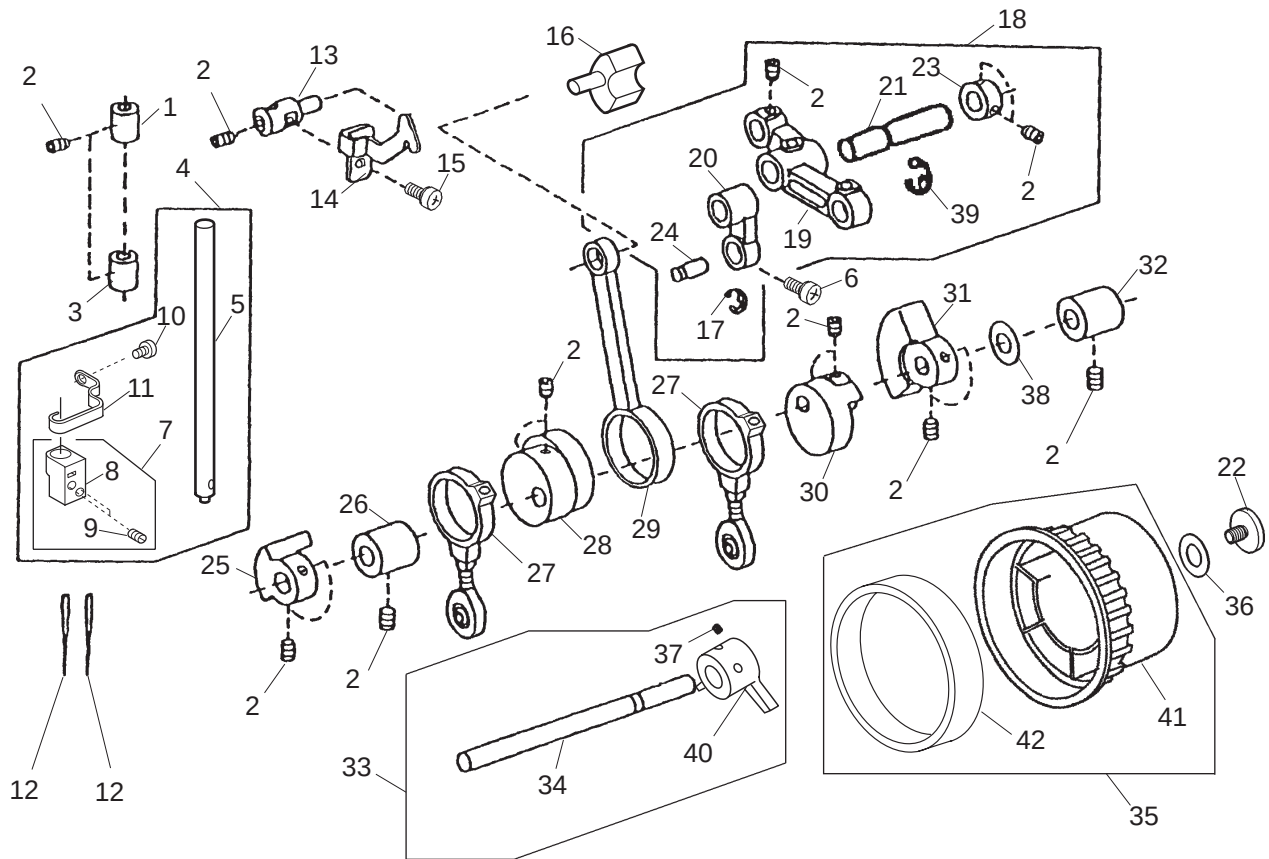
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	000101404	Setscrew 4x6	
2	791620108	Lamp socket com. unit	
3	000070300	Washer	
4	789105002	Lamp socket set plate	
5	000115700	TP screw 4x10	
6	792618106	Motor unit	
7	777502109	Plug con. rec. unit	
8	830312016	Caution sticker	
9	784128028	Plug. con. receptacle cover	
10	000121905	Tapping screw 4x12 (B)	
11	000104108	Setscrew 4x20	
12	000081005	Setscrew 4x8	
13	000053008	Binder	
14	000115504	TP screw 5x10	
15	000009009	Lamp 240V 15W	
16	000101404	Setscrew 4x8	
17	784124002	Timing belt	
18	792609609	Looper cover unit	
19	792025605	Looper cover	
20	792026008	Looper cover supporter	
21	792027009	Looper cover shaft	
22	792028000	Looper cover spring	
23	000002105	Snap ring E-3	
24	789028000	Sticker	
25	000103510	Setscrew 4x10	
26	000115205	TP screw 4x6	
27	792029001	Looper cover guide	
28	000062402	Nut M4	
29	000078320	Setscrew 3x6	
30	784169009	Hinge screw	
31	789034009	Base plate	
32	785260004	Washer	
33	784135006	Rubber cushion	
34	787204006	Washer (2)	
35	000061205	Nut 4	
36	789610049	Base plate unit	
37	792610005	Looper cover guide unit	
38	787153009	L. cover guide supporter	

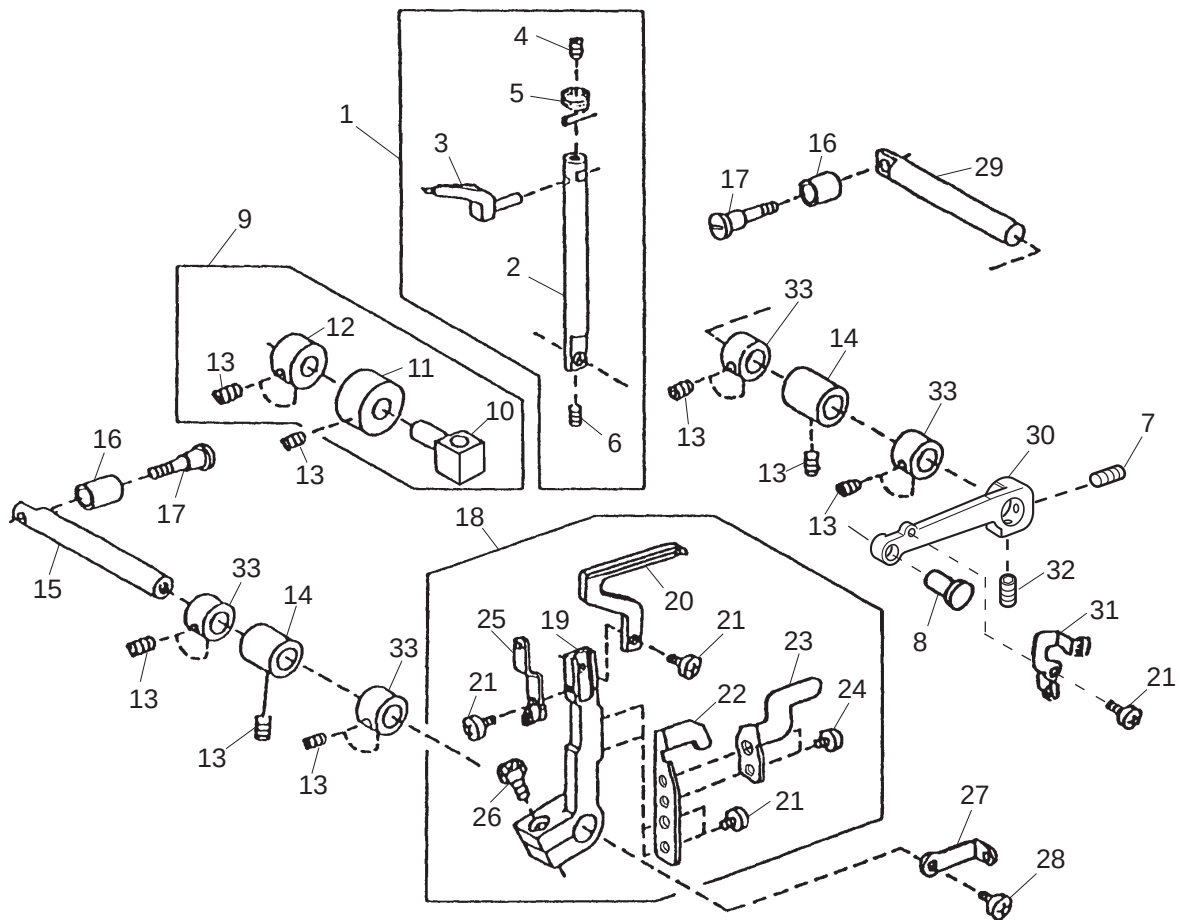
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	784027004	Needle bar upper bushing	
2	000011201	H. socket screw 4x4	
3	784028005	Needle bar lower bushing	
4	792601003	Needle bar unit	
5	792001007	Needle bar	
6	000101703	Setscrew 4x12	
7	792501002	Needle clamp unit	
8	792002008	Needle clamp	
9	888264000	Needle clamp screw	
10	000078320	Setscrew 3x6	
11	792003009	Needle bar thread guide	
12	784157015	Needle HAx1 SP-14	
13	784024001	Needle bar bracked	
14	787348003	Take-up lever	
15	000078320	Setscrew 3x6	
16	789103000	Needle bar balancer	
17	000001609	Snap ring E-5	
18	789612007	Needle bar crank unit	
19	789104001	Needle bar crank	
20	789007003	Needle bar link	
21	789008004	Needle bar crank shaft	
22	618070004	Screw	
23	624245001	Ring	
24	784022009	Link pin	
25	792037002	Left balance weight (left)	
26	784009000	Bushing	
27	792951001	Looper cam ring unit	
28	787007100	Needle bar cam	
29	784011005	Needle bar crank rod	
30	787004107	Upper looper cam	
31	787176008	Balance weight (right)	
32	784310007	Bushing	
33	792619004	Main shaft unit	
34	789001007	Main shaft	
35	793607404	Handwheel unit	
36	556047007	Washer	
37	000111304	H. socket screw 5x5	
38	000038605	Washer 10x0.5	
39	000002909	Snap ring E-7	
40	792041009	Balance weight	
41	784019014	Handwheel	
42	793012004	Rubber sheet	

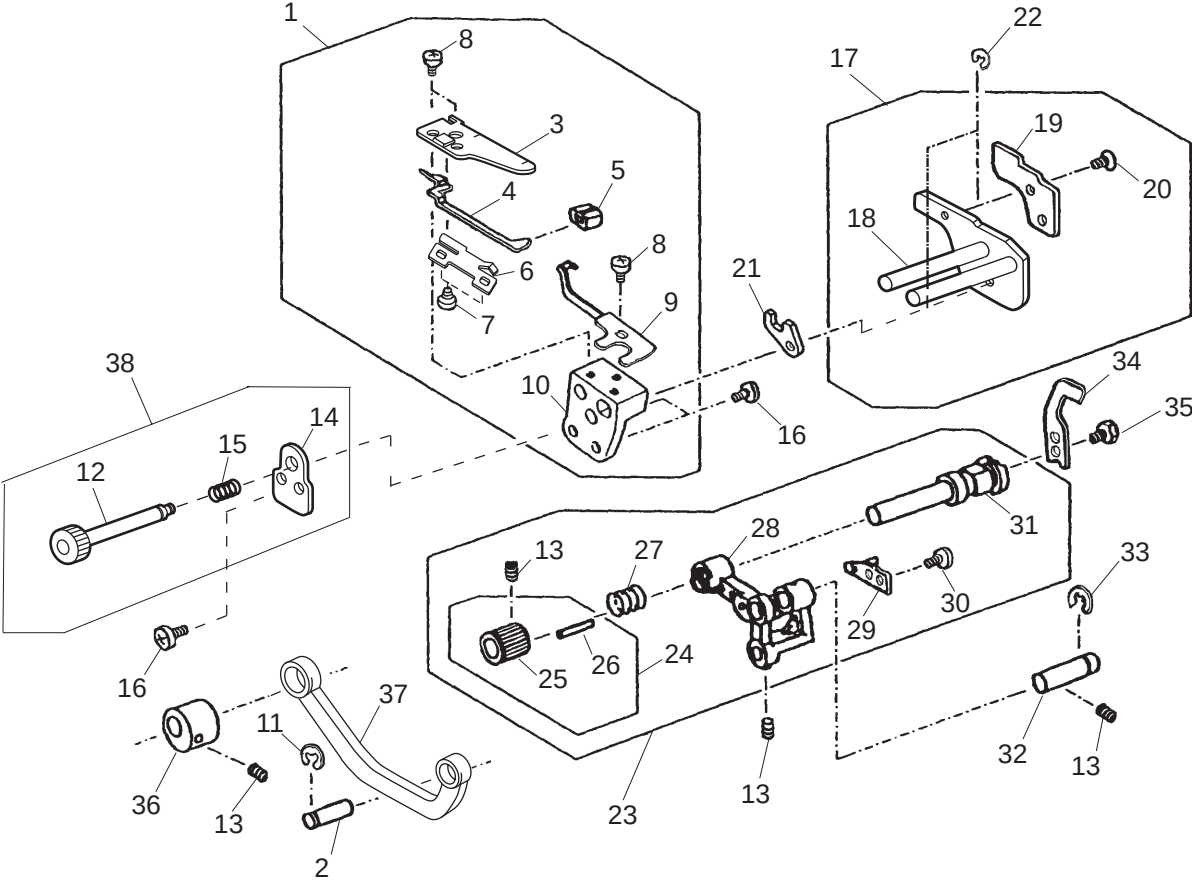
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	787618007	Upper looper shaft unit	
2	787111005	Upper looper shaft	
3	784076019	Upper looper	
4	000112501	H. socket screw 4x4	
5	784077009	U. looper thread guide 3x6	
6	000177205	H. socket screw 3x6	
7	000111304	H. socket screw 5x5	
8	792031005	Upper looper pin	
9	792614009	U. looper shaft guide unit	
10	792038003	U. looper shaft guide	
11	792039004	Bushing	
12	787106007	Ring	
13	000111201	H. socket screw 4x4	
14	787104005	Bushing	
15	787116000	L. looper crank shaft	
16	787107101	Crank spacer	
17	787108009	Crank setscrew	
18	785610036	Lower looper unit	
19	785024004	L. looper base (2)	
20	784083606	Lower looper	
21	000078320	Setscrew 3x6	
22	787383000	Rear needle guard	
23	782023003	Front needle guard	
24	000099006	H. socket screw 3x4	
25	784085206	L. looper thread guide (3)	
26	000138008	H. socket screw 4x16	
27	785010203	L. looper thread guide	
28	000103004	Setscrew 3.5x6	
29	787105006	U. looper crank shaft	
30	789112002	U. looper waving arm	
31	788038000	Looper thread guide (L2)	
32	000110107	H. socket screw 5x5	
33	792048006	Looper shaft ring	

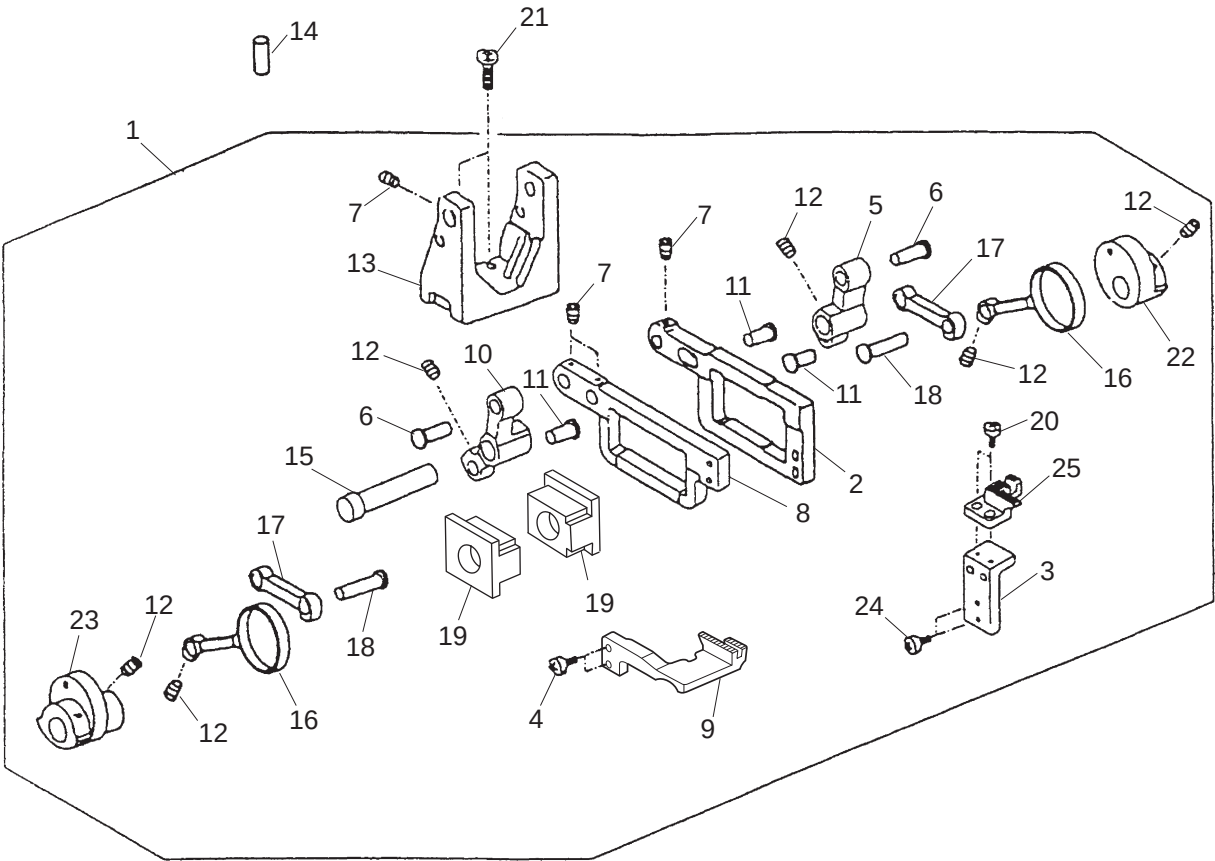
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	792613008	Chaining finger bracket unit	
2	787012005	Pin	
3	789106003	Chaining finger set plate	
4	788017003	Chaining finger	
5	787041003	Needle plate setting knob	
6	788018004	Chaining finger spring	
7	000074603	Setscrew 2x4	
8	000078320	Setscrew 3x6	
9	788019005	Fixed needle guard	
10	788015001	Chaining finger bracket	
11	000001609	Snap ring E-5	
12	792007003	Lower knife guide shaft	
13	000111201	H. socket screw 4x4	
14	787046008	Guide plate	
15	787048000	Spring	
16	000081005	Setscrew 4x8	
17	792603005	Lower knife unit	
18	792005001	Lower knife set plate	
19	788013009	Lower knife	
20	000102221	Setscrew 4x6	
21	788021000	Nut	
22	000001207	Snap ring E-2.5	
23	787635000	Upper knife srine arm unit	
24	784607- - -	Upper knife knob unit	
25	784044007	Upper knife knob	
26	000003601	Spring pin 2x14	
27	784043006	Spring	
28	787033002	Upper knife drive arm	
29	784041004	Upper knife guide	
30	810220003	Setscrew 4x6.5	
31	784042005	Upper knife supporter	
32	787022008	Pin	
33	000002909	Snap ring E-7	
34	788127007	Upper knife	
35	624303008	H. bolt 4x6	
36	788008001	Upper knife drive cam	
37	789009005	Upper knife connecting rod	
38	792622000	Lower knife guide shaft unit	

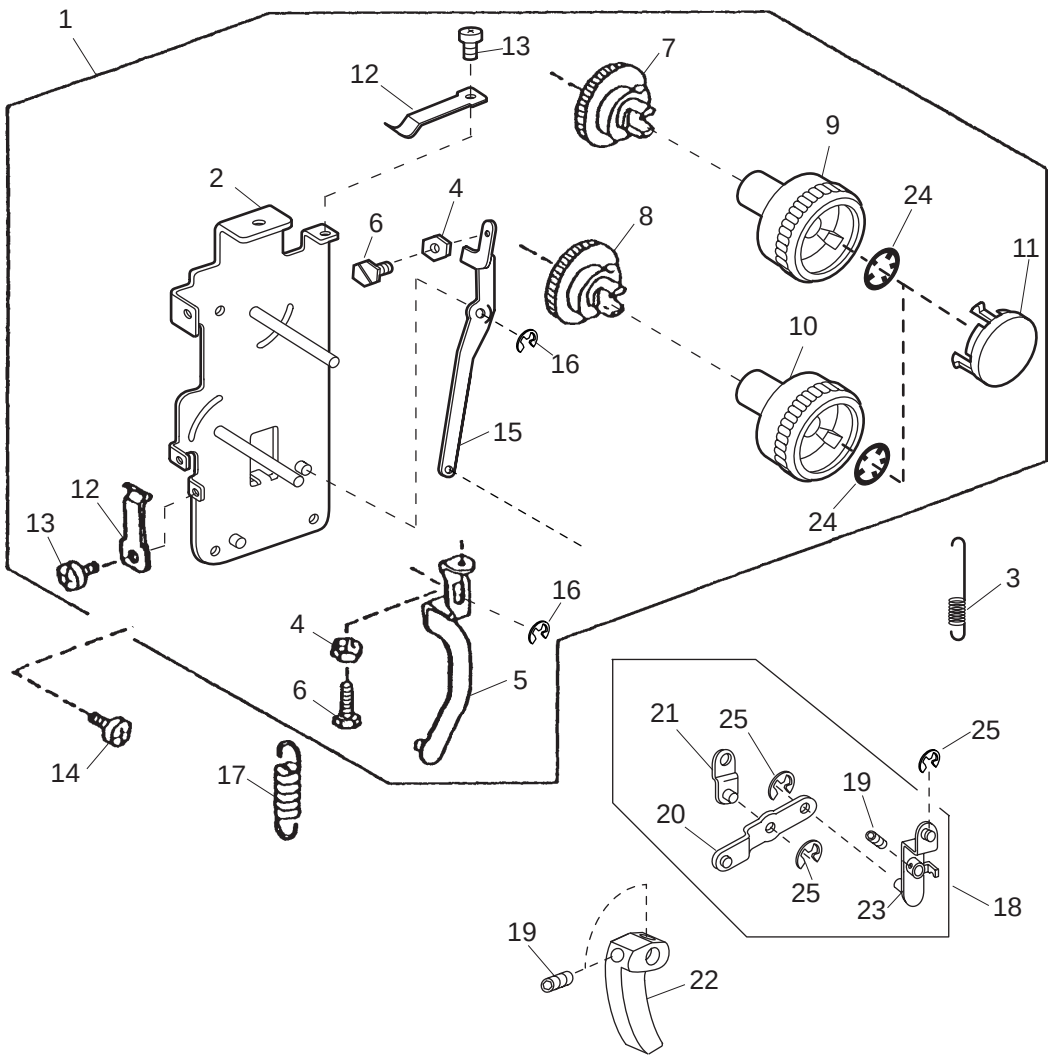
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	792604006	Feed bar unit	
2	788022001	Main feed bar	
3	788023002	Main feed dog bracket	
4	000104201	Setscrew 3.5x10	
5	787054009	Main feed bar drive arm	
6	787055000	Pin	
7	000111902	H. socket screw 3x4	
8	788024003	Sub feed bar	
9	789018007	Sub feed dog	
10	787212007	Sub feed drive arm	
11	787059004	Pin	
12	000111201	H. socket screw 4x4	
13	787305008	Feed bar base	
14	000122803	Pin	
15	787306009	Feed driving arm pin	
16	787065003	Feed bar link	
17	787066004	Feed rocking link	
18	787068006	Pin	
19	792008004	Block	
20	000066705	Setscrew 3x8	
21	000201405	TP screw 4x16	
22	787072003	Main feed drive cam	
23	787073004	Sub feed drive cam	
24	000068811	Setscrew 3.5x10	
25	788027006	Main feed dog	

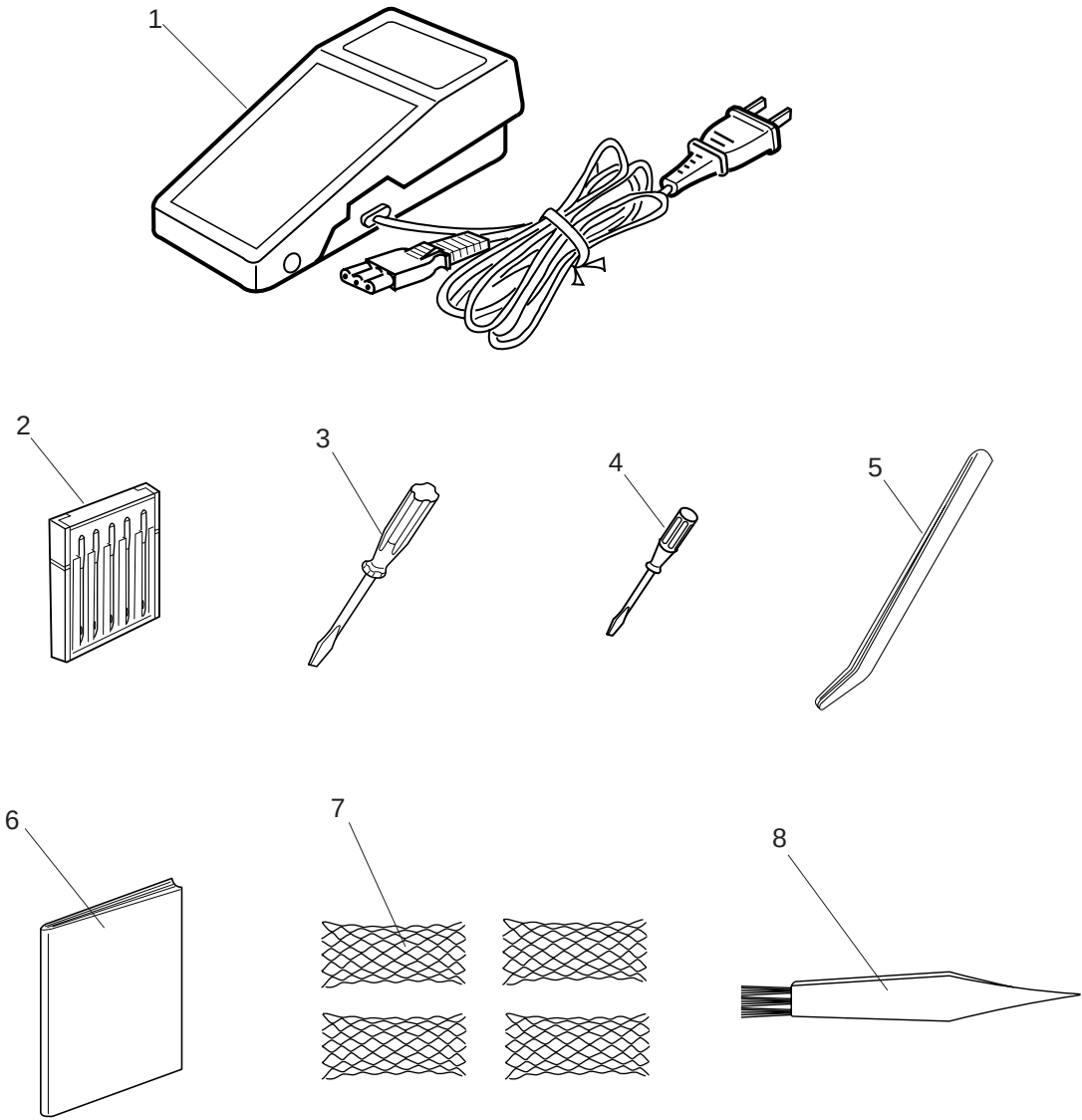
PARTS LIST



PARTS LIST

No.	Part No.	Part Name	Remark
1	792606400	Feed adjuster unit	
2	792012001	Set plate	
3	792011000	Spring	
4	000160102	Adjustable nut	
5	792014003	Differential rod	
6	785224006	Adjustable screw	
7	792015004	S. length adj. cam	
8	788036008	Dif. adj. cam	
9	792016267	S. length dial	
10	792016278	Dif. dial	
11	787262909	Dial cap	
12	787263003	Spring	
13	000081119	Setscrew 4x6	
14	000081005	Setscrew 4x8	
15	792013002	Feed rod	
16	000001609	Snap ring E-5	
17	787259006	Spring	
18	792605007	M. feed con. arm unit	
19	000111201	H. socket screw 4x4	
20	788030002	Feed con. plate	
21	788031003	Dif. transfer arm	
22	788032004	Sub feed con. arm	
23	792040008	M. feed con. arm	
24	000013800	Snap ring CS-3	
25	000002105	Snap ring E-3	

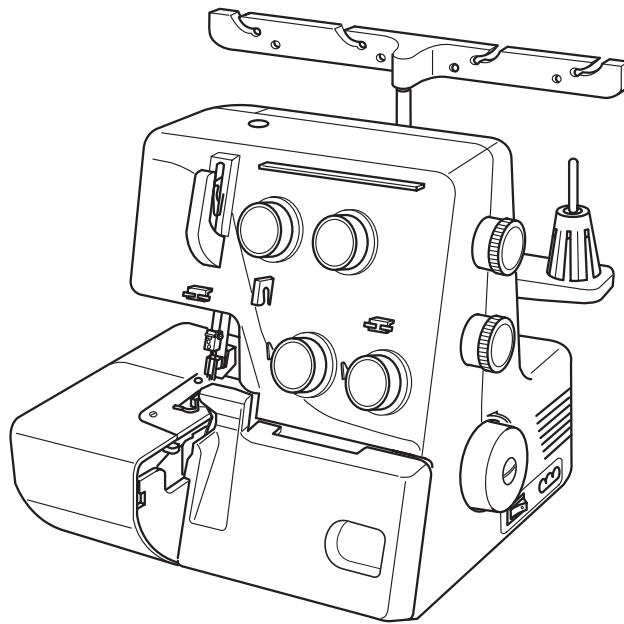
Standard Accessories



Standard Accessories

No.	Part No.	Part Name	Remark
1	C - 2034	Speed controller	
2	784860100	Needle set	
3	784810002	Screwdriver (large)	
4	792030005	Screwdriver (small)	
5	624801001	Tweezer	
6	789800015	Instruction book	
8	624806006	Net	
9	802424004	Lint brush	

SERVICING MANUAL & PARTS LIST



MODEL Harmony 9002D

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