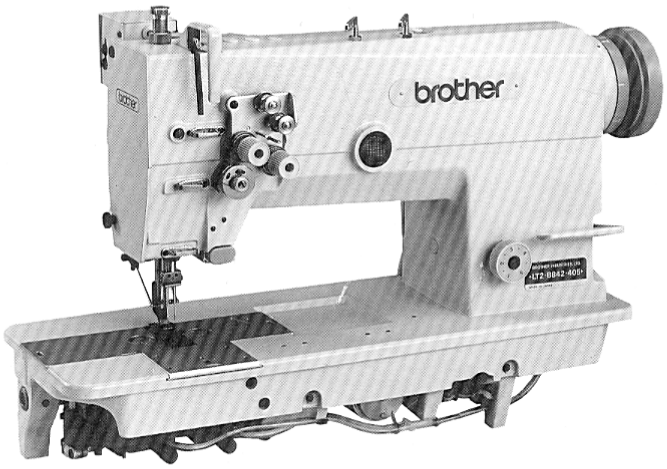
brother

SERVICE MANUAL

FOR

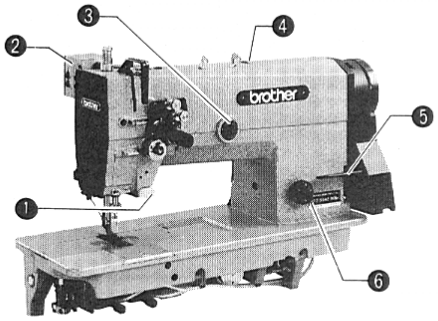
LT2-B841, -B842, B845
LT2-B847, -B848
LT2-B872, -B875
LT2-B845-900S, LT2-B875-900S
LT2-B8450, -B8750, -B8480



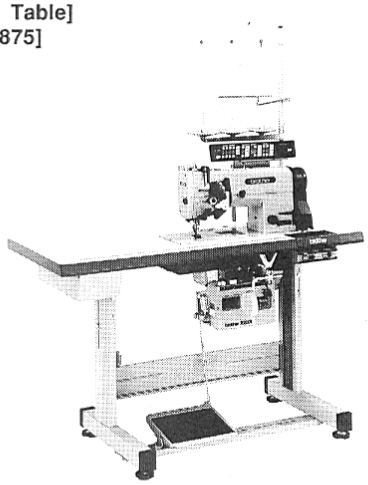
CONTENTS

NAMES OF MAIN PARTS

[LT2-B842]



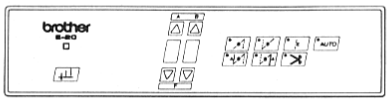
[Power Table]
[LT2-B875]



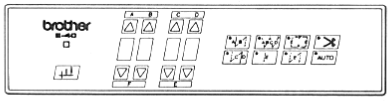
❶ Quick reverse
❷ Thread wiper
❸ Oil gauge window
❹ Oil inlet
❺ Reverse feed lever
❻ Feed adjustment dial

Operation panel

E-20



E-40



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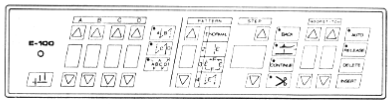
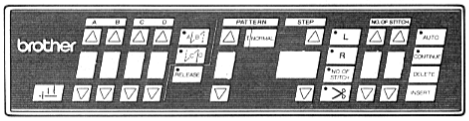
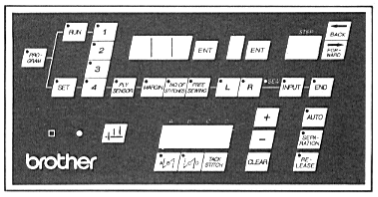


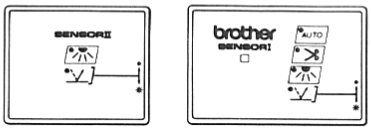
–900S operation panel



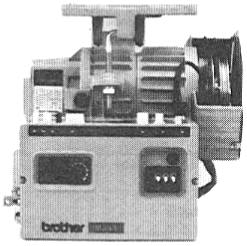
B8450, B8750, B8480 operation panel



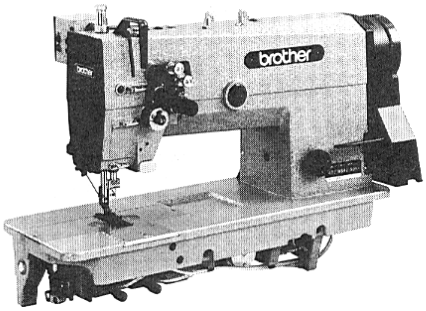
Sensor



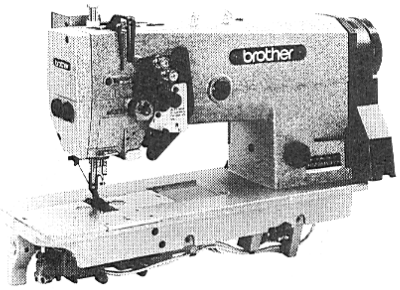
Motor



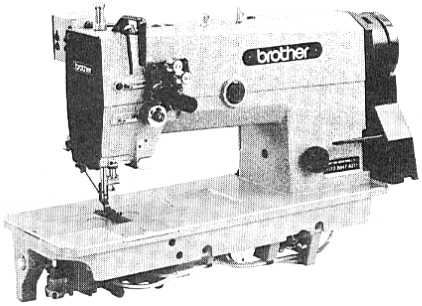
[LT2-B842]



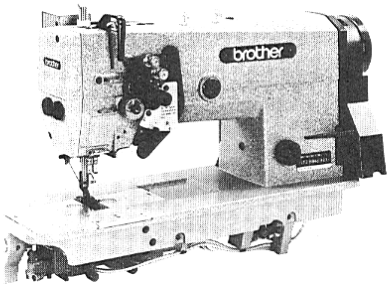
[LT2-B845]



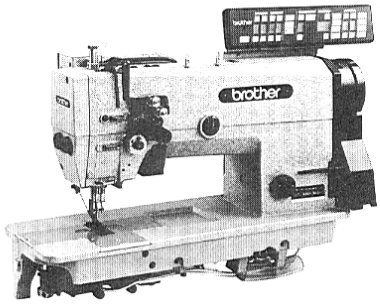
[LT2-B847]



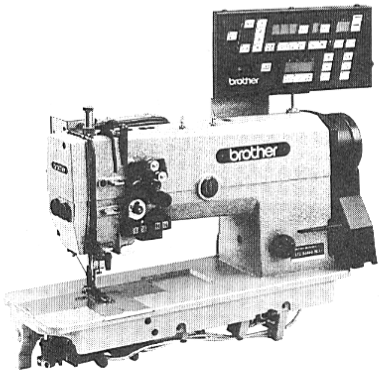
[LT2-B848]



[LT2-B845-900S]



[LT2-B8450]



SWEING MACHINE SPECIFICATIONS

- B841 Twin Needle, Needle Feed Lockstitch Machine
- B842 Twin Needle, Needle Feed Lockstitch Machine
- B845 Twin Needle, Needle Feed, Lockstitch machine with Angular Stitching
- B847 Twin Needle, Drop Feed, Lockstitch Machine
- B848 Twin Needle, Drop Feed, Angular Stitching Machine

- –1 for thin materials
- –3 for medium-thick materials
- –5 for thick materials
- –7 for extremely thick materials

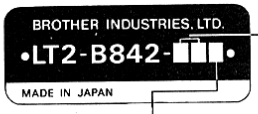
Type		B841		B842		B845			B847	B848
Specification		–3	–5	–3	–5	–3	–5	–7	–1	–1
Use		For medium-thick materials	For thick materials	For medimum-thick materials	For thick materials	For medium thick materials	For thick materials	For extremely thick materials	For thin materials	For thin materials
Sewing speed (spm)		4500	3500	4500	3500	3000			4500	3000
Stitch length		4 mm	5 mm	4 mm	5 mm				4 mm	4 mm
Presser foot height	Presser foot lifter	7 mm								
	Knee lifter	13 mm								
Feed dog height		1 mm								
Needles		DP x 5 #11 - #22						DP x 17 #16 - #23	DP x 5 #9 - #14	
Needle feed mechanism		Standard							Not available	
Single needle stop device		Not available				Standard			Not Available	Standard

- B872 Twin Needle, Needle Feed Lockstitch Machine with Reverse Feed (Large Hook)
- B875 Twin Needle, Needle Feed, Lockstitch Machine with Angular Stitching (Large Hook)

- –3 for medium-thick materials
- –5 for thick materials
- –7 for extremely thick materials

Type		B872		B875		
Specification		–3	–5	–3	–5	–7
Use		For medium-thick materials	For thick materials	For medimum-thick materials	For thick materials	For extremely thick materials
Sewing speed (spm)		3000				
Stitch length		7 mm				
Presser foot height	Presser foot lifter	7 mm				
	Knee lifter	13 mm				
Feed dog height		1 mm				
Needles		DP x 5 #11 - #22				DP x 17 #16 - #23
Needle feed mechanism		Standard				
Single needle stop device		Not available		Standard		

[Automatic Thread Trimmer]



□□□	–40□	–90□
Thread trimmer	○	
Thread wiper	○	
Quick reverse	○	
Automatic presser lifter		○

–1 for thin materials
–3 for medium-thick materials
–5 for thick materials
–7 for extremely thick materials

LT2-B842		–403	–405	–903	–905
Use		For thin, medium-thick materials	For thick materials	For thin, mediam-thick materials	For thick materials
Sewing speed		4000 spm	3500 spm	4000 spm	3500 spm
Maximum stitch length		4 mm	5 mm	4 mm	5 mm
Presser foot height	Presser bar lifter	7 mm			
	Knee lifter	10 mm			
	Automatic presser lifter			8 mm	
Feed dog height		1 mm			
Needle		DP x 5 #11 - #22			

LT2-B845		–403	–405	–407	–903	–903	–905	–905	–907	–907
Use		For thin, medium-thick materials	For thick materials	For extremely thick materials	For thin, medium-thick materials		For thick materials		For extremely thick materials	
Sewing speed		3000 spm								
Maximum stitch length		5 mm								
Presser foot height	Presser bar lifter	7 mm								
	Knee lifter	10 mm								
	Automatic presser lifter				8 mm					
Feed dog height		1 mm								
Needle		DP x 5 #11 - #22		DP x 17 #16 - #23	DP x 5 #11 - #22				DP x 17 #16 - #23	

LT2-B847		–401	–901
Use		For thin materials	
Sewing speed		4000 spm	
Maximum stitch length		4 mm	
Presser foot height	Presser bar lifter	7 mm	
	Knee lifter	10 mm	
	Automatic presser lifter		8 mm
Feed dog height		1 mm	
Needle		DP x 5 #9 - #14	

LT2-B848		–401	–901
Use		For thin materials	
Sewing speed		3000 spm	
Maximum stitch length		4 mm	
Presser foot height	Presser bar lifter	7 mm	
	Knee lifter	10 mm	
	Automatic presser lifter		8 mm
Feed dog height		1 mm	
Needle		DP x 5 #9 - #14	

[Automatic Thread Trimmer]

□□□	–40□	–90□
Thread trimmer	○	
Thread wiper	○	
Quick reverse	○	
Automatic presser lifter		○

–1 for thin materials
–3 for medium-thick materials
–5 for thick materials
–7 for extremely thick materials

LT2-B842		–403	–405	–903	–905
Use		For thin, medium-thick materials	For thick materials	For thin, mediam-thick materials	For thick materials
Sewing speed		3000 spm			
Maximum stitch length		7 mm			
Presser foot height	Presser bar lifter	7 mm			
	Knee lifter	10 mm			
	Automatic presser lifter			8 mm	
Feed dog height		1 mm			
Needle		DP x 5 #11 - #22			

LT2-B845		–403	–405	–407	–903	–903S	–905	–905S	–907	–907S
Use		For thin, medium-thick materials	For thick materials	For extremely thick materials	For thin, medium-thick materials		For thick materials		For extremely thick materials	
Sewing speed		3000 spm								
Maximum stitch length		7 mm								
Presser foot height	Presser bar lifter	7 mm								
	Knee lifter	10 mm								
	Automatic presser lifter				8 mm					
Feed dog height		1 mm								
Needle		DP x 5 #11 - #22		DP x 17 #16 - #23	DP x 5 #11 - #22				DP x 17 #16 - #23	

The 900S specification is provided with the neeld ecount control system panel.

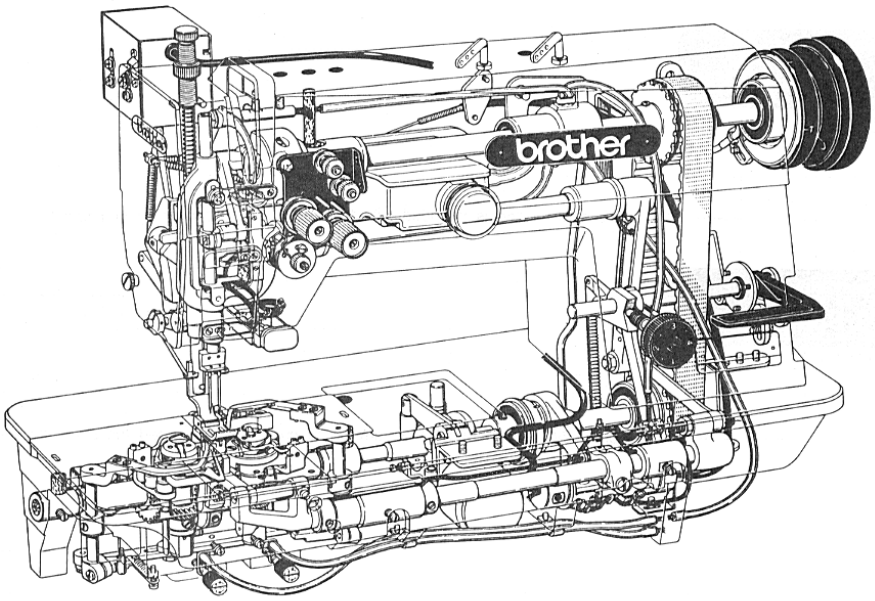
The model B8450, B8750 and B8480 sewing machines are equipped the sheet thickness detector panel.

LT2-B8450		–903	–905	–907
Use		For thin, medium-thick materials	For thick materials	For extremely thick materials
Sewing speed		3000 spm		
Maximum stitch length		5 mm		
Presser foot height	Presser bar lifter	7 mm		
	Automatic presser lifter	8 mm		
Feed dog height		1 mm		
Needle		DP x 5 #11 - #22		DP x 17 #16 - #23

LT2-B8750		–903	–905	–907
Use		For thin, medium-thick materials	For thick materials	For extremely thick materials
Sewing speed		3000 spm		
Maximum stitch length		7 mm		
Presser foot height	Presser bar lifter	7 mm		
	Automatic presser lifter	8 mm		
Feed dog height		1 mm		
Needle		DP x 5 #11 - #22		DP x 17 #16 - #23

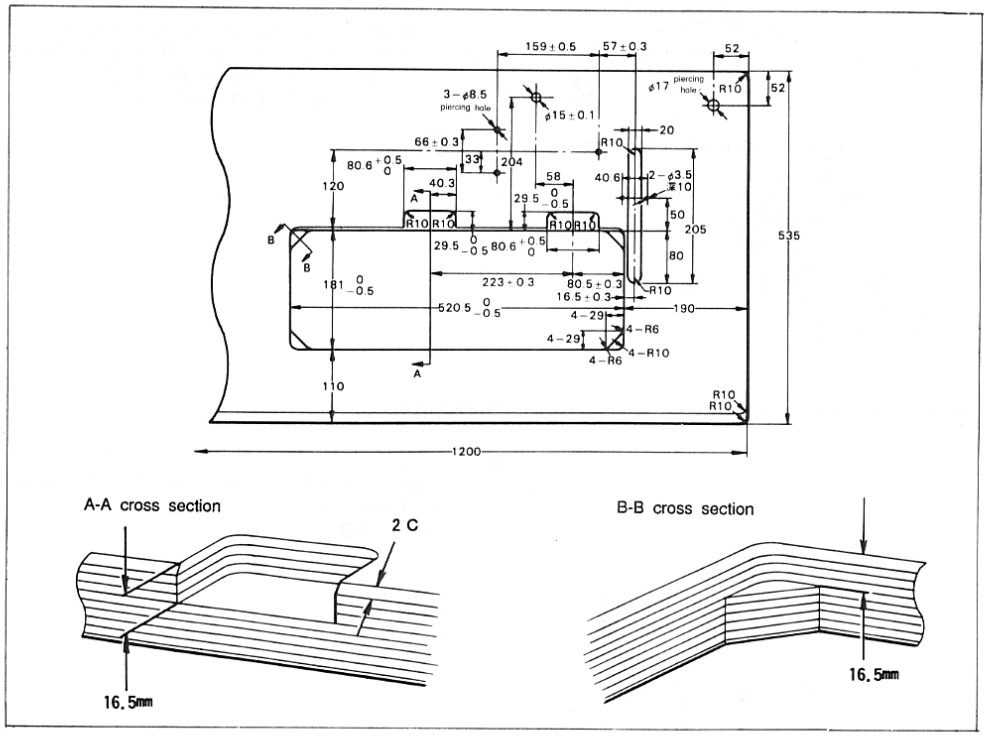
LT2-B8480		–901
Use		For thin materials
Sewing speed		3000 spm
Maximum stitch length		4 mm
Presser foot height	Presser bar lifter	7 mm
	Automatic presser lifter	8 mm
Feed dog height		1 mm
Needle		DP x 5 #9 - #14

■ Line drawing [LT2-B842]



INSTALLATION

1 Power Table [Standard]



★ When using a commercial table, drill holes in the table as shown above.

Brother Power Table

Power Supply	Code
Single-phase 100V	127-841-010-01-50
Three-phase 200V	127-841-010-01-60

✳ Use the above specified power table.

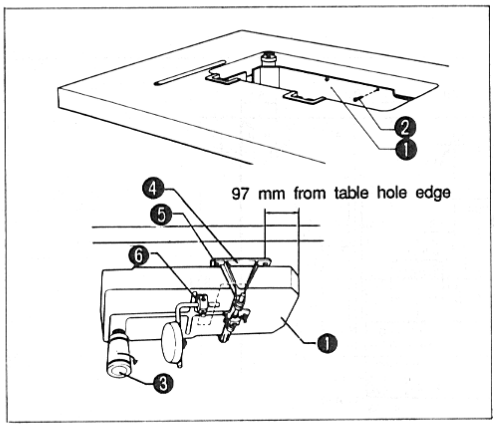
Power Supply	Item
Single-phase 100V	2 poles 400W Motor
Three-phase 200V	2 poles 400W Motor

✳ Use the above specified motor available in market.

✳ The motor pully and belt are specified in the 50Hz and 60Hz regions respectively. For these selections, refer to the following table:

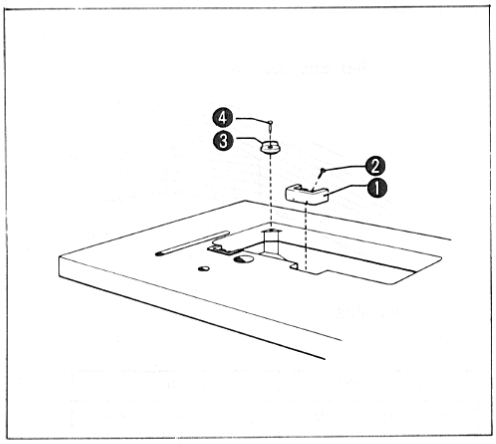
Sewing speed	Frequency	Motor pulley size	V belt
4500 spm	50 Hz	Motor pulley 115	45 inch
	60 Hz	Motor pulley 95	44 inch
4000 spm	50 Hz	Motor pulley 100	45 inch
	60 Hz	Motor pulley 85	44 inch
3500 spm	50 Hz	Motor pulley 90	44 inch
	60 Hz	Motor pulley 70	43 inch
3000 spm	50 Hz	Motor pulley 75	43 inch
	60 Hz	Motor pulley 65	43 inch

2 To Attach the Oil Pan and Knee Lifter



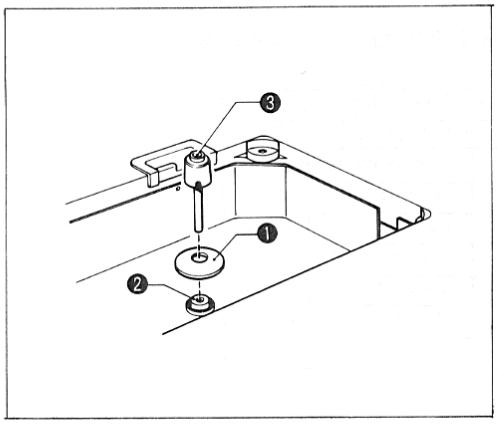
1. Fit oil pan ❶ into the opening in the table, and secure it with 5 nails ❷ .
   Screw the plastic oilder ❸ into the oil pan ❶ .
2. Install the knee lifter assembly ❹ to the underside of hte table with the flat-head screws ❺ .
3. Connect the knee lifter ❻ to the knee lifter assembly ❹ .

3 To Attach the Rubber Bases and Cushions



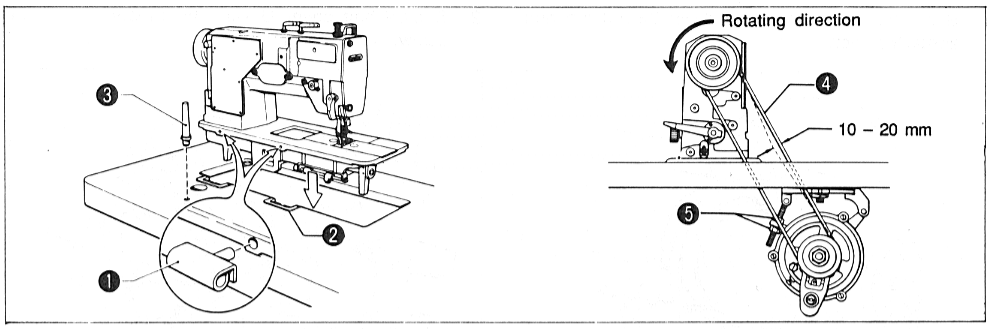
1. Install the rubber bases ❶ to the table with nails ❷ .
2. Install the cushions ❸ at the four corners of the table with nails ❹ .

4 Installing the Skirt, Knee Lifter Complying Bar



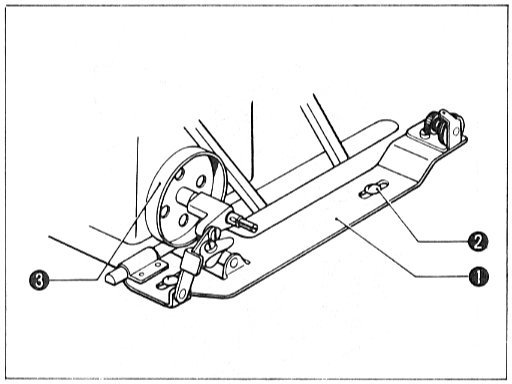
1. Slide the skirt ❶ onto the knee lifter assembly ❷ .
2. Insert the knee lifter complying bar ❸ .

5 To Install the Machine Head-belt Tension



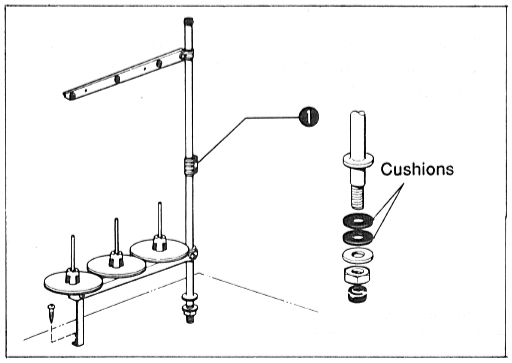
1. Put the head hinges ❶ into the holes of the bed and adjust them to the rubber hinge❷, then place the machine onto the head cushions at the four corners.
2. Use a hammer to drive the head rest ❸ into the table.
3. Press the belt ❹ , and adjust the belt tension by turning the nuts ❺ so that the belt has about 10 - 20 mm of play.
4. The operating direction of the machine is counterclockwise (as viewed from the pulley side).

6 To Attach the Bobbin Winder



★ Attach the bobbin winder ❶ to the table with two round-head wood screws ❷ .
(Attach it so that the bobbin winder pulley ❸ will not slip.)

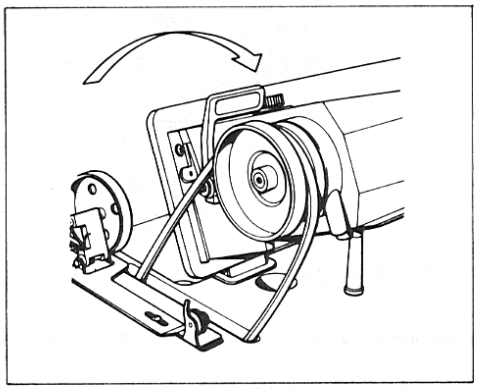
7 To Attach the Thread Unwinder



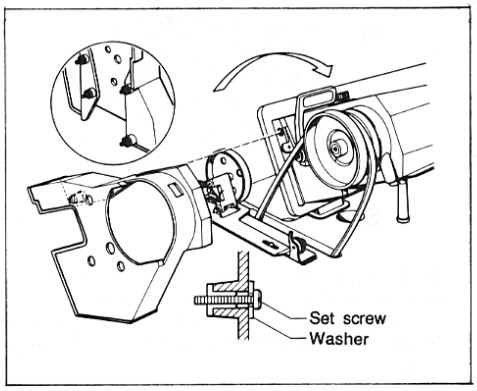
★ Install the spool stand ❶ at the front right corner of the work table.

8 Precautions before Installing the Belt Cover

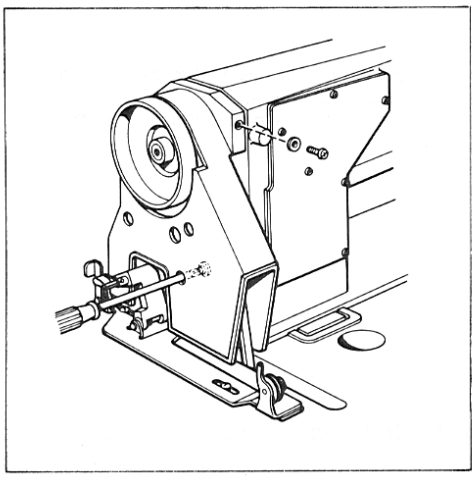
1. Bring the sewing machine down toward the horizontal position.



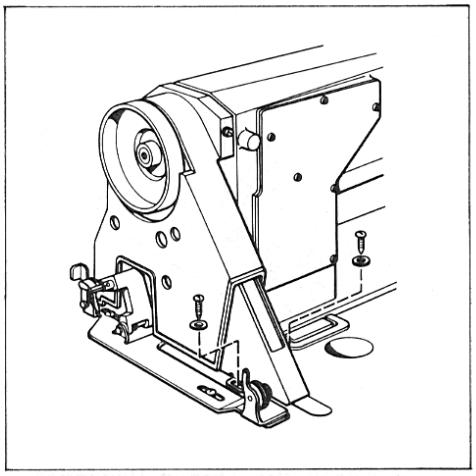
2. Secure belt cover U with the rubber collar, set screw, and washer.



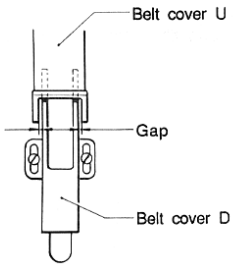
3. Install belt cover U.



4. Install belt cover D.



Note

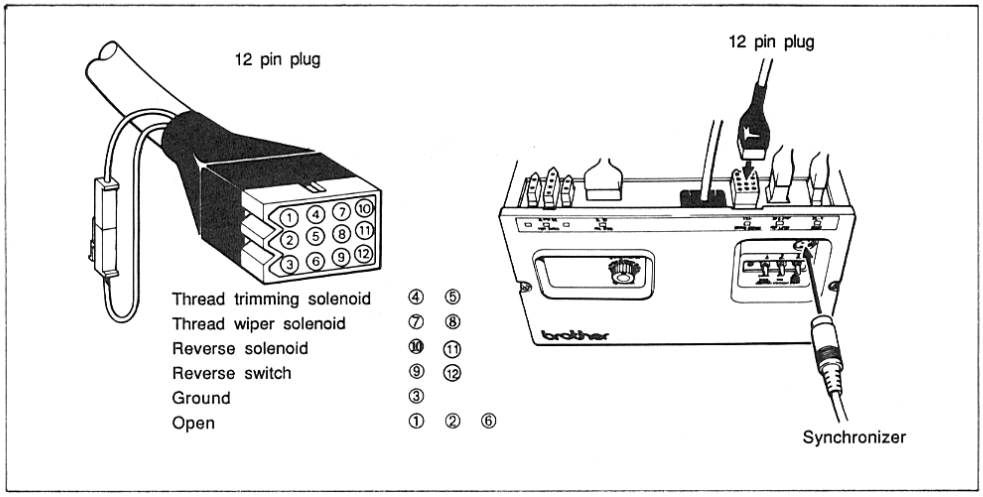


If the four screws for belt cover U are tightened excessively, belt cover U and the machine pulley might contact and cause noise.

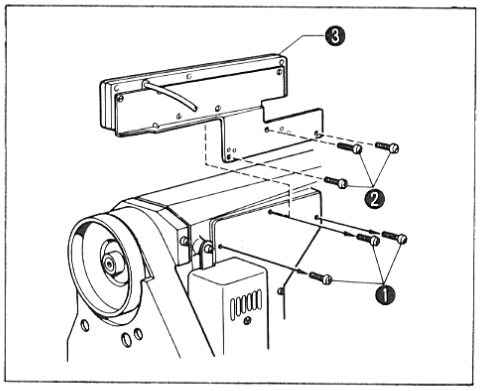
Apply the belt cover with a clearance on the both of right and left sides.

9 Connection of Wires [Automatic Thread Trimming]

★ Pass the plug through the wire hole on the table, then install by following the figures

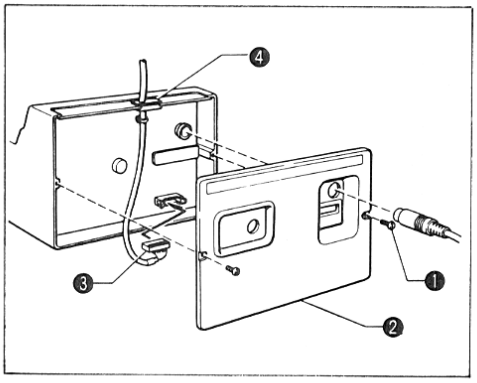


10 Operation Panel Installation (Optional)



Installation of the Operation Panel

1. Remove the three screws ❶ on the back of the arm bed.
2. Use three screws ❷ provided as accessories.
3. Secure the operation box mounting panel ❸ on the back of the arm bed with the three screws ❷ .



Connecting the cord

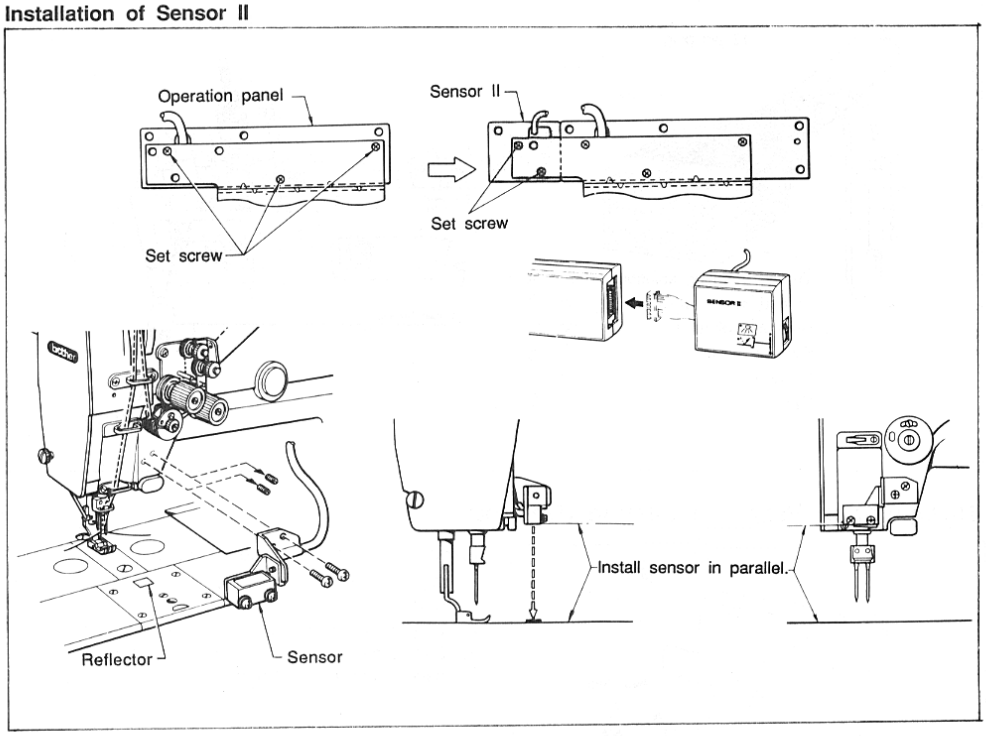
1. Remove screw ❶ , and remove the face plate ❷ .
2. Connect operation panel connector ❸ to the circuit board.
3. Fit the rubber cushion ❹ over the cord, and fit the cord in the control box, being careful not to damage the cord.

* When removing face plate ❷ , unplug the synchronizer.

11 Installation of the Material Edge Sensor (Optional)

Be sure to turn the power switch off before installing the material edge sensor.

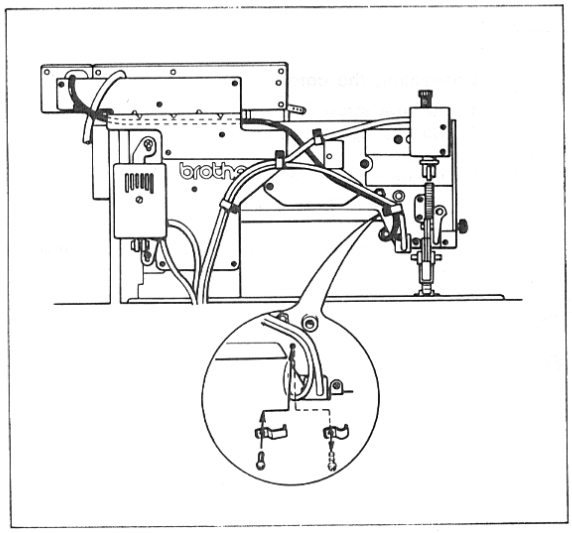
Installation of Sensor II



1. Shift the position of the operation panel as shown in the figure below.
2. Remove the rubber cap on the side of the operation panel, and connect the sensor II connector.
3. Secure sensor II with two screws, be careful not to pinch the flat cable.

✳ Install the sensor in parallel with the bed and mount the reflector just under the sensor.

Connecting the power cord

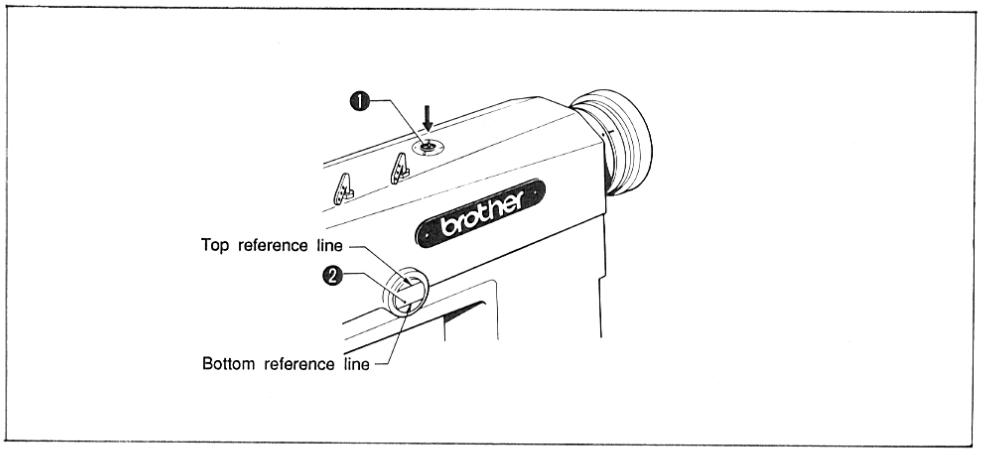


LUBRICATION

★ Use BROTHER oil (white spindle oil)

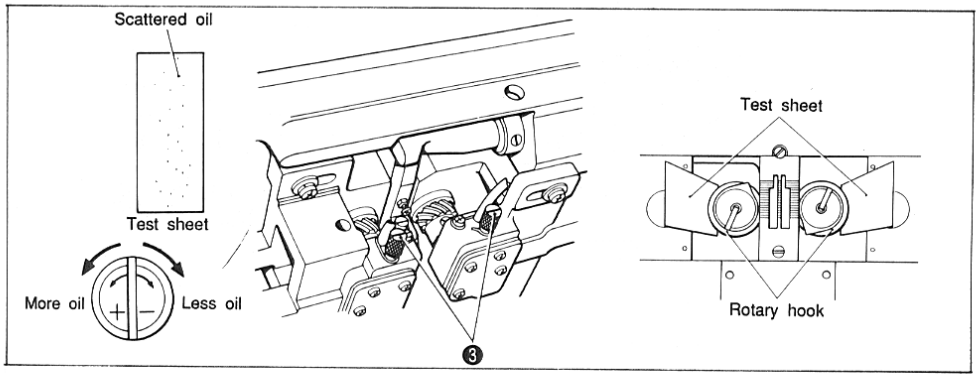
1 Lubrication

1. Filling the oil tank on top of the arm

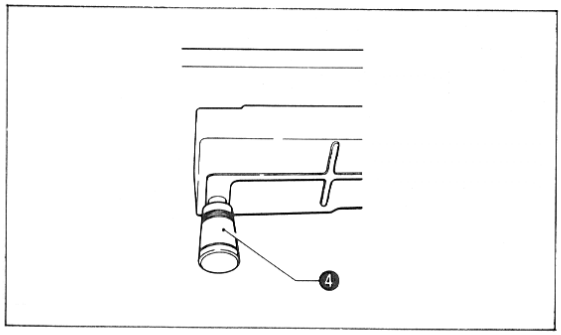


1) Add oil from cap ❶ until it reaches the top reference line in the oil gauge window ❷ .
2) Add more oil when the oil leel drops to the bottom reference line.

2. Adjustment of oil flow to the rotary hook



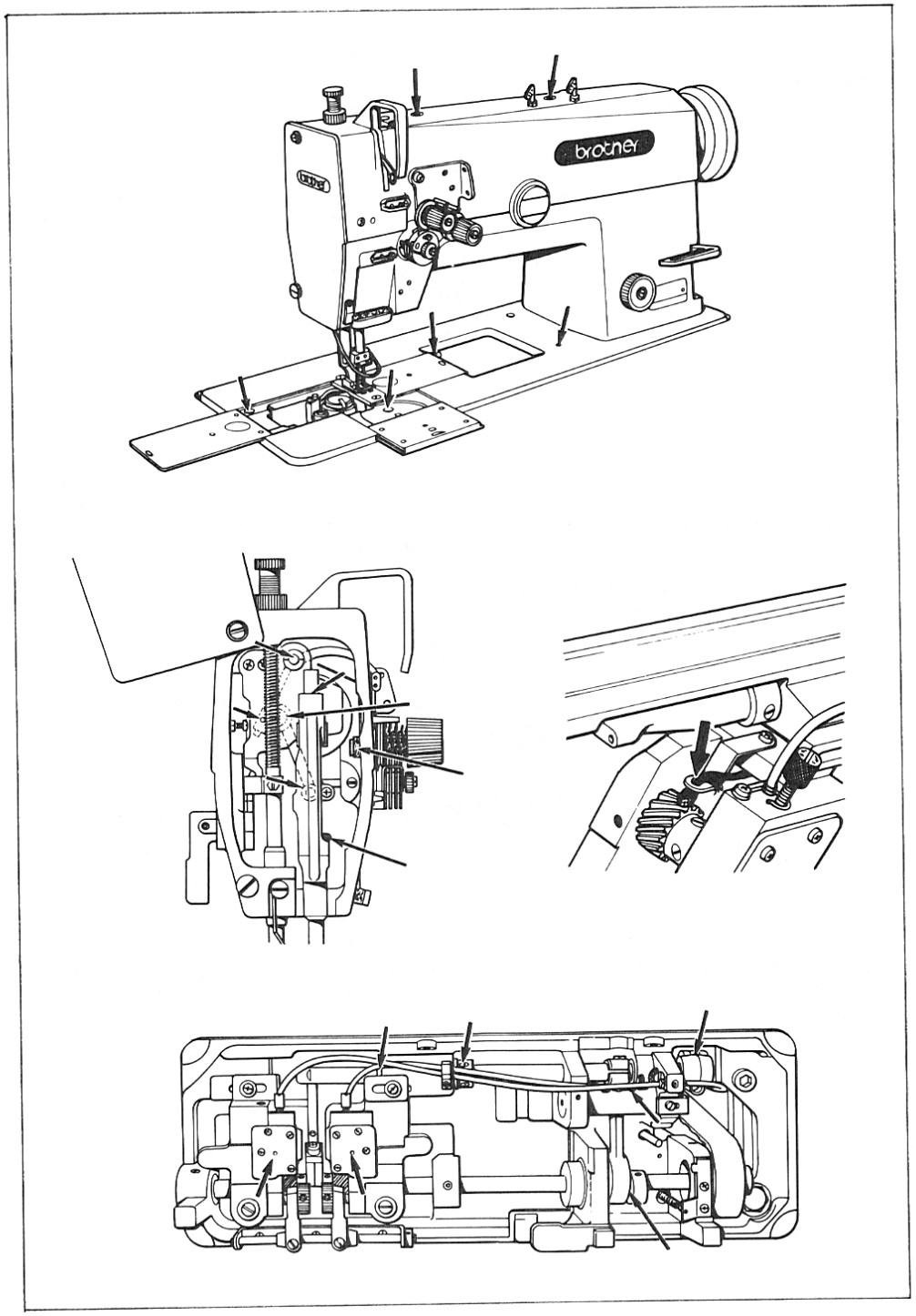
3) When replacing the rotary hook, be sure to turn adjustment screw to adjust the oil supply to the rotary hook. (The amount of oil scattering from the rotary hook should be as shown on the test sheet above for approximately every 10 seconds.)



4) Remove oil stayed in the polyoiler ❹ .

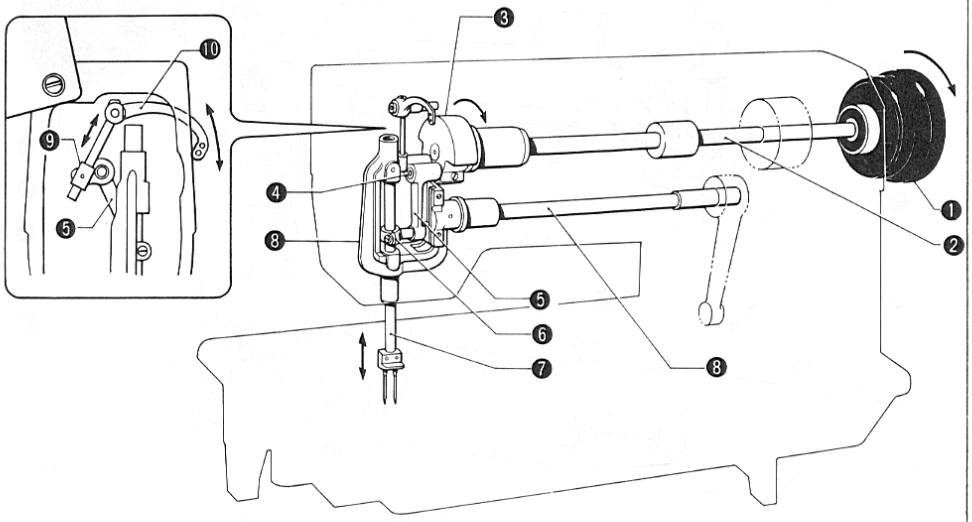
2 Oiling

Before using the machine, be sure to supply a drop or two of oil at each of the points indicated by an arrow.

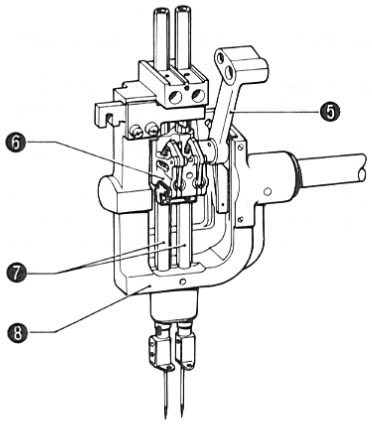


MECHANISM

1 Upper Shaft and Needle bar Mechanism

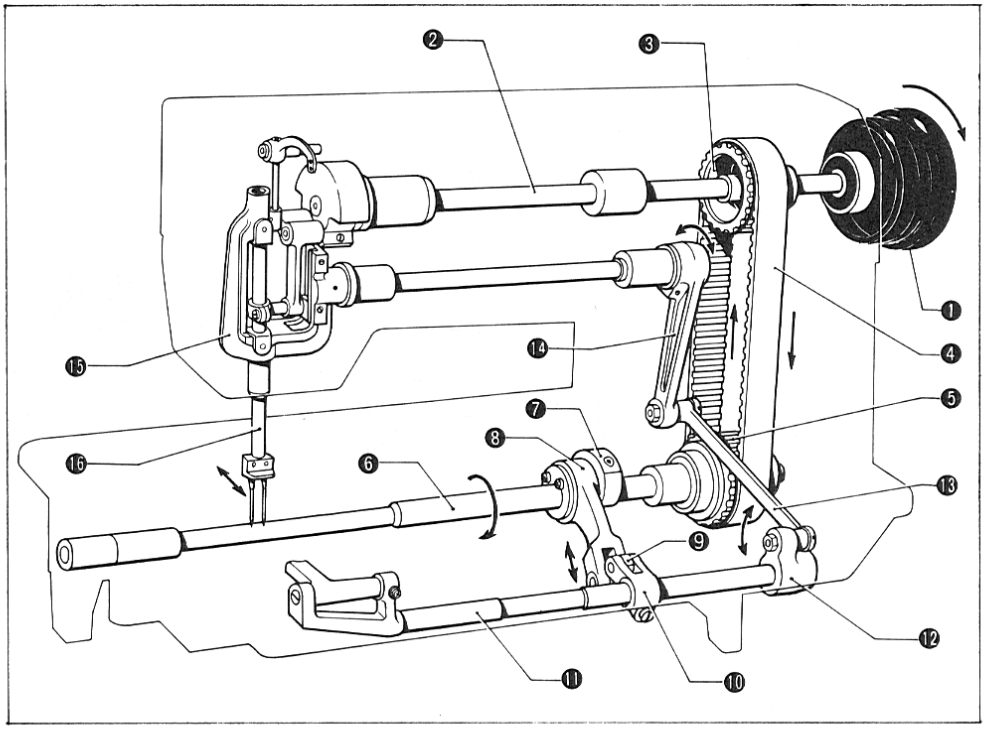


[B845 • B848 • B875]



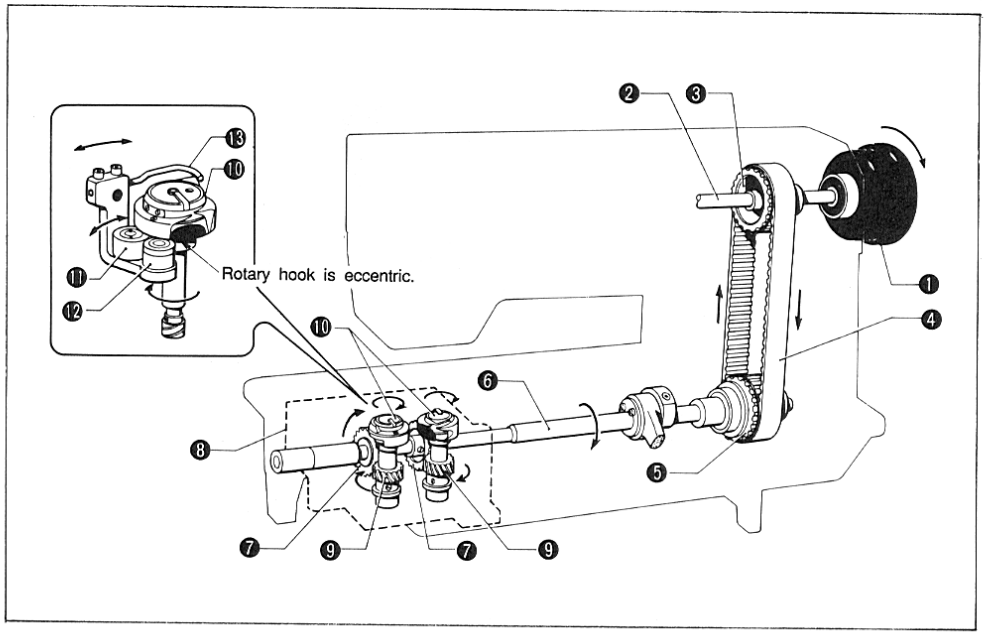
1. When pulley ❶ turns in the arrow direction, its rotating motion is conveyed to upper shaft ❷ to turn counter weight ❸ .
2. The motion is conveyed to needle bar crank rod ❺ via needle bar crank ❹ which is connected to counter weight ❸ .
3. Needle bar ❼ moves up and down via needle bar clamp ❻ which is connected to needle bar crank rod ❺ .
4. Needle bar ❼ is guided by needle bar support ❽ .
   (The arc motion is conveyed to the thread hole in thread take-up lever ❿ via thread take-up lever slide block ❾ which is connected to needle bar crank rod ❺).

2 Needle Feed Mechanism



1. When pulley ❶ turns in the arrow direction, its rotating motion is conveyed to upper shaft ❷ to turn timing belt wheel upper ❸ .
2. The motion is conveyed to timing belt wheel lower ❺ via timing belt ❹ .
3. Eccentric wheel ❼ which is connected to lower shaft rotates via timing belt wheel lower and lower shaft ❻ .
4. Level feed arm ❿ moves in the shape of arc via eccentric wheel ❼ , level feed connecting rod ❽ and level feed connecting link ❾ .
5. The motion is conveyed to needle bar rock crank ⓬ via feed rock shaft ⓫ .
6. Needle bar support ⓭ moves back and forth via needle bar rock link ⓮ and needle bar connecting rod ⓮ .
7. Needle bar ⓰ which is connected to needle bar support ⓭ moves back and forth.

3 Lower Shaft and Rotary Hook Mechanism

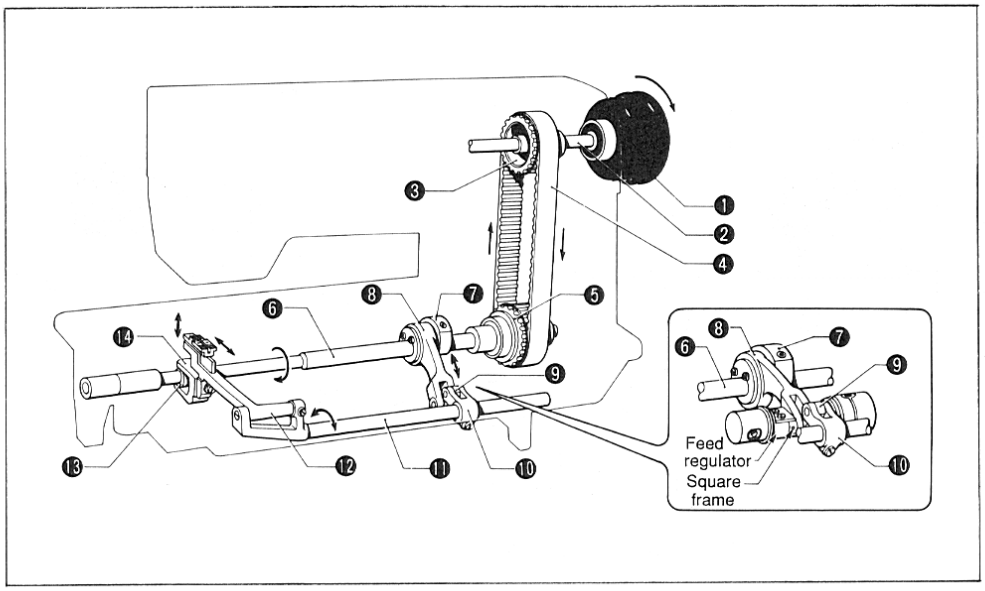


1. When pulley ❶ turns in the arrow direction, its rotating motion is conveyed to upper shaft ❷ to turn timing belt wheel upper ❸.
2. The motion is conveyed to timing belt wheel lower ❺ via timing belt ❹ .
3. As lower shaft ❻ which is connected to timing belt wheel lower ❺ rotates, spiral gear ❼ is turned.
4. Rotary hook ❿ rotates via pinion gear ❾ which is connected to rotary hook base ❽ .

Opener

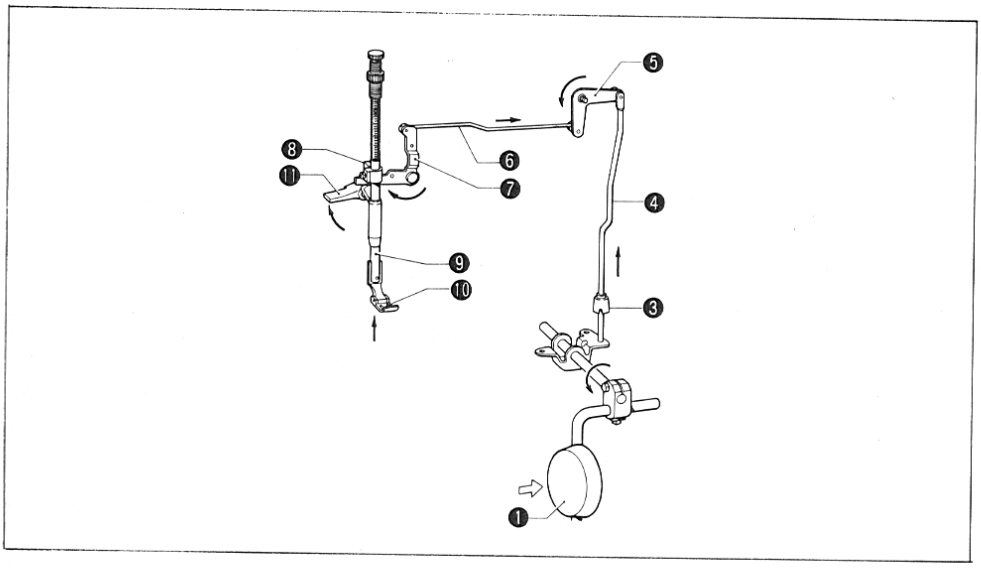
1. Opener crank ⓬ moves in the shape of an arc via rotary hook ❿ and opener link ⓫ .
2. Opener ⓭ which is connected to opener crank ⓬ moves in the shape of an arc.

4 Feed Mechanism



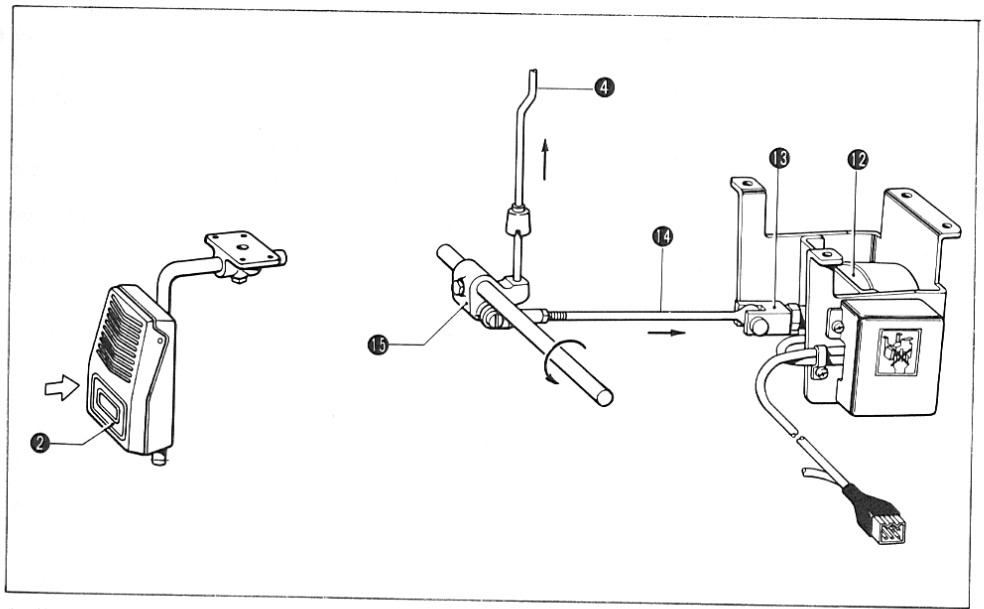
1. When pulley ❶ turns in the arrow direction, its rotating motion is conveyed to upper shaft ❷ to turn timing belt wheel upper ❸ .
2. The motion is conveyed to timing belt wheel lower ❺ via timing belt ❹ .
3. Eccentric wheel ❼ which is connected to lower shaft ❻ rotates via timing belt wheel lower ❺ and lower shaft ❻ .
4. Level feed arm ❿ moves in the shape of an arc via eccentric wheel ❼ , level feed connecting rod ❽ and level feed connecting link ❾ .
5. Feed bar ⓬ moves back and forth via feed rock shaft ⓫ .
6. Feed bar fork ⓮ moves up and down by vertical feed eccentric wheel ⓭ which is connected to lower shaft ❻ .
7. The movement of feed dog is fixed by the combination of movements in item 5 and item 6.

5 Presser Mechanism



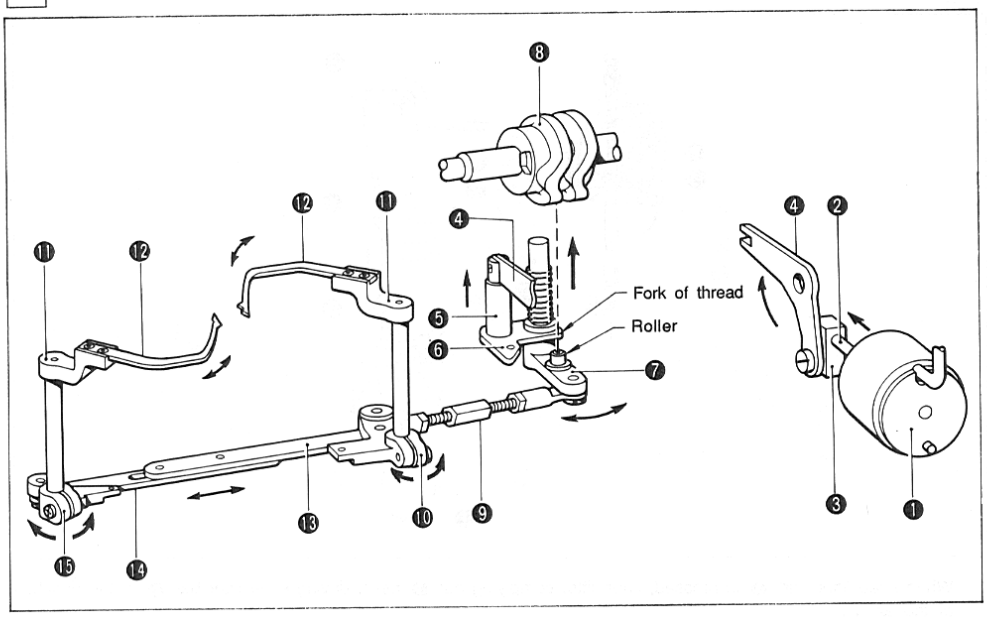
1. When knee lifter pad ❶ is pressed, knee lifter complying bar ❸ rises, driving knee lifter bar ❹ in the direction of the arrow.
2. Knee lifter bar ❹ raises presser bar clamp ❽ via knee lifter lever ❺ , knee lifter connecting rod ❻ , and knee lifter lifting lever .
3. Presser bar ❾ connected to presser bar clamp ❽ and presser foot ❿ are raised.
   (Presser bar ❾ and presser foot ❿ rise together when presser bar clamp ❽ is raised by presser bar lifter lever ⓫.)

[-900]



1. When knee switch ❷ is pressed, presser foot lifting solenoid ⓬ operates, thus lifting couple ⓭ , adjustment rod ⓮ , and presser bar lifter link ⓯ .
2. Presser bar lifter link ⓯ lifts knee lifter bar ❹ .

6 Presser Mechanism

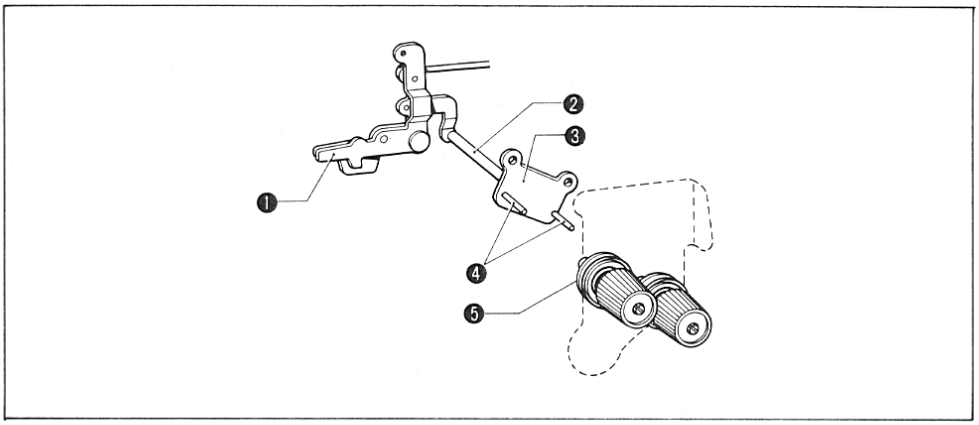


1. When thread trimmer solenoid ❶ becomes ON due to the thread trimmer signal, plunger ❷ is pulled in the direction of the arrow.
2. Thread trimming solenoid lever ❹ is driven via thread trimming solenoid joint ❸ on plunger ❷ .
3. Thread trimming solenoid lever ❹ lifts thread trimming driving rod ❺ .
4. Knife main lever assembly ❼ is raised in the direction of the arrow by the fork of thread trimming driving rod plate ❻ , which is mounted on the bottom end of thread trimming driving rod ❺ . The roller on knife main lever assembly ❼ enters the channel in thread trimming cam ❽ .
5. Knife main lever assembly ❼ moves according to the channel in thread trimming cam ❽ .
6. Thread trimming lever R ❿ is driven via length adjusting rod ❾ , which is mounted on knife main lever assembly ❼ .
7. Thread trimming lever R ❿ drives movable knife lever bracket ⓫ . (Moveble knife ⓬ on the right side)
8. Thread trimming lever L ⓯ is driven by thread trimming lever R ❿ via thread trimming connecting rods R ⓭ and L ⓮ .
9. Thread trimming lever L ⓯ transfers motion to the movable knife lever ⓫ (the left movable knife ⓬).
10. The movable knives ⓬ are installed to thread trimming lever R ❿ , the movable knife levers ⓫ , and thread trimming lever L ⓯ .
11. The roller on knife main lever assembly ❼ follows the channel in thread trimming cam ❽ and returns movable knives ⓬ .
12. After movable knives ⓬ return, thread trimming solenoid ❶ becomes OFF, and the roller is released from the channel in thread trimming cam ❽ .

7 Tension Release Mechanism

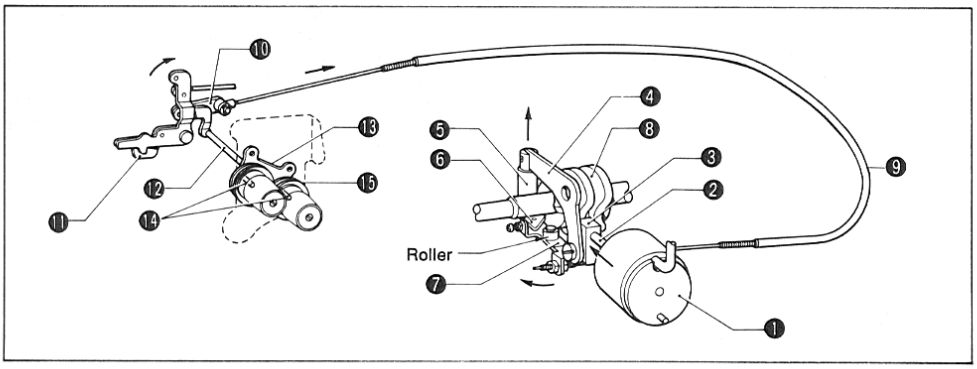
[Standard]

The tension release mechanism operates when lifter lever operates.



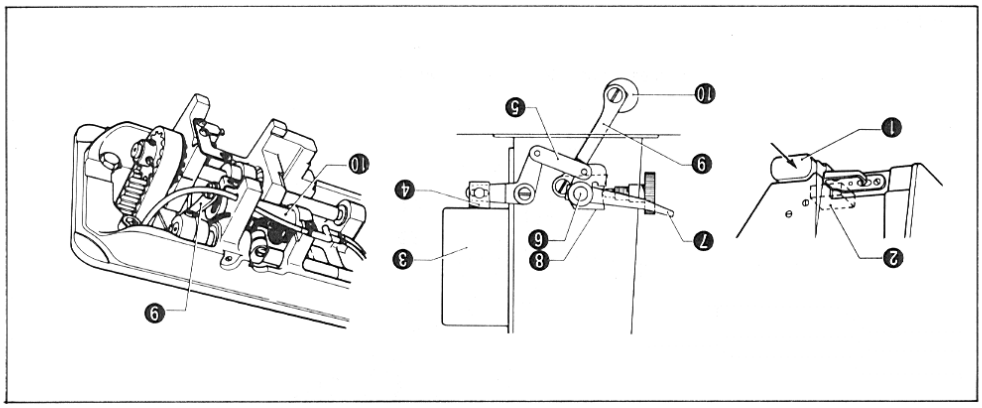
1. When lifter lever ❶ operates, press tension release rod ❷ .
2. The end of tension release rod ❷ presses the two tension release pins ❹ via tension release plate ❸ .
3. Tension discs ❺ are spread by tension release pins ❹ .

[Thread trimmer]



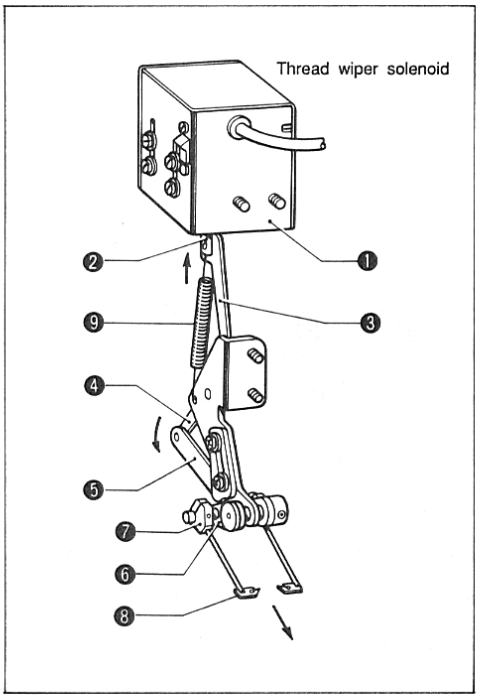
1. When thread trimmer solenoid ❶ becomes ON due to the thread trimmer signal, plunger ❷ is pulled in the direction of the arrow.
2. Thread trimming solenoid lever ❹ is driven via thread trimming solenoid joint ❸ on plunger ❷ .
3. Thread trimming solenoid lever ❹ lifts thread trimming driving rod ❺ .
4. Thread trimming driving rod plate ❻ , which is mounted on the bottom end of thread trimming driving rod ❺ , and tension releasing lever assembly ❼ are raised in the direction of the arrow.
5. The roller on tension releasing lever assembly ❼ is pressed by the tension release cam of thread trimming cam ❽ , and operates in the direction of the arrow.
6. Tension release crank ❿ is driven via tension releasing wire ❾ by the operation of tension releasing lever assembly ❼ .
7. Tension release rod ⓬ is pressed via tension releasing plate ⓫ and knee lifter lifting lever ⓬ by the operation of tension release crank ❿ .
8. The end of tension release rod ⓬ presses the two tension release pins ⓮ via tension release plate ⓭ .
9. Tension discs ⓯ are spread by tension release pins ⓮ .
10. When thread trimming solenoid ❶ becomes OFF, tension releasing lever assembly ❼ is released from the side of thread trimming cam ❽ , and tension discs ⓯ close.

8 Quick-back Mechanism



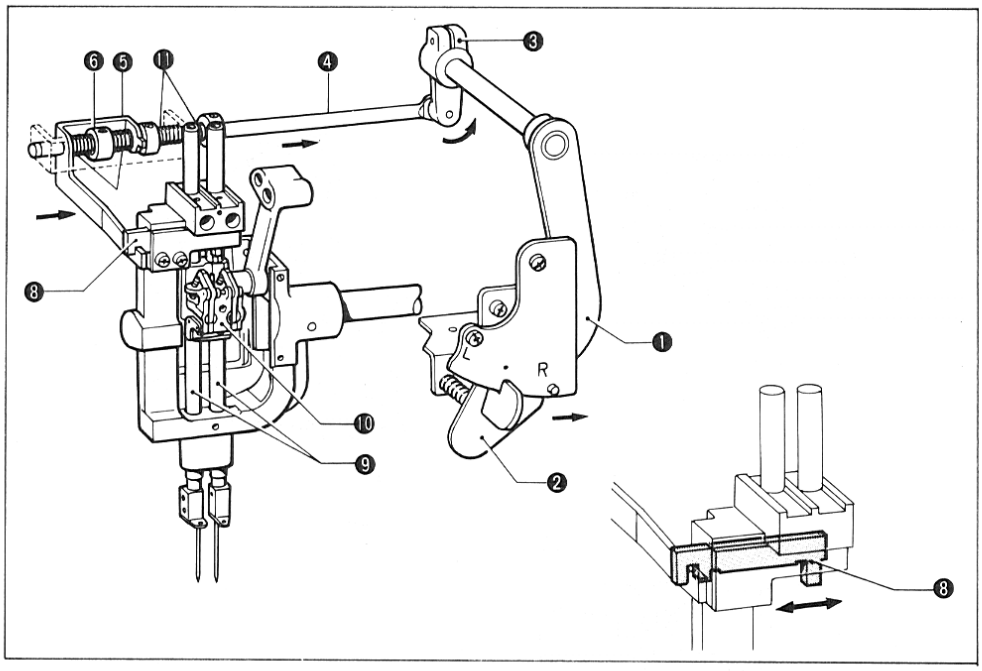
1. When the actuator ❶ is pressed, a signal from the microswitch ❷ activates the reverse solenoid ❸ (ON).
2. Reverse solenoid plunger ❹ operates, driving reverse shaft ❻ via solenoid lever assembly ❺ .
   When reverse lever ❼ descents, feed regulator ❽ is driven via reverse shaft ❻ .
3. The angle of feed regulator ❽ (action is transferred from feed regulator connecting link ❾ to feed regulator assembly ❿) determines whether feed regulator assembly ❿ is set to forward or reverse sewing.

9 Thread Wiper Mechanism



1. Thread wiper solenoid ❶ continues to operate (ON) for 10 - 100 ms after the thread wiper solenoid is released.
2. Plunger ❷ operates, driving solenoid link ❸ , thread wiper links A ❹ and B ❺ .
3. Thread wiper link B ❺ is guided by link C ❻ .
4. Thread wiper supporter ❼ and thread wiper ❽ mounted to link B ❺ advance.
5. When the thread wiper solenoid becomes OFF, spring ❾ returns thread wiper ❽ to the original position.

10 Needle Bar (Left, Right) Stop Mechanism (B845, 848, B875)



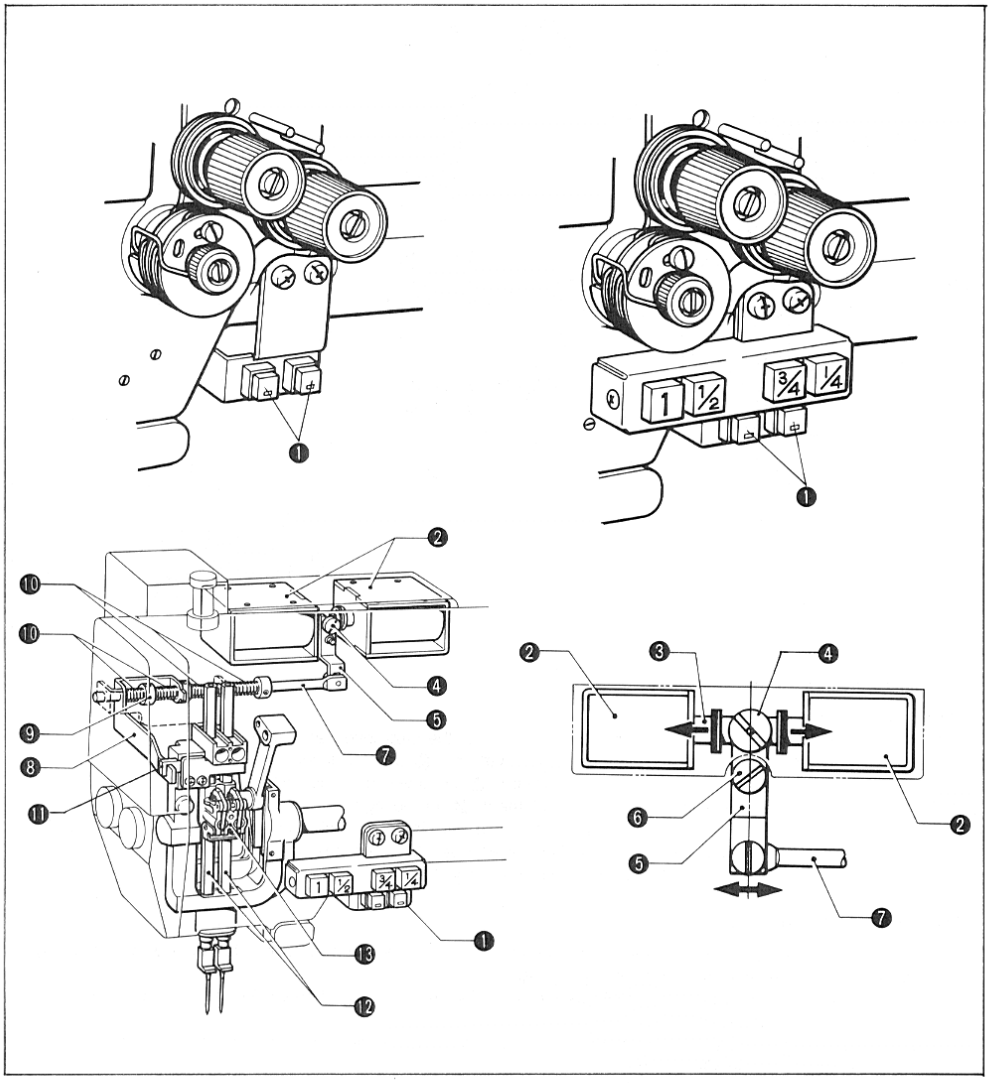
[To Stop the right needle bar]

1. Move stop lever assembly ❶ to the right.
   (Push lever ❷ will rise, catch on the step on the back of the stop lever, and stop.)
2. Lever shaft arm ❹ is moved to the right via lever shaft arm ❸ on stop lever assembly ❶ .
3. Slide bearing board assembly ❺ fit on lever shaft arm ❹ is moved right via collar ❻ and spring ❼ .
4. Slide bearing board assembly ❺ drives sliding element ❽ to the right.
5. When sliding element ❽ meets the clutch arm of needle bar clamp assembly ❿ on needle bar ❾ , the clutch in needle bar clamp assembly ❿ is released from needle bar ❾ , and needle bar ❾ stops.
   ✳ To stop the left side needle bar, set stop lever assembly ❶ to the left.

[To release needle bar stop]

1. When push lever ❷ is pressed, push lever ❷ is released from the stop on the back of stop lever assembly ❶ , and is returned to the original position by spring ⓫ .
2. When lever ❶ is returned to the original position by spring ⓫ , sliding element ❽ is returned via lever shaft ❹ and slide bearing board assembly ❺ .
3. The release pin of needle bar clamp assembly ❿ is pressed by the step on sliding element ❽ , and the clutch once again engages on needle bar ❾ .
4. Needle bar ❾ can now be raised or lowered.

[B845-900S B875-900S B8450 B8750 B8480]

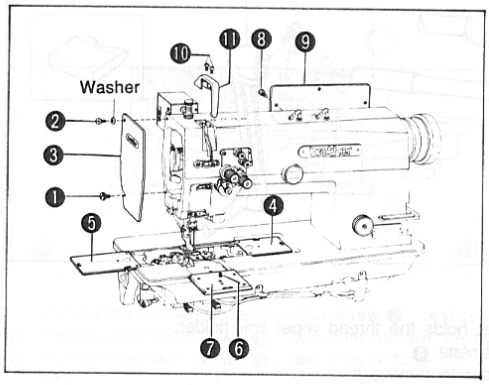


1. Press the manual switch ❶ to enter the signal into the switching solenoid (right or left) ❷ , attracting the plunger in the direction of the arrow mark.
2. Move the switching lever ❺ with the screw ❹ attached on the plunger ❸ .
3. Move the slide shaft ❼ rightward and leftward from the screw ❻ as a supporting point by the switching lever ❺ .
4. The slide shaft plate assembly ❽ attached on the slide shaft ❼ is forced rightward by the collar ❾ and shaft support plate ❿ .
5. The slide element ⓫ is moved rightward by the slide shaft support plate assembly ❽ .
6. When the projection of the sliding element ⓫ contacts to the clutch lever of the needle bar clamp assembly ⓭ mounted on the needle bar ⓬ , the needle bar ⓬ is removed by the clutch built in the needle bar clamp assembly ⓭ and stopped.

DISASSEMBLY

★ These disassembly directions are based on model LT2-B842-403. Use these directions with other twin needle, lockstich machines.

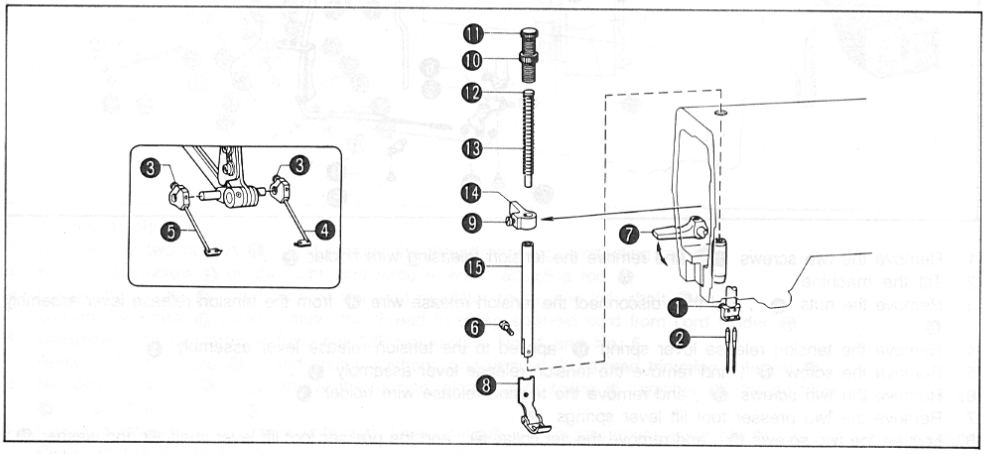
1 Covers



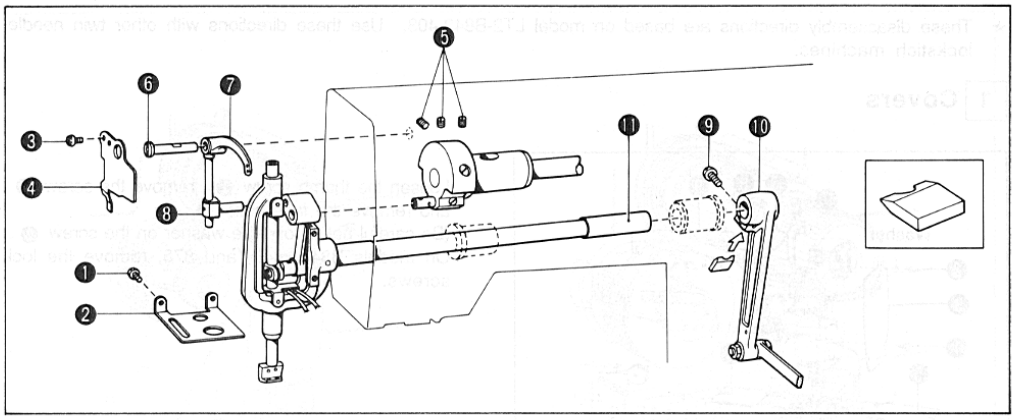
1. Loosen the thumb screw ❶ , remove the screw ❷ , and remove the face plate ❸ .
   (Be careful not to lose the washer on the screw ❷ .)
   On models B845, 848, and 875, remove the lock screws.
2. Remove slide plates R ❹ and L ❺ .
3. Loosen screw ❻ , tilt the machine slightly, and then remove slide plate F ❼ .
4. Remove the seven screws ❽ , and remove the rear cover ❾ .
5. Remove the two screws ❿ and remove the thread take-up cover ⓫ .

2 Presser Assembly

1. Loosen the two screws ❶ , and remove the two needles ❷ .
2. Loosen the two screws ❸ , and remove thread wipers R ❹ and L ❺ . (Remove as a set.)
3. Remove the screw ❻ , and raise presser bar lifter ❼ , and then remove presser foot ❽ .
4. Lower the presser bar lifter ❼ , and loosen the presser bar guide bracket screw ❾ .
5. Loosen the presser adjustment nut ❿ , and remove the presser adjustment screw ⓫ .
6. Remove the pressrer spring guide ⓬ , presser spring ⓭ , presser bar guide bracket ⓮ , and presser bar ⓯ .

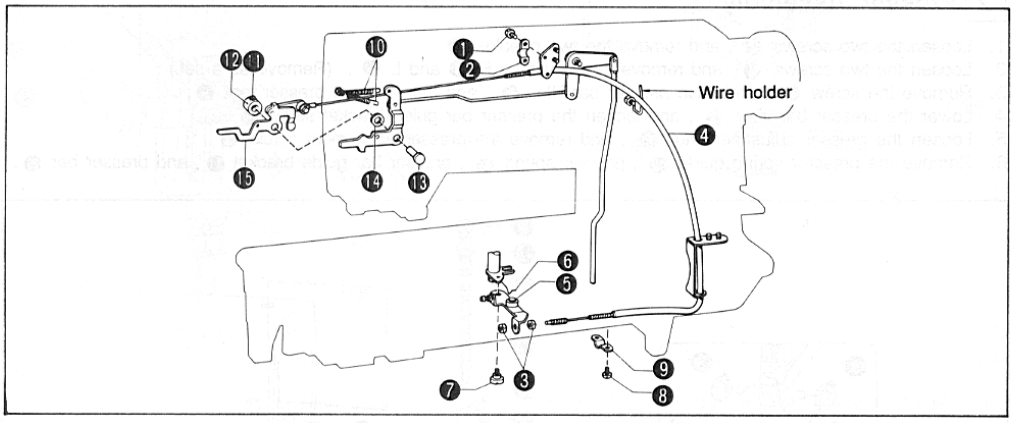


3 Needle Bar Rocking Mechanism



1. Remove two screws ❶ , and remove dust plate ❷ .
* If the thread wiper is equipped, loosen the screw that holds the thread wiper link holder.
2. Remove the two screws ❸ , and remove the interrupt plate ❹ .
   Turn the machine pulley and then lower the needle bar to remove it.
3. Loosen the three screws ❺ , and remove stud ❻ . (Remove the rubber cap.)
4. Remove the thread take-up lever ❼ and thread take-up lever slide block ❽ .
5. Loosen the screw ❾ , drive a wedge into needle bar rock connecting rod ❿ , and remove the needle bar rock shaft assembly ⓫ .

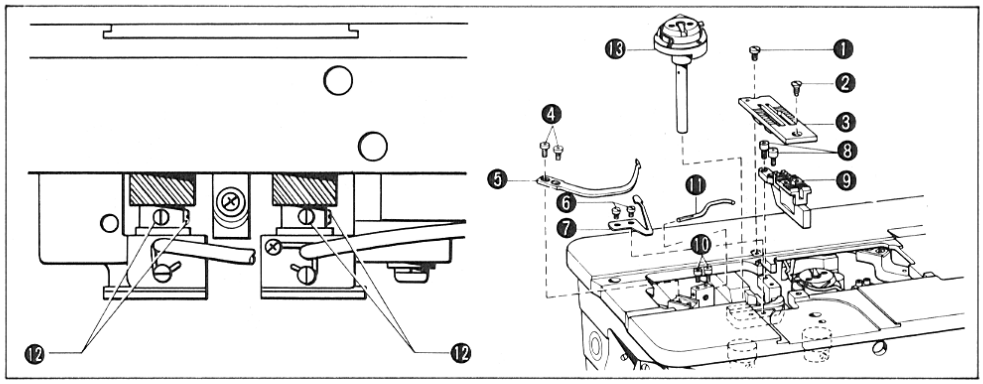
4 Tension Release Mechanism



1. Remove the two screws ❶ , and remove the tension releasing wire hodler ❷ .
2. Tilt the machine.
3. Remove the nuts ❸ , and then disconnect the tension release wire ❹ from the tension release lever assembly ❺ .
4. Remove the tension release lever spring ❻ applied to the tension release lever assembly ❺ .
5. Remove the screw ❼ , and remove the tension release lever assembly ❺ .
6. Remove the two screws ❽ , and remove the tension release wire holder ❾ .
7. Remove the two presser foot lift lever springs ❿ .
8. Loosen the two screws ⓫ , and remove the set collar ⓬ , and the presser foot lift lever shaft ⓭ and washer ⓮ .
9. Disconnect the tension release wire ❹ from the wire holder, and remove together with the presser foot lift lever ⓯

5 Rotary Hook and Thread Trimmer Assemblies

[Rotary hook assembly]



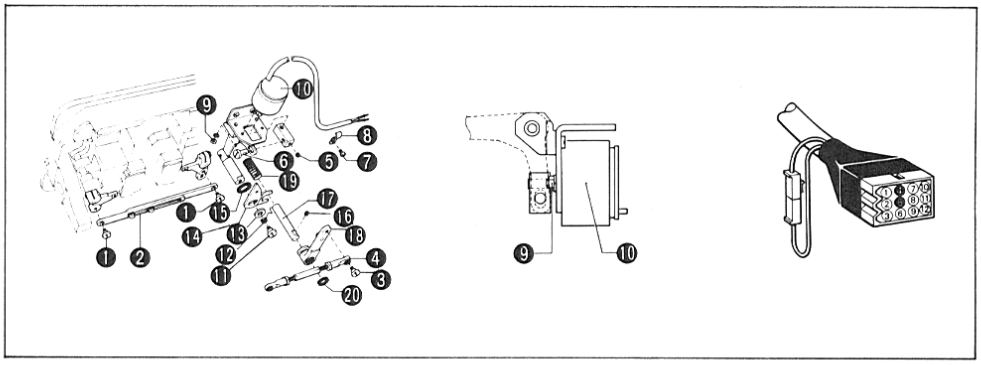
1. Loosen the screw ❶ , remove the screw ❷ , and remove the needle plate ❸ .
2. Remove the two screws ❹ , and then remove the two (left and right) movable knives ❻ .
3. Remove the two screws ❻ , and then remove the left and right bobbin thread retention springs ❼ . (right and left)
4. Remove the two screws ❽ , and remove the feed dog ❾ .
5. Loosen the two screws ❿ , and remove the bobbin case openers ⓫ (right and left).

* For a gauge width of 3/16 or less, remove after first opening the rotary hook base.

6. Tilt the machine.
7. Loosen three screws ⓬ , and remove rotary hooks ⓭ (right and left).

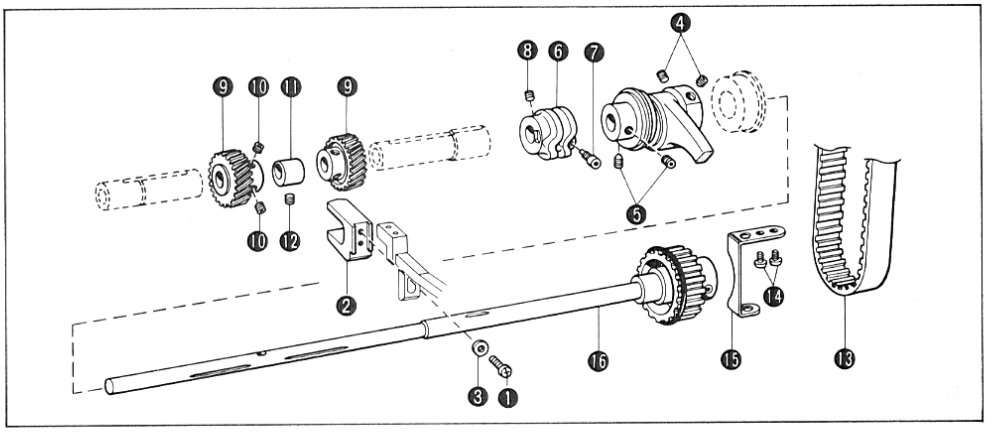
* When assembling the left and right rotary hooks ⓭ , be sure that they are in the same (left and right) positions as they were before disassembly.

[Thread trimmer assembly]



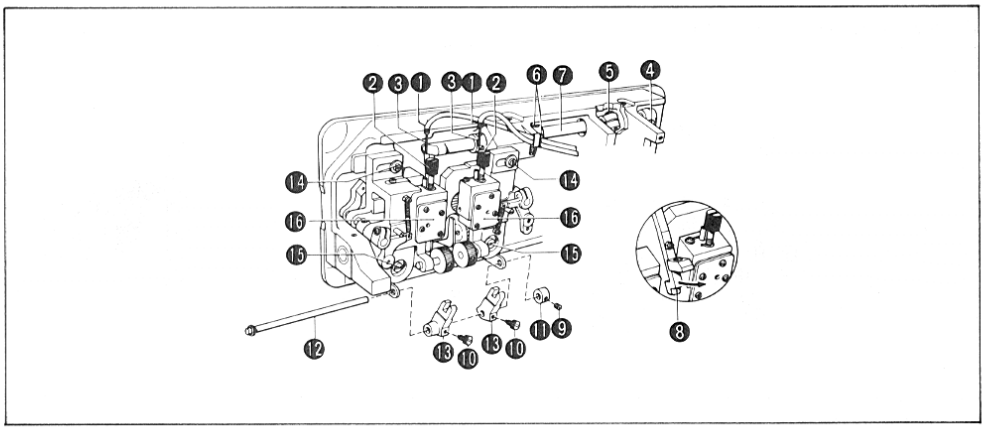
1. Tilt the machine.
2. Remove the two screws ❶ , and remove the thread trimming connecting rod ❷ .
3. Remove the screw ❸ on the right, and remove length adjusting rod ❹ .
4. Loosen the screw ❺ , and remove the feed regulator connecting link shaft ❻ .
5. Loosen the screw ❼ , and remove the thread trimming solenoid cord from cord holder ❽ .
6. Disconnect the pin terminal from the 12P connectors No. 4 and No. 5.
7. Remove the two nuts ❾ , and spring washers, and remove the thread trimming solenoid ❿ .
8. Remove the screw ⓫ , and remove the tension release lever spring ⓬ , washer ⓭ , thread trimming setting plate ⓮ , and rubber cushion ⓯ .
9. Loosen screw ⓰ , and remove knife main lever shaft ⓱ , knife main lever assembly ⓲ , knife main lever spring ⓳ , and rubber cushion ⓴ .

6 Lower Shaft Assembly



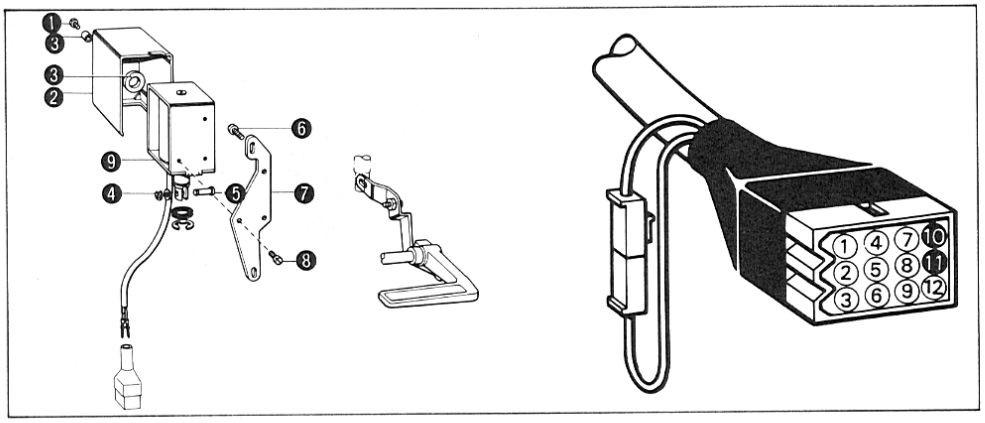
1. Remove the screw ❶ , and remove the feed bar fork ❷ and washer ❸ .
2. Loosen the two screws ❹ in the level feed eccentric wheel.
3. Loosen the two screws ❺ in the bushing.
4. Loosen the screw ❼ and ❽ in he knife driving cam ❻ .
5. Loosen the three screws ❿ in the spiral gears ❾ (right and left).
6. Loosen the screw ⓬ in the vertical feed eccentric wheel ⓫ .
7. Loosen the timing belt ⓭ .
8. Remove the two screws ⓮ , and remove the wire guide ⓯ .
9. Remove the lower shaft ⓰ .

[Removal of the rotary hook base]



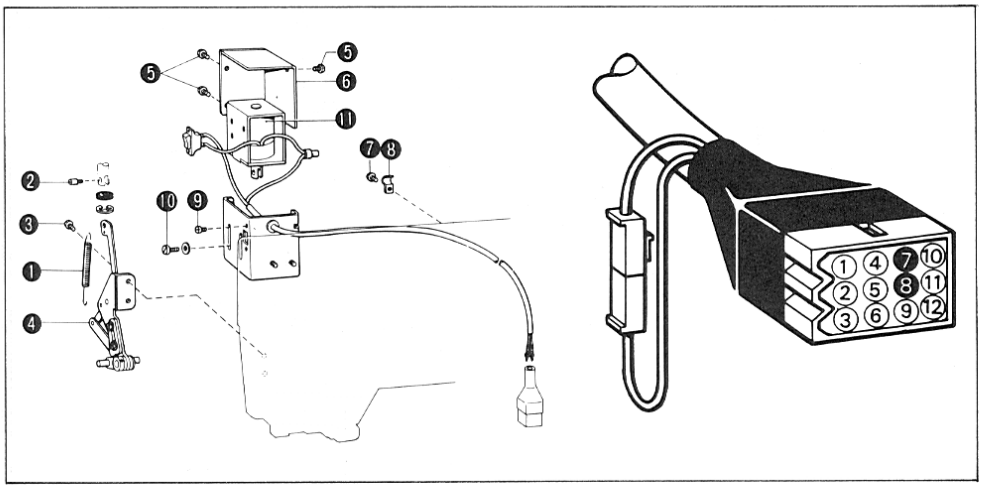
1. Remove the two tube stoppers ❶ .
2. Loosen the two adjustment screws ❷ .
3. Remove the wick ❸ .
4. Loosen the needle bar rock crank's screw ❹ , the level feed arm's screw ❺ , and the set collar's two screws ❻ .
5. Turn the level feed rock shaft ❼ , and raise the feed bar ❽ .
6. Loosen the screw ❾ and thumb screw ❿ , and remove the set collar ⓫ , the needle clearance adjustment bar ⓬ , and the left and right needle clearance adjustment forks ⓭ .
7. Remove the screw ⓮ , loosen the screw ⓯ , and remove the rotary hook base ⓰ .
   (If the thread trimming connecting rod is not removed, remove it.)

7 Quick Reverse Assembly



1. Right the machine.
2. Remove the screw ❶, and remove the quick reverse solenoid cover ❷ and collar ❸.
3. Remove stop ring ❹, and remove pin ❺.
4. Remove two screws ❻, and remove quick reverse solenoid bracket assembly ❼.
5. Remove three screws ❽, and remove reverse solenoid ❾.
6. Disconnect the pin terminals from 12P connector pins No. 10 and No. 11.

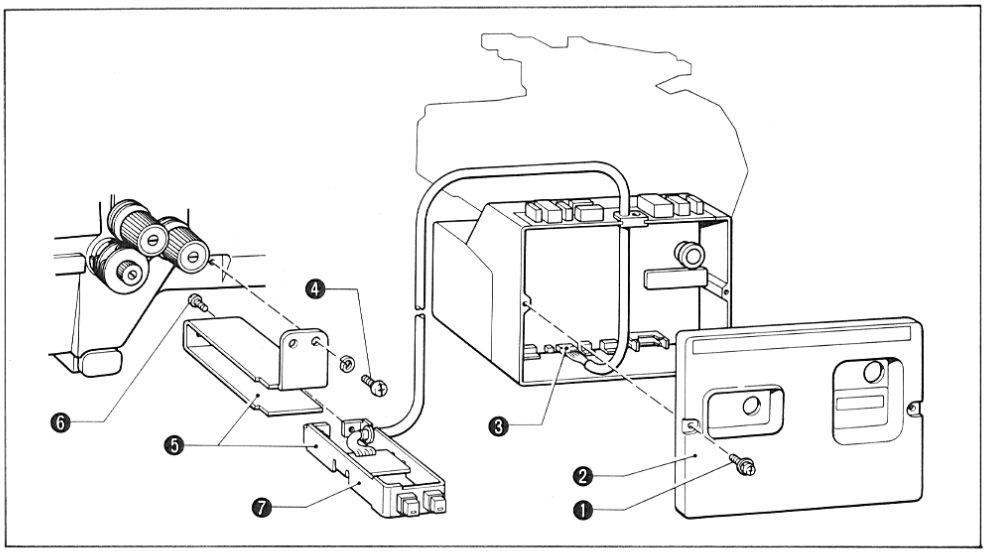
8 Thread Wiper Mechanism (Machines with Automatic Thread Trimmer)



1. Remove the thread wiper spring ❶.
2. Remove the plunger pin ❷.
3. Remove the two screws ❸, and remove the thread wiper link assembly ❹.
4. Remove the three screws ❺, and remove the solenoid cover ❻.
5. Remove the three screws ❼, and remove the three cord holders ❽.
   (Remove at one place only if the side panel is removed.)
6. Remove the four screws ❾ (two for the switch) and ❿, and remove the solenoid ⓫.
7. Disconnect the pin terminal from the 12P connectors (No. 7 and 8).

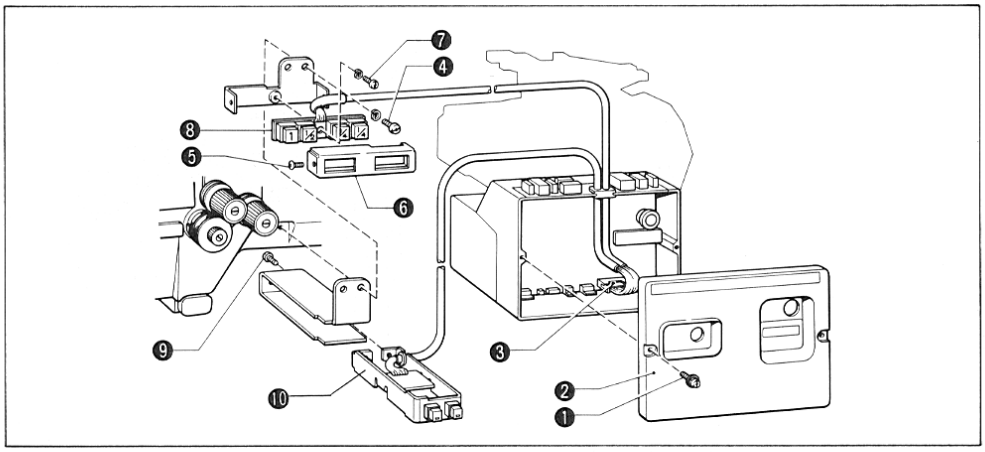
11 Needle Bar Switching Switch

[B845-900S, B875-900S]



1. Remove the screw ❶ on the motor side and face plate ❷ .
2. Disconnect the connector ❸ from the pc board in the control box.
3. Remove the screw ❹ and LR switch assembly ❺ .
4. Remove the screw ❻ and LR switch pc board assembly ❼ .

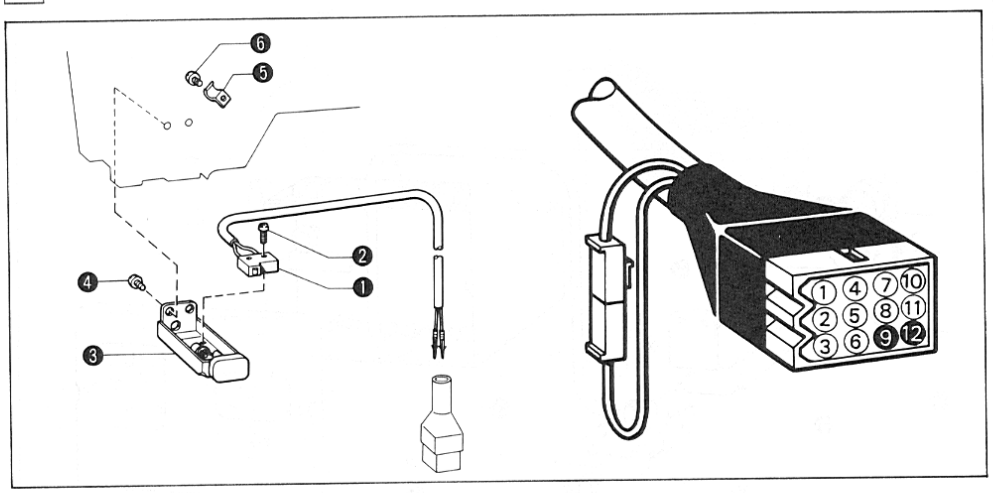
[B8450, B8750, B8480]



1. Remove the screw ❶ on the motor side and face plate ❷ .
2. Disconnect the connector ❸ from the pc board in the control box.
3. Remove the screw ❹ and manual switch assembly (No. ❺ - ❽ described above).
4. Remove the screw ❺ and switch case-U ❻ .
5. Remove the screw ❼ and switch (4 units) ❽ .
6. Remove the screw ❾ and LP switch board assembly ❿ .

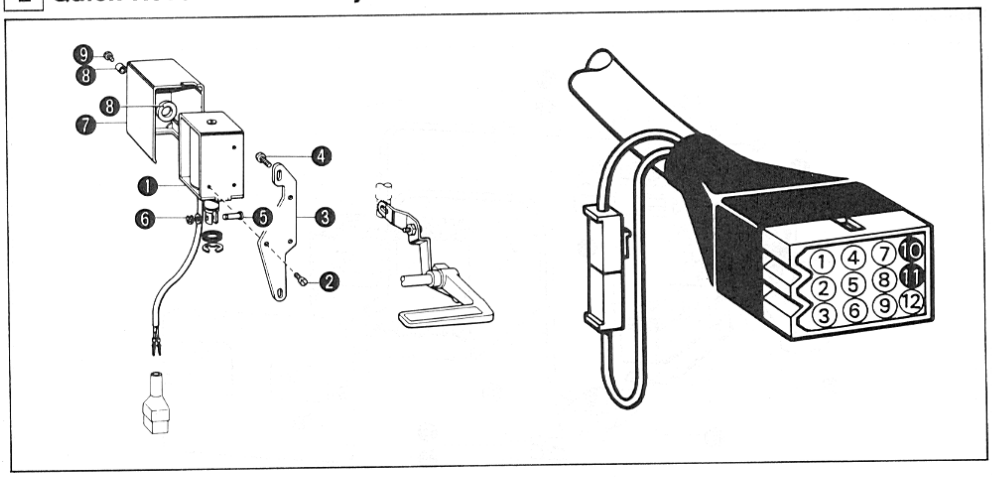
ASSEMBLY AND ADJUSTMENT

1 Quick-Reverse Switch Assembly



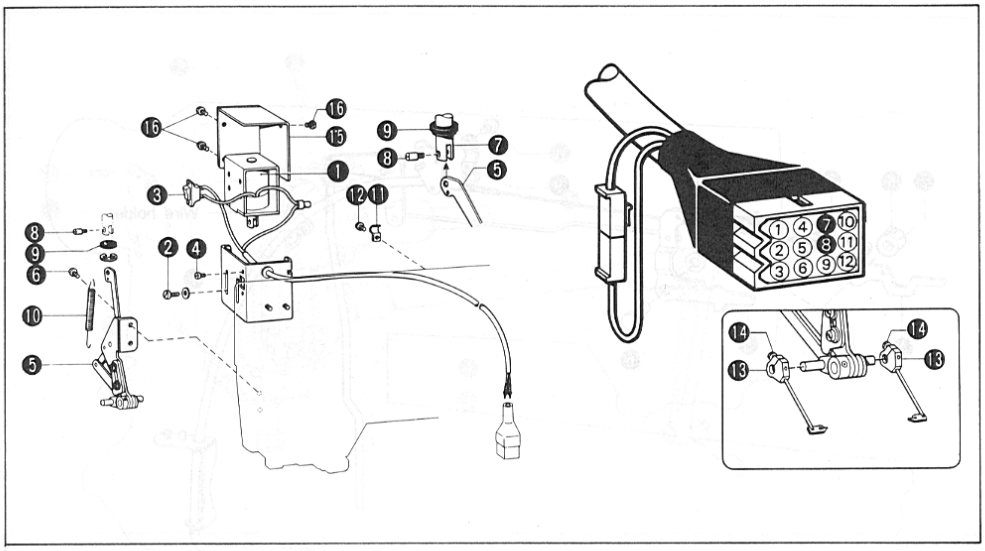
1. Install the microswitch ❶ with the two screws ❷ .
2. Install the actuator assembly ❸ with the two screws ❹ .
3. Install the quick-reverse switch cord by using the cord holder ❺ and the screw ❻ .
4. Connect the pin terminals to 12P connectors No. 9 and No. 12.

2 Quick-Reverse Assembly



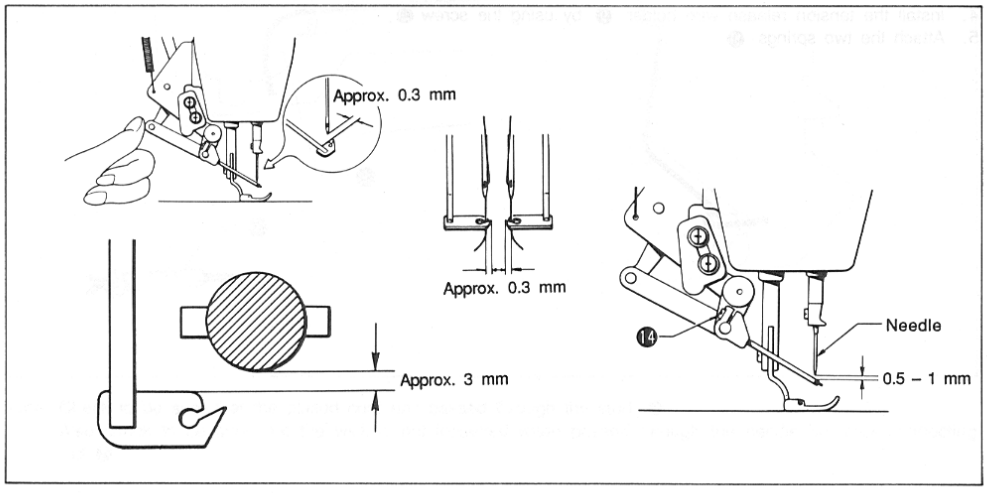
1. Install the quick-reverse solenoid ❶ with the three screws ❷ .
2. Provisionally install the quick-revers solenoid bracket assembly ❸ with the two screws ❹ .
3. Secure the connecting pin ❺ with stop ring ❻ .
4. Set the feed adjustment dial to a position one-half pitch backward from the maximum setting. Then move the quick-reverse bracket assembly ❸ up and down so that the plunger rubber piece and the lower surface of the quick-reverse solenoid ❶ coincide when the quick-reverse feed lever is pressed completely downward; then tighten the screw ❹ .
5. Install the quick-reverse solenoid cover ❼ by using the collar ❽ and the screw ❾ .
6. Connect the pin terminals to 12P connectors No. 10 and No. 11.

3 Thread Wiper Assembly

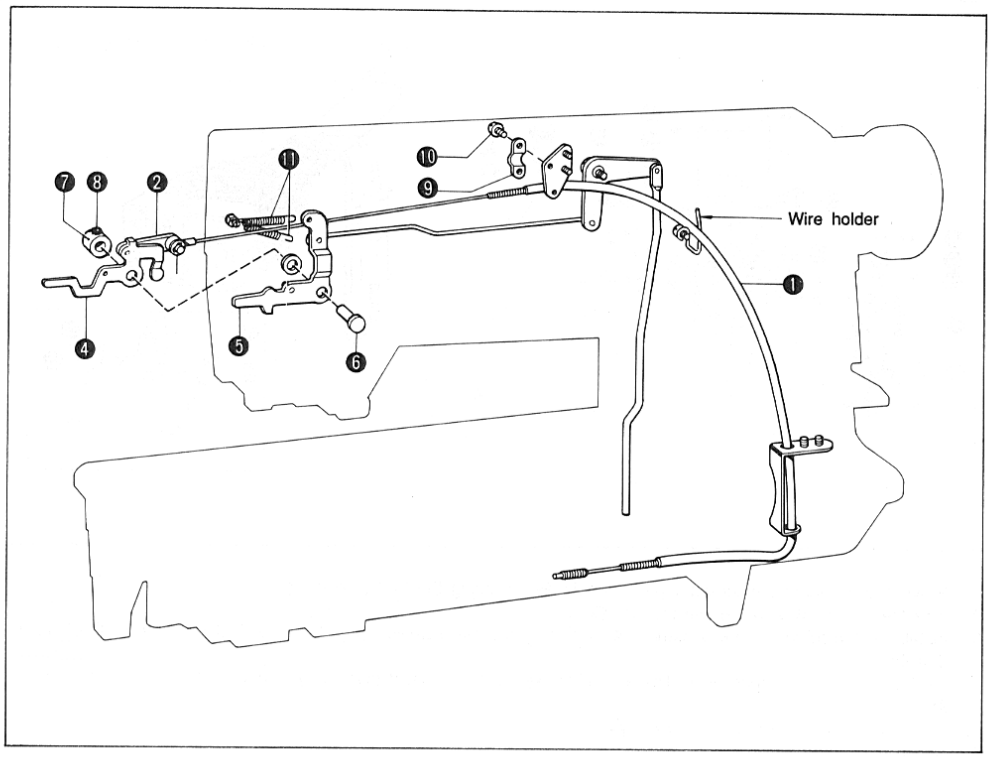


1. Provisionally secure the thread wiper solenoid ❶ by using the four screws ❷ .
2. Affix the switch ❸ with the two screws ❹ .
3. Install the thread wiper link assembly ❺ by using the two screws ❻ . Be careful at this time of the left/right distribution.
4. Fit the edge of the thread wiper link assembly ❺ to the solenoid plunger ❼ , and then install the plunger pin ❽ .
   Be sure to install the rubber stopper ❾ .
5. Attach the thread wiper spring ❿ .
6. Install the cord holder ⓫ by using the screw ⓬ .
7. Connect the pin terminal to the 12P connectors (No. 7 and No. 8).
8. After installing the presser assembly and the needle bar rock assembly, provisionally secure the thread wiper support ⓭ and link B, when making adjustment, by using the screw ⓮ .
   Refer to page 60 for information concerning adjustment of the thread wiper.
9. After making the adjustment, install the solenoid cover ⓯ by using the three screws ⓰ .

Thread wiper adjustment



4 Tension Release Mechanism

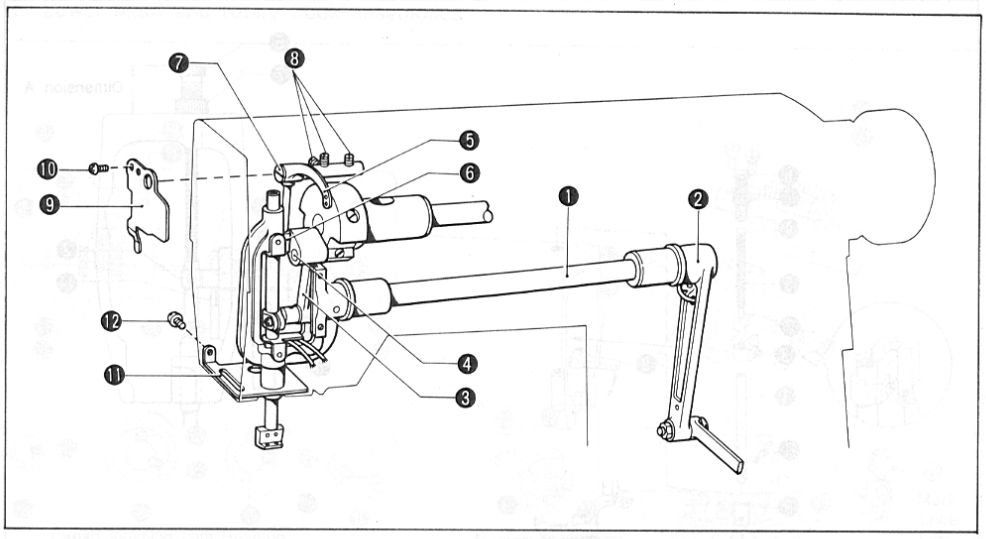


1. Connect the end of the tension release wire ❶ to the tension release wire connecting rod ❷ , and secure by using the stop ring ❸ .
2. After installing the tension release plate assembly ❹ , the washer, and the knee lifter lifter lever ❺ to the presser lifter lever shaft ❻ , fit to the arm, and then install from the outer side by using the set collar ❼ and screw ❽ .

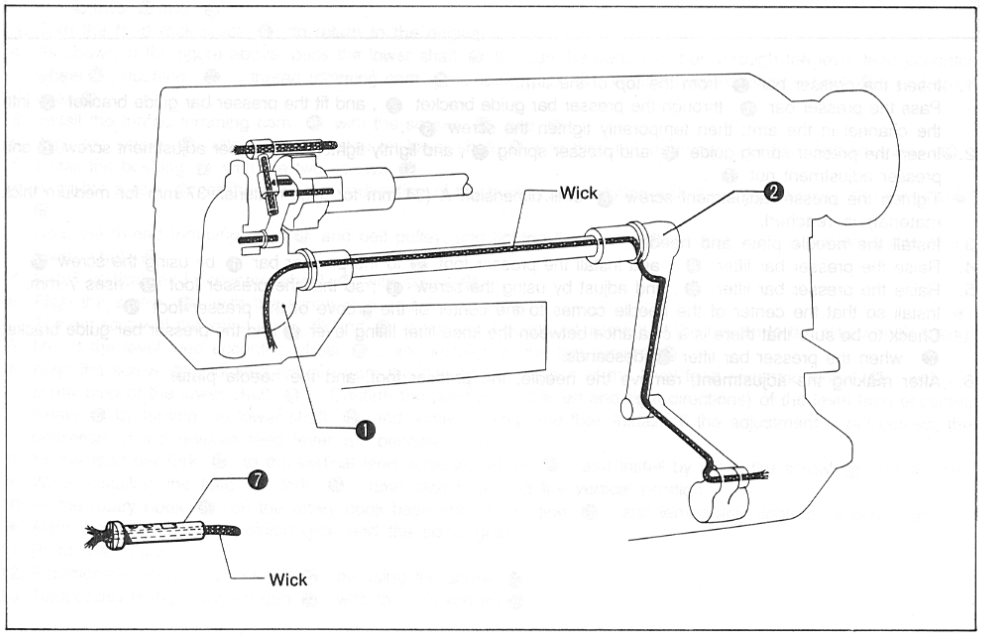
✳ Check to be sure that the tension release plate assembly ❹ and the knee lifter lifting lever ❺ move lightly without play or looseness.

3. Pass the end of the tension release wire ❶ through the arm bed. Then attach the tension release wire ❶ to the wire holder.
4. Install the tension release wire holder ❾ by using the screw ❿ .
5. Attach the two springs ⓫ .

5 Needle Bar Rocking Mechanism

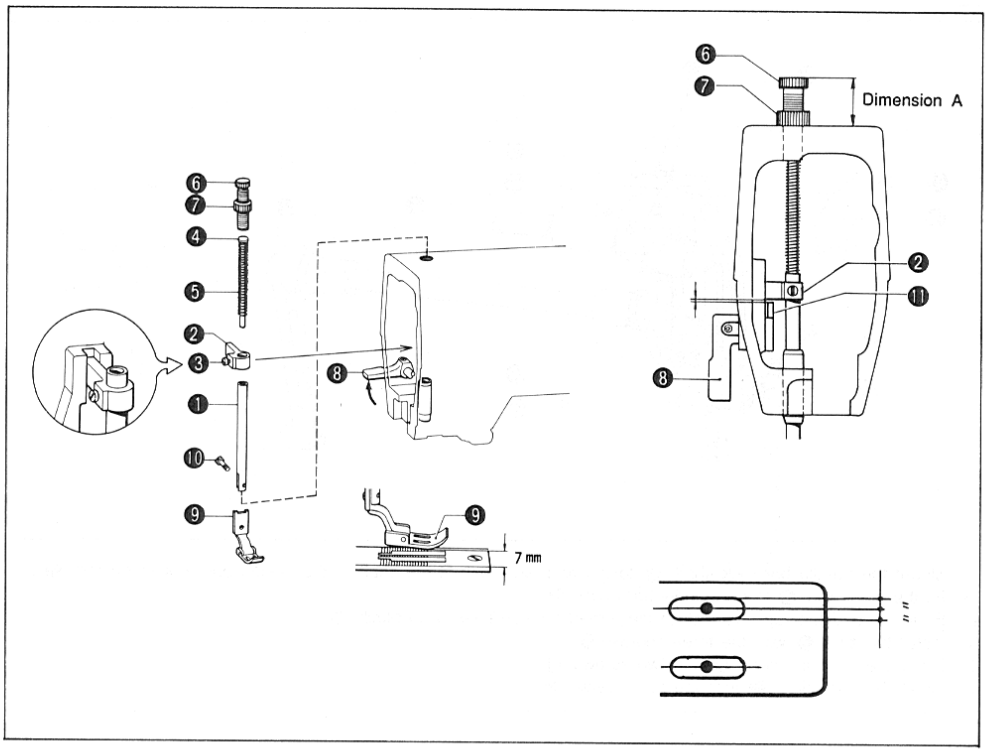


1. Mount the needle bar rock shaft ❶ to the arm, and then fit the shaft to the needle bar connecting rod ❷ .
   ✳ Fit the crank rod ❸ to the needle bar crank ❹ .
2. Fit the thread take-up lever ❺ to the thread take-up lever slide block ❻ .
3. Install the stud ❼ with the three screws ❽ .
4. Install the interrupt plate ❾ with two screws ❿ .
5. Install the dust plate ⓫ with the two screws ⓬ .



Note: Check to be sure that the plaited cord has passed through the stud ❶ .
Also check to be sure that the wick is not loosened when passed through the needle bar rock connecting rod ❷ .

6 Presser Foot Assembly



1. Insert the presser bar ❶ from the top of the arm.
   Pass the presser bar ❶ through the presser bar guide bracket ❷ , and fit the presser bar guide bracket ❷ into the channel in the arm; then temporarily tighten the screw ❸ .
2. Insert the presser spring guide ❹ and presser spring ❺ , and lightly tighten the presser adjustment screw ❻ and presser adjustment nut ❼ .

✳ Tighten the presser adjustment screw ❻ until dimension A (34 mm for thick material, 37 mm for medium thick material) is reached.

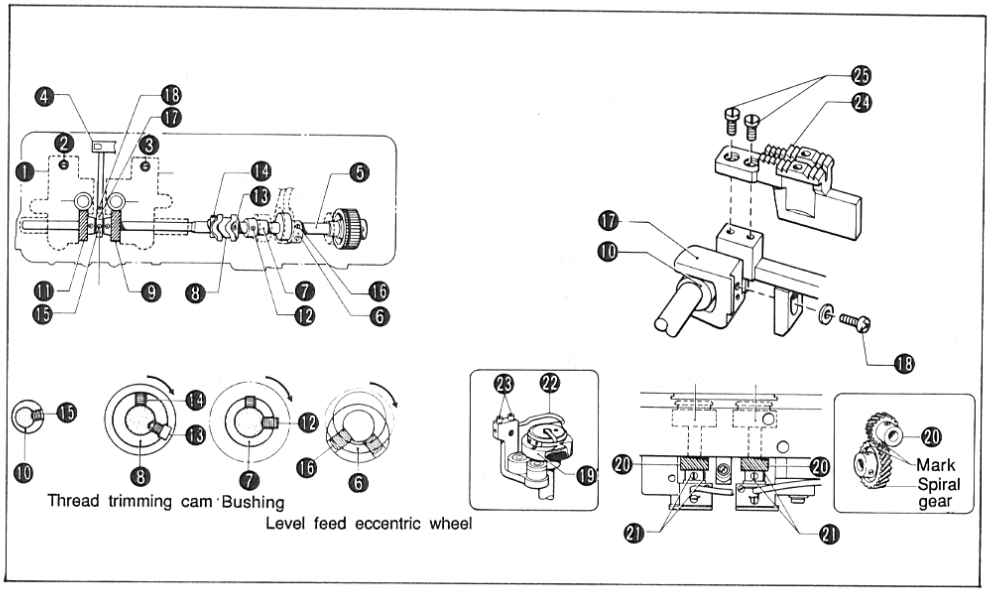
3. Install the needle plate and needle.
4. Raise the presser bar lifter ❽ , and install the presser foot ❾ to the presser bar ❶ by using the screw ❿ .
5. Raise the presser bar lifter ❽ , and adjust by using the screw ❸ , so that the presser foot ❾ rises 7 mm.

✳ Install so that the center of the needle comes to the center of the groove of the presser foot ❾ .
Check to be sure that there is a clearance between the knee lifter lifting lever ⓫ and the presser bar guide bracket ❷ when the presser bar lifter ❽ descends.

6. After making the adjustment, remove the needle, the presser foot, and the needle plate.

7 Rotary Hook, Lower Shaft and Thread Trimmer Assemblies

1. Lower shaft and rotary hook assemblies



1. Tile the machine.
2. Fit the left and right rotary hook bases ❶ to the rotary hook base bushing, and secure previsionally by using the screws ❷ and ❸ .
3. Turn the feed rock shaft ❹ to return to the original position.
4. As shown in the figure above, pass the lower shaft ❺ through the bed, and then through the level feed eccentric wheel ❻ , bushing ❼ , thread trimming cam ❽ , spiral gear ❾ , vertical feed eccentric wheel ❿ , and spiral gear ⓫ .
5. Install the thread trimming cam ❽ with the screws ⓭ and ⓮ .

✳ Align the screw ⓭ with the screw stop on lower shaft ❺ and then tighten firmly, and then tighten screw ⓮ .

6. Install the bushing ❼ with the two screws ⓬ .

✳ Align the screw ⓬ at the front in the direction of the bushing ❼ rotation with the screw stop on the lower shaft ❺ .
Hold the thread trimming cam ❽ and belt pulley, and tighten the screw ⓬ so that there is no looseness of the lower shaft ❺ .

7. Install vertical feed eccentric wheel ❿ with screw ⓯ .

✳ Align the screw ⓯ with the screw stop and tighten firmly.
The set screw of the spiral gears ❾ and ⓫ is tightened during adjustment of the needle to the rotary hook timing.

8. Mount the level feed eccentric wheel ❻ , and install with the two screws ⓰ .

✳ Align the screw ⓰ , located forward from the direction of rotation of the level feed eccentric wheel ❻ , with the screw stop of the lower shaft ❺ . Confirm the position (in the left and right directions) of the level feed eccentric wheel ❻ by turning the lower shaft ❺ and lightly moving, and then install. If the adjustment is not correct, the operation of the reverse feed lever will become heavy.

9. Fit the feed bar fork ⓱ to the vertical feed eccentric wheel ❿ , and install by using the screw ⓲ and washer.

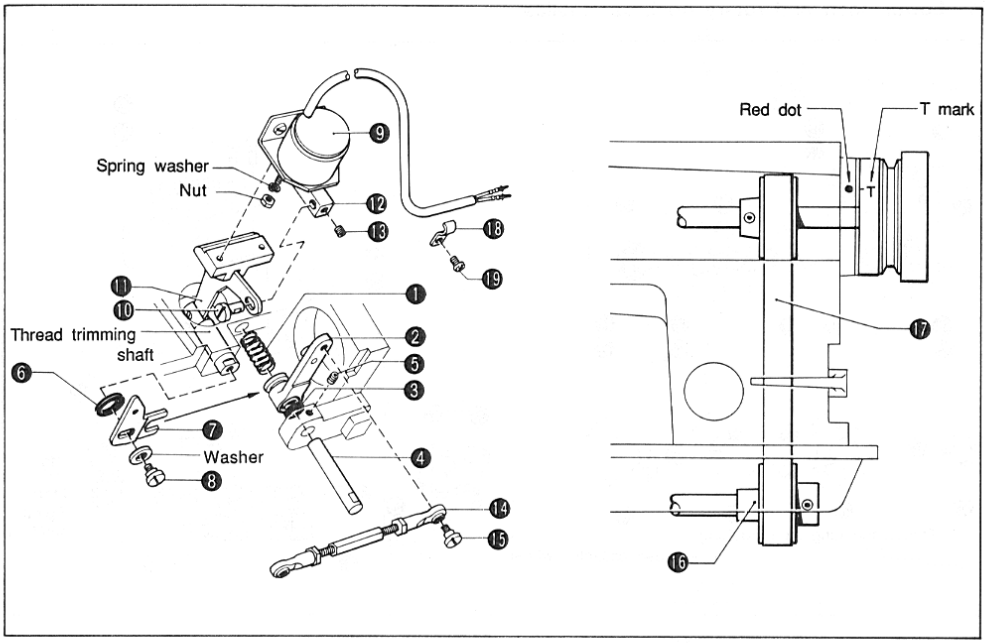
✳ When installing the feed bar fork ⓱ , take care regarding the vertical position.

10. Fit the rotary hook ⓳ on the rotary hook base and pinion gear ⓴ , and temporarily tighten the screw ㉑ .

✳ Align the indexes of the pinion gear and the spiral gear.

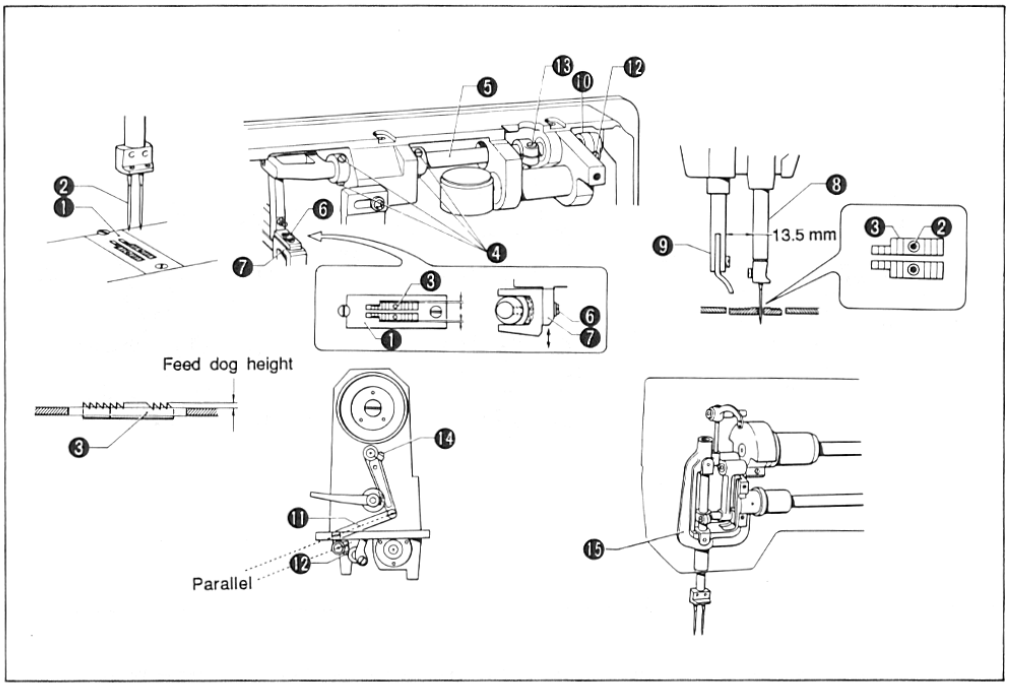
11. Right the machine.
12. Provisionally secure the opener ㉒ by using the screw ㉓ .
13. Temporarily install the feed dog ㉔ with the two screws ㉕ .

2. Thread trimming assembly



1. As shown in the figure above, fit the knife main lever spring ❶, knife main lever assembly ❷, and cushion ❸ on the bracket, insert the knife main lever shaft ❹, and secure with the screw ❺.
2. Attach the rubber cushion ❻ to thread trimming shaft and fit the thread trimming driving rod ❼ to knife main lever assembly ❷, then install with the washer and screw ❽.
3. Install the thread trimming solenoid ❾ on the thread trimming solenoid bracket with the nut and spring washer.
4. Insert the feed regulator connecting link shaft ❿ into the solenoid lever ⓫ and solenoid knee lifter joint ⓬ holes, and install by using the screw ⓭.
5. Install the length adjustment rod assembly ⓮ with the screw ⓯ to the knife main lever assembly ⓰.
6. Press the thread trimming solenoid ❾ by hand, turn timing pulley D ⓰, and stop when the pulley gets heavy.
7. Align the trimming mark (T) on the machine pulley with the red dot on the arm.
8. After steps 6 and 7, mount the timing belt ⓱.
9. Install the cord holder ⓲ by using the screw ⓳.

3. Feed dog position adjustment



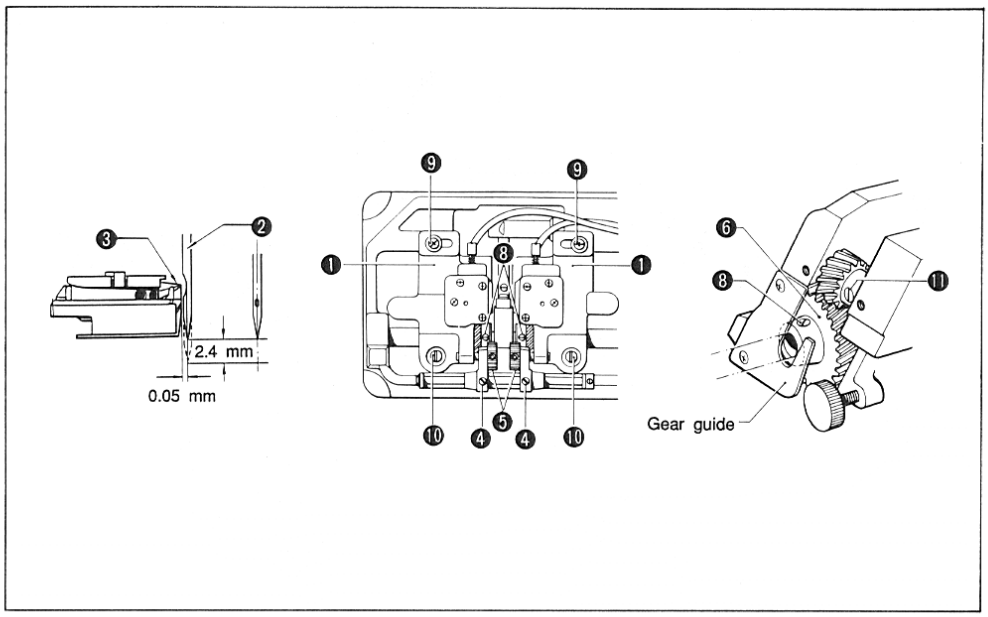
1. Set the feed adjustment dial to the 0 position.
2. Install the needle plate ❶ and needle ❷ .
3. Tilt the machine.
4. Loosen the four screws ❹ so that the feed dog ❸ is divided to left and right in the hole in the needle plate ❶ , and adjust by using the feed rock shaft ❺ .

✳ After making the adjustment, securely tighten the screw ❹ so that there is no looseness of the feed rock shaft .

5. Loosen the screw ❻ and move the feed bar fork ❼ up and down so that the clearance from the upper surface of the needle plate ❶ is 1 mm for medium-thick materials and 1 - 1.2 mm for thick materials when the feed dog ❸ is at the uppermost position.
   (Securely tighten the screw ❻ .)
6. While providing a clearance of 13.5 mm for the needle bar ❽ and the presser bar ❾ , make the groove of the needle bar rock crank ❿ and the needle ar rock link ⓫ parallel at the position where the tip of the needle ❷ enters the center of the needle hole of the feed dog ❸ , and then tighten the screw ⓬ . Then tighten the screw ⓭ of the level feed arm.
7. Securely tighten the screw ⓮ of the needle bar rock connecting rod.
   Install to the needle bar rock rod assembly ⓯ so that there is no looseness in the lateral direction.

✳ For B845, B848 and B875 model machines, adjust so that the dimension in 6. above is 14.2 mm.

4. Rotary hook base adjustment



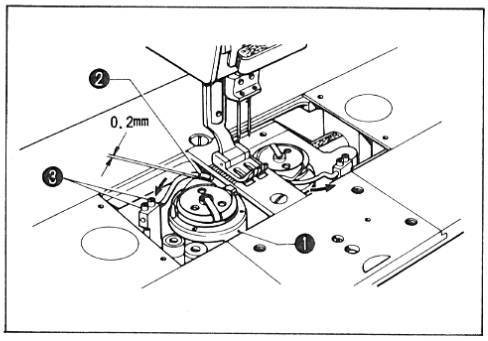
1. Remove the needle plate.
2. Move the rotary hook base ❶ , and tighten the two screws ❹ at the position at which the needle ❷ and the rotary hook point ❸ are close together.
3. Turn the machine pulley, and turn the adjustment screw ❺ of the rotary hook base ❶ to move so that the clearance between the needle ❷ and the rotary hook point ❸ becomes 0.05 mm when the needle is 2.4 mm above the lowermost position.

✳ When the adjustment screw ❺ is being turned, the movement will be smooth if the upper part of the rotary hook base is held.

4. Tighten the pointed tip screw ❼ (with flat head) to the screw stop of the lower shaft, and tighten the screw ❽ so that the spiral gear ❻ slightly contacts the gear guide.
5. Tighten the two screws ❾ and ❿ to the rotary hook base.
6. Set the feed adjustment dial to "2" or "3".
7. Loosen the screw ⓫ , align the rotary hook point ❸ with the center of the needle ❷ , and tighten the screw. Refer to page 52 for information concerning adjustment of the needle bar height.

✳ For models B847 and B848, adjust the dimension in step 3 above to 2.0 mm.

5. Bobbin case opener adjustment

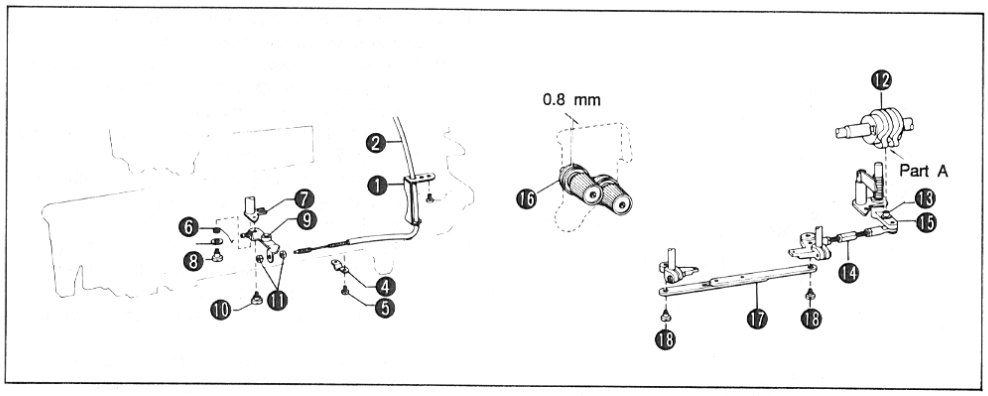


1. Right the machine.
2. Mount the needle plate.

✳ Fit the projecting part of the rotary hook into the groove of the needle plate.

3. Turn the screw ❸ to adjust so that the clearance between the rotary hook ❶ and the bobbin case opener ❷ is 0.2 mm when the bobbin case opener ❷ is pulled as far as possible in the direction of the arrow.
4. Remove the needle plate.

6. Tension release adjustment

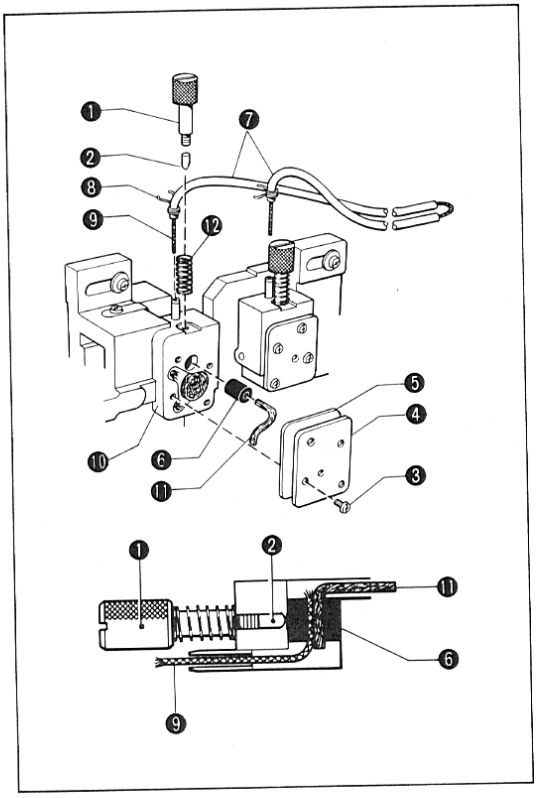


1. After passing the tension release wire ❷ through the wire guide ❶ , install by using the screw.
2. Install the tension release wire presser ❹ by using the screw ❺ .
3. Install the tension release lever spring ❻ to the thread trimmer rod plate ❼ by using the screw ❽ and washer.
4. Install the tension release lever assembly ❾ by using the screw ❿ .
5. Install the tension release wire ❷ and the tension release lever assembly ❾ by using the nut ⓫ .
6. Turn the machine pulley, and adjust the length adjustment rod ⓮ so that roller ⓳ gently fits in at the end of part A of the thread trimming cam ⓬ .

✳ Turn the machine pulley while pressing the knife main lever assembly ⓯ by hand activate the tension release, and adjust the nut ⓫ so that the amount of opening of the tension disc ⓰ is 0.8 mm.

7. Install the thread trimmer connecting rod ⓱ by using the two screws ⓲ .

Wick threading



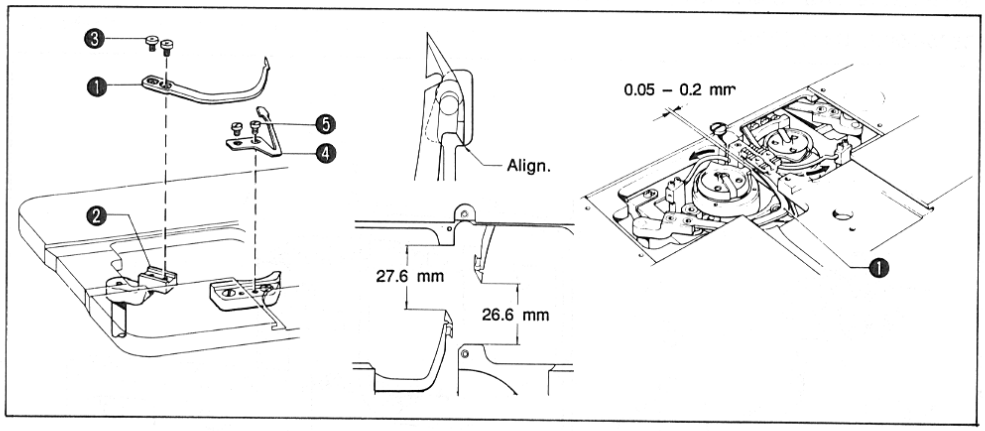
1. Remove the oil adjustment screw ❶ .
   Remove the rubber presser ❷ .
2. Remove the screw ❸ , and remove the rotary hook base cover ❹ and the packing ❺ .
3. Remove the rubber ring ❻ .

* Care should be taken, when removing the rubber ring ❻ , not to damage it.

4. Install the tube stopper ❽ to the vinyl tube ❼ .
5. After passing the wick ❾ through the rotary hook base ❿ , insert the vinyl tube ❼ .
6. Pass the wick ❾ through the rubber ring ❻ .
   After passing the wick through the rubber ring, install the felt ⓫ to the rubber ring ❻ .
7. Install the rubber ring ❻ to the rorary hook base ❿ .
8. Assemble the set rubber ❷ and oil adjusting spring ⓬ to the oil adjusting screw ❶ and tighten the oil adjusting screw ❶ .
9. Install the tube stopper ❽ so that the vinyl tube ❼ will not come off.
10. Install the packing ❺ and the rotary hook base cover ❹ by using the screw ❸ .

✳ The lubrication of the left and right rotary hooks is by one wick.
Care should be taken not to cut the wick mistakenly.

7. Movable knife position adjustment

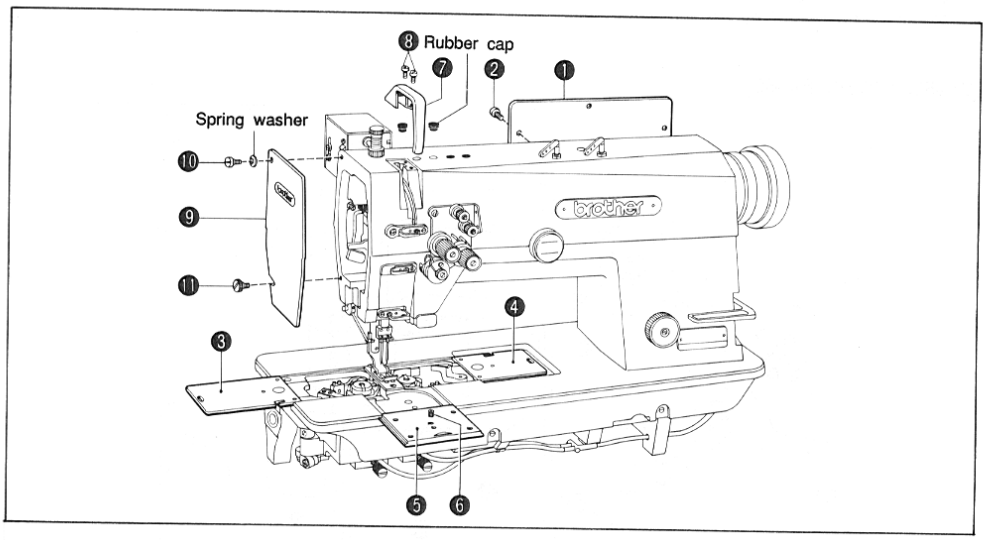


1. Mount the movable knife ❶ on the movable knife bracket ❷ with the two screws ❸ .
   Concerning the movable knife installation position, refer to the figure above.
2. Mount the bobbin thread retention spring ❹ with the two screws ❺ .

* The tip of the hook of the movable knife ❶ should be approximately aligned with the end of the bobbin thread retention spring ❹ . Install so that the clearance between the rotary hook holder and the movable knife is 0.05 - 0.2 mm when the bobbin case opener is pulled as far as possible in the direction of the arrow.

3. After making the adjustment, install the needle plate, presser foot, and needle.

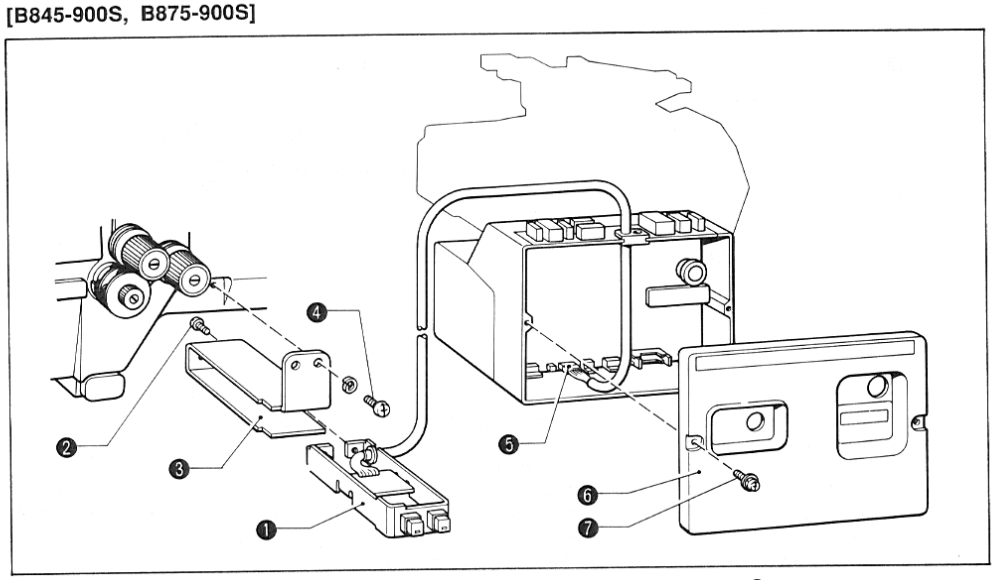
8 Covers



1. Install the rear cover ❶ with the seven screws ❷ .
2. Install slide plates R ❸ and L ❹ .
3. Tilt the machine, and install slide plate F ❺ with the screw ❻ .
4. Install the thread take-up cover ❼ by using the two screws ❽ .
5. Install the face plate ❾ with the screw ❿ , and tighten the thumb screw ⓫ .
6. Install the three rubber caps.

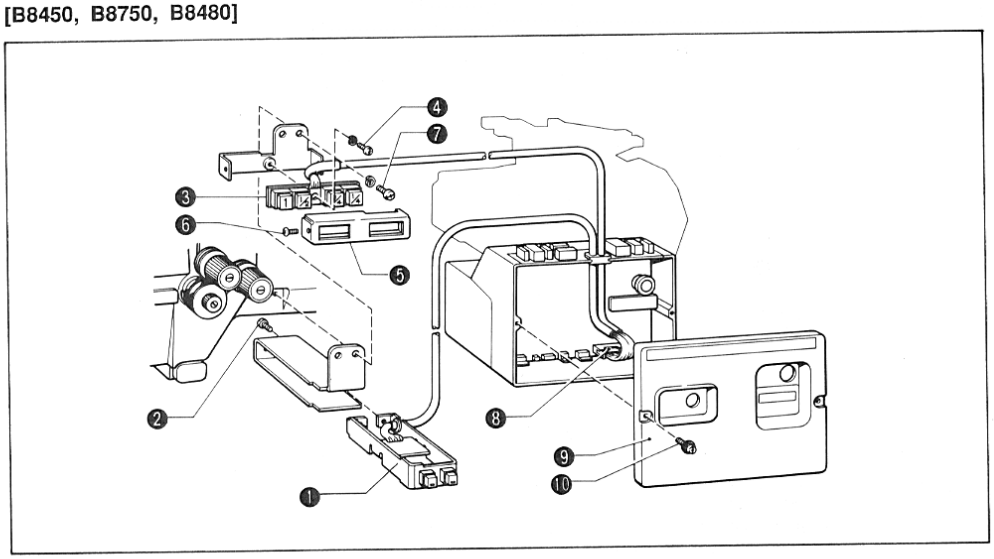
9 Needle Bar Switching Switch

[B845-900S, B875-900S]



1. Install the LR switch pc board assembly ❶ on the bracket and tighten the screw ❷ .
2. Mount the LR switch assembly with the screw ❹ .
3. Connect the connector ❺ to the pc board.
4. Mount the front panel ❻ with the screw ❼ .

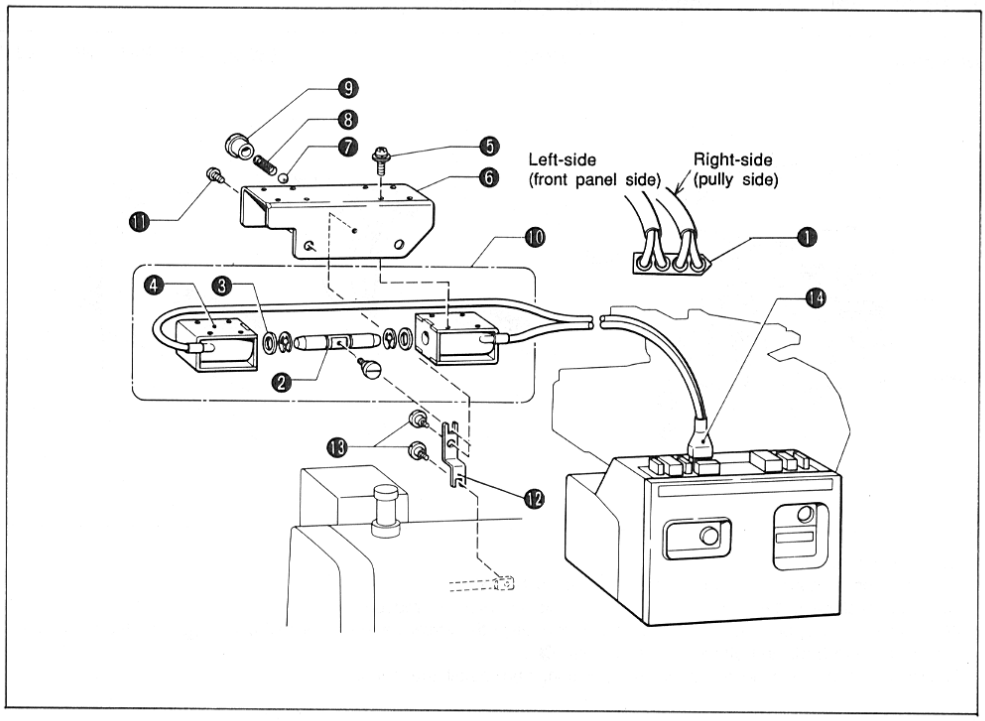
[B8450, B8750, B8480]



1. Mount the LR switch pc board ❶ with the screw ❷ .
2. Mount the switches(4 units) ❸ with the screw ❹ .
3. Mount the switch case-U ❺ with the screw ❻ .
4. Mount the manual switch assembly and LR switch assembly(above ❶ - ❻) with the screw ❼ .
5. Connect the connector ❽ to the pc board.
6. Mount the front panel ❾ with the screw ❿ .

10 Needle Bar Stopping Assembly

[B845-900S, B875-900S, B8450, B8750, B8480]

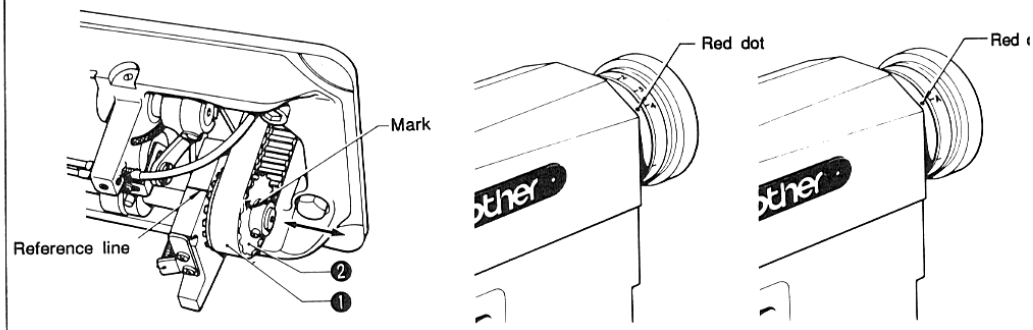


1. Plug the 4P connector ❶ (No.1 - 4) plug into the socket.
2. Apply the plunger ❷ and plunger rubber ❸ onto the switching solenoid ❹ and mount them onto the solenoid mount plate ❻ with the screw ❺ .
3. Insert the steal ball ❼ and spring ❽ into the ball guide screw ❾ and tighten the ball guide screw ❾ onto the solenoid mounting plate ❻ .
4. Mount the solenoid mounting plate ❻ and switching solenoid assembly ❿ with the set screw.
5. Mount the switching lever ❷ with the shoulder screw ⓭ .
6. Connect the 4P connector ⓮

STANDARD ADJUSTMENTS

1 Upper and Lower Shaft Timing Adjustment

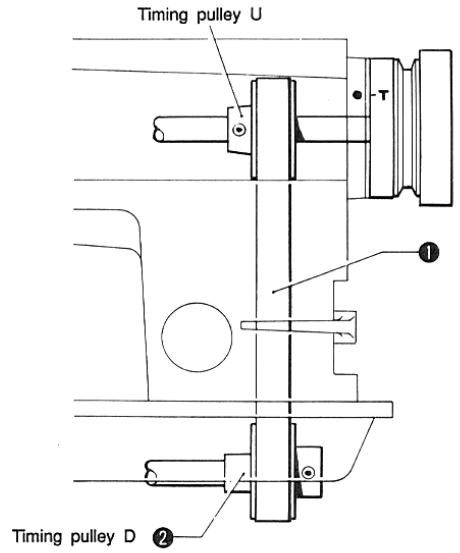
[Standard] **[B841]** **[B842, B845, B848, B872, B875**



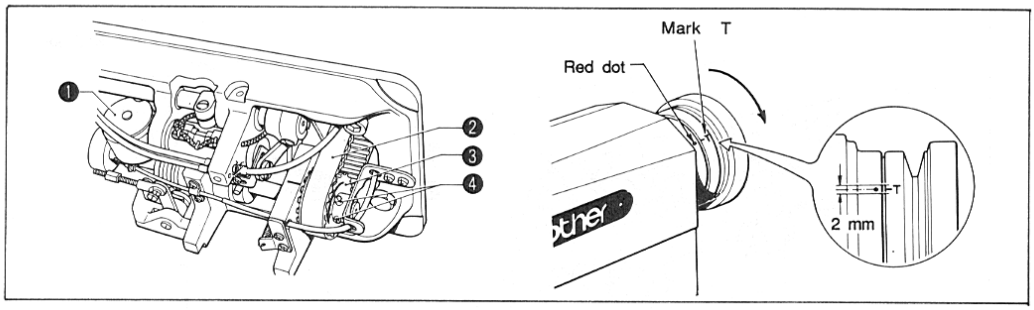
1. Remove the needles.
2. Tilt the machine head back and remove the timing belt ❶ .
3. Turn the machine pulley until the "A" mark is aligned with the red dot.
4. While holding the upper shaft so that it won't move, align the arrow on the lower belt pulley ❷ with the reference line on the arm bed, and attach the timing belt ❶ .
5. Return the mahcine head to its original position, and install the needles.

Note

✳ When mounting timing belt ❶ , first make sure that timing belt is mounted on upper shaft timing belt U, and then mount the belt on timing pulley D ❷ .



Upper and Lower Shaft Timing Adjustment
[Automatic thread trimmer]

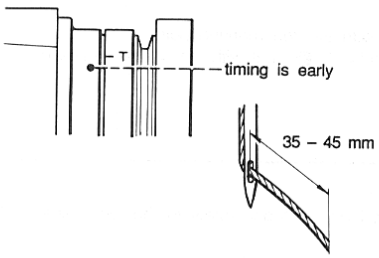


Thread Trimmer Timing Adjustment

1. Remove the needles.
2. Remove belt cover U.
3. Hold the thread trimming solenoid depressed and turn the sewing machine pulley in its normal direction of rotation until the pulley becomes hard to turn (the movable knife will begin to move).
4. The T mark on the machine pulley scale must be in line with the red dot on the machine head. (The permissible deviation of the T mark from the center of the red dot is 2 mm.)

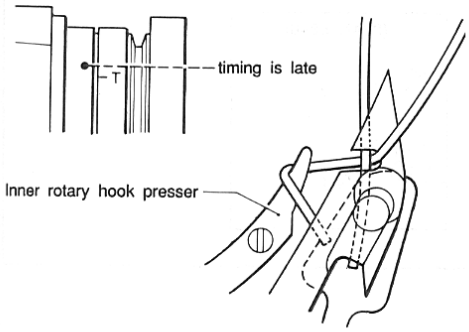
CAUTION

The T mark should be set to the position at which the movable knift begins to move even slightly.



If thread trimming timing is early

* If excessively early (greater than 4 mm), thread trimming errors will occur.
* The right side needle thread may be cut extremely short.
* The needle thread remainder trailing from the needle hold may be long after thread trimming.
  If the remainder is too long, the pretension will not be able to accommodate the excessive length, and the bobbin thread will not be held properly.
* The appropriate length of the needle thread remainder from the needle hole after thread trimming is 35 to 45 mm.

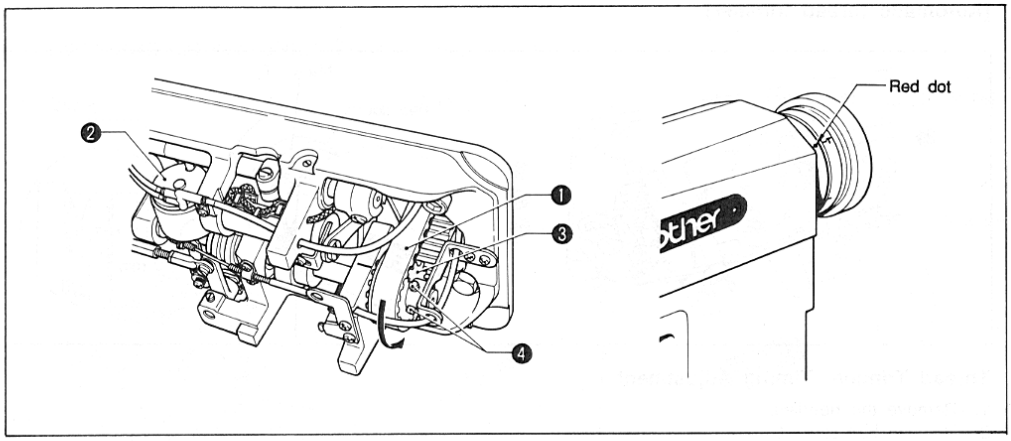


If thread trimming timing is late

* The needle thread remainder trailing from the needle hole may be short (about 30 mm) after thread trimming.
* Thread case-offs at the sewing start may occur.

[To check]
Open the slide plate, and turn the pulley by hand to trim the thread under the normal sewing conditions.
Thread trimming is OK if the thread is not trimmed when the needle thread is caught by the loop spreader. If the timing is late, the neelde thread will be pulled during thread trimming from the loop spreader and become short.

▣ Upper and Lower Shaft Timing Adjustment



[B842, B845, B872, B875]

1. Remove the timing belt ❶ .
2. Turn the sewing pully and mount the pully at the scale "T" met with the red marking point.
3. Turn the timing pully-D ❸ in the direction of the arrow mark until the pully becomes hard to be turned while depressing the thread trimming solenoid ❷ .
4. Engage the timing belt ❶ under the both of the sewing pully and timing pully-D ❸ fixed.
5. Check the scale "T" on the sewing pully.

✳ Do not change the position of the screw ❹ .

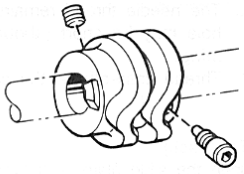
[B847, B848]

1. Remove the timing belt ❶ .
2. Turn the sewing pully and set the pully at the scale "T" met with the red marking point.
3. Engage the timing belt ❶ with the arrow mark on the timing pully-D ❸ met with the reference line on the bed under the upper shaft fixed.
4. Check the scale "A" on the sewing pully.

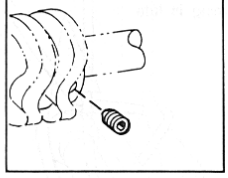
CAUTION

On models B847 and B848, the thread trimming cam is not locked by the taper screw to the lower shaft. Adjust thread trimming by adjusting the thread trimming cam.

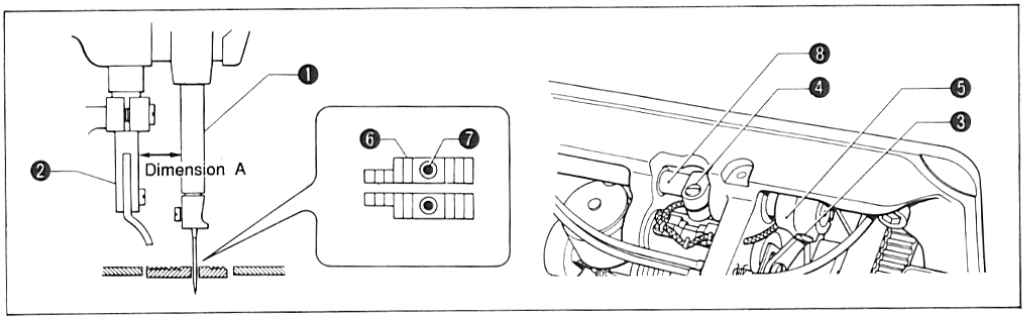
(B842, B845, B872, B875)



(B847, B848)



2 Adjustment of Needle Bar to Presser Bar Gap

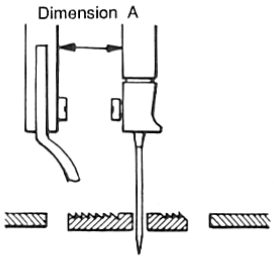


1. Set the feed regulator dial to 0.
2. The required gap between the needle bar ❶ and presser bar ❷ is dimension A.

Model	A
B841 · B842 · B847 · B872	13.5 mm
B845 · B848 · B875	14.2 mm

If necessary, adjust as below.

1. Loosen screws ❸ and ❹ .
2. Turn the needle bar vibrating crank ❺ until the required gap (dimension A) is obtained between the needle bar ❶ and presser bar ❷ .
3. Make sure the needle comes to the center of the needle hole ❼ in the feed dog ❻ .
   Turn the feed driving shaft ❽ to adjust the feed dog ❻ position (so the needle enteres the center of the needle hole).

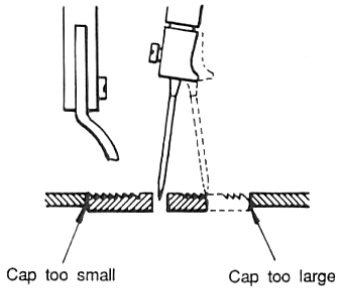


When dimension A is too large (feed dog):

- The feed dog will strike the needle plate when the feed control dial is set to maximum.
- Skipped stitches and needle breakage will occur.
- Right side bobbin thread and left side needle thread trimming errors will occur.

When dimension A is too small:

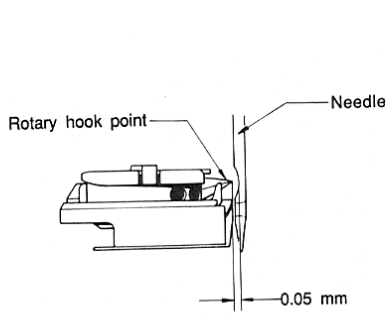
- The feed dog will strike the neelde plate when the feed control dial is set to maximum.
- This will cause skipped stiches and needle breakage.
- Left side bobbin thread and right side needle thread trimming errors will occur.

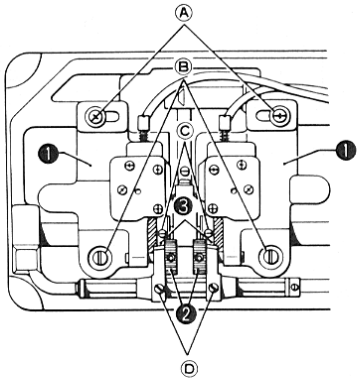


3 Adjustment of the Needles and Rotary Hook Timing

[Standard]

1. Needle to rotary hook point gap

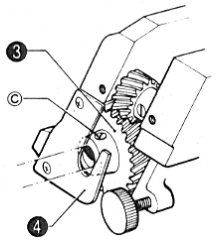


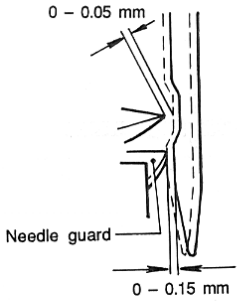


1. Loosen screws Ⓐ, Ⓑ, Ⓒ, Ⓓ, and shift the rotary hook base ❶ right or left until the clearance between the needles and rotary hook points is 1 - 3 mm.
2. Tighten screw Ⓓ , and then turn adjustment screw ❷ until the needle to rotary hook point gap is 0.05 mm.
3. Firmly tighten screws Ⓐ, Ⓑ, and Ⓒ when the adjustment is completed.

Note

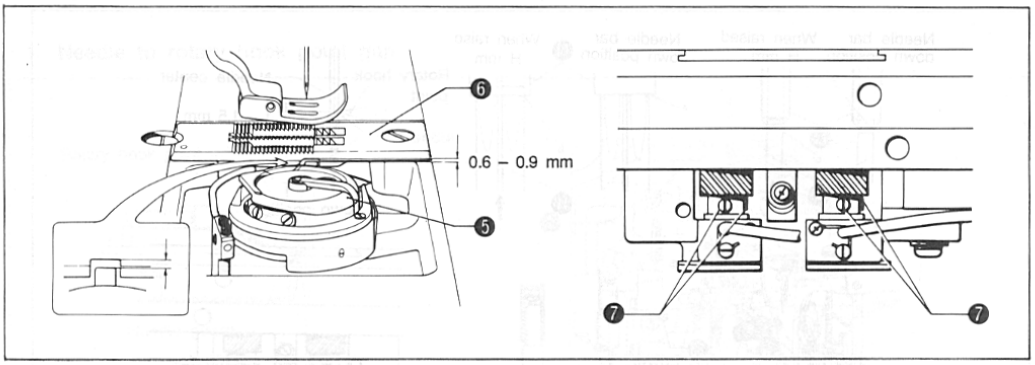
✳ Tighten screw Ⓒ so that the rotating hook shaft gear ❸ lightly touches plate ❹ .
Also, be sure not to change the position of the screw stop for set screws Ⓒ of gear ❸ .





✳ The needle guard on the rotary hook is to prevent needle to rotary hook point contact.
Be sure to readjust the needle guard position when the rotary hook is replaced.

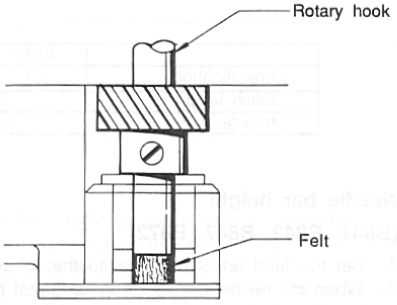
2. Clearances between rotary hooks and needle plate



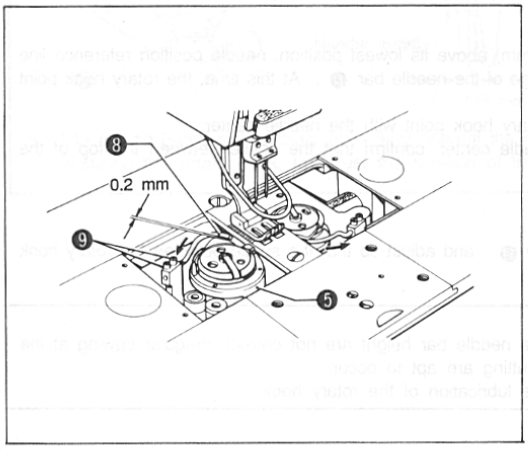
★ Loosen the screws ❼ , and raise or lower the rotary hooks ❺ until the clearances between the rotary hooks ❺ and the needle plate ❻ are 0.6 - 0.9 mm.

CAUTION

Because there is a lubrication wick at the bottom of the rotary hook hsaft on this model, it is possible to tighten the set screw without the rotary hook being properly seated. Make sure the rotary hook is properly seated before tightening the screw.
If the gap is too large, the shuttle body may separate from the needle plate.
If the gap is too small, thread tightening will be poor.



3. Clearances between rotary hooks and bobbin case openers

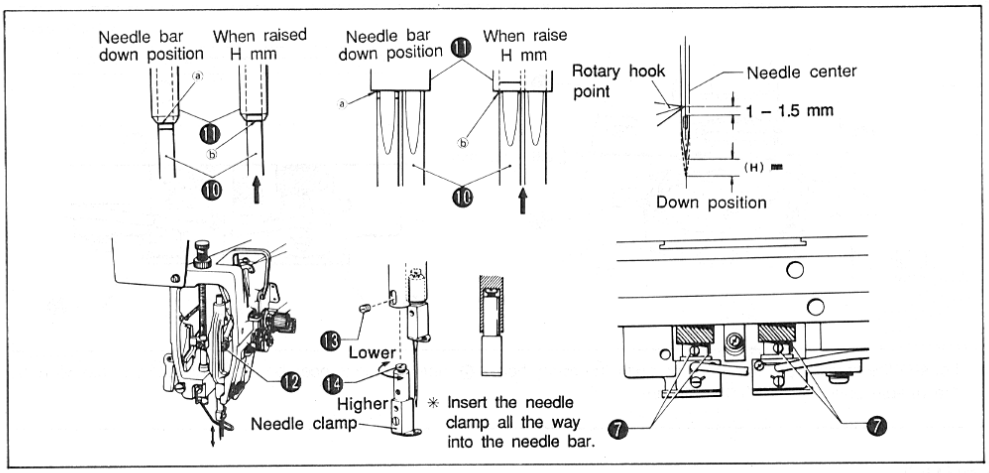


★ Adjust the clearances between the rotary hooks ❺ and the bobbin case openers ❽ to about 0.2 mm (when the bobbin case openers ❽ have fully retracted in the direction of the arrow) by loosening screw ❾ and moving the bobbin case opener ❽ to the right or left.

CAUTION

If the gap is too large, thread tightening will be poor. If the gap is too small, the rotary hook may be damaged, or bobbin case opener may be damaged.

4. Needle bar lift stroke and height



	B841		B842		B845		
Specification	–3	–5	–3	–5	–3	–5	–7
Stitch length	2 mm	3 mm	2 mm	3 mm			
Needle height (H)	2.4 mm						

	B842	B848	B872		B875		
Specification	–1	–1	–3	–5	–3	–5	–7
Stitch length	2 mm		3 mm				
Needle height (H)	2 mm		2.4 mm				

Needle bar height

[B841, B842, B847, B872]

1. Set the feed adjustment dial to the "0" position.
2. When the needle bar ⑩ is in its lowest position, the needle position reference line ⓐ of the needle bar must be aligned with the bottom edge of the needle bar support ⑪. Loosen the set screw ⑫ , and align the needle position reference line ⓐ of the needle bar with the bottom edge of the needle bar support ⑪.

Needle bar lift stroke

1. Turn the feed-adjustment dial to 2 or 3.
2. When the needle bar ⑩ is H mm (2.4 mm or 2.0 mm) above its lowest position, needle position reference line ⓑ of the needle bar is aligned with the bottom edge of the needle bar ⑪ . At this time, the rotary hook point must be aligned with needle cener.
   Loosen the three set screws ⑦ , and align the rotary hook point with the needle center.
3. When the rotary hook point is aligned with the needle center, confirm that the space between the top of the needle eye and rotary hook point is 1 – 1.5 mm.

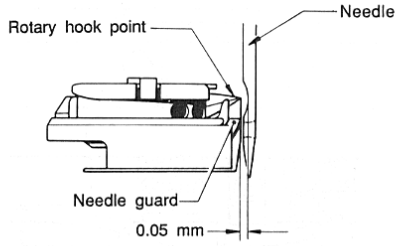
(Model B845, B848, B875)

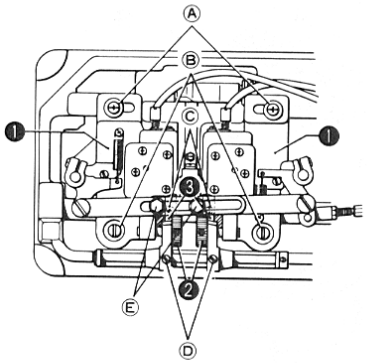
Remove the set screw ⑬ , turn the needle clamp screw ⑭ , and adjust so that the space between the rotary hook point and the top of the needle eye is 1 – 1.5 mm.

Note:
If the adjustment of the needle bar lift stroke and of the needle bar height are not correct, irregular sewing at the left and right, as well as skipped stitches and thread cutting are apt to occur.
* If the rotary hook is replaced, be sure to adjust the lubrication of the rotary hook.

Adjustment of the Needles and Rotary Hook Timing [Automatic thread trimmer]

1. Needle to rotary hook point gap

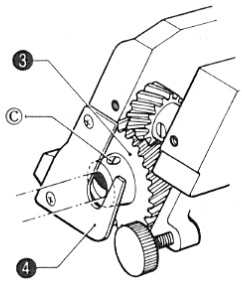


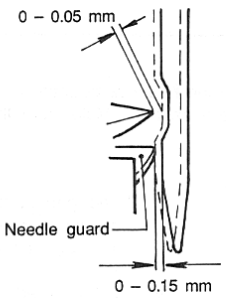


1. Loosen screws Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ, and shift the rotary hook base ❶ right or left until the clearance between the needles and rotary hook points is 1 – 3 mm.
2. Tighten screw Ⓓ, and then turn adjustment screw ❷ until the needle to rotary hook point gap is 0.05 mm.
3. Firmly tighten screws Ⓐ, Ⓑ, Ⓒ, and E when the adjustment is completed.

Note

* Tighten screw Ⓒ at the position at which the rotating hook shaft gear ❸ lightly touches plate ❹ . Also, be sure not to change the position of the screw stop for set screw Ⓒ of gear ❸ .
* Press the thread trimming solenoid and adjust so the roller gently enters the cam groove.

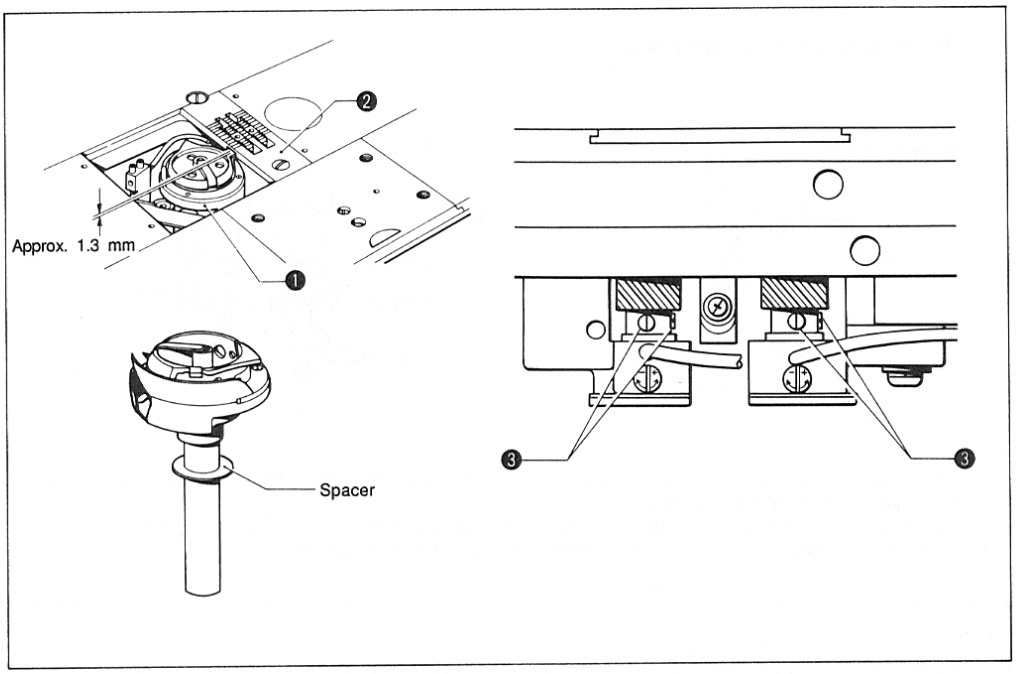




* If the needle to rotary hook point clearance is too large, needle thread trimming errors cuased by skipped stitches may occur.
* If the needle to rotary hook point clearance is too small, bobbin thread trimming errors may occur.

* The needle guard at the rotary hook is to prevent the rotary hook point from striking the needle. Be sure, when replacing the rotary hook, to adjust the position of the needle guard.

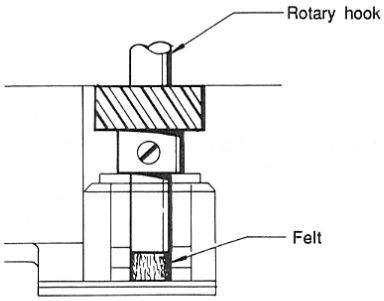
2. Clearances between rotary hooks and the needle plate



★ The clearances between the rotary hooks ❶ and the needle plate ❷ have been adjusted to about 1.3 mm with a spacer.
★ Loosen the screws ❸ and exercise care not to lose the spacer when replacing the rotary hooks ❶ .
✳ If two spacers are used, be sure to use both of them under the rotary hooks.

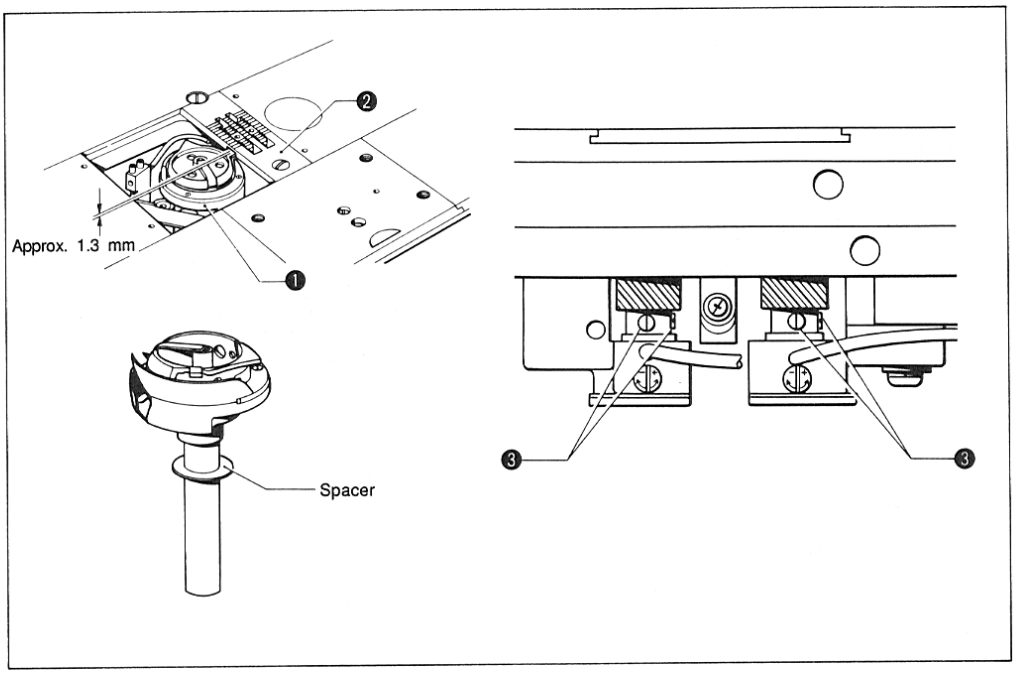
CAUTION

★ Because there is a lubrication wick at the bottom of the rotary hook shaft on this mode, it is possible to tighten the set screw without the rotary hook being properly seated. Make sure the rotary hook is properly seated before tightening the screw.



✳ If the gap is too large, the shuttle body may separate from the needle plate.
✳ If the gap is too small, thread tightening will be poor.
✳ Bobbin thread trimming errors may occur.
✳ The right needle thread may be cut too short.
These problems may occur, in particular, when the stitch length is large, or during thread trimming when sewing without material.

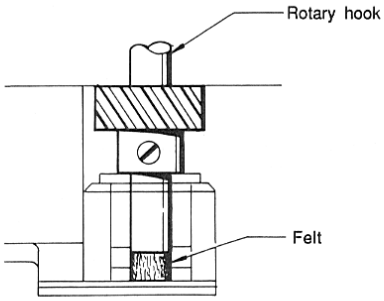
2. Clearances between rotary hooks and the needle plate



★ The clearances between the rotary hooks ❶ and the needle plate ❷ have been adjusted to about 1.3 mm with a spacer.
★ Loosen the screws ❸ and exercise care not to lose the spacer when replacing the rotary hooks ❶ .
✳ If two spacers are used, be sure to use both of them under the rotary hooks.

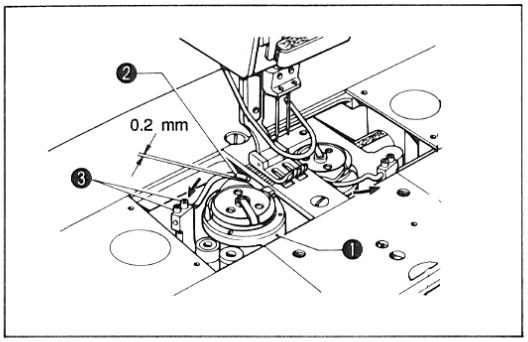
CAUTION

★ Because there is a lubrication wick at the bottom of the rotary hook shaft on this mode, it is possible to tighten the set screw without the rotary hook being properly seated. Make sure the rotary hook is properly seated before tightening the screw.



✳ If the gap is too large, the shuttle body may separate from the needle plate.
✳ If the gap is too small, thread tightening will be poor.
✳ Bobbin thread trimming errors may occur.
✳ The right needle thread may be cut too short.
These problems may occur, in particular, when the stitch length is large, or during thread trimming when sewing without material.

3. Clearances between rotary hooks and bobbin case opener



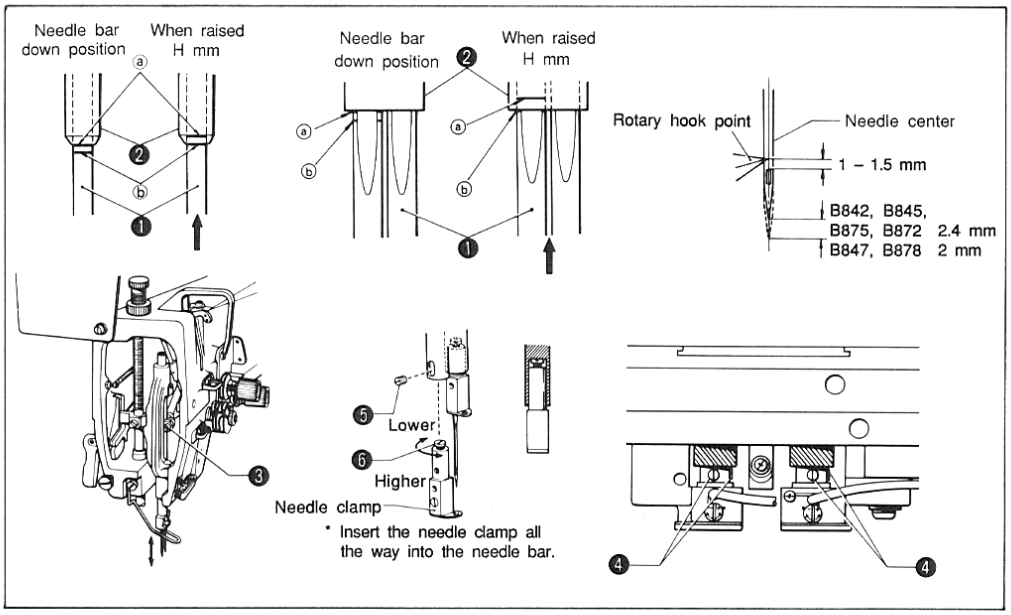
★ Adjust the clearances between the rotary hooks ❶ and the bobbin case openers ❷ to about 0.2 mm (when the bobbin case openers ❷ have fully retracted in the direction of the arrow) by loosening the screw ❸ and moving the bobbin case opener ❷ to the right or left.

CAUTION

✳ If the rotary hook to bobbin case opener gap is too large, thread tightening will be poor.
Also, needle thread trimming errors may occur.
The needle thread remainder from the needle hole will be too short after thread trimming.

✳ If the rotary hook to bobbin case opener gap is too small, the rotary hook may be damaged. Also, the bobbin case opener may be damaged.

4. Needle Bar Lift Stroke and Height



Needle bar height [B842, B845, B872]

1. Set the feed adjustment dial to the "0" position.
2. When the needle bar ❶ is in its lowest position, the needle position reference line ⓐ of the needle bar must be aligned with the bottom edge of the needle bar support ❷ . loosen the set screw ❸ , and align the needle position reference line ⓐ of the needle bar with the bottom edge of the needle bar support ❷ .

▣ Needle bar lift stroke

1. Turn the feed adjustment dial to 2 or 3.
2. When the needle bar ❶ is H mm above its lowest position, needle position reference line ⓑ of the needle bar is aligned with the bottom edge of the needle bar. At this time, the rotary hook point must be aligned with the needle center.
   Loosen the three set screws ❹ and align the rotary hook point with the needle center.
3. When the rotary hook point is aligned with the needle center, confirm that the space between the top of the needle eye and rotary hook point is 1 – 1.5 mm.

(Model B845, B848, B875)

Remove the set screw ❺ turn the needle clamp screw ❻ , and adjust so that the space between the rotary hook point and the top of the needle eye is 1 – 1.5 mm.

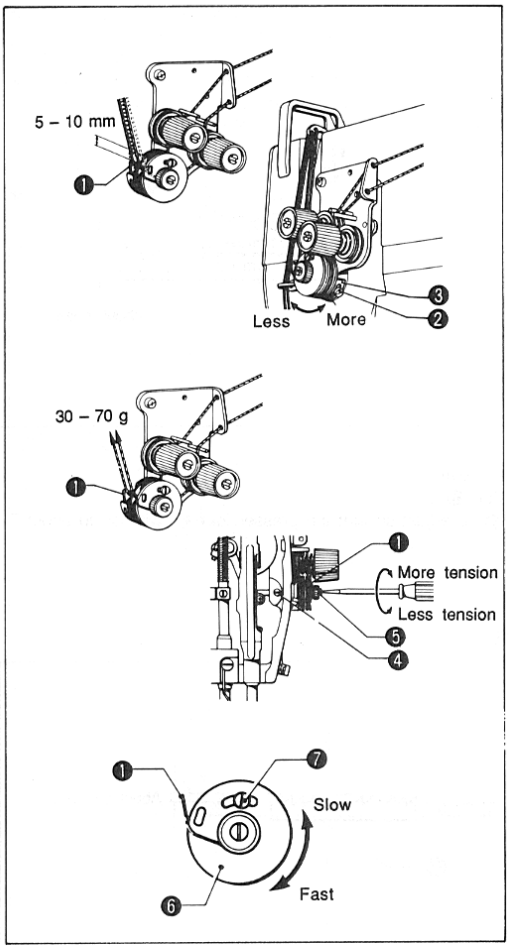
	B842				B845						B847		B848	
Specification	–403	–405	–903	–905	–403	–405	–407	–903	–905	–907	–401	–901	–401	–901
Stitch length	2 mm	3 mm	2 mm	3 mm							2 mm			
Needle height (H)	2.4 mm										2 mm			

	B872				B875					
Specification	–403	–405	–903	–905	–403	–405	–407	–903	–905	–907
Stitch length	3 mm									
Needle height (H)	2.4 mm									

CAUTION

1. If the needle bar lift stroke is too great
   * Right-side thread tightening will be poor, or uneven stitches, skipped stitches, or thread breakage may occur on right and left.
   * Needle thread trimming errors may occur, or the needle thread may be too short.
   * The needle thread remainder from the needle hole after thread trimming may be too long.
2. If the needle bar lift stroke is too short
   * Skipped stitches, or thread brekage may occur.
   * The needle thread remainder from the needle hole after thread trimming may be too short.

4 Thread Take-Up Spring



Operating range of thread take-up spring

★ The standard operating range of the thread take-up spring ❶ is 5 – 10 mm.
The operating range of the thread take-up spring ❶ can be adjusted by the thread take-up stopper ❸ after loosening the screw ❷ .

Tension of the thread take-up spring

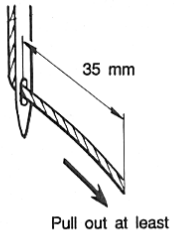
★ The standard tension of the thread take-up spring ❶ is 30 – 70 grams.
Adjust the tension of the thread take-up spring ❶ by loosening the screw ❹ and turning the thread tension stud ❺ .

Thread take-up spring timing

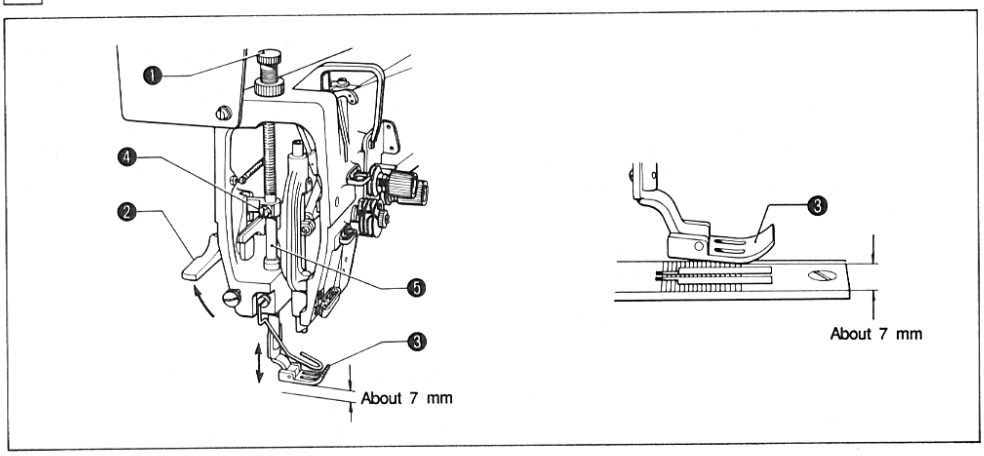
★ The take-up spring guide ❻ should be at the center for standard thread take-up spring ❶ timing adjustment. To adjust the timing of the thread take-up spring ❶ , loosen set screw and turn the tak-up spring guide ❻ .

CAUTION

On thread trimming machines, the needle thread trailing from the left side needle after thread trimming may be too short. Pull the thread from the needle hole. If it is greater than 35 mm, it is OK.
To shorten the remainder, adjust thread take-up stopper .
However, when using fine count threads (#50 polyester or finer), reducing the operating range too much may cause the right nedle thread to be cut too short. Also, thread trimming errors may occur with the left needle thread.



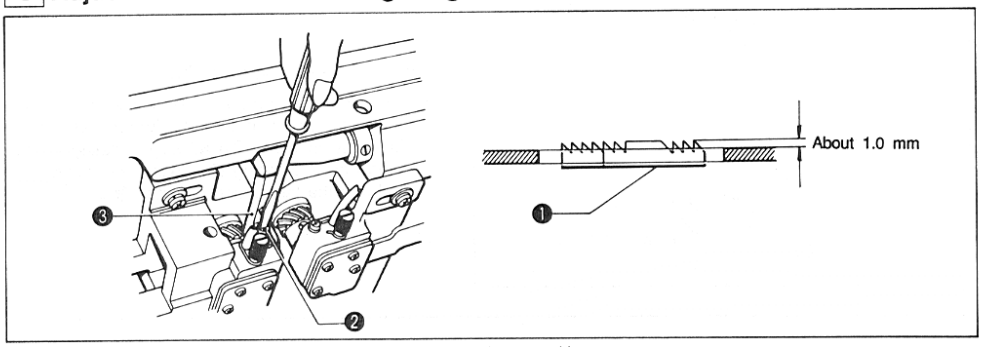
5 Adjustment of the Presser Foot Height



1. Loosen the screw ❶ .
2. Remove the face plate, or remove the cap of the face plate.
3. Raise the presser foot ❸ by using the presser foot lifter ❷ .
4 Loosen screw ❹ and raise or lower the presser bar ❺ to adjust so that the presser foot ❸ will rise to about 7 mm above the needle plate.

✳ Be careful not to turn the presser bar ❺ .

6 Adjustment of the Feed Dog Height



1. Turn the pulley until the feed dog ❶ rises to the highest position.
2. Loosen screw ❷ and raise or lower the feed dog holder ❸ so that the feed dog ❶ will rise to about 1.0 mm above the needle plate.

When the feed dog is too high

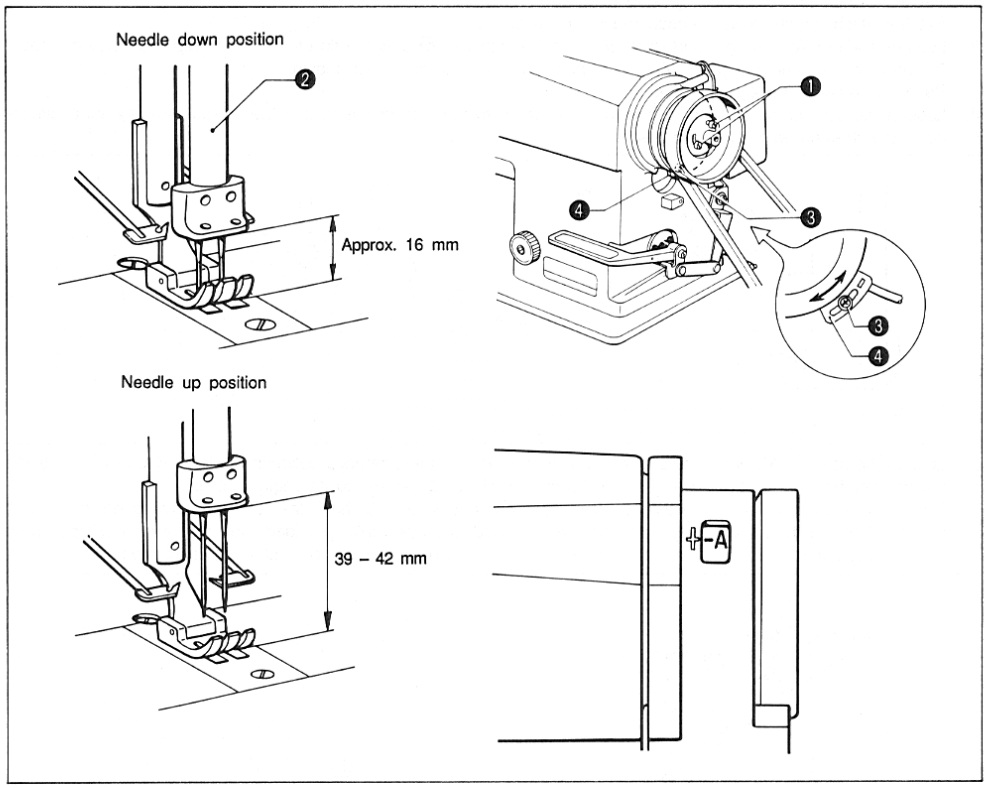
- The feed dog will strike the needle plate.
- Stitches will be larger than specified by the feed regulator dial.
- Thread tension will be poor with heavy count threads.
- Forward and reverse stitch pitch will be difficult to match.
- Bobbin thread trimming errors may occur on thread trimming machines.

When the feed dog is too low

- Stitches will be smaller than specified by the feed regulator dial.
- Forward and reverse stitch pitch will be difficult to match.
- The feed dog may strike the movable knife on thread trimming machines.

7 Synchronizer Adjustment

★ The sychronizer detects the position of the needle with the element placed in two points. The needle can be stopped at the upper position by the control of the depressing plate. The thread trimming signal can be developped by depressing the depressing plate.
★ When the power switch is on and the sewing machine is stopped in the needle down position, there should be a 16 mm gap from the top of the needle plate to the bottom of the needle clamp. Also, when the sewing machine is stopped in the needle up position, the pulley reference line should be within the belt cover reference lines. At this time, there should be a 39 to 42 mm gap from the top of the needle plate to the bottom of the needle clamp.
★ Before making any adjustments be sure to turn the power off.



[Needle up position stop adjustment]

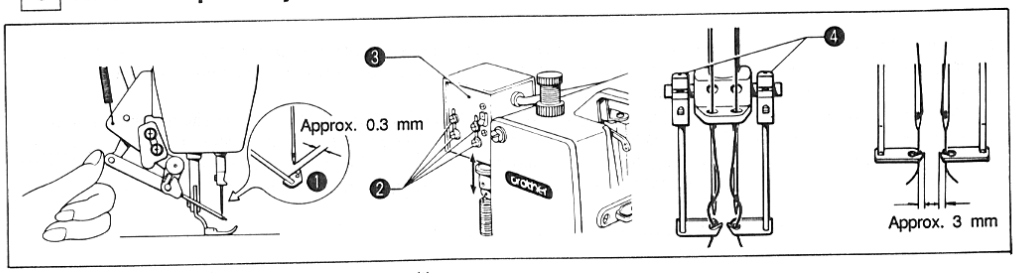
1. Turn the power off.
2. Loosen the two set screws ❶ .
   Move set screw ❶ in the direction of normal pulley rotation to raise the needle bar ❷ . Move the screw ❶ in the opposite direction to lower the needle bar.

[Needle down and thread cutter signals]

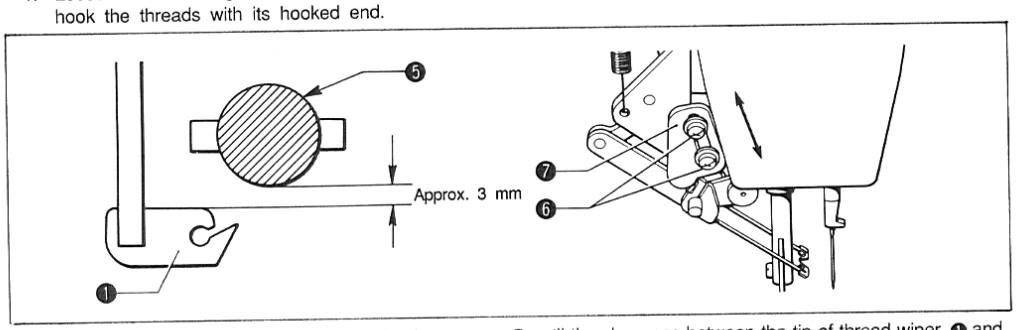
1. Turn the power on.
2. Press the treadle, and then release the treadle to neutral. (Needle down stop position)
3. Make sure the gap from the top of the needle plate to the bottom of the needle clamp is approximately 16 mm.
4. Loosen screw ❸ , and move the synchronizer assembly ❹ to adjust.

✳ Check the needle up stop position adjustment.

8 Thread Wiper Adjustment

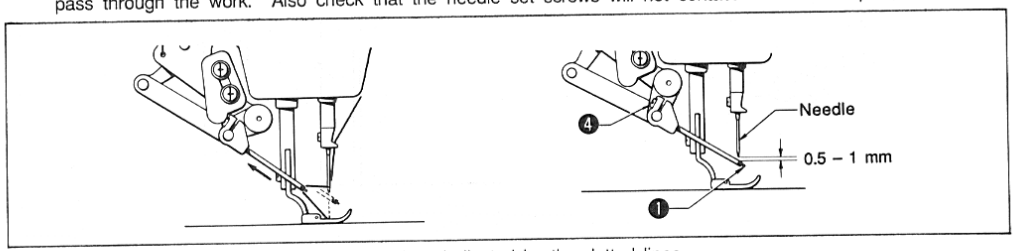


1. Set the switch to the needle up stop position.
2. Set the stitch length to the second mark on the scale.
3. Loosen the four screws ❷ , and raise or lower the solenoid ❸ until the tip of the thread wiper ❶ projects about 0.3 mm from the needle point when it is pressed with your finger as shown.
   Pass the threads through the needles.
4. Loosen the screws ❹ and move the thread wiper ❶ to the right or left so that the thread wiper ❶ will positively hook the threads with its hooked end.



5. Loosen the screws ❻ , and raise or lower the stopper ❼ until the clearance between the tip of thread wiper ❶ and the presser bar ❺ is about 3 mm when the thread wiper ❶ returns to its original position.

✳ If the clearance is too little, the thread wiper ❶ may not be able to hook the reads depending on the kind of thread. Set the thread wiper ❶ as close to the needles as possible, provided that the threads will positively pass through the work. Also check that the needle set screws will not contact the thread wiper.



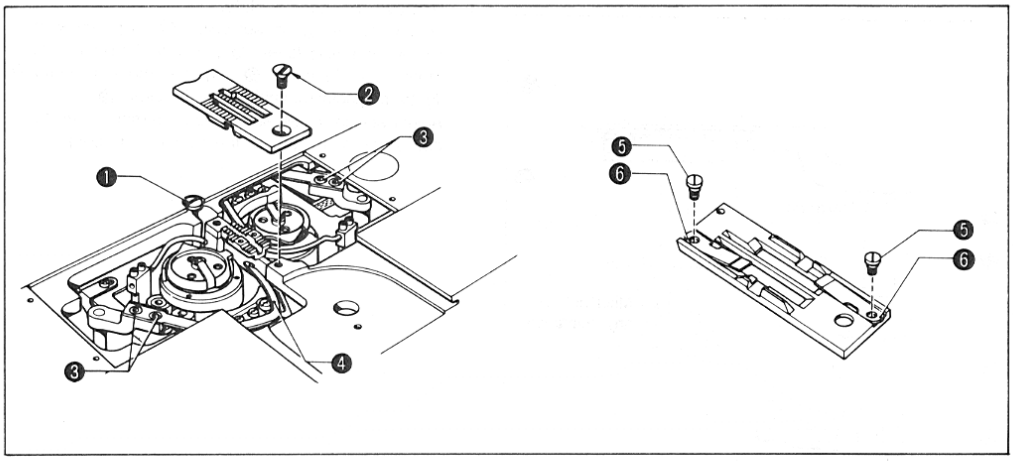
6. The tip of the thread wiper ❶ will travel as indicated by the dotted lines.
   Loosen the screw ❹ and adjust the clearance between the needle point and the thread wiper ❶ to 0.5 – 1 mm by raising or lowering the thread wiper ❶ .

Note

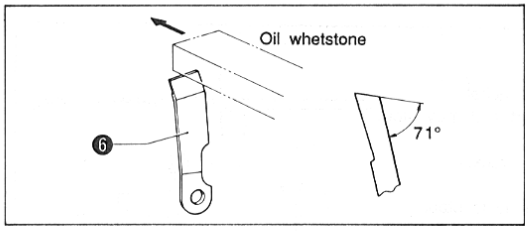
If the 0.3 mm gap is too great, the thread wiper ❶ will strike the presser foot.
If the gap is too small, thread wiping will not be properly performed.
If the 3 mm gap is too great, the thread wiper ❶ will strike the presser foot.
If the 3 mm gap is too small, thread wiping errors may occur.
If the 0.5 to 1 mm gap is too great, thread wiping will not be properly performed.
If the gap is too small, the thread wiper ❶ will strike the needle tip.

9 Movable and Fixed Knife Adjustment

1. Removing the movable and fixed knives

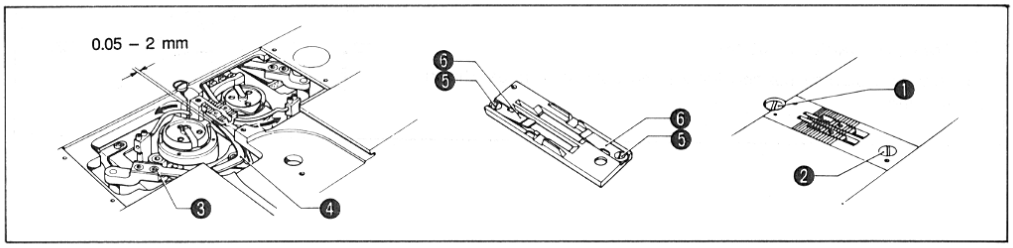


1. Remove the needls and raise the prsser foot.
2. Loosen the screws ❶ then remove the screw ❷ and needle plate.
3. Remove the holed screws ❸ , and remove the moving knife ❹ .
   ✳ Be careful not to scratch the tip of the movable knife ❹ .
4. REmove the screws ❺ and remove the fixed knifes ❻ .



★ If the knives become blunt, sharpen the fixed knives ❻ as shown.
The moving knife ❹ cannnot be sharpened with an ordinary whetstone.
If it becomes blunt, replace it with a new one.

2. Installing the movable and fixed knives



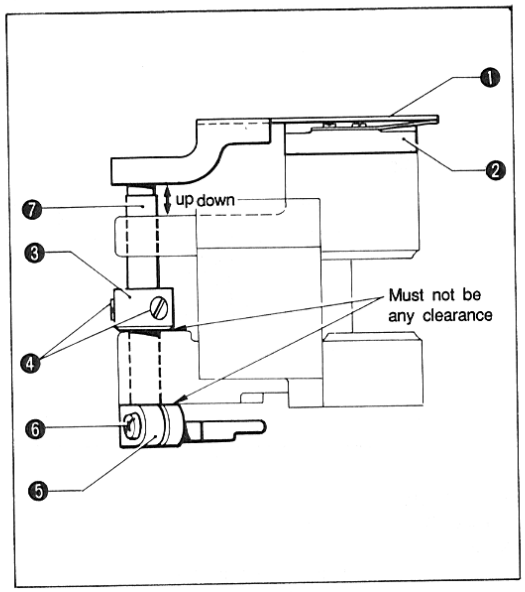
1. Turn the machine pulley by hand until the bobbin case openers are pulled all the way in the arrow direciton.
2. Lightly secure the movable knife ❹ with screws ❸ .
   Press down on the top of the movable knife ❹ and slide the movable knife. (Firmly tighten screw ❸ so that the gap between the tip of the movable knife and the rotary hook position bracket is 0.05 to 0.2 mm.)
   ✳ Install the movable knife ❹ on the top of the bobbin thread clamp spring.
3. Fasten the fixed knife ❻ to the needle plate with the screws ❺ .
4. Fasten the needle plate with the screws ❶ , ❷ .
5. Install the needles in the needle clamp and lower the presser foot.

Note

Movable knife ❹ to rotary hook contact or excessive knife to hook gap may result in improper thread cutting.

3. Movable knife position adjustment

▣ Vertical position



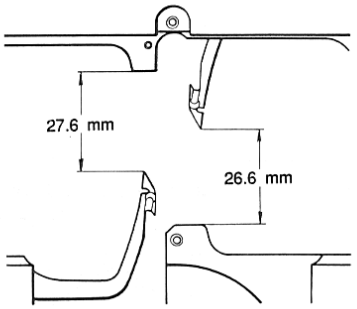
1. Remove the needle plate.
2. Loosen screw ❹ in set collar ❸ and screw in thread trimming lever ❺ , and vertically adjust movable knife lever ❼ so that movable knife ❶ lightly contacts movable knife bracket ❷ .

* Adjust set collar ❸ and thread trimming lever so that there is no gap to the rotary hook base.

CAUTION

If the movable knife is lower than the movable knife bracket
- * The thread trimming mechanism will be overloaded and may stop.
- * Cutting may be poor.

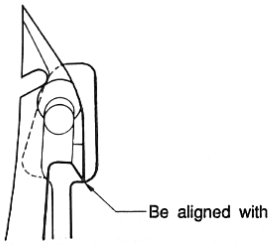
If the movable knife is higher than the movable knife bracket
- * Thread trimming errors may occur.
- * The knife may strike the bed and cause the machine to stop.
- * Bobbin thread retention will be poor.

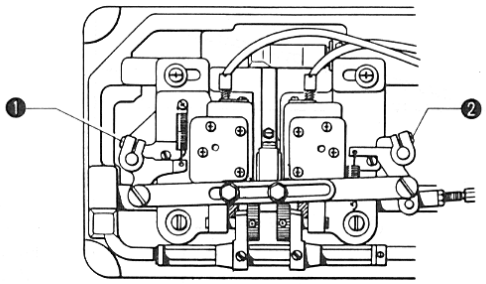


▣ Forward-back position

The standard starting position for the movable knife is as shown in the figure.

In the standard position, the tip of the hook of the movable knife should be approximately aligned with the end of the bobbin thread retention spring.
To adjust, tighten screws ❶ and ❷ of the thread trimming lever.





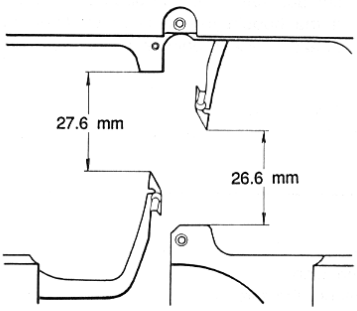
CAUTION

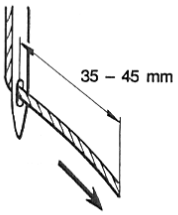
When adjusting the movable knife position, adjust to within ±0.5 mm – 1 mm from the standard position discussed above.
When the movable knife is positioned to the front (the above dimension is less on the rotary hook side)

* If excesively forward, thread tightening and needle thread trimming errors will occur.
* Bobbin thread retention after thread trimming will be poor. Skipped stitches and cast-offs at the sewing start will occur; this problem is pronounced on models B872 and B875.
* The needle thread remainder trailing from the needle hole after thread trimming will be short. Particularly on the right side, the cut end of the needle thread will remain near the movable knife, and the neeld thread may be cut excessively short.

When the movable knife is positioned to the back (greater than the above dimension)

* Needle thread trimming errors may occur. If it is far to the back bobbin thread trimming errors may occur.
* Bobbin thread retention after thread trimming will be poor. Skipped stitches and cast-offs at the sewing start will occur; this problem is pronounced on models B872 and B875.
* If the remainder is too long, the pretension will not be able to accommodate the excessive length, and the bobbin thread will not be held properly.
  The appropriate length of the needle thread remainder from the needle hole after thread trimming is 35 to 45 mm.

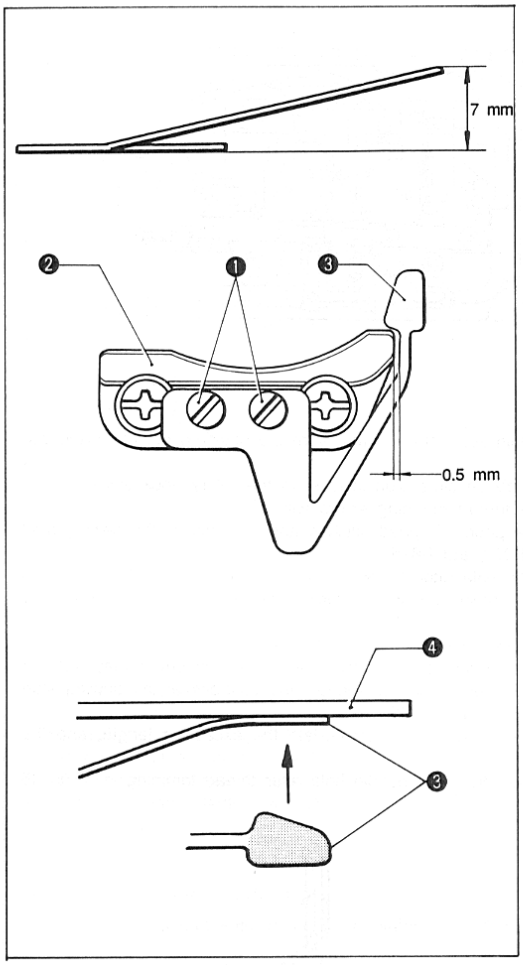




* Because the length of the needle thread remainder will become too long when the work piece is removed after thread trimming, the bobbin thread presser spring holds the needle thread end too tightly, applying resistance.

10 Bobbin Thread Pressure Spring Adjustment

If the bobbin thread is not retained after thread trimming on a twin needle machine, sewing of the next work piece is not possible. Be sure to adjust the bobbin thread presser spring correctly.



- The correct bobbin thread presser spring height is 7 mm.

- Install as shown in the figure. Loosen screw ❶, and adjust the gap between movable knife bracket ❷ and bobbin thread presser spring ❸ to 0.5 mm.

When installing movable knife ❹ , if the tip of presser spring ❸ contacts the back of movable knife ❹ , partial contact may cause skipped stitches and cast-offs. If the bobbin thread is much finer than the needle thread, these problems occur more easily.

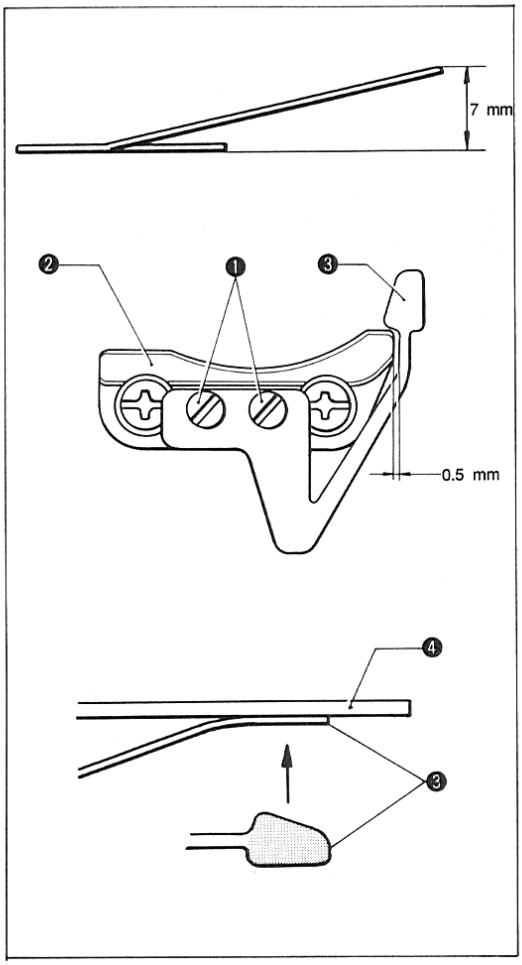
CAUTION

If the bobbin thread retention is too tight
* Skipped stitches and cast-offs may occur at the sewing start.

If the bobbin thread retention is too weak, or partially contacts the thread
* Cast-offs may occur at the sewing start.

10 Bobbin Thread Pressure Spring Adjustment

If the bobbin thread is not retained after thread trimming on a twin needle machine, sewing of the next work piece is not possible. Be sure to adjust the bobbin thread presser spring correctly.



- The correct bobbin thread presser spring height is 7 mm.

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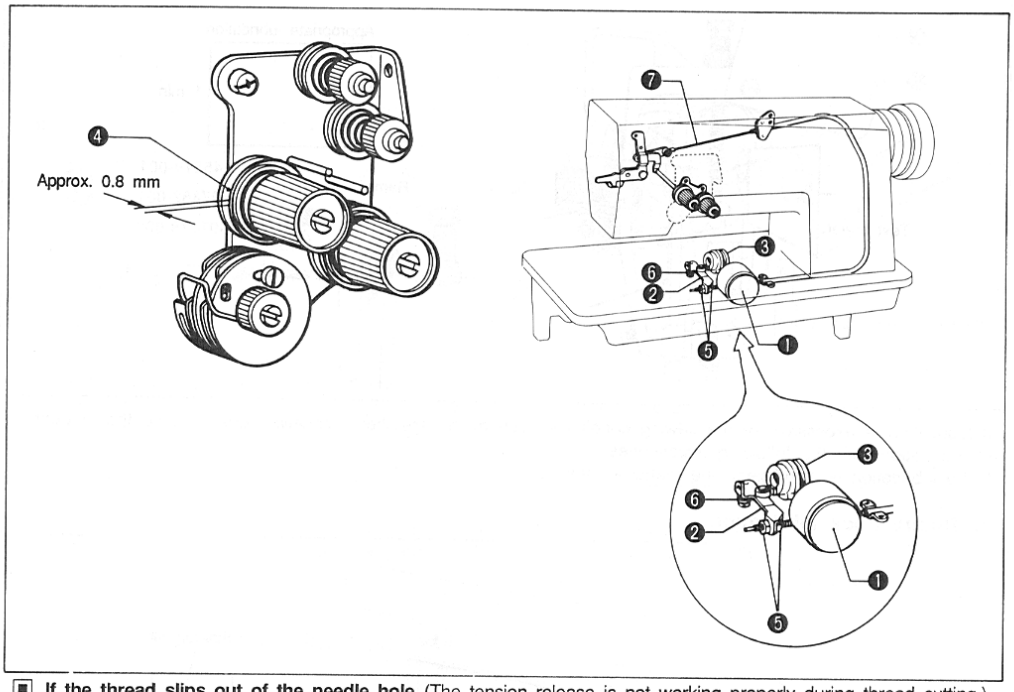
CAUTION

If the bobbin thread retention is too tight
* Skipped stitches and cast-offs may occur at the sewing start.

If the bobbin thread retention is too weak, or partially contacts the thread
* Cast-offs may occur at the sewing start.

11 Tension Release

★ If the thread slips out of the neelde hole after thread cutting, or if the tension disc remains open, adjust as follows.



▣ **If the thread slips out of the needle hole** (The tension release is not working properly during thread cutting.)

1. Press the thread trimming solenoid ❶ , and turn the sewing machine pulley.
2. The tension disc ❹ should be open 0.8 mm when the tension release lever ❷ roller reaches the top of the tension release cam ❸ .
   If the tension disc ❹ is not open, turn nut ❺ to adjust.
   Make sure the tension disc ❹ is open when the tension release lever ❷ roller is at the top of the tension release cam ❸ , and closed when the lever roller is on the level.

▣ If the tension disc remains open

1. Make sure the tension release lever ❷ is returned.
2. Make sure the return spring ❻ is not disengaged.
   Check the above and adjust with nut ❺ as necessary.
   If adjustment is not possible, replace the tension release wire ❼ .

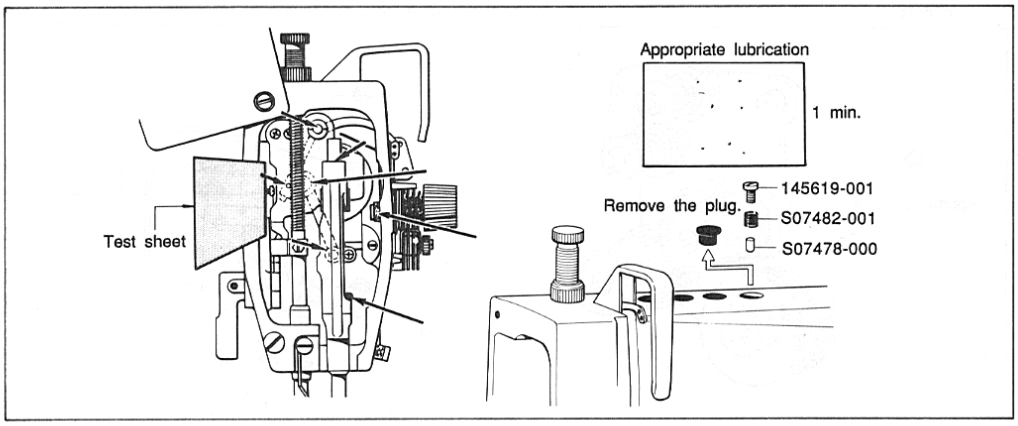
Note

Insufficient tension disc gap
* The thread will be held too tightly and will not pass smoothly through the disc.
* At thread trimming, the needle thread may cast-off from the needle, or the needle thread remainder from the needle hole will be too short.

Excessive tension disc gap
* Improper stitch tightening
* Loose stitches will appear at the corners stitching machines.
* Parts may be damaged.

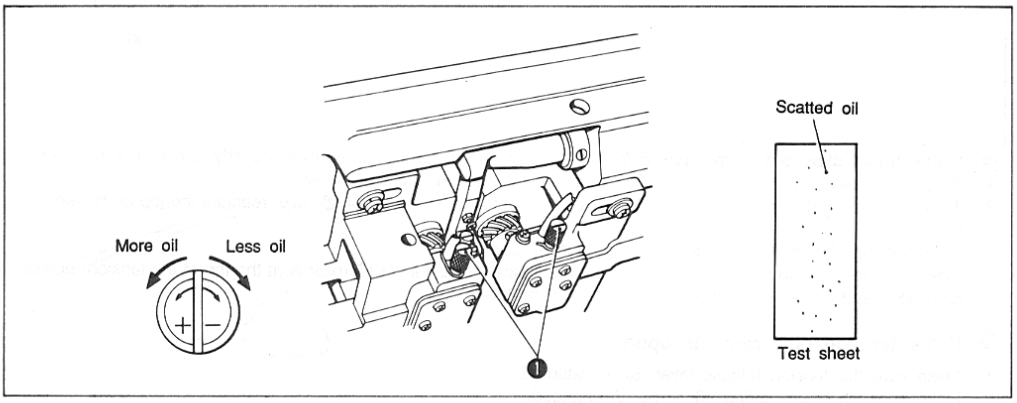
12 Lubrication Adjustment

1. Arm Lubrication



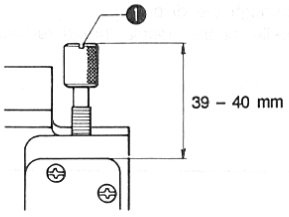
If lubrication is excessive for the sewing conditions even at the specified lubrication lever, reduce the amount of lubrication with the following accessories.
If the lubrication is insufficient, the mahcine may seize.

2. Rotary hook lubrication



★ Supply the oil when the oil level is lowered to the lower reference line of the oil gauge.
✳ When replacing the rotary hook, be sure to turn adjustment screw ❶ to adjust the oil supply to the rotary hook. (The amount of oil scattering from the rotary hook should be as shown on the test sheet above for approximately 10 seconds.)

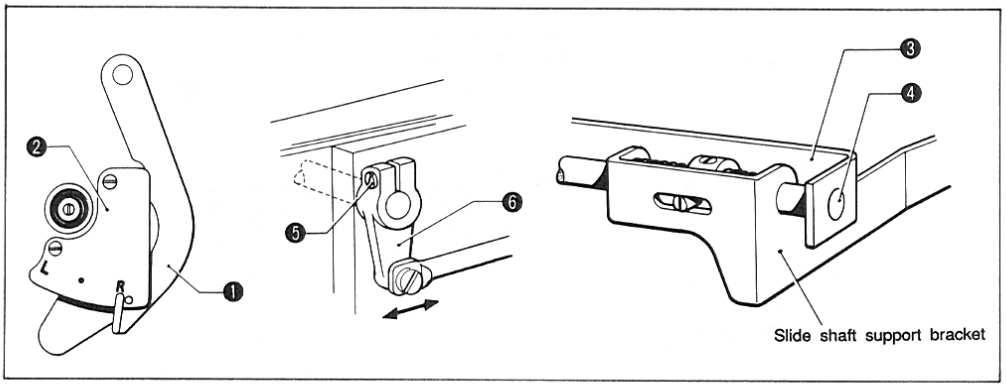
CAUTION



✳ Adjust the position of the lubrication adjustment screw ❶ to the position shown in the figure, using this as a guide, as described above, for the appropriate lubrication.
✳ If lubrication screw ❶ is loosened too far, the oil will be used quite quickly from the oil tank. Be sure to adjust correctly.

13 Slide Shaft Adjustment [B845 · B848 · B875]

1. Slide shaft adjustment

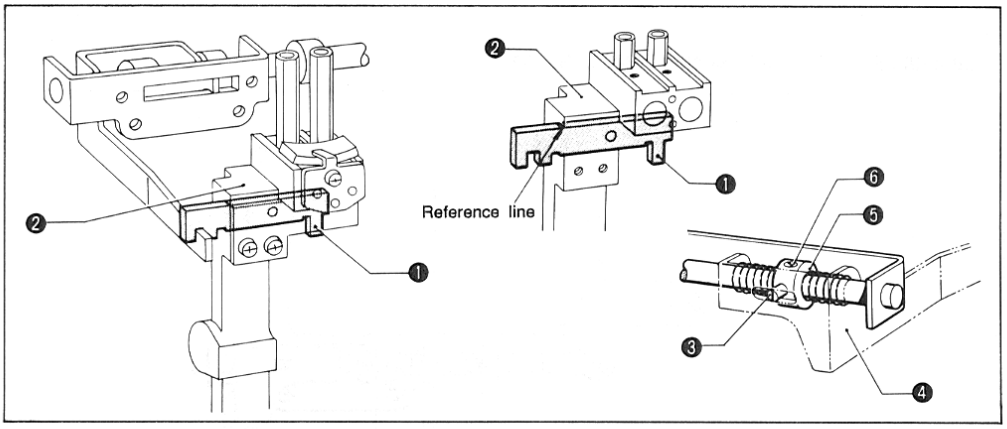


★ Set stop lever ❶ to R on position guide ❷ .
Loosen screw ❺ and move lever shaft arm ❻ right or left so that the end of slide shaft ❹ is even with the end of slide shaft support ❸ .

Note

✳ Lever shaft arm ❻ will not function properly, and lever shaft arm spring and set collar adjustment will be difficult, if the slide shaft ❹ is not properly aligned with the end of slide shaft support ❸ .

2. Slide shaft support bracket adjustment

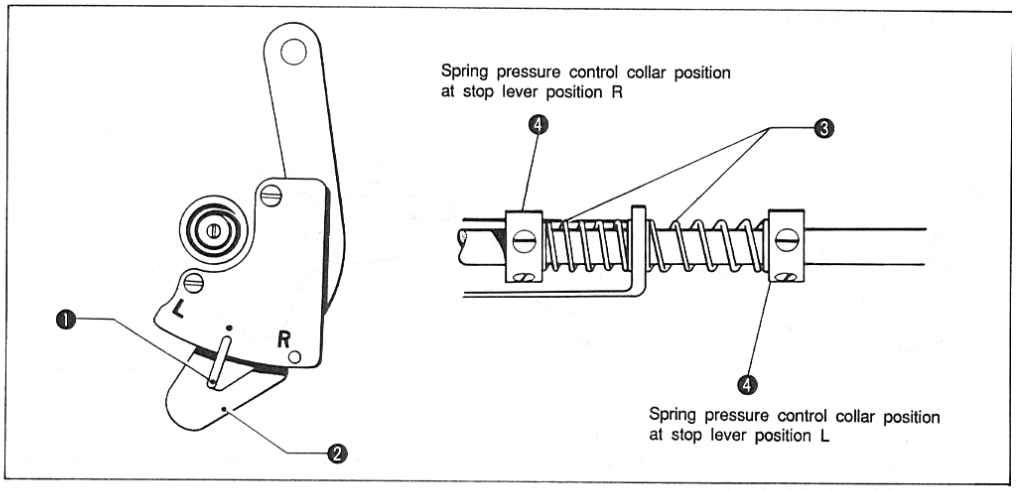


★ Set the stop lever to the dot on the position guide.
★ Turn off the both of the right and left switching solenoids. (B8450, B8480, B8750, B845-900S, B875-900S)
Align reference line of slide block ❶ with the left side of the needler bar frame ❷ .
Insert guide screw ❸ through the oval hole in slide shaft support bracket ❹ , and screw the set screw tightly into collar ❺ .
Tighten stop screw ❻ .

Note

✳ Improper adjustment may damage the slide block tab and cause a deviation of the position of the release pin end, resulting in damage to the release pin and needle bar assembly.

3. Stop lever arm spring pressure adjustment

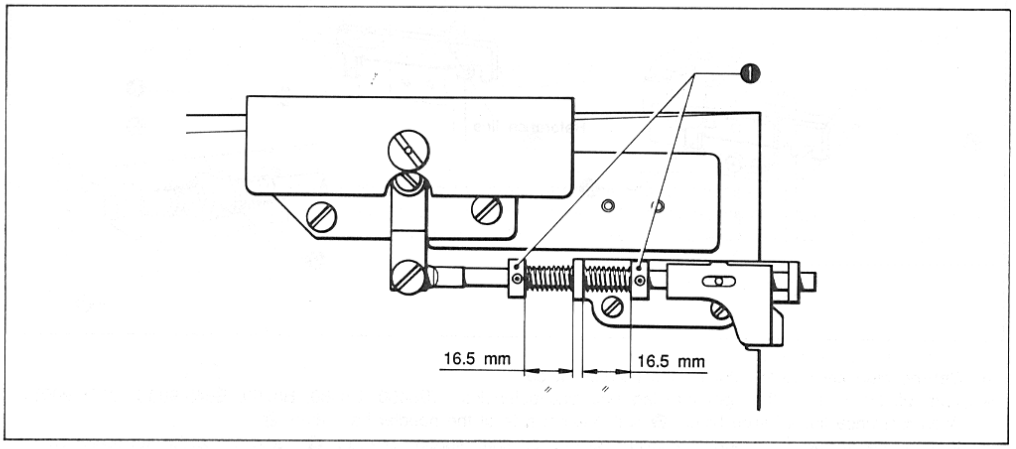


★ Spring pressure is properly adjusted if the stop lever ❶ stops at the center dot when the push lever ❷ is released from the L and R position.
★ Screw the collar ❹ tight at the point where the stop lever arm spring ❸ lightly touches the collar ❹ when the stop lever ❶ is set to the L or R position.

Note

✳ Spring pressure should be equal at both positions L and R.
✳ If the stop lever ❶ will not stop at the dot, readjust the stop lever arm spring pressure.

[B845-900S, B875-900S, B8450, B8480, B8750]

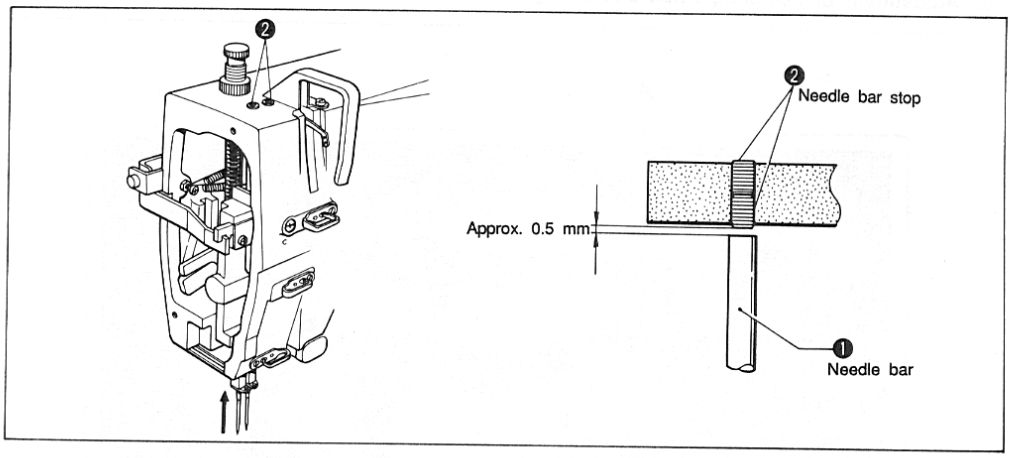


★ Set the position of the collar ❶ in 16.5 - 17.0 mm when the switching solenoid is in off-state.

Note

✳ The needle count error will be produced on the corner sewing under the collar set position to be too wide or narrow.

4. Needle bar stop adjustment

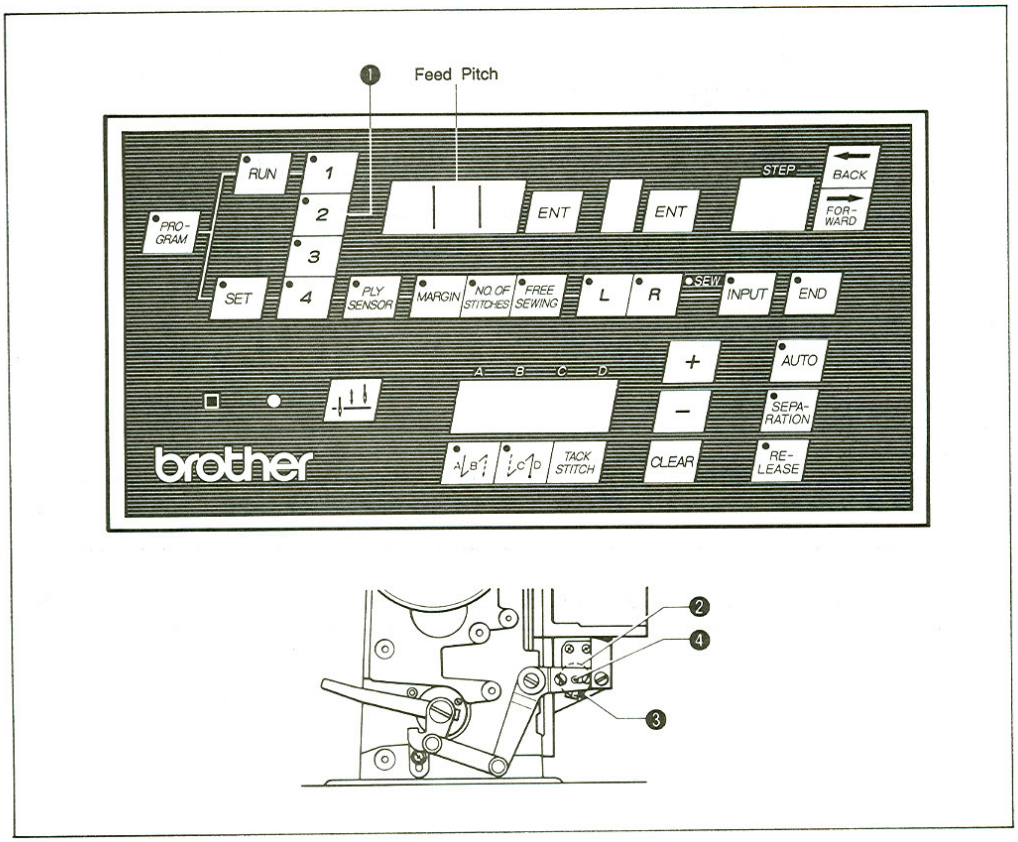


★ Set the needle bar ❶ to the up position.
★ The gap between the needle bar top and needle bar stop ❷ bottom should be approx. 0.5 mm. Turn the needle bar stop ❷ to adjust.

Note

✳ If the gap between the needle bar top and needle bar stop is shot, it may cause the break for needle bar frame.

5. Adjustment of Feedinng Pitch Detection[B8450, B8480, B8750]



1. Switch the power on and set the normal sewing on the control panel.
2. Adjust the feeding scale dial to the feeding pitch to be 3±0.2mm with the measurement of actual sewing pitch.
3. Turn on the patern No. 2 ❶ on the control panel.
4. Depress the depressing plate to rotate the sewing machine several times. The feeding pitch will be indicated.
5. Adjust the potentiometer ❷ so that the difference between the indicated pitch and actual feeding pitch is within ±0.1mm.

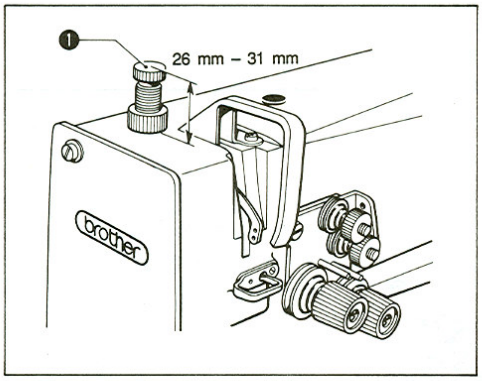
Pitch Adjustment Procedure:

1. Loosen the screw ❸ .
2. Turn POT shaft.
3. Turn the sewing machine and check the pitch indicated.
4. Tighten the screw ❸ at the point that the actual sewing pitch met with the pitch indicated.

Note

✳ If the actual sewing pitch does not meet with the pitch indicated, the stop position will be deviated.

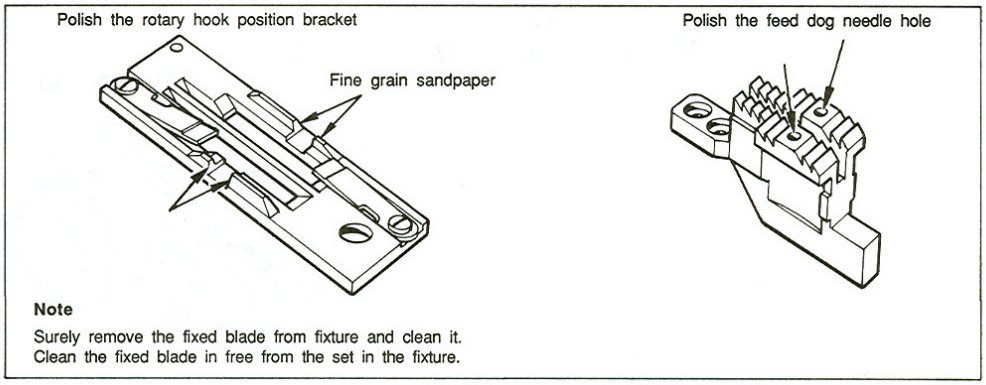
14 Adjustment of the Presser Foot Pressure



★ Adjust the presser foot pressure by turning the presser foot adjustment screw ❶ .

Use	Presser foot pressure	Adjustment screw height
For thin materials	3 kg	31 mm
For medium thick materials	4 kg	28 mm
For thick materials	5 kg	26 mm

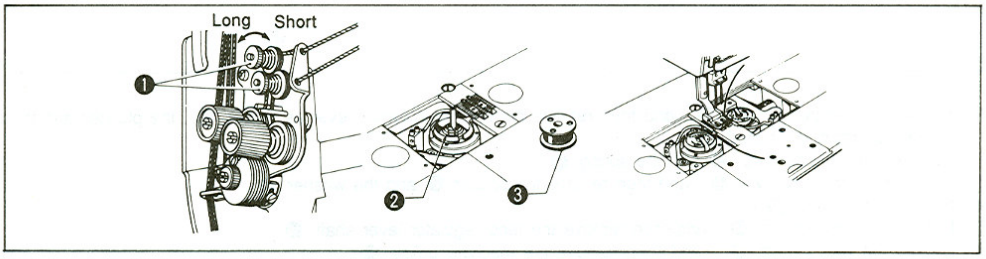
15 Polishing the Neelde Plate and Feed Dog Thread Paths



Note

Surely remove the fixed blade from fixture and clean it.
Clean the fixed blade in free from the set in the fixture.

16 Pre-tension and Anti-racing Spring



1. Pre-tension

★ When cutting the threads, the tension regulators loosen and only pre-tension ❶ keeps the threads taut. After thread trimming, the threads coming out of the needle eyes will be short if the pre-tension ❶ is tightened, and long if it is loosend.

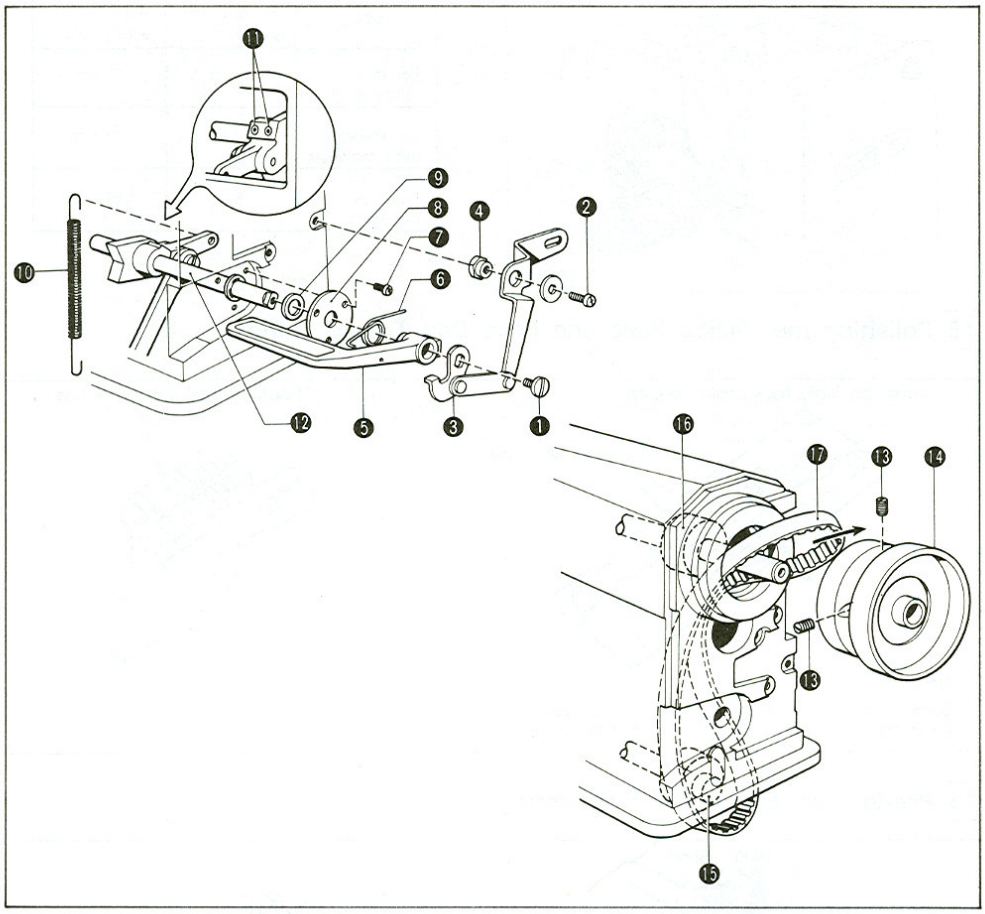
2. Anti-racing spring

★ The anti-racing spring ❷ prevents the bobbin from racing.
Use bobbins ❸ made of light alloy as specified by BROTHER.

★ Pull out the lower threads as shown in the illustration above.

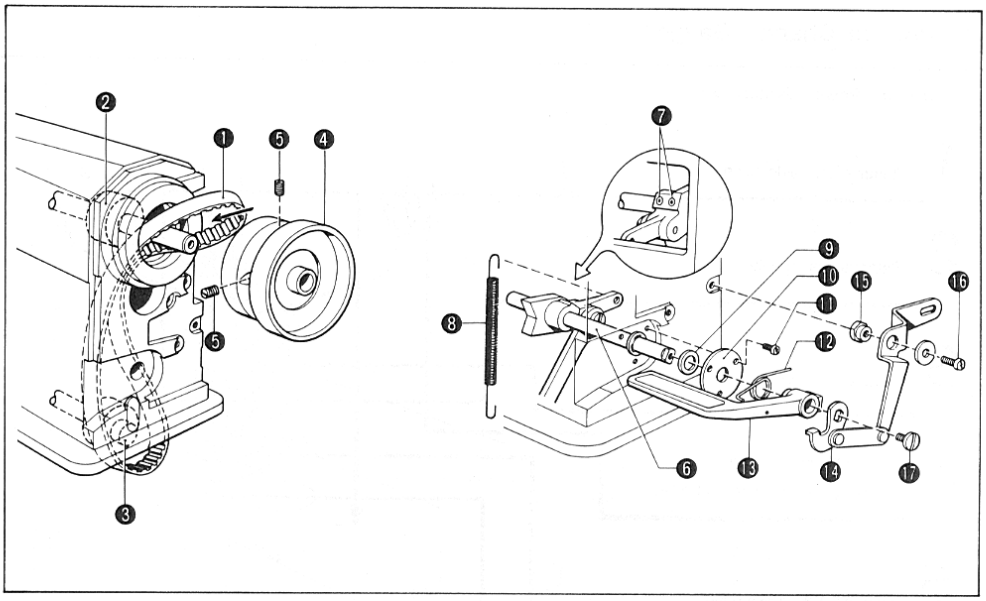
REPLACEMENT OF THE TIMING BELT

1 Removal



1. Remove the screw ❶ and ❷ , and then remove the reverse solenoid lever assembly ❸ , the plunger and the reverse solenoid lever stud ❹ .
2. Remove the reverse lever ❺ and the spring ❻ .
3. Remove the three screws ❼ , and then remove the spacer ❽ and the washer ❾ .
4. Remove the spring ❿ .
5. Loosen the two screws ⓫ , and then remove the feed regulator lever shaft ⓬ .
6. Loosen the two screws ⓭ , and then remove the machine pulley ⓮ .
7. Remove the timing belt ⓱ from timing pulley D ⓯ and timing pulley U ⓰ , and then take out the timing belt ⓱ from the hole from which the pulley was removed.

2 Installation



1. Insert the timing belt ❶ into the hole from which the pulley was removed, and attach the belt to timing pulley U ❷ and timing pulley D ❸ .
2. Install the machine pulley ❹ to the upper shaft, and secure by using the screws ❺ .
3. Insert the feed regulator lever shaft ❻ from the side of the arm, and secure by tightening the two screws ❼ .
4. Attach the spring ❽ .
5. Place the washer ❾ and spacer ❿ onto the feed regulator lever shaft ❻ , and secure by using the three screws ⓫ .
6. Install the spring ⓬ and the reverse lever ⓭ to the feed regulator lever shaft ❻ .
7. Install the reverse solenoid lever assembly ⓮ , plunger and the rerverse solenoid lever stud ⓯ by using the screw ⓰ and screw ⓱ .
   (After inserting the plunger to the reverse solenoid, install while checking to be sure that the reverse solenoid lever assembly ⓮ is gently activated.)

HOW TO CHANGE GAUGES

1 How to Change Gauges

■ **Turn the Power Switch Off.**

1 Remove the slide plate.

2 Remove the needle.

3 Remove the needle clamp.

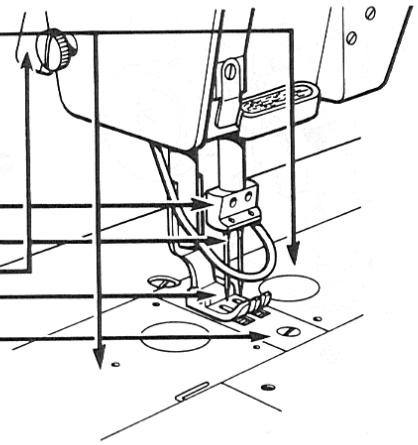
4 Raise the presser foot by using the pressure foot lifter.

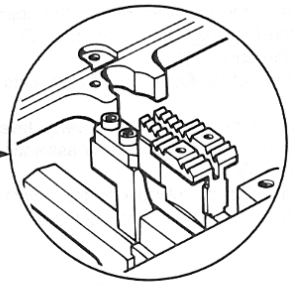
5 Remove the presser foot.

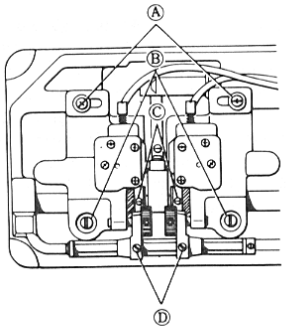
6 Remove the needle plate.

7 Remove the feed dog.

8 Tilt the sewing machine.



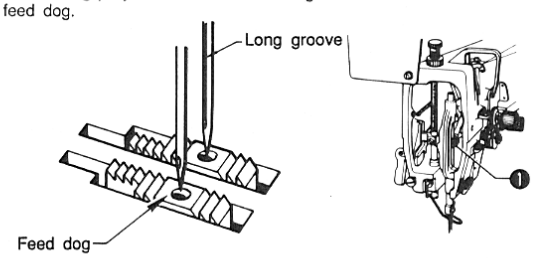
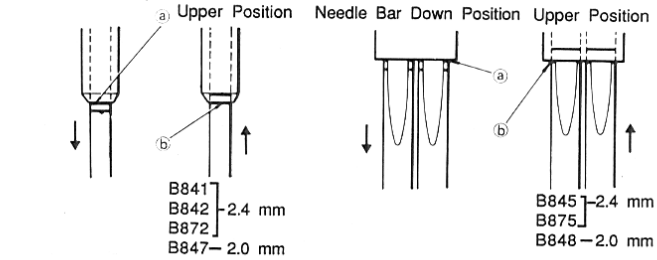
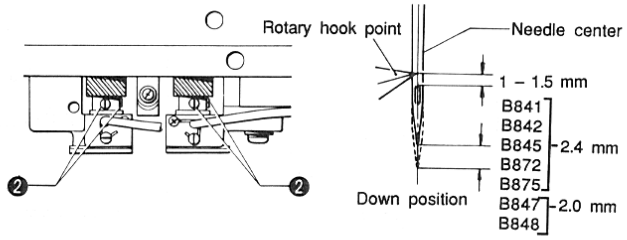
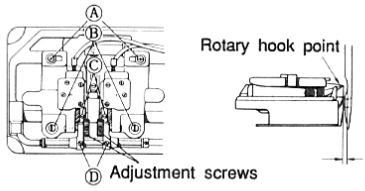




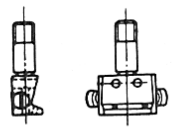
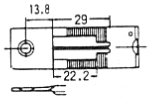
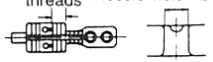
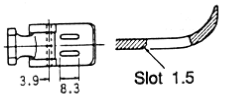
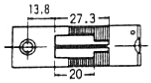
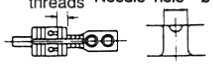
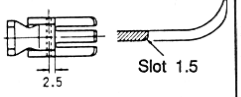
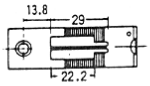
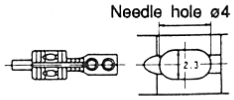
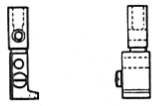
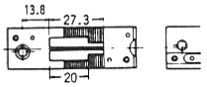
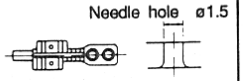
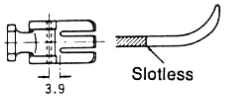
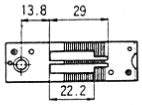
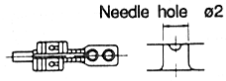
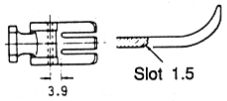
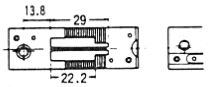
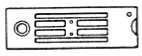
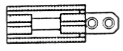
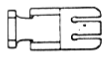
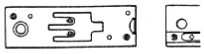
Adjusting the rotary hook base

★ Make the following adjustment when replacing the current gauge with one wider. The feed dog cannot be installed if this adjustment is not made. Loosen screws Ⓐ, Ⓑ, Ⓒ, and Ⓓ, and shift the rotary hook base right or left.

2 How to Install

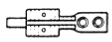
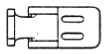
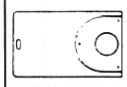
Order	What to do
1 Attach the needle clamp.	Turn the sewing pully and check the needle goes into the center of the needle hole on the feed dog.  Loosen screw ❶ and align the needles so that the needles will fall in the centers of the needle holes in the feed dog.
2 Attach the needle.	
3 Attach the feed dog.	
4 Adjustment of needle bar lift stroke.	When the needle bar is in its lowest position, the needle position referene line ⓐ of the needle bar is aligned with the bottom edge of the needle bar bushing. 
5 Tilt the sewing machine.	
6 Move the rotary hook base.	
7 Adjust the clearance between rotary hooks and needle.	When the needle bar is 2 or 2.4 mm above its lowest position, needle position reference line ⓑ of the needle bar is aligned with the bottom edge of the needle bar bushing. At this time, the rotary hook point must be aligned with the needle center. Loosen the three set screws ❷ , and aligned the rotary hook point with the needle center. 
8 Rotary hook timing and needle height. (Be careful of seam length.)	
9 Return the head to its original position.	
10 Attach the needle plate.	Shift the rotary hook base to the approximate position (within 1 – 3 mm). * The rotary hook base will not move unless screws, Ⓐ, Ⓑ, Ⓒ and Ⓓ are loosened. Tighten screws Ⓓ , and turn the adjustment screws until the needle to rotary hook gap is 0.05 mm. After adjustment, firmly tighten screws Ⓐ, Ⓑ and Ⓒ . 
11 Attach the presser foot.	

GAUGE PARTS LIST

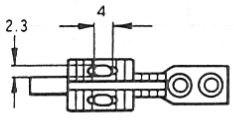
Needle Clamp Assembly	Needle Plate (Asembly)	Feed Dog	Presser Foot Assembly
A 	D-1 	D-1 Three threads Needle hole ø1.9 	D-1 
	D-2 	D-2 Two threads Needle hole ø1.9 	D-2 
	D-3 	D-3 Needle hole ø4 	
B 	E-1 	E-1 Needle hole ø1.5 	E-1 
	E-2 	E-2 Needle hole ø2 	E-2 
	E-3 		
	F 	F 	F 
	G 	G 	

Model	Sub-class		Needle Clamp Assembly	Needle Plate	Feed Dog	Presser Foot Assembly
B841	Standard	–1 (for foundation spec.)	A	D-1	D-1	D-1
				D-2	D-2	
		–3		D-3	D-3	
B842	Standard	–5 –1		D-1	D-1	
		(for foundation spec.)		D-2	D-2	
				D-3	D-3	
	Thread Trimmer	–3		E-1	E-1	E-1
		–5		E-3	E-2	E-2
B845	Standard	–3	B	D-3	D-2 D-3	D-1
		–5				
	Thread Trimmer	–3		E-3	E-1	E-1
		–5			E-2	
		–3				
B847	Stamdard	–5	A	F	F	F
	Thread Trimmer	–7		G	G	
B848	Standard	–1	B	F	F	
	Thread Trimmer	–1		G	G	
B872	Standard	–1	A	D-3	D-2 D-3	D-2
		–1				
	Thread Trimmer	–3		E-3	E-1	
		–5			E-2	
B875	Standard	–3	B	D-3	D-2 D-3	
		–5				
	Thread Trimmer	–3		E-3	E-1	
		–5			E-2	
		-3				
B845	Thread Trimmer	–5	B	E-2	E-1	E-1
		–7			E-2	
		–3				
B848	Thread Trimmer	–5			E-1	E-1
		–7			E-2	
		–3				
B875	Thread Trimmer	–5			E-1	D-2
		–7			E-2	
		–3				

B841

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate 	Feed Dog 	Presser Foot Assembly 	Slide Plate (Left) 
Tandem (0.5 mm)	–3	158801-001	142111-001	142110-001	142105-001	S07318-101
1/16" (1.6 mm)	–3	158808-001	142111-001	151078-001	151076-001	
1/8" (3.2 mm)	–1 (for foundation spec.)	158794-191	117370-001	117366-001	114948-001	
	–3		114950-001	114951-001		
	–5		117369-001	★ 158430-001		
5/32" (4.0 mm)	–3	158796-101	116503-001	116509-001	116502-001	
	–5		150850-001			
3/16" (4.8 mm)	–1 (for foundation spec.)	158791-101	117158-001	117134-001	112638-001	
	–3		112603-001	112659-001		
	–5		117133-001	★ S13588-001		
1/4" (6.4 mm)	–1 (for foundation spec.)	158792-101	117368-001	117365-001	112642-001	
	–3		112604-001	112660-001		
	–5		117367-001	★ 153882-001		
5/16" (7.9 mm)	–3	158793-101	112605-001	112661-001	112645-001	
	–5		144882-001			
3/8" (9.5 mm)	–3	158798-101	116506-101	116510-101	116498-001	
	–5		144881-101	★153887-001		
7/16" (11.1 mm)	–3	158809-101	151596-001	151598-001	151597-001	
1/2" (12.7 mm)	–3	158797-101	116505-001	116511-001	116499-001	
	–5		S09365-001	★ 153892-001		
5/8" (15.9 mm)	–3	158795-101	116507-001	116512-001	116500-001	
	–5		159577-001	★ 153897-001		
1" (25.4 mm)	–3	158805-101	147176-001	147178-001	147177-001	
				★ 153907-001		
1-1/4" (31.8 mm)	–3	158799-101	116504-001	116508-001	116501-001	S07323-101
1-1/2" (38.1 mm)	–3	158800-101	118945-001	118947-001	118946-001	

Needle hole dimensions for heavy materials (indicated with ★) are shown in the figure below.



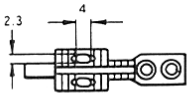
<Special order part>

Presser Foot Assembly with Guide		
	1/8" (3.2 mm)	149311-001
	3/16" (4.8 mm)	117281-001
	1/4" (6.4 mm)	149312-001

B842 (Standard)

Needle Gauge	Sub-class	Needle Clamp Asembly 	Needle Plate 	Feed Dog 	Presser Foot Assembly 	Slide Plate (left) 
Tandem (0.5 mm)	–3	158801-001	142111-001	142110-001	142105-001	S07318-101
1/16" (1.6 mm)	–3	158808-001	142111-001	151078-001	151076-001	
1/8" (3.2 mm)	–1 (for foundation spec.)	158794-101	117370-001	117366-001	114948-001	
	–3		114950-001	✳ S07880-001		
				114951-001		
	–5		117369-001	★ 158430-001		
5/32" (4.0 mm)	–3	158796-101	116503-001	116509-001	116502-001	
	–5		150850-001			
3/16" (4.8 mm)	–1 (for foundation spec.)	158791-101	117158-001	117134-001	112638-001	
	–3		112603-001	✳ S07878-001		
				112659-001		
	–5		117133-001	★ S13588-001		
1/4" (6.4 mm)	–1 (for foundation spec.)	158792-101	117368-001	117365-001	112642-001	
	–3		112604-001	✳ S07879-00		
				112660-001		
	–5		117367-001	★ 153882-001		
5/16" (7.9 mm)	–3	158793-101	112605-001	112661-001	112645-001	
	–5		144882-001			
3/8" (9.5 mm)	–3	158798-101	116506-101	116510-101	116498-001	
	–5		144881-101	★153887-001		
7/16" (11.1 mm)	–3	158809-101	151596-001	151598-001	151597-001	
1/2" (12.7 mm)	–3	158797-101	116505-001	116511-001	116499-001	
	–5		S09365-001	★ 153892-001		
5/8" (15.9 mm)	–3	158795-101	116507-001	116512-001	116500-001	
	–5		159577-001	★ 153897-001		
1" (25.4 mm)	–3	158805-101	147176-001	147178-001	147177-001	
				★ 153907-001		
1-1/4" (31.8 mm)	–3	158799-101	116504-001	116508-001	116501-001	S07323-101
1-1/2" (38.1 mm)	–3	158800-101	118945-001	118947-001	118946-001	
2" (50.8 mm)	–5	158802-101	144947-001	144947-001	144949-001	S07325-101
2-1/6" (55.0 mm)	–5	158803-101	147560-001	147561-001	147562-001	

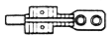
In case of using 2 inch or 2-1/6 inch (55 mm) gauge parts, it is required to make special machining on the arm-bed.
Needle width up to 75 mm is available. Contact us for due date and price.
The ✳ symbol is for thin materials (needle hole diameter 1.2 mm).
Needle hole dimensions for heavy materials (indicates with ★) are shown in the figure below.



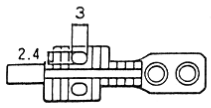
<Special order part>

Presser Foot Assembly with Guide		
	1/8" (3.2 mm)	149311-001
	3/16" (4.8 mm)	117281-001
	1/4" (6.4 mm)	149312-001
Presser with left side guide	5/16" (7.9 mm)	S13735-001

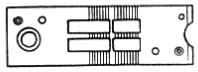
B842 (Thread Trimmer)

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog Assembly 	Presser Foot (Left) 	Slide Plate 	Thread Wriper 
3/32" (2.4 mm)	–5	158804-101	159398-001	148697-001	148679-001	S07318-101	S07553-001
1/8" (3.2 mm)	–3	158794-101	159400-001	148698-001	148685-001		
	–5		155722-001	148699-001	148681-001		
5/32" (4.0 mm)	–3	158796-101	158785-001	148700-001	148689-001		
	–5		155724-001	148701-001	148683-001		
3/16 (4.8 mm)	–3	158791-101	158784-001	148702-001	148687-001		
	–5		155851-001	148703-001 ★ S07905-001	148691-001		
1/4" (6.4 mm)	–3	158792-101	158783-001	148704-001	148693-001		
	–5		155853-001 ☒ S10507-001	148705-001 ★ 158756-001 ☒ S10509-001	148695-001 ☒ S10510-001		
5/16" (7.9 mm)	–3	158793-101	159402-001	149692-001	149689-001		
	–5		155855-001	149691-001	149687-001		
3/8" (9.5 mm)	–3	158798-101	149946-001	149939-001	149942-001		
	–5		155857-001	149938-001	149940-001		
1/2" (12.7 mm)	–3	158797-101	159404-001	149676-001	149673-001		
	–5		149677-001	149675-001	149671-001		
5/8" (15.9 mm)	–3	158795-101	149956-001	149949-001	149952-001		
	–5		149954-001	149948-001	149950-001		
3/4" (19.1 mm)	–5	158806-101	150526-001	150523-001	150524-001		S07554-001
7/8" (22.2 mm)	–3	158807-101	☒ S14538-001	☒ S14540-001	☒ S14541-001		
	–5		150534-001	150531-001	150532-001		
1" (25.4 mm)	–3	158805-101	☒ S14543-001	☒ S14545-001	☒ S14546-001		
	–5		149966-001	149960-001	149962-001		
1-1/8" (28.6 mm)	–3	S16102-001	S16104-001	S16106-001	S16107-001		
1-1/2" (38.1 mm)	–5	158800-101	S07391-001	S07390-001	S07388-001	S07323-101	

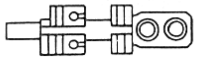
Needle hole dimensions for heavy materials (indicated with ★) are shown in the figure below.



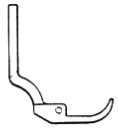
The ☒ symbol indicates gauge components for chaining-off sewing.



For chaining-off sewing



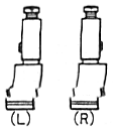
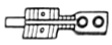
Needle plate



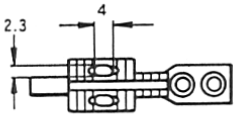
Feed dog

Presser foot

B845 (Standard)

Needle Gauge	Sub-class	Needle Clamp Assembly  (L) (R)	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
1/8" (3.2 mm)	–3	(L)S15711-001 (R)S15712-001	117369-001	✳S07880-001	114948-001
	–5			114951-001	
				★ 158430-001	
5/32" (4.0 mm)	–3	(L)S15717-001 (R)S15718-001	150850-001	116509-001	116502-001
	–5				
3/16" (4/8 mm)	–3	(L)S15723-001 (R)S15724-001	117133-001	✳S07878-001	112638-001
	–5			112659-001	
				★ S13588-001	
1/4" (6.4 mm)	–3	(L) S15735-001 (R)S15736-001	117367-001	✳S07879-001	112642-001
	–5			112660-001	
				★ 153882-001	
5/16" (7.9 mm)	–3	(L)S15747-001 (R)S15748-001	144882-001	112661-001	112645-001
	–5				
3/8" (9.5 mm)	–3	(L)S15753-001 (R)S15754-001	144881-101	116510-101	116498-001
	–5			★ 153887-001	
7/16" (11.1 mm)	–3	(L)S15759-001 (R)S15760-001	151596-001	151598-001	151597-001
	–5				
1/2" (12.7 mm)	–3	(L)S15765-001 (R)S15766-001	S09365-001	116511-101	116499-001
	–5			★ 153892-001	
5/8" (15.9 mm)	–3	(L)S15771-001 (R)S15772-001	159577-001	116512-001	116500-001
	–5			★153897-001	

The ✳ symbol is for thin materials (needle hole diameter 1.2 mm).
Places marked by the ★ symbol are applicable to very heavy materials.
Needle holes dimensions are as shown in the figure below.



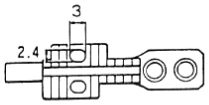
[for extremely thick materials]

Presser Foot Assembly with Guide		
	1/8" (3.2 mm)	149311-001
	3/16" (4.8 mm)	117281-001
	1/4" (6.4 mm)	149312-001

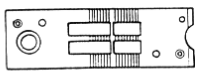
B845 (Thread Trimmer)

Needle Gauge	Sub-class	Needle Clamp Assembly (L) (R)	Needle Plate Assembly	Feed Dog	Presser Foot Assembly
3/32" (2.4 mm)	–5	(L)S15705-001 (R)S15706-001	159398-001	148697-001	148679-001
1/8" (3.2 mm)	–3	(L)S15711-001 (R)S15712-001	155722-001	148698-001	148685-001
	–5			148699-001	148681-001
5/32" (4.0 m)	–3	(L)S151717-001 (R)S15718-001	155724-001	148700-001	148689-001
	–5			148701-001	148683-001
3/16" (4.8 mm)	–3	(L)S15723-001 (R)S15724-001	155851-001	148702-001	148687-001
	–5			148703-001	148691-001
	–7			★S07905-001	
7/32" (5.6 mm)	–3	(L)S15729-001 (R)S15730-001	156816-001	156818-001	156819-001
1/4" (6.4 mm)	–3	(L)S15735-001 (R)S15736-001	155853-001 ☒ S10507-001	148704-001	148693-001
	–5			148705-001	148695-001
	–7			☒ S10509-001	☒ S10510-001
				★ 158756-001	
9/32" (7.1 mm)	–3	(L)S15741-001 (R)S15742-001	S14530-001	S14532-001	S14534-001
	–5			S14533-001	S14536-001
5/16" (7.9 mm)	–3	(L)S15747-001 (R)S15748-001	155855-001	149692-001	149689-001
	–5			149691-001	149687-001
3/8" (9.5 mm)	–3	(L)S15753-001 (R)S15754-001	155857-001	149939-001	149942-001
	–5			149938-001	149940-001
7/16" (11.1 mm)	–3	(L)S15759-001 (R)S15760-001	S01644-001	S01646-001	S01641-001
1/2" (12.7 mm)	–3	(L)S15765-001 (R)S15766-001	149677-001	149676-001	149673-001
	–5			149675-001	149671-001
5/8" (15.9 mm)	–3	(L)S15771-001 (R)S15772-001	149954-001	149949-001	149952-001
	–5			149948-001	149950-001

Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.

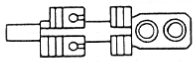


Use the needle of DBX1(#7 - #18) for 3/32" gauge.
☒ : Gauge component for sewing without material.



For chaining-off sewing

Needle plate



Feed dog

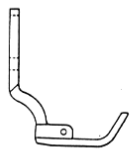
Presser foot

B847 (Standard)

Needle Gauge	Sub-class		Needle Clamp Assembly	Needle Plate Assembly	Feed Dog	Presser Foot Assembly	Slide Plate (Left)	Thread Wriper
1/8" (3.2 mm)	–1	Standard	158794-101	S07686-001	S07696-001	S07393-001	S07318-101	—
		Thread Trimmer		S07401-001	S07409-001			S07553-001
3/16" (4.8 mm)	–1	Stamdard	158791-101	S07688-001	S07698-001	S07395-001		—
		Thread Trimmer		S07403-001	S07410-001			S07553-001
1/4" (6.4 mm)	–1	Standard	158792-101	S07689-001	S07699-001	S07397-001		—
		Thread Trimmer		S07405-001	S07411-001			S07553-001
5/16" (7.9 mm)	–1	Thread Trimmer	158793-101	S07676-001	S07680-001	S07682-001		S07553-001
1/2" (12.7 mm)	–1	Standard	158797-101	S07693-001	S07703-001	S07684-001		—
		Thread Trimmer		S07678-001	S07681-001			S07553-001
3/4" (19.1 mm)	–1	Standard	158806-101	S07996-001	S07998-001	S07889-001		—
		Thread Trimmer		S07886-001	S07888-001			S07554-001
20 mm	–1		S00937-001	S13479-001	S07998-001	S13480-001		—
7/8" (22.2 mm)	–1	Stamdard	158807-101	S07997-001	S07999-001	S07894-001		—
		Standard		S07891-001	S07893-001			S07554-001
1" (25.4 mm)	–1	Thread Trimmer	158805-101	S15088-001	S15090-001	S15091-001		S07554-001

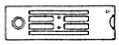
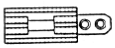
B847 Gauges for shirt front sewing

Needle Gauge	Sub-class		Needle Clamp Assembly	Needle Plate Assembly	Feed Dog	Presser Foot Assembly	Slide Plate (Left)
18 mm	–1	Standard	S14352-001	S14354-001	S14357-001	S14355-001	S07318-001
20 mm	–1	Standard	S00937-001	S13479-001	S14360-001	S14358-001	
22 mm	–1	Standard	158807-001	S07997-001	S14363-001	S14361-001	
24 mm	–1	Standard	S1364-001	S14366-001	S14369-001	S14367-001	
26 mm	–1	Standard	S14370-001	S14372-001	S14375-001	S14373-001	
28 mm	–1	Standard	S14376-001	S14378-001	S14381-001	S14379-001	
30 mm	–1	Standard	S16653-001	S16653-001	S16656-001	S16654-001	

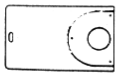


Presser foot

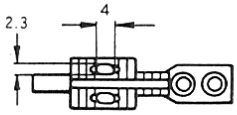
B848 (Thread Timmer)

Needle Gauge	Sub-class		Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
1/8" (3.2 mm)	-1	Standard	(L)S15711-001	S07686-001	S07696-001	S07393-001
		Thread trimmer	(R)S15712-001	S07401-001	S07409-001	
3/16" (4.8 mm)	-1	Standard	(L)S15723-001	S07688-001	S07698-001	S07395-001
		Thread trimmer	(R)S15724-001	S07403-001	S07410-001	
1/4" (6.4 mm)	-1	Standard	(L)S15735-001	S07689-001	S07699-001	S07397-001
		Thread trimmer	(R)S15736-001	S07405-001	S07411-001	
5/16" (7.9 mm)	-1	Standard	(L)S15747-001	S07676-001	S07680-001	S07682-001
		Thread trimmer	(R)S15748-001			
3/8" (9.5 mm)	-1	Standard	(L)S15753-001	S13621-001	S13623-001	S13624-001
		Thread trimmer	(R)S15754-001			
1/2" (12.7 mm)	-1	Standard	(L)S15765-001	S07693-001	S07703-001	S07684-001
		Thread trimmer	(R)S15766-001	S07678-001	S07681-001	

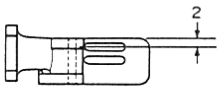
B872 (Standard)

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 	Slide Plate (Left) 
1/8" (3.2 mm)	–3	158794-101	117369-001	114951-001	155463-001	S07318-101
	–5			★ 158430-001	✳ S14080-001	
5/32" (4.0 mm)	–3	158796-101	150850-001	116509-001	155455-001	
	–5					
3/16" (4.8 mm)	–3	158791-101	117133-001	112659-001	115457-001	
	–5			★ S13588-001		
1/4" (6.4 mm)	–3	158792-101	117367-001	112660-001	155453-001	
	–5			★ 153882-001		
5/16" (7.9 mm)	–3	158793-101	144882-001	112661-001	155459-001	
	–5					
3/8" (9.5 mm)	–3	158798-101	144881-101	116510-101	155461-001	
	–5			★ 153887-001		
1/2" (12.7 mm)	–3	158797-101	S09365-001	116511-001	S09367-001	
	–5			★ 153892-001		
5/8" (15.9 mm)	–3	158795-101	159577-001	116512-001	159575-001	
	–5			★ 153897-001		
1-3/8" (34.9 mm)	–3	S10746-101	S14148-001	S14149-001	S10751-001	S07323-101
	–5					

Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.



✳ Holder for fastener

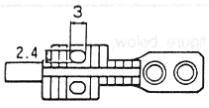


The needle feeding width is available up to 68mm.
Please consult about the shipping date and prices for your requirement.

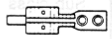
B872 (Thread Trimmer)

Needle Gauge	Sub-class	Needle Clamp Assembly	Needle Plate Assembly	Feed Dog Assembly	Presser Foot (Left)	Slide Plate	Thread Wriper
1/8" (3.2 mm)	–3	158794-101	155722-001	148698-001	155463-001	S07318-101	S07553-101
	–5			148699-001			
5/32" (4.0 mm)	–3	158796-101	155724-001	148700-001	155455-001		
	–5			148701-001			
3/16" (4.8 mm)	–3	158791-101	155851-001	148702-001	155457-001		
	–5			148703-001			
				★ S07905-001			
1/4" (6.4 mm)	–3	158792-101	155853-001	148704-001	155453-001		
	–5			148705-001			
				★ 158756-001			
5/16" (7.9 mm)	–3	158793-101	155855-001	149692-001	155459-001		
	–5			149691-001			
3/8" (9.5 mm)	–3	158798-101	155857-001	149939-001	155461-001		
	–5			149938-001			
1/2" (12.7 mm)	–3	158797-101	149677-001	149676-001	S09367-001		
	–5			149675-001			
5/8" (15.9 mm)	–3	158795-101	149954-001	149949-001	159575-001		
	–5			149948-001			
1" (25.4 mm)	–5	158805-101	149966-001	149960-001	S13626-001		
1-1/4" (31.8 mm)	–5	158799-101	S10741-001	S10743-001	S10744-001	S07323-101	S07554-001
1-3/8" (34.9 mm)	–5	S10746-101	S10748-001	S10750-001	S10751-001		
1-1/2" (38.1 mm)	–5	158800-101	S07391-001	S07390-001	156526-001		

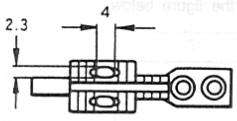
Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.



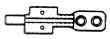
B875 (Thread Trimmer)

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
1/8" (3.2 mm)	–3	(L)S15711-001	155722-001	148698-001	155463-001
	–5	(R)S15712-001		148699-001	
5/32" (4.0 mm)	–3	(L)S15717-001	155724-001	148700-001	155455-001
	–5	(R)S15718-001		148701-001	
3/16" (4.8 mm)	–3	(L)S15723-001	155851-001	148702-001	155457-001
	–5	(R)S15724-001		148703-001	
	–7			★ S07905-001	
7/32" (5.6 mm)	–5	(L)S15729-001 (R)S15730-001	156816-001	S16223-001	S16224-001
1/4" (6.4 mm)	–3	(L)S15735-001	155853-001	148704-001	155453-001
	–5	(R)S15736-001		148705-001	
	–7			★ 158756-001	
5/16" (7.9 mm)	–3	(L)S15747-001	155855-001	149692-001	155459-001
	–5	(R)S15748-001		149691-001	
3/8" (9.5 mm)	–3	(L)S15753-001	155857-001	149939-001	155461-001
	–5	(R)S15754-001		149938-001	
1/2" (12.7 mm)	–3	(L)S15765-001	149677-001	149676-001	S09367-001
	–5	(R)S15766-001		149675-001	
5/8" (15.9 mm)	–3	(L)S15771-001	149954-001	149949-001	159575-001
	–5	(R)S15772-001		149948-001	

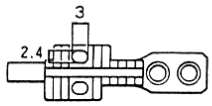
Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.



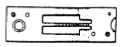
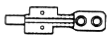
B875 (Standard)

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
1/8" (3.2 mm)	–3	(L)S15711-001	117369-001	114951-001	155463-001
	–5	(R)S15712-001		★ 158430-001	
5/32" (4.0 mm)	–3	(L)S15717-001	150850-001	116509-001	155455-001
	–5	(R)S15718-001			
3/16" (4.8 mm)	–3	(L)S15723-001	117133-001	112659-001	155457-001
	–5	(R)S15724-001		★ S13588-001	
1/4" (6.4 mm)	–3	(L)S15735-001	117367-001	112660-001	155453-001
	–5	(R)S15736-001		★ 153882-001	
5/16" (7.9 mm)	–3	(L)S15747-001	144882-001	112661-001	155459-001
	–5	(R)S15748-001			
3/8" (9.5 mm)	–3	(L)S15753-001	144881-101	116510-101	155461-001
	–5	(R)S15754-001		★ 153887-001	
1/2" (12.7 mm)	–3	(L)S15765-001	S09365-001	116511-001	S09367-001
	–5	(R)S15766-001		★ 153892-001	
5/8" (15.9 mm)	–3	(L)S15771-001	159577-001	116512-001	159575-001
	–5	(R)S15772-001		★ 153897-001	

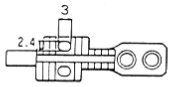
Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.



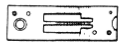
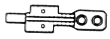
B8450

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
5/32" (4.0 mm)	–3	(L)S15717-001	S13512-101	148700-001	148689-001
	–5	(R)S15718-001		148701-001	148683-001
3/16" (4.8 mm)	–3	(L)S15723-001	S13514-101	148702-001	148687-001
	–5	(R)S15724-001		148703-001	148691-001
	–7			★ S07905-001	
1/4" (6.4 mm)	–3	(L)S15735-001	S13510-101	148704-001	148693-001
	–5	(R)S15736-001		148705-001	148695-001
	–7			★ 158756-001	
5/16" (7.9 mm)	–3	(L)S15747-001	S13516-101	149692-001	149689-001
	–5	(R)S15748-001		149691-001	149687-001
3/8" (9.5 mm)	–3	(L)S15753-001	S13518-101	149939-001	149942-001
	–5	(R)S15754-001		149938-001	149940-001

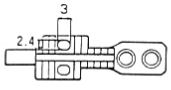
Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.



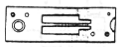
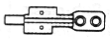
B8750

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
5/32" (4.0 mm)	–3	(L)S15717-001	S13512-101	148700-001	155455-001
	–5	(R)S15718-001		148701-001	
3/16" (4.8 mm)	–3	(L)S15723-001	S13514-101	148702-001	155457-001
	–5	(R)S15724-001		148703-001	
	–7			★ S07905-001	
1/4" (6.4 mm)	–3	(L)S15735-001	S13510-101	148704-001	155453-001
	–5	(R)S15736-001		148705-001	
	–7			★ 158756-001	
5/16" (7.9 mm)	–3	(L)S15747-001	S13516-101	149692-001	155459-001
	–5	(R)S15748-001		149691-001	
3/8" (9.5 mm)	–3	(L)S15753-001	S131518-101	149939-001	155461-001
	–5	(R)S15754-001		149938-001	

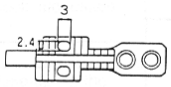
Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.



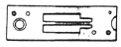
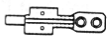
B8450

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
5/32" (4.0 mm)	–3	(L)S15717-001	S13512-101	148700-001	148689-001
	–5	(R)S15718-001		148701-001	148683-001
3/16" (4.8 mm)	–3	(L)S15723-001	S13514-101	148702-001	148687-001
	–5	(R)S15724-001		148703-001	148691-001
	–7			★ S07905-001	
1/4" (6.4 mm)	–3	(L)S15735-001	S13510-101	148704-001	148693-001
	–5	(R)S15736-001		148705-001	148695-001
	–7			★ 158756-001	
5/16" (7.9 mm)	–3	(L)S15747-001	S13516-101	149692-001	149689-001
	–5	(R)S15748-001		149691-001	149687-001
3/8" (9.5 mm)	–3	(L)S15753-001	S13518-101	149939-001	149942-001
	–5	(R)S15754-001		149938-001	149940-001

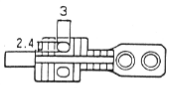
Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.



B8750

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
5/32" (4.0 mm)	–3	(L)S15717-001	S13512-101	148700-001	155455-001
	–5	(R)S15718-001		148701-001	
3/16" (4.8 mm)	–3	(L)S15723-001	S13514-101	148702-001	155457-001
	–5	(R)S15724-001		148703-001	
	–7			★ S07905-001	
1/4" (6.4 mm)	–3	(L)S15735-001	S13510-101	148704-001	155453-001
	–5	(R)S15736-001		148705-001	
	–7			★ 158756-001	
5/16" (7.9 mm)	–3	(L)S15747-001	S13516-101	149692-001	155459-001
	–5	(R)S15748-001		149691-001	
3/8" (9.5 mm)	–3	(L)S15753-001	S131518-101	149939-001	155461-001
	–5	(R)S15754-001		149938-001	

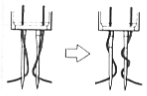
Needle hole dimensions for extremely thick materials (indicated with ★) are shown in the figure below.

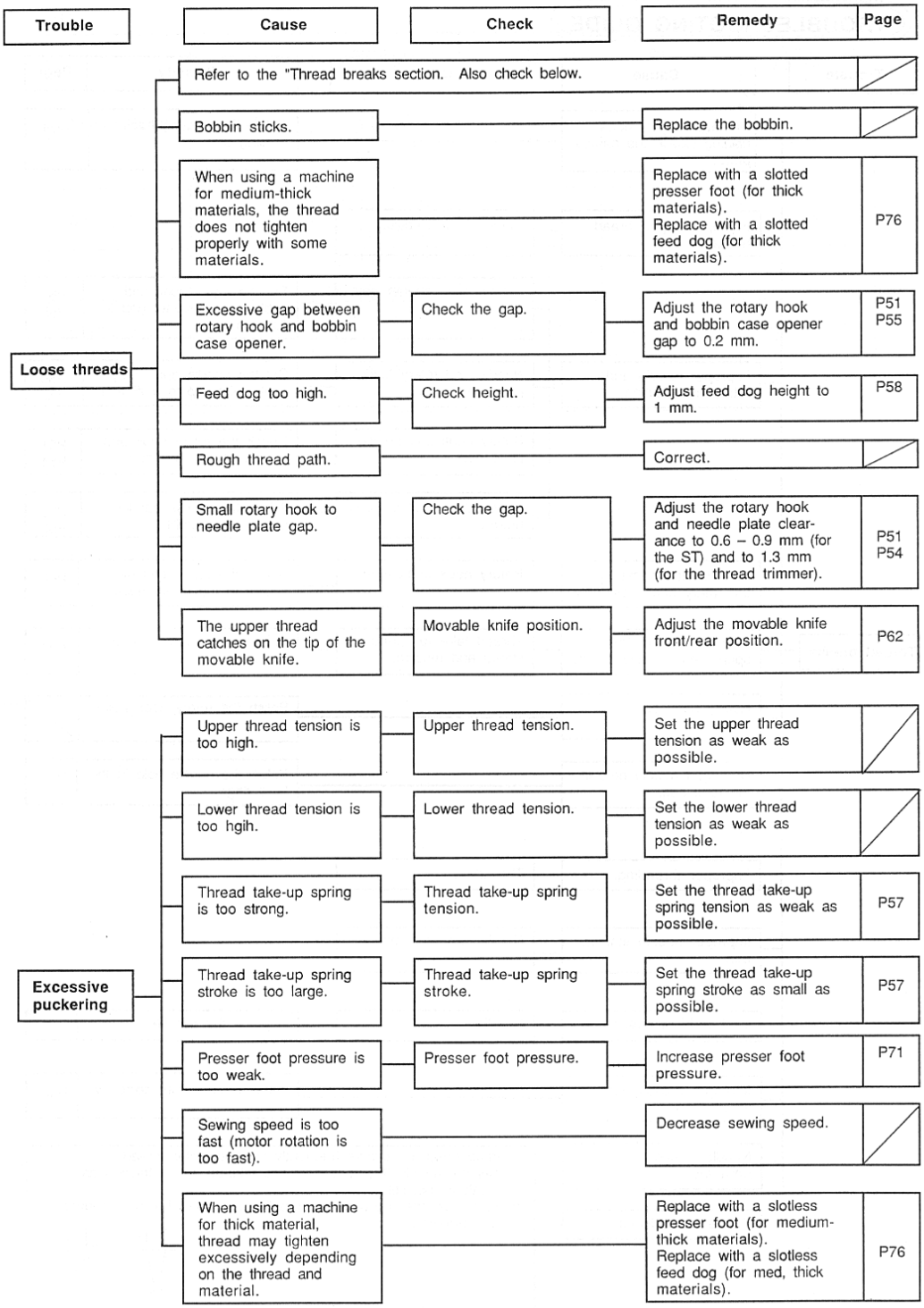


B8480

Needle Gauge	Sub-class	Needle Clamp Assembly 	Needle Plate Assembly 	Feed Dog 	Presser Foot Assembly 
3/16" (4.8 mm)	-1	(L)S15723-001 (R)S15724-001	S16437-001	S07410-001	S07395-001
1/4" (6.4 mm)		(L)S15735-001 (R)S15736-001	S16439-001	S07411-001	S07397-001
5/16" (7.9 mm)		(L)S15747-001 (R)S15748-001	S16441-001	S07680-001	S07682-001
3/8" (9.5 mm)		(L)S15753-001 (R)S15754-001	S16443-001	S13623-001	S13624-001

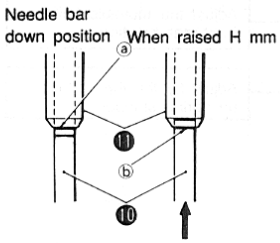
TROUBLESHOOTING GUIDE

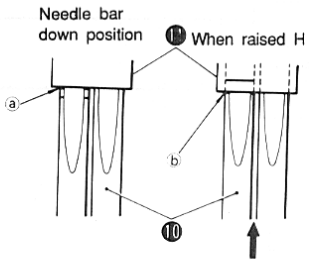
Trouble	Cause	Check	Remedy	Page
Thread breaks	Damaged rotary hook holding slot in the needle plate.		Polish the rotating hook holding slot.	P71
	Improper upper thread tension.	Upper thread tension.		
	Improper needle and rotary hook timing.	Bobbin case opener gap.	Set the rotary hook and bobbin case opener gap to 0.2 mm	P51 P55
		Needle and rotary hook point gap.	Set the needle and rotary hook point gap to 0.05 mm.	P50 P53
		Rotary hook and needle plate gap.	Check the rotary hook and needle plate clearance.	P51 P54
		Needle bar lift stroke and height.	Adjust the needle bar lift stroke and height.	P52 P55
	Insufficient lubrication to the rotary hook assembly.	Rotary hook lubrication.	Adjust the lubricating oil supply to the rotary hook.	P66
	Improper thread take-up spring tension and stroke.	Thread take-up spring stroke and tension.	Adjust the thread take-up spring.	P57
	Rotary hook point damaged.		Polish the rotary hook point.	
	Damaged needle hole in the feed dog.		Polish the needle hold in the feed dog.	P71
	Improper threading.	Threading		
	Improper needle installation.	Needle groove direction		
	Bent or blunt needle.	Needle	Replace the needle.	
	Improper presser foot installation.		Install presser foot correctly.	P36
	Needle thread twist unravels.	If thread breakage occurs frequently with polyester thread 1) Set the needle thread tension and take-up spring tension as weak as possible. 2) Wrap the thread around the needles as shown below to reduce the problem. 		
	Concealed stitches			

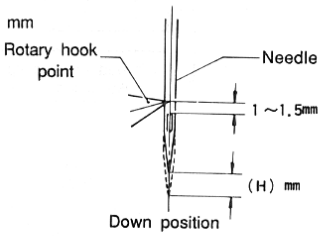

Trouble
Cause
Check
Remedy
Page
Loose threads
Refer to the "Thread breaks section. Also check below.
Bobbin sticks.
Replace the bobbin.
When using a machine for medium-thick materials, the thread does not tighten properly with some materials.
Replace with a slotted presser foot (for thick materials).
Replace with a slotted feed dog (for thick materials).
P76
Excessive gap between rotary hook and bobbin case opener.
Check the gap.
Adjust the rotary hook and bobbin case opener gap to 0.2 mm.
P51
P55
Feed dog too high.
Check height.
Adjust feed dog height to 1 mm.
P58
Rough thread path.
Correct.
Small rotary hook to needle plate gap.
Check the gap.
Adjust the rotary hook and needle plate clearance to 0.6 – 0.9 mm (for the ST) and to 1.3 mm (for the thread trimmer).
P51
P54
The upper thread catches on the tip of the movable knife.
Movable knife position.
Adjust the movable knife front/rear position.
P62
Excessive puckering
Upper thread tension is too high.
Upper thread tension.
Set the upper thread tension as weak as possible.
Lower thread tension is too hgih.
Lower thread tension.
Set the lower thread tension as weak as possible.
Thread take-up spring is too strong.
Thread take-up spring tension.
Set the thread take-up spring tension as weak as possible.
P57
Thread take-up spring stroke is too large.
Thread take-up spring stroke.
Set the thread take-up spring stroke as small as possible.
P57
Presser foot pressure is too weak.
Presser foot pressure.
Increase presser foot pressure.
P71
Sewing speed is too fast (motor rotation is too fast).
Decrease sewing speed.
When using a machine for thick material, thread may tighten excessively depending on the thread and material.
Replace with a slotless presser foot (for medium-thick materials).
Replace with a slotless feed dog (for med, thick materials).
P76

Trouble	Cause	Check	Remedy	Page
	See thread breakage (needle to rotary hook timing).			
Skipped stiches occur frequently.	Presser foot pressure low.	Pressure foot pressure.	Increase pressure.	P71
	Rotary hook point is blunt.	Check rotary hook point tip.	Correct or replace.	
	Rotary hook needle guard is not working.	Needle guard to needle gap.	Make the rotary hook needle guard function correctly.	P50 P53
	Needle too heavy for thread.		Use one count finer needle.	
	Sewing heavy materials.			

If skipped stitches occur frequently, especially for spun thread Refer to pages 52 and 55, and, while referring to the section "Needle bar lift stroke", check the following.

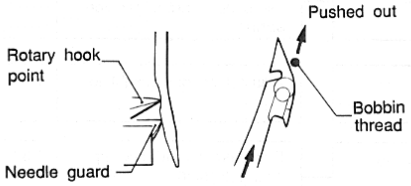






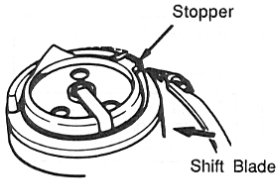
Adjust H mm to 2.6 mm to 2.8 mm to reduce the number of skipped stitches. If H is set too large, thread tightening will be poor.

Trouble	Cause	Check	Remedy	Page
Lower thread cutting misses	Movable knife tip is too low.	Movable knife position.	Replace the movable knife.	P61
	Rotary hook is too high.	Rotary hook height.	Check the rotary hook height.	P54
	Damaged or bent movable knife tip.		Replace the movable knife.	P61
	Poor movable knife position.		Set gap to rotary hook to 0.05 – 0.2 mm.	P61
	Needle hole in feed dog (needle plate) is too large.		Replace feed dog (needle plate).	
	Feed dog is too high.	Check height.	Adjust feed dog height to 1 mm.	P58
	Rotary hook point is worn.		Replace rotary hook.	P533
	Needle to rotary hook point gap is poorly adjusted.			



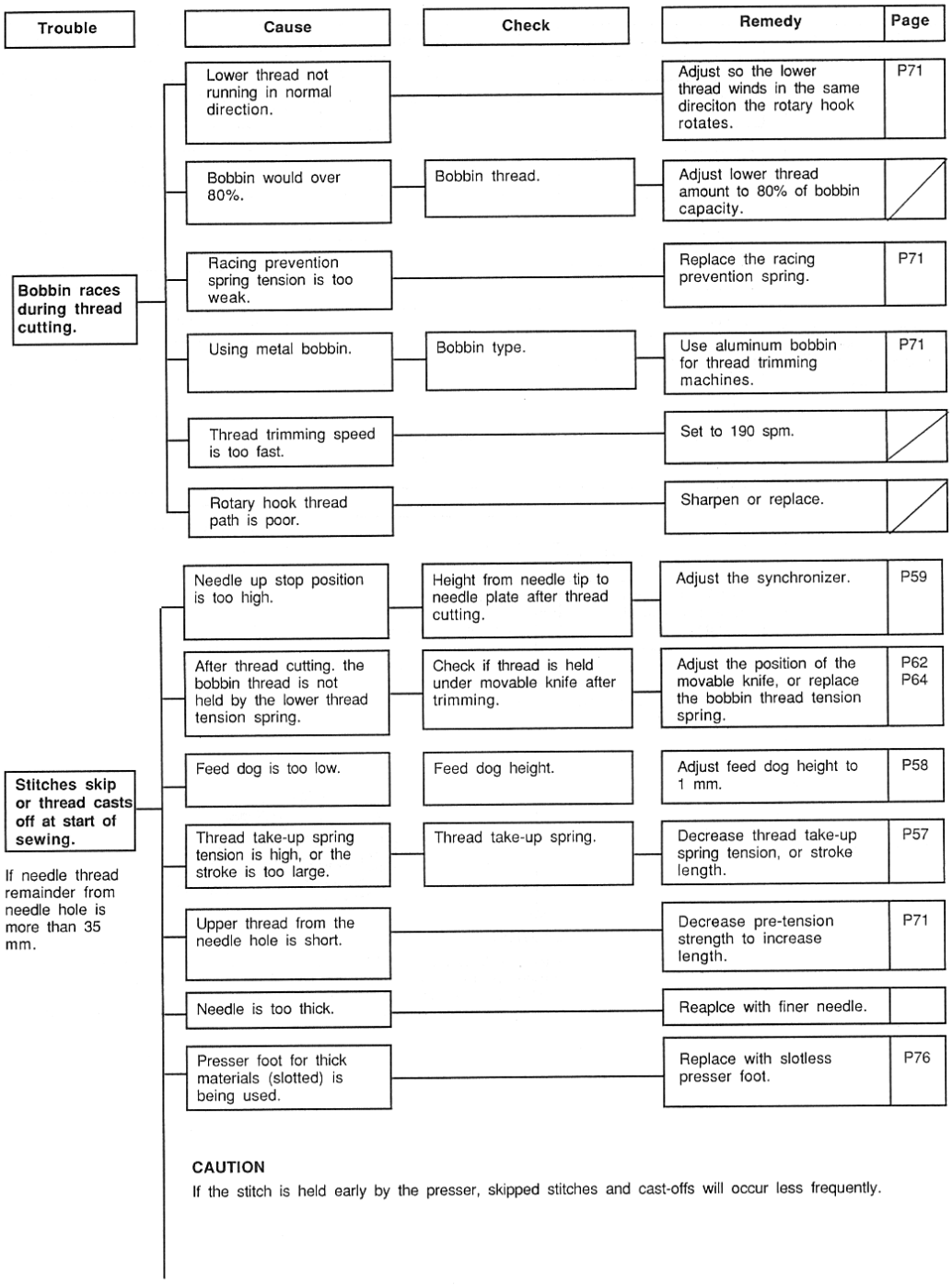
CAUTION

When the radius of the tip is shorten by 0.2 – 0.3mm or more, resulted from the correction of the tip by grinding, the blade can be hardly positioned, which is the same reason of "Clearance adjustment error between the needle and the tip". Then, thread trimming error will be produced. Adjust the stopper and shift the blade to the external surface.



CAUTION

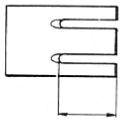
If the needle to rotary hook point gap is adjusted while the needle guard is applied, the needle may bend and cannot be properly adjusted. Adjustment in this condition will result in an improper movable knife position, causing the bobbin thread to be pushed out, and trimming errors to occur.



CAUTION

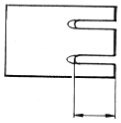
If the stitch is held early by the presser, skipped stitches and cast-offs will occur less frequently.

Presser foot types



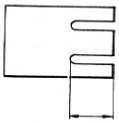
Long (Space on back)

For large shuttle



Short (Space on back)

For small shuttle, thick materials



Short (No space)

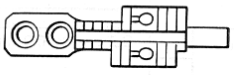
For small shuttle, medium thick materials

If the pitch is too small for the sewing conditions with a large shuttle, use a small shuttle.

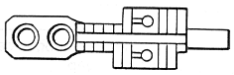
Feed dog needle hole is too large.	Replace with feed dog having a smaller needle hole.	P76

CAUTION

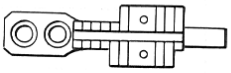
There are three types of feed dogs with different size needle holes. Use the feed dog with the smallest needle hole at which needle breakge does not occur.



For extremely thick materials



For thick materials



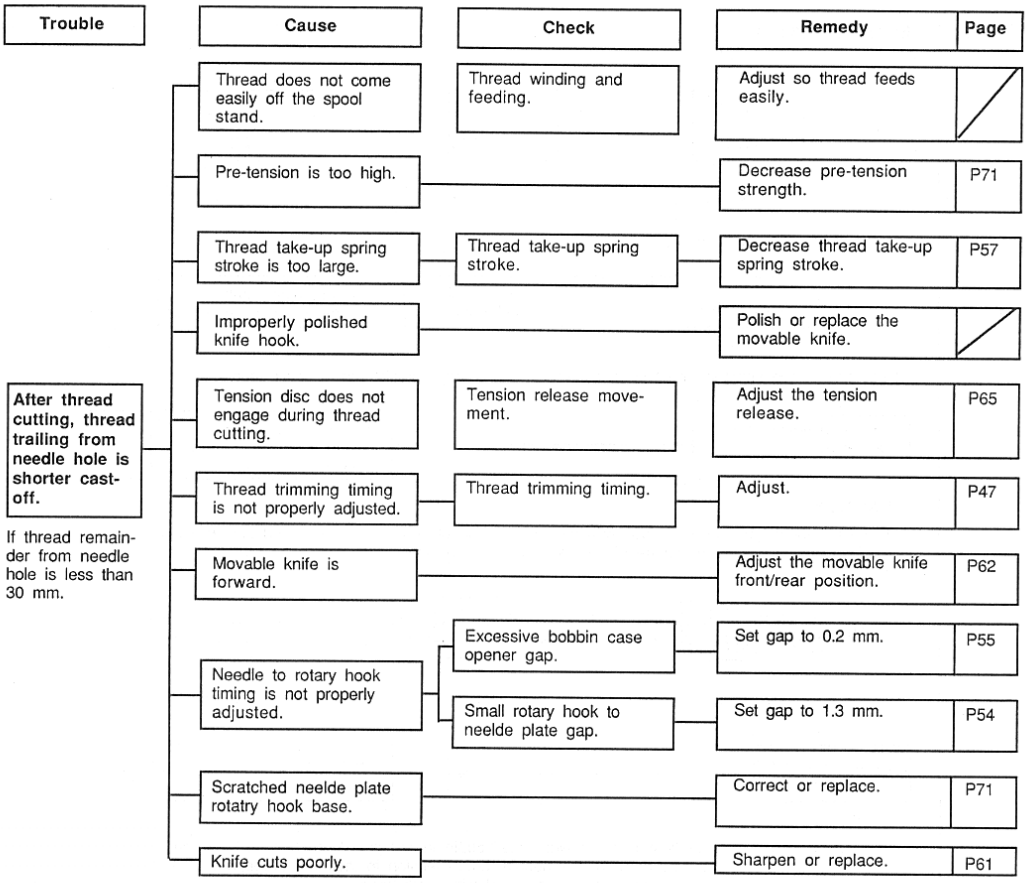
For medium thick materials

Bobbin thread tension is too great.	Decrease.	

CAUTION

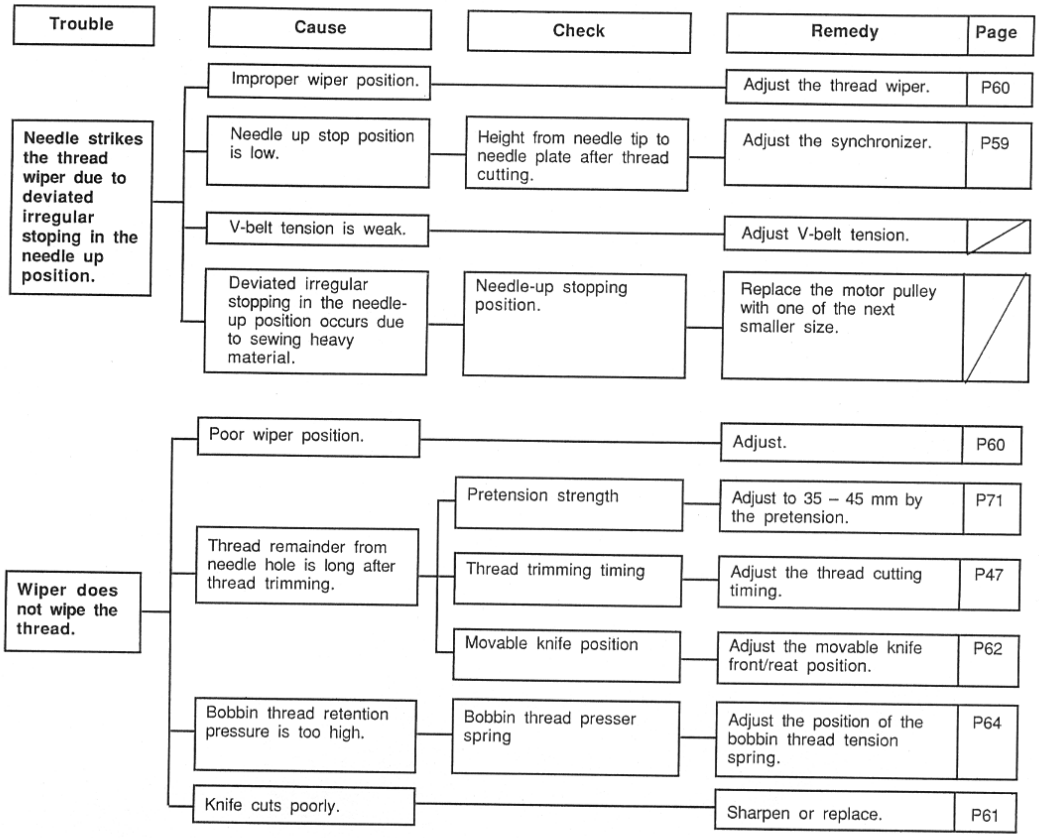
Skipped stitches and cast-offs may occur when the bobbin thread gets low when using a fine count thread. It is particularly easy for the bobbin thread tension to increase excessively when using a large shuttle, and the bobbin should be wind with extra thread.

Bobbin thread tension is weak.	Bobbin spinning	Increase tension.	
Presser is free at sewing start.		Use the slow sewing start.	



CAUTION

The thread may be cast-off from the needle hole during thread trimming with concealed stitches. Refer to the above.


Trouble
Cause
Check
Remedy
Page
Needle strikes the thread wiper due to deviated irregular stoping in the needle up position.
Improper wiper position.
Adjust the thread wiper.
P60
Needle up stop position is low.
Height from needle tip to needle plate after thread cutting.
Adjust the synchronizer.
P59
V-belt tension is weak.
Adjust V-belt tension.
Deviated irregular stopping in the needle-up position occurs due to sewing heavy material.
Needle-up stopping position.
Replace the motor pulley with one of the next smaller size.
Wiper does not wipe the thread.
Poor wiper position.
Adjust.
P60
Thread remainder from needle hole is long after thread trimming.
Pretension strength
Adjust to 35 – 45 mm by the pretension.
P71
Thread trimming timing
Adjust the thread cutting timing.
P47
Movable knife position
Adjust the movable knife front/reat position.
P62
Bobbin thread retention pressure is too high.
Bobbin thread presser spring
Adjust the position of the bobbin thread tension spring.
P64
Knife cuts poorly.
Sharpen or replace.
P61