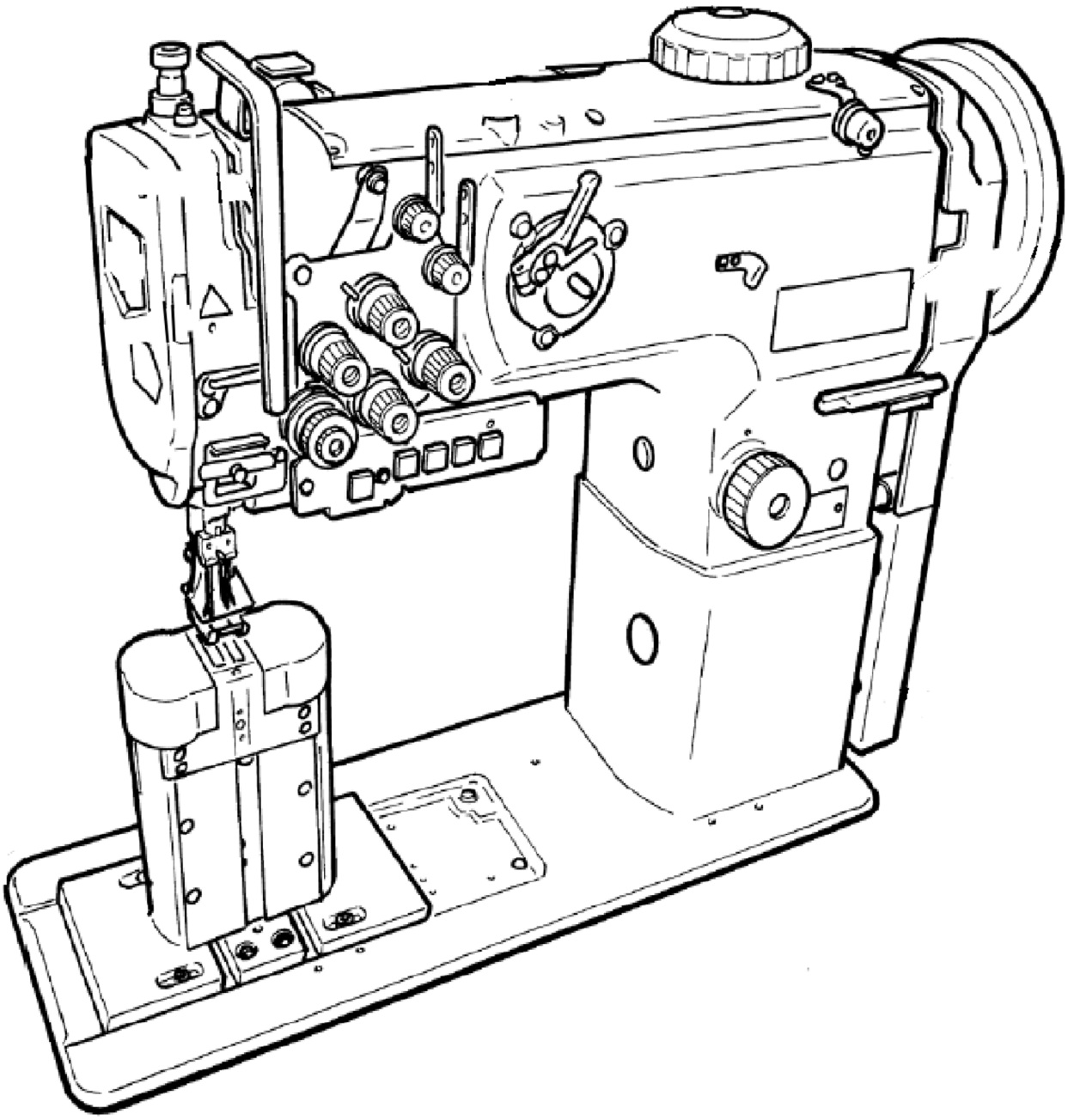
CONSEW®

P1710 / P1760 SERIES

INSTRUCTION MANUAL



NOTE: Read safety instructions carefully and understand them before using.
Retain this Instruction Manual for future reference.

FOR SAFE OPERATION



1. Keep your hands away from needle when you turn ON the power switch or while the machine is in operation.
2. Do not put your fingers into the thread take-up cover while the machine is operating.
3. Turn OFF the power switch when tilting the machine head, or removing the belt cover or the V belts.
4. During operation, be careful not to allow your or any other person's head, hands or clothes to come close to the handwheel, V belt and motor. Also, do not place anything close to them.
5. Do not operate your machine with the belt cover and finger guard removed.
6. When tilting the machine head, be sure to confirm that the head support bar is properly attached to your machine head, and be careful not to allow your fingers or the like to be pinched in the machine head. In addition, when the machine is used with the control panel, do not tilt or raise the machine head while holding the control panel.

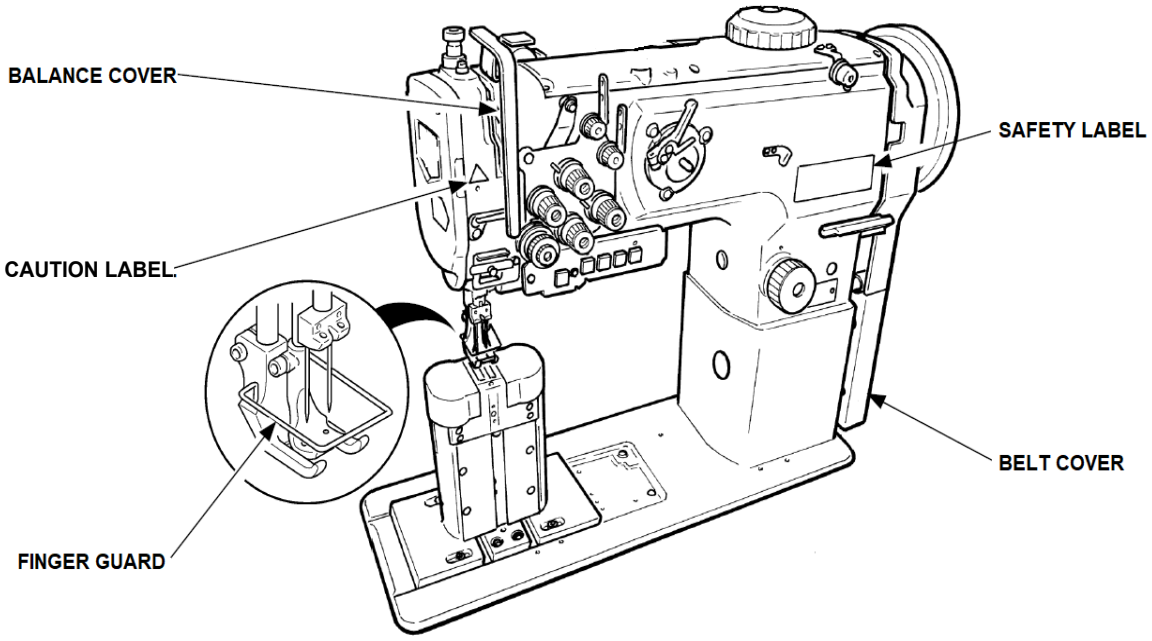


1. To ensure safety, never operate the machine with the ground wire for the power supply removed.
2. When inserting/removing the power plug, the power switch has to be turned OFF in advance.
3. In time of thunder and lightning, stop your work and disconnect the power plug from the receptacle so as to ensure safety.
4. If the machine is suddenly moved from a cold place to a warm place, dew condensation may be observed. In this case, turn ON the power to the machine after you have confirmed that there is no danger of water drops in the machine.
5. To prevent fires, periodically draw out the power plug from the plug socket and clean the root of the pins and the space between pins.
6. The hook rotates at a high speed while the machine is in operation.
   To prevent possible injury to hands, be sure to keep your hands away from the vicinity of the hook during operation. In addition, be sure to turn OFF the power to the machine when replacing the bobbin.
7. To avoid possible accidents due to abrupt start of the machine, be sure to turn OFF the power to the machine before cleaning, threading, replacing the needle or bobbin, or making adjustments.
8. This product is a precision instrument. Handle it with care: do not spill water or oil on it and do not drop it.
9. When tilting or returning the sewing machine to the home position, hold the upper side of the machine head with both hands and perform the work carefully so that fingers or the like are not caught in the machine.



CAUTION :
Note that safety devices such as "belt cover", "finger guard", etc. may be omitted from the illustrations in this Instruction Manual for easy explanation.
When operating the machine, be sure not to remove these safety devices.

SAFETY DEVICE AND CAUTION



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BEFORE OPERATION

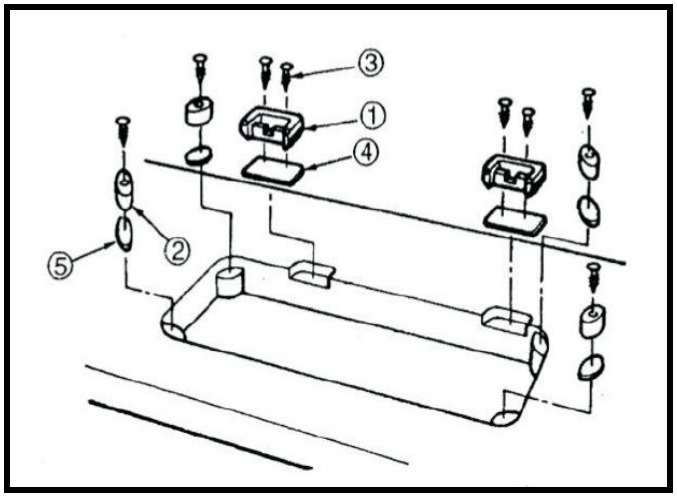
CAUTION:
Check the following so as to prevent malfunction of and damage to the machine.

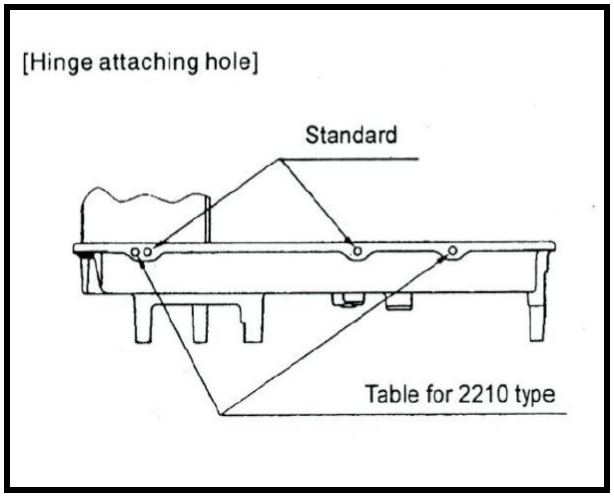
·Before you put the machine into operation for the first time after the set-up, clean it thoroughly.
·Remove all dust gathered during transportation and oil it well.
·Confirm that voltage has been correctly set.
·Confirm that the power plug has been properly connected to the power supply.
·Never use the machine in the state where the voltage type is different from the designated one.
·The direction of normal rotation of the machine is counterclockwise as observed from the pulley side.
·Take care not to allow the machine to rotate in the reverse direction.
·When tilting the machine head, tilt it after removing the knee lifter hook.
·Never operate the machine unless the machine head and the oil tank have been filled with oil.
·For a test run, remove the bobbin and the needle thread.
·For the first month, decrease the sewing speed and run the sewing machine at a speed of 2,000 rpm or less.
·Operate the handwheel after the machine has totally stopped.

SPECIFICATIONS

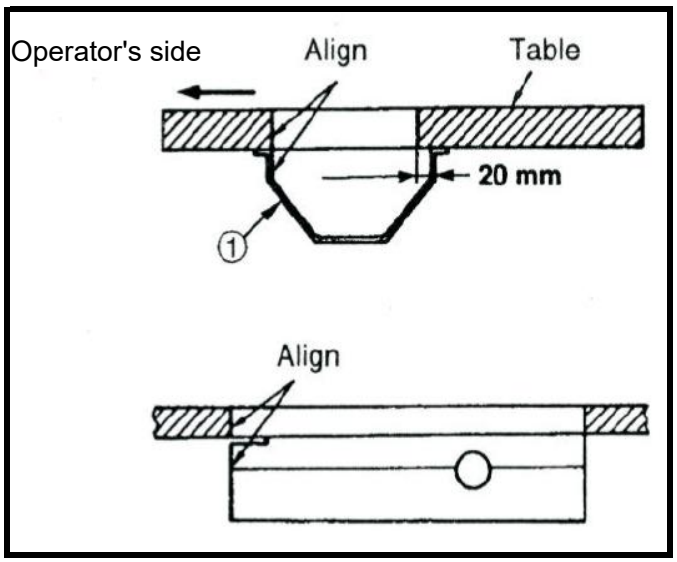
Model	P1710	P1760	P1710-7	P1760-7
Sewing Speed	Max. 2,500 sti/min See "25. SEWING SPEED TABLE" on page 17			
Stitch length (max.)	Normal feed: 9mm Reverse feed: 9mm			
Needle	SCHMETZ 135 x 17 (Nm 125 to Nm 180), Standard: Nm 160			
Thread	#30 to #5 (US: #46 to #138, Europe: 20/3 to 60/3)			
Hook	Vertical-axis 1.6-fold capacity hook			
Lift of presser foot	Knee lifter: 16mm		Auto-lifter: 16mm	
Lubrication oil	Lily White Sewing Machine Oil			
Noise	Workplace–related noise at sewing speed N=1,550 min^{-1}: LPA≤ 84 dB(A) Noise measurement according to DIN 45635–48–A–1		Workplace–related noise at sewing speed N=2,040 min^{-1}: LPA ≤ 84 dB(A) Noise measurement according to DIN 45635–48–A–1	

1. INSTALLATION

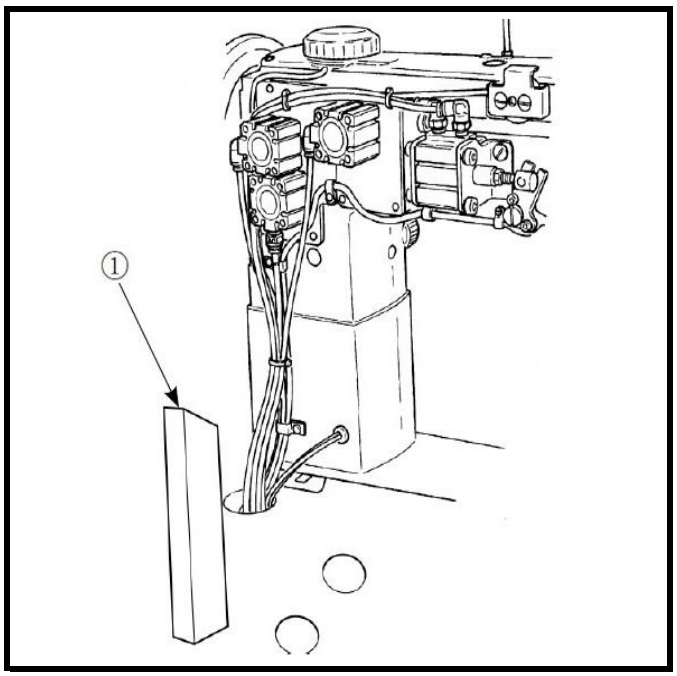




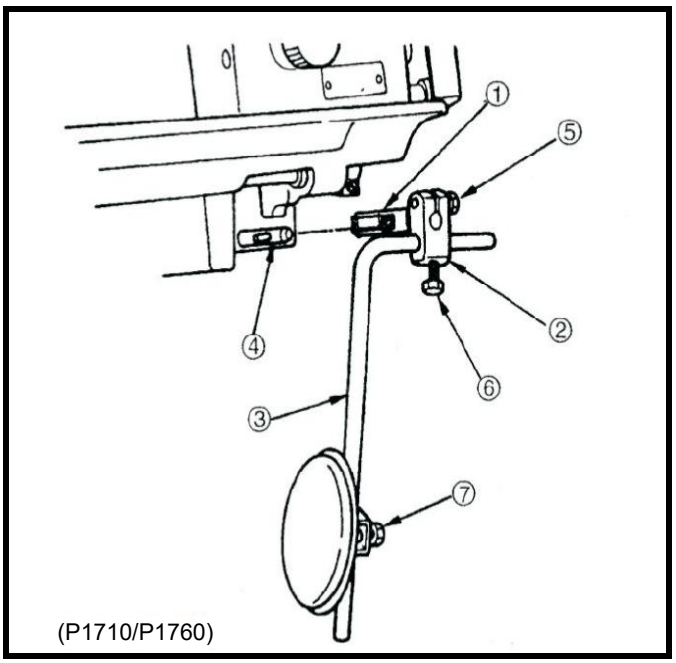
1) Attaching the hinge seats and the support rubbers of the machine head.
Fix hinge seat ① and the support rubber ② supplied with the machine on the table using nails ③.
If the slide plate comes in contact with the table when opening it, place spacer rubber ④ and ⑤ supplied with the machine under support rubber ② and hinge seats ①.



2) Attaching the oil pan
Fix the oil pan ① supplied with the machine by tightening eight wood screws.



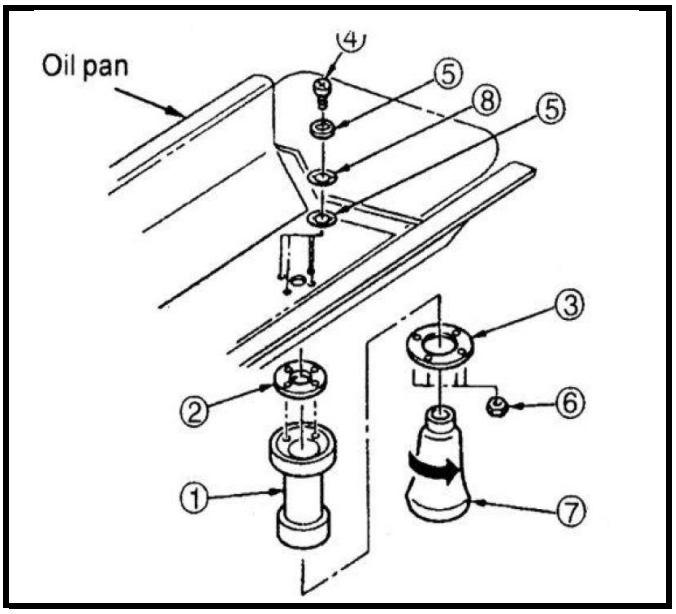
3) Securely attach head support rod ① to the table until it goes no further.



(P1710/P1760)

4) Adjust knee pad joint ①, knee lifter vertical shaft installing arm ② and knee pad lever ③ to the direction of knee lifter lever shaft ④ and assemble these components. (P1710, P1760).
5) Adjust the direction of the pad with setscrews ⑤, ⑥ and ⑦. (P1710, P1760).

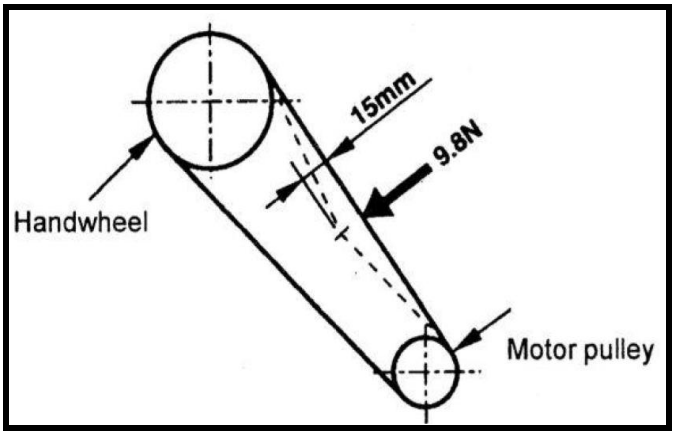
2. INSTALLING THE WASTE OIL CONTAINER



1) Attach drain plug ①, oil seal ② and washer ③ to the oil pan. Attach packing ⑤ and washer ⑧ to screw ④ and fix them with nut ⑥.
2) After they are fixed, screw in waste oil container ⑦ into drain plug ①.

3. ADJUSTING THE BELT TENSION

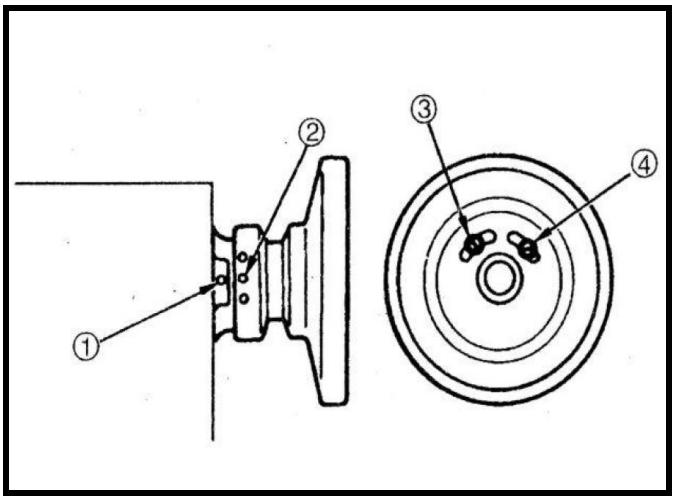
WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



Adjust the belt tension with the height of the motor so that the belt sags 15 mm when a 9.8 N load is applied to the center of the V belt.

4. ADJUSTING THE STOP POSITION (P1710-7, P1760-7)

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.

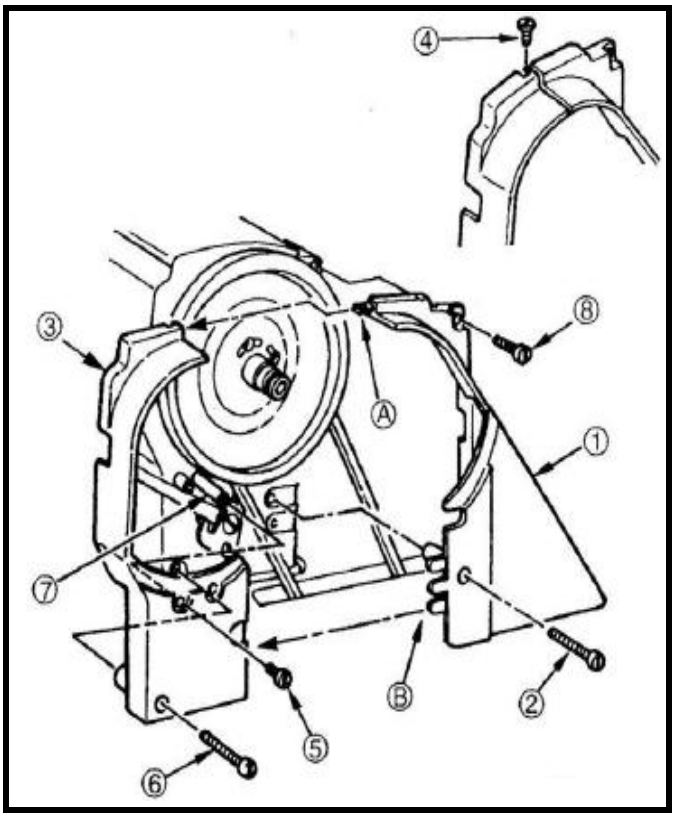


Marker dots on the handwheel	
White (center)	UP stop position
Yellow	DOWN stop position
Red	For adjusting thread trimming cam
No color	Reverse revolution to lift needle position

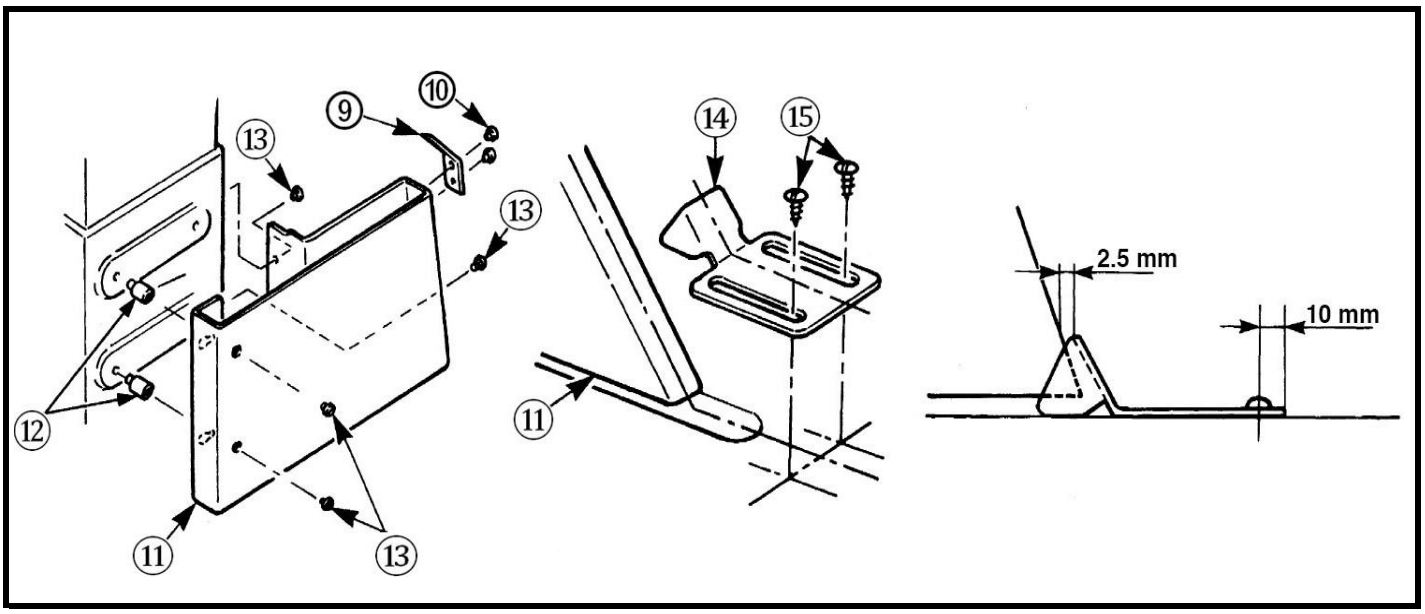
1) The respective stop positions and adjusting positions are those when marker dot ① engraved on the machine arm aligns with marker dot ② engraved on the handwheel. For the marker dots engraved on the handwheel, refer to the table above.
2) In case of adjusting the UP stop position, adjust it with screw ③, and in case of adjusting the DOWN stop position, adjust it with screw ④.

5. ATTACHING THE BELT COVER

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



1) Attach belt cover stud ⑦ to the screw hole in the arm.
2) Fix belt cover (right) ① on the arm with screw ② and ⑧.
3) Fit belt cover (left) ③ to notch Ⓐ and Ⓑ of the belt cover (right) ①.
4) Fix belt cover (left) ③ with screws ④, ⑤ and ⑥.



5) Attach belt cover (lower) stud ⑫ to the screw hole in the post section.

6) Fix belt cover (lower) ⑪ to belt cover (lower) stud ⑫ and the post section with screw ⑬.

7) Attach belt cover (lid) ⑨ to belt cover (lower) ⑪ with screw ⑩.

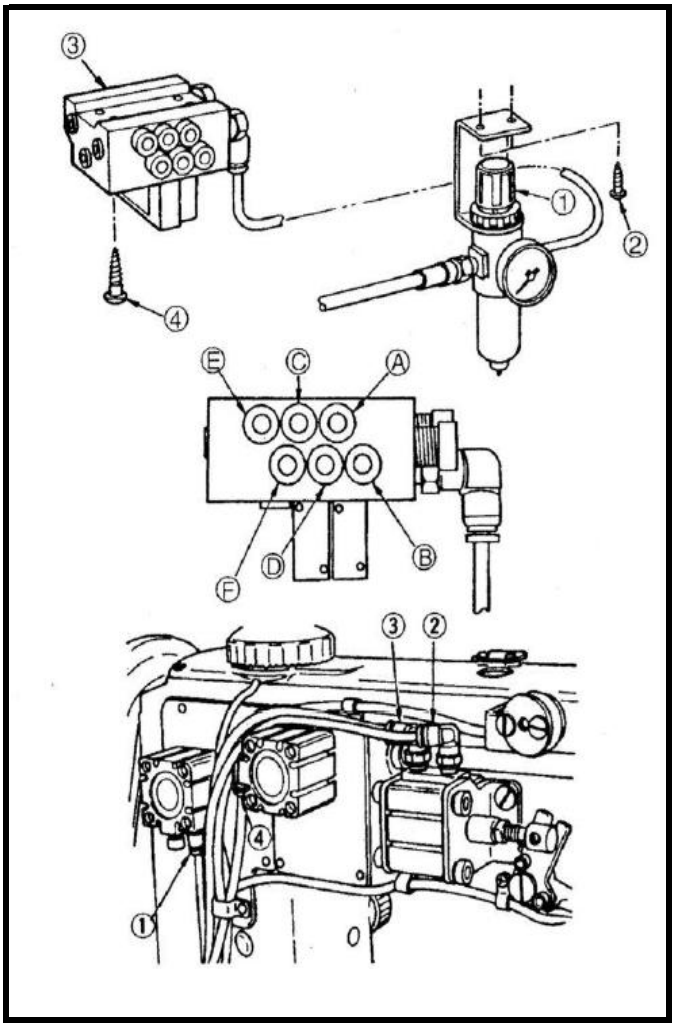
8) At this time, belt cover (lid) ⑨ must be placed on the outside of belt cover (right) ①.

9) Fix belt cover auxiliary plate ⑭ with wood screw ⑮ at a position 10 mm from the rear end of the plate, so that there is a clearance of 2.5 mm between belt cover auxiliary plate ⑭ and belt cover (lower) ⑪.

(Caution) After attaching the belt cover, check that the cords do not touch the belt or the handwheel. If they do, the cords may be cut.

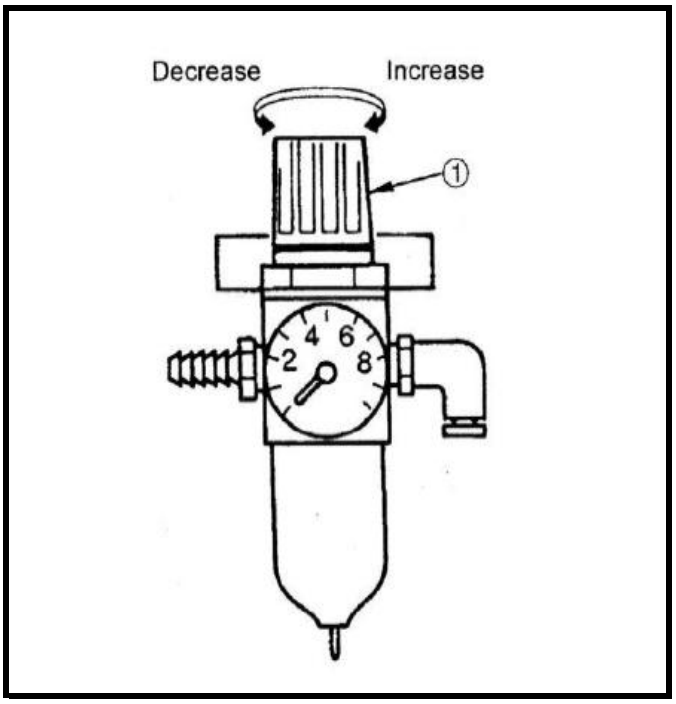
6. THE AIR DRIVE UNIT OF THE SEWING MACHINE EQUIPPED WITH AUTOMATIC REVERSE FEED DEVICE AND AUTO-LIFTER (P1710-7, P1760-7)

WARNING:
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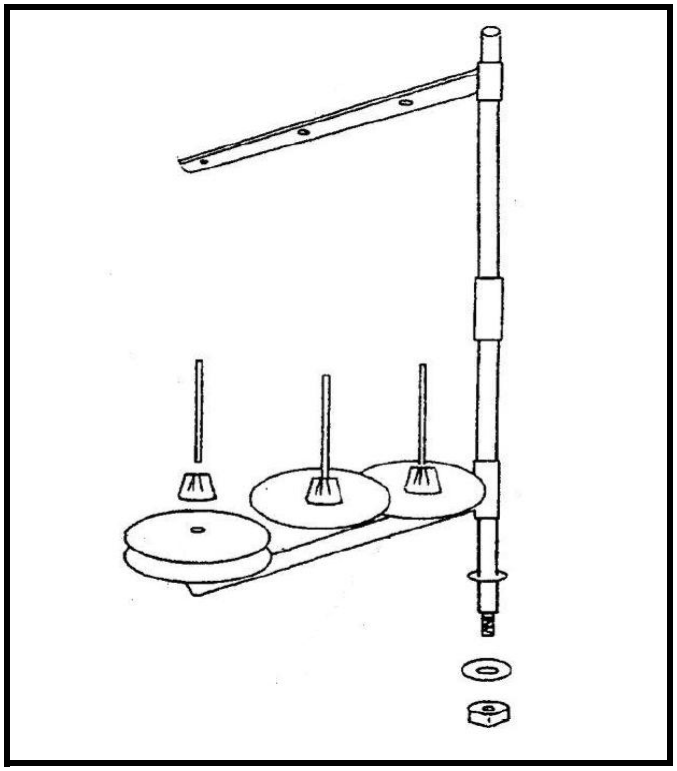
1) Attach regulator (asm) ① to the underside of the table with wood screws ② supplied with the regulator.
2) Attach air control unit (asm) ③ to the four places on the underside of the table with wood screw ④ supplied with the unit.
3) Adjust the number of the air hose to the number of the air cylinder joint and insert the hose to the joint.
(Caution) Do not run the sewing machine while the presser foot is held raised by the auto-lifter. The needle may strike the presser foot and, as a result, they may be damaged.

	Solenoid valve	Cylinder
BT	Ⓐ	①
AK	Ⓒ	②
DL	Ⓑ	④
-	Ⓔ	
-	Ⓕ	



4) Adjusting the air pressure
The operating air pressure is 0.45 to 0.5 MPa.
Adjust the air pressure using air pressure regulating knob ① of the filter regulator.

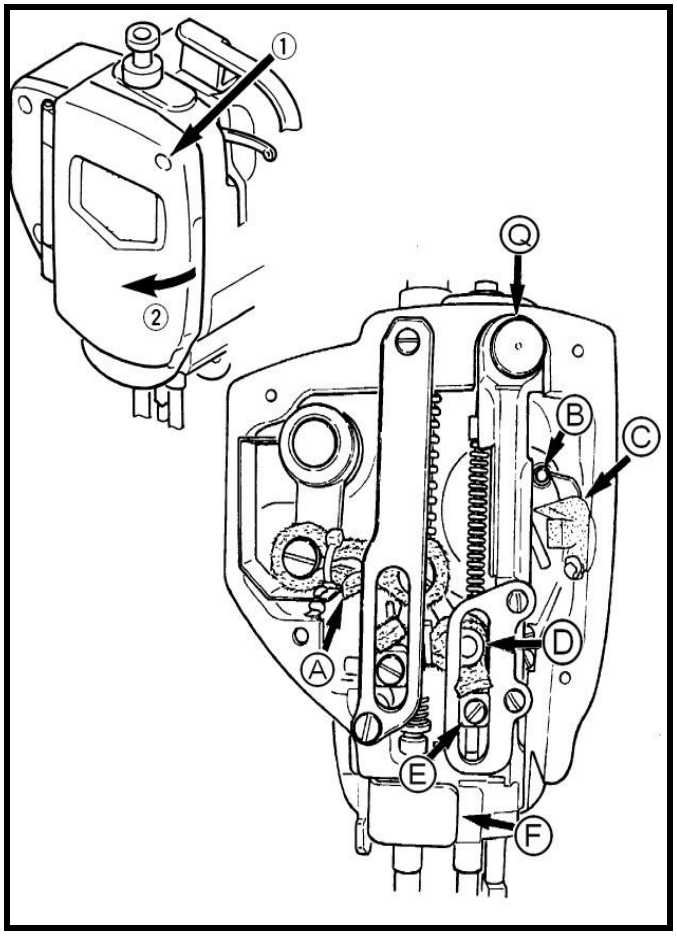
7. INSTALLING THE THREAD STAND



Assemble the thread stand, set it up on the machine table using the installation hole in the table and tighten nut gently.

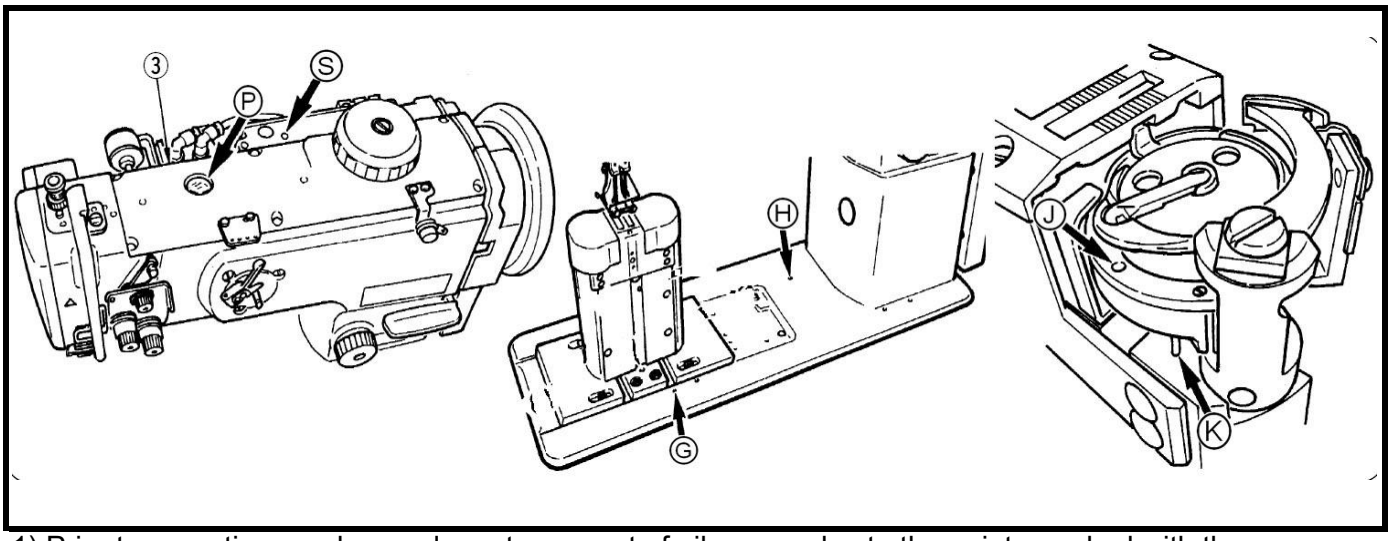
8. LUBRICATION

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



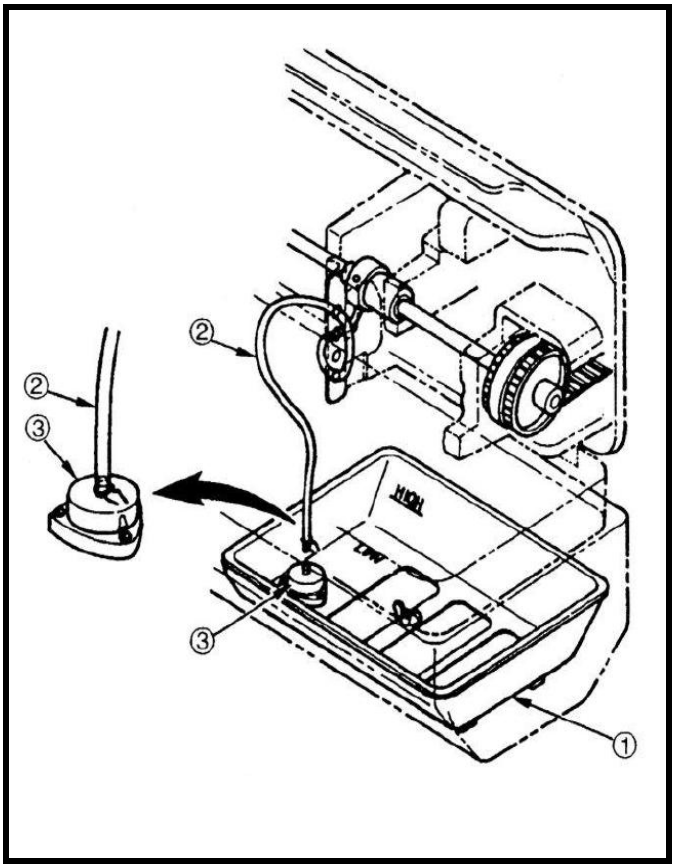
Lubricating procedure for the face plate portion

1) Loosen and remove screw ①.
2) Open the face plate in the direction of arrow mark ②.
3) Prior to operation, apply an adequate amount of oil once a day to points marked with the arrows Ⓐ to Ⓕ. Prior to operation, apply one drop of oil once a day to the point marked with arrow ◎.
4) Close the face plate.
5) Attach and tighten screw ①.

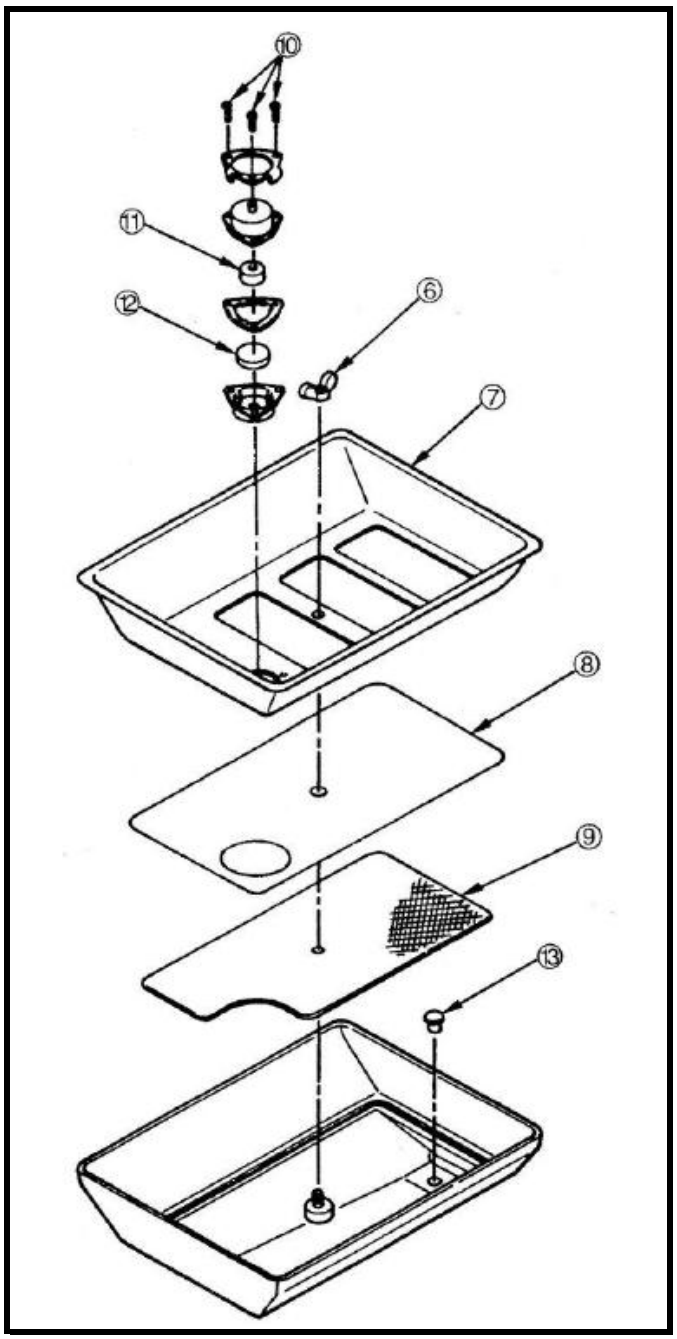


1) Prior to operation, apply an adequate amount of oil once a day to the points marked with the arrows Ⓖ,Ⓗ, Ⓢ. For Ⓙ and Ⓚ, there are similar lubricating points for the hooks.
2) When you operate machines for the first time after the set-up or after an extended period of disuse, apply an adequate amount of oil to the points marked with the arrows and to each felt and oil wick after removing top cover ③.

(Caution) Excessive lubrication will cause oil leakage.



3) Insert the projection located at the bottom of the oil tank ① into the waste oil hole of the oil pan.
4) Insert oil pipe ② into filter ③ of the oil tank and fix the pipe with a clip.
5) Pour the Lily White Sewing Machine Oil in the oil tank up to the HIGH level.
6) Add the same lubricating oil up to HIGH level as soon as the oil level has come down to LOW level.
7) After the lubrication, check through the oil sight window that oil is splashing when operation is normal.
(However, the machine should run at 1,500 rpm or more).



Clean the oil tank

1) Remove the oil pipe from oil tank ①.

2) Remove butterfly nut ⑥ and take out cover (upper) ⑦, filter ⑧ and cover (lower) ⑨ to clean oil tank.

3) Remove filter case setscrew ⑩, and clean filter element ⑪ located on the inside of the filter case and magnet ⑫.

(Caution) Approximately once a month, clean the oil tank and the filter case.

4) When replacing the oil in the oil tank, remove stopper ⑬ in the oil tank. Then, the oil can be drained from the installing port of the waste oil container in the oil pan. After draining, securely set stopper ⑬ to the oil tank. When taking out the oil tank, take it out after draining the oil.

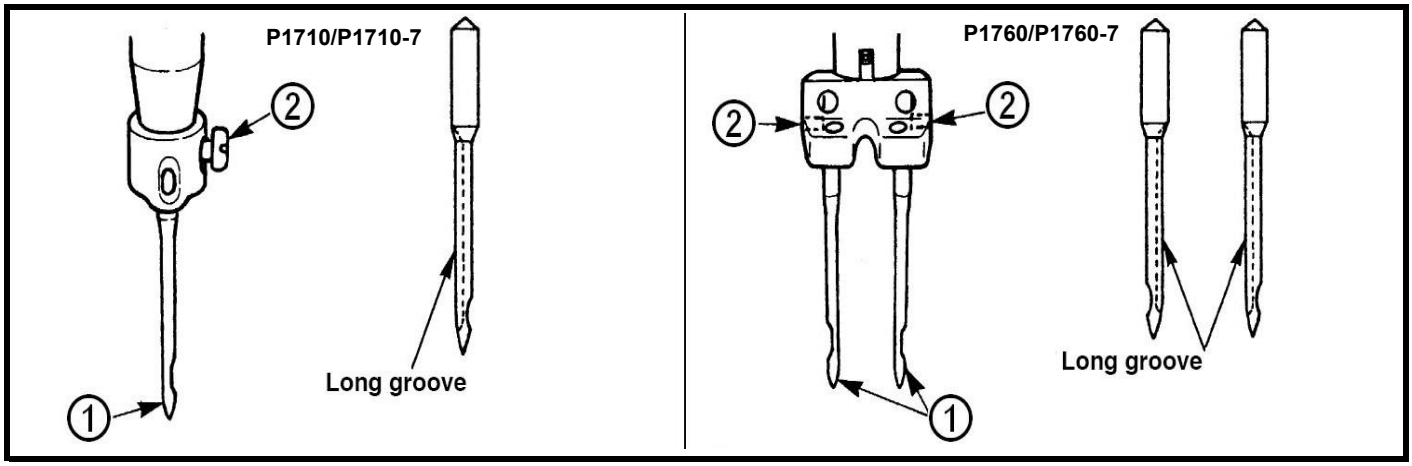
5) Fix the filter case in which filter element ⑪ and magnet ⑫ are placed to the cover (upper) ⑦ with setscrews ⑩.

6) Place cover (lower) ⑨, filter ⑧ and cover (upper) ⑦ in that order in the oil tank, and fix them with butterfly nut ⑥.

7) Insert the oil pipe in the oil tank and fix it with a clip. Fill the oil tank with Lily White Sewing Machine Oil up to the HIGH level.

9. ATTACHING THE NEEDLE

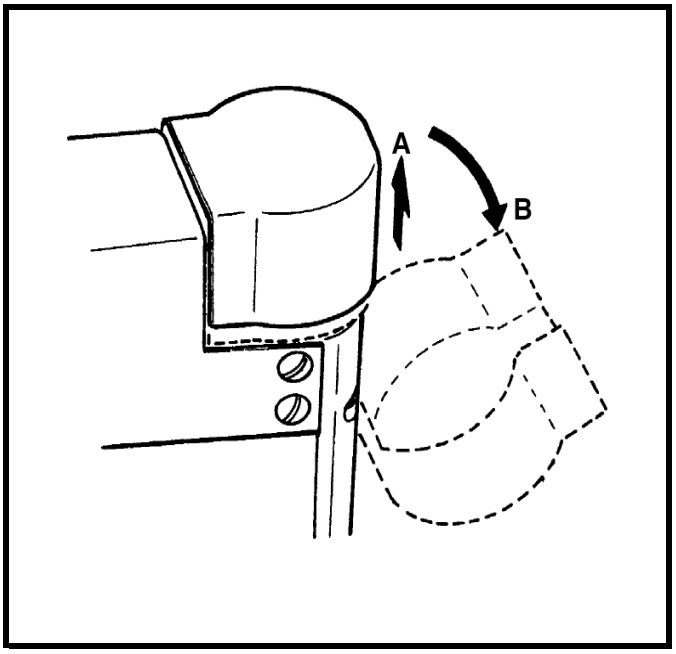
WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.

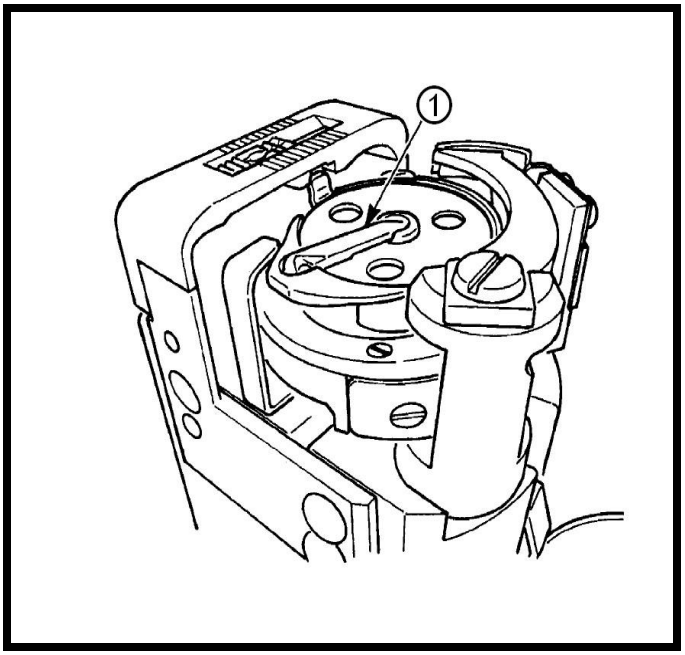


1) Turn the handwheel to bring the needle bar to the highest position of its stroke.
2) Loosen needle clamp screws ②, and hold needles ① so that the long groove of each needle faces inward.
3) Push needles ① deep into the needle clamp holes until they will go no further.
4) Tighten needle clamp screws ② firmly.
(Caution) When replacing the needle, check the clearance provided between the needle and the blade point of hook. (Refer to "20. NEEDLE-TO-HOOK RELATION" and "21. ADJUSTING THE HOOK NEEDLE GUARD".) If there is no clearance, the needle and the hook will be damaged.

10. ATTACHING AND REMOVING THE BOBBIN

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.

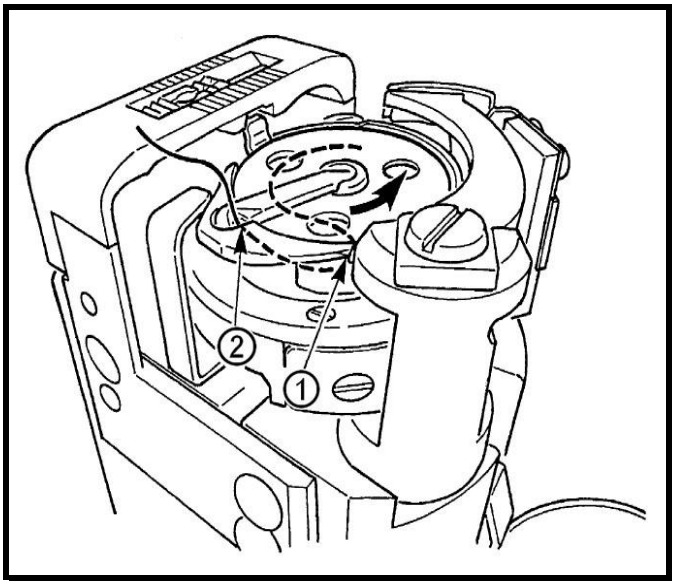




1) Lift the hook cover in direction A, then move it in direction B to open it. On 2-needle machines, open both the left and right hook covers the same way.
2) Lift latch ① of hook, and take out the bobbin.
3) Put the bobbin into the shaft in the hook correctly and release the latch ①.
4) Close the hook cover in the reverse order of step 1).
(Caution)
1. Do not run the machine idle with the bobbin in the hook. The bobbin thread may be caught in the hook and damage it.
2. Be careful not to get hurt by the tip of the counter knife.

11. THREADING THE HOOK

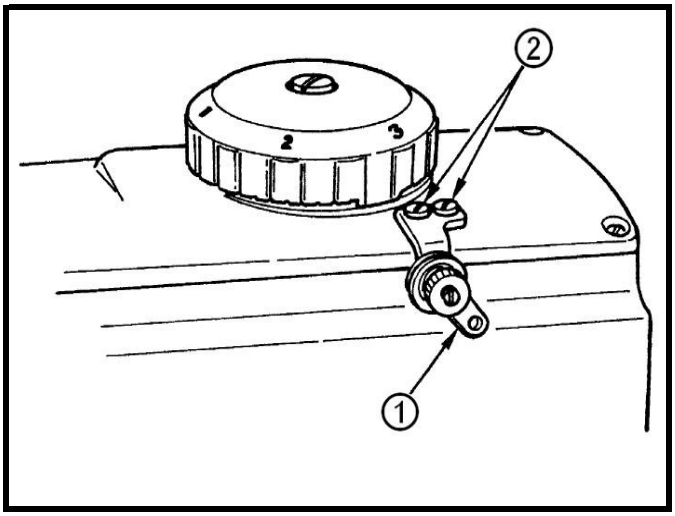
WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



1) Pass the thread through thread path ① in the inner hook and thread hole ② in the lever, and slowly draw the thread. Now, the thread passes under the tension spring.

2) Make sure that the bobbin revolves in the reverse direction of the rotating direction of the hook when you draw the bobbin thread.

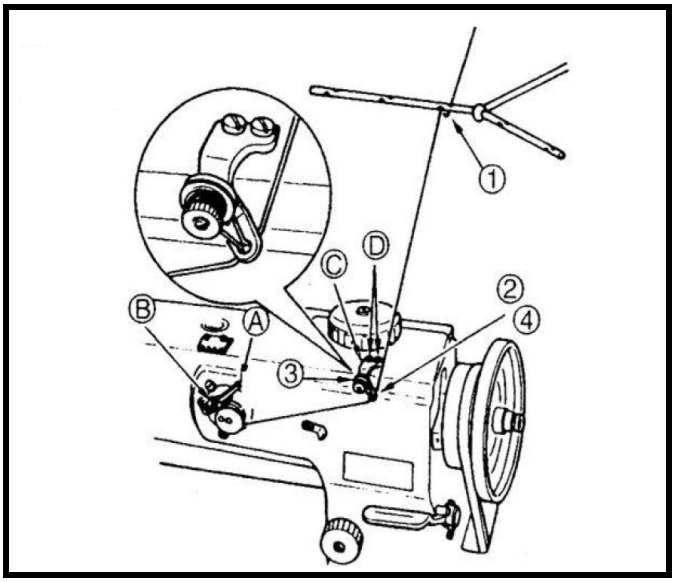
12. INSTALLING THE BOBBIN WINDER THREAD GUIDE



1) Attach bobbin winder thread guide ① to the top cover using screws ②.

2) Adjust the position of the thread guide referring to "13. WINDING BOBBIN".

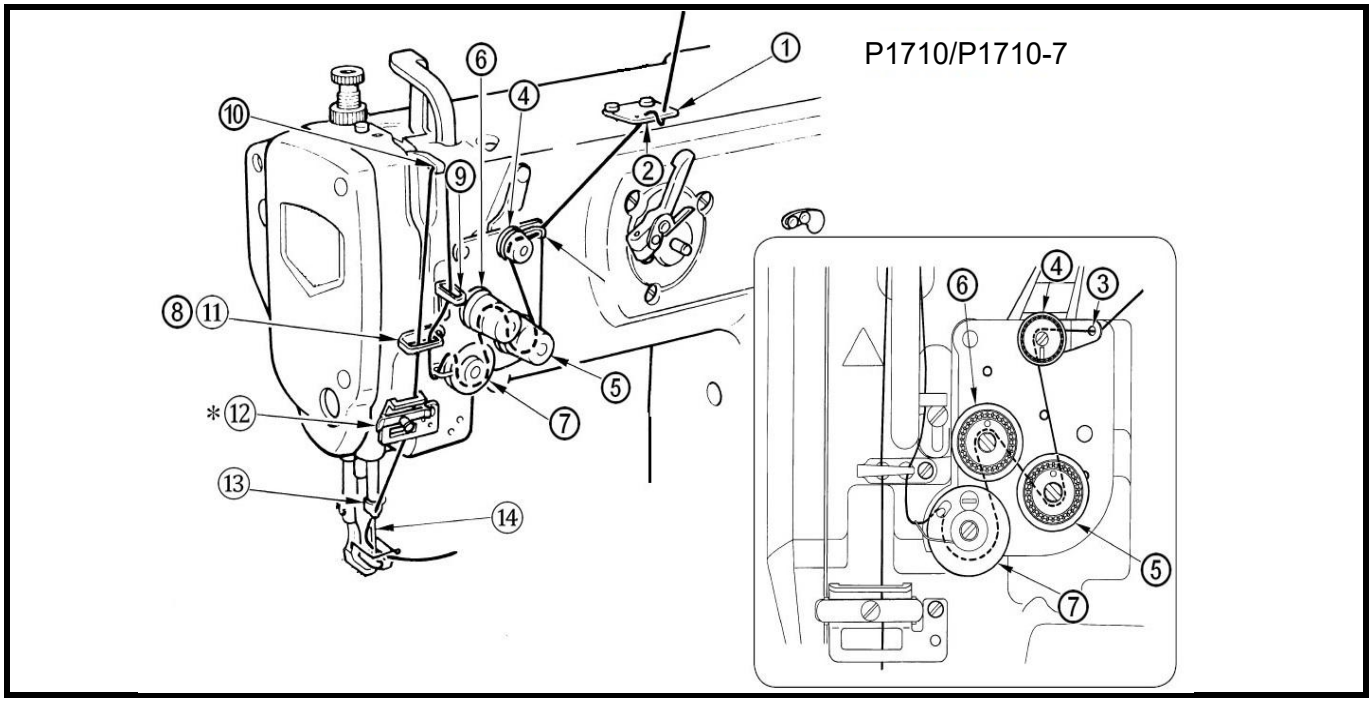
13. WINDING BOBBIN



1) Pass the thread in the order of ① through ④. Then, wind it several turns around the bobbin.
2) Tilt bobbin winder lever Ⓐ.
3) Loosen setscrew Ⓑ and adjust the position of the adjusting plate to wind a bobbin about 80% of its capacity.
4) If the bobbin is wound unevenly, correct it by moving bobbin winder thread guide © back or forth. Then, tighten setscrews Ⓓ.
5) When the bobbin is filled up, the bobbin winder lever automatically releases the bobbin and the bobbin winder stops running.

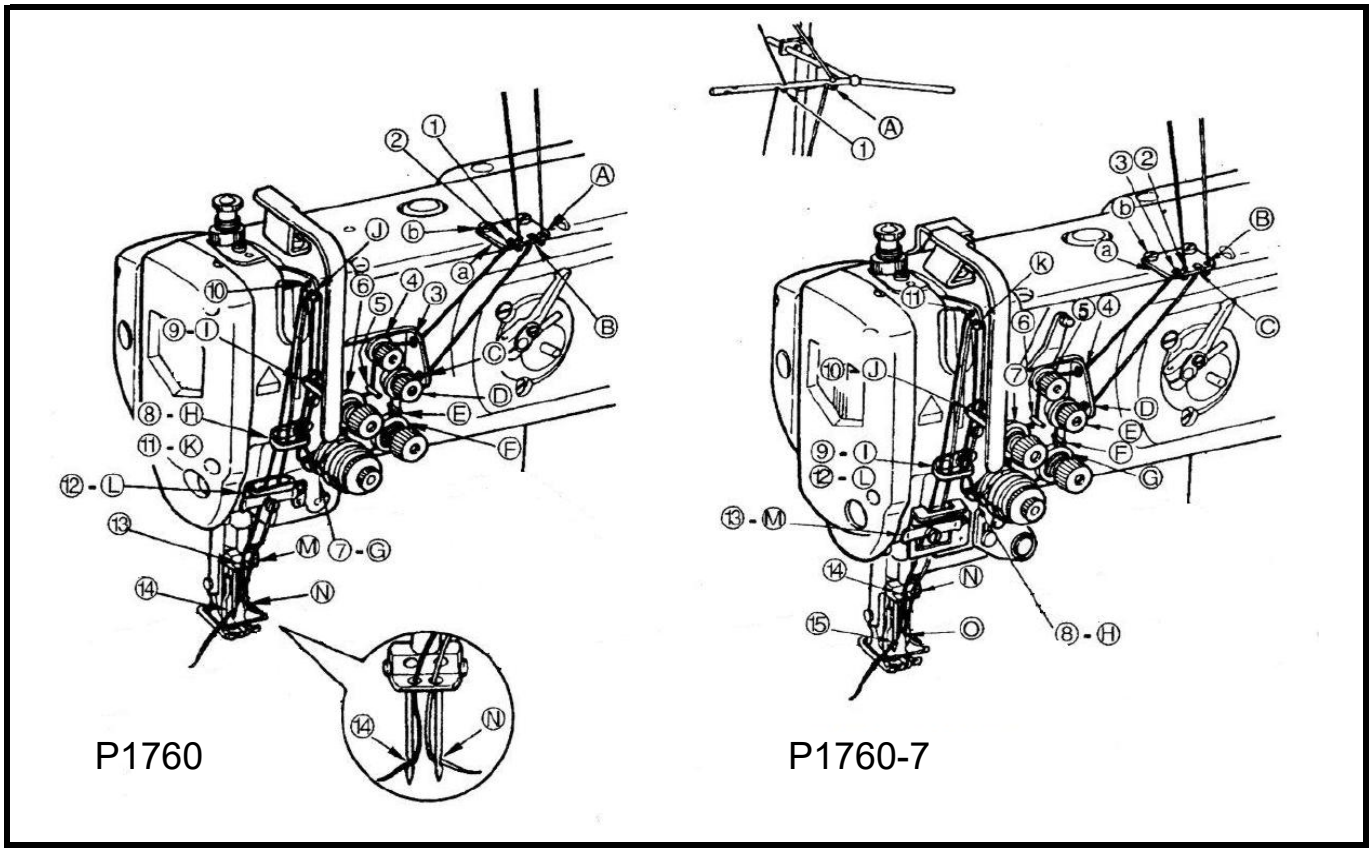
14. THREADING THE MACHINE HEAD

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



Thread the machine head following the order of ① through ⑭ as shown in the illustration given above.

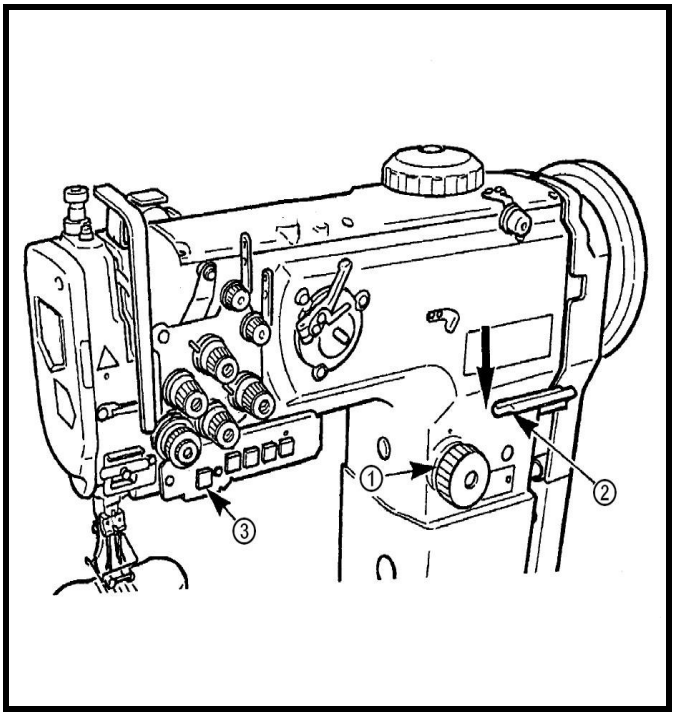
* Pass thread through the right side of the thread guide ⑫.



Pass the left-hand needle thread in the order of ① to ⑭ (⑮).

Pass the right-hand needle thread in the order of Ⓐ to Ⓝ (Ⓞ).

15. ADJUSTING THE STITCH LENGTH



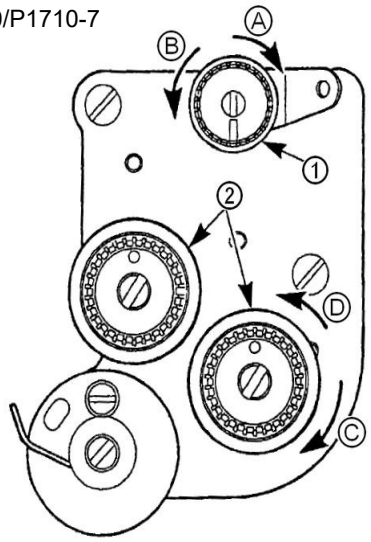
Turn stitch dial ① so that the number for the desired stitch length (mm) is aligned with the marker at the top.

(1) Reverse feed stitching
1) Press down reverse feed control lever ②.
2) Reverse feed stitches are made as long as you keep pressing the lever down.
3) Release the lever, and the machine will run in the normal feed direction.

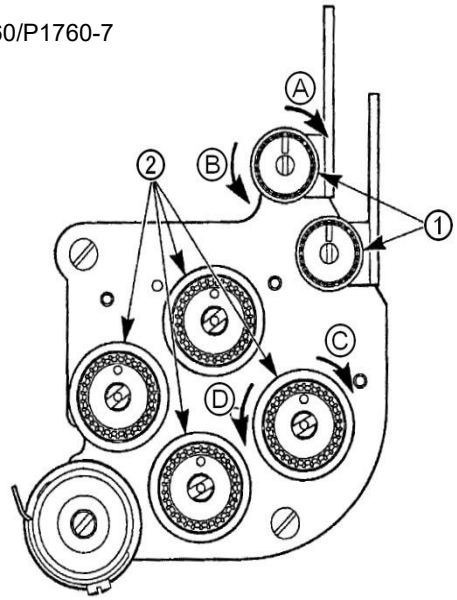
(2) Manual one-touch reverse feed stitching (P1710-7, P1760-7)
1) Press touch-back switch ③.
2) Reverse feed stitches are made as long as you keep pressing the switch.
3) Release the switch, and the machine will run in the normal feed direction.

16. THREAD TENSION

P1710/P1710-7



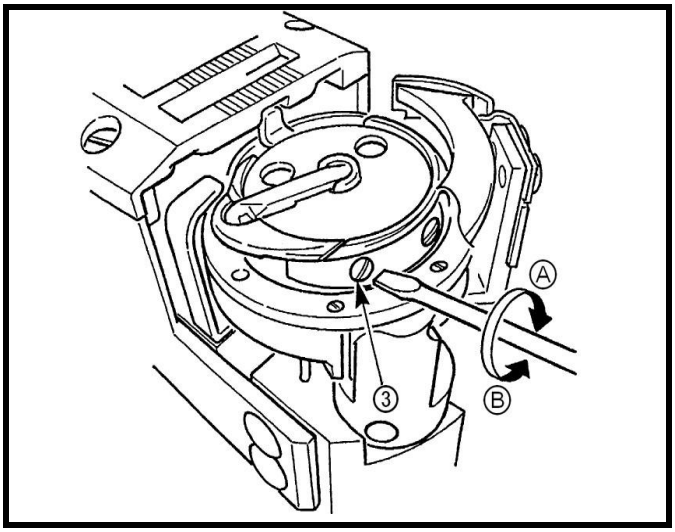
P1760/P1760-7



(1) Adjusting the needle thread tension

1) Turn thread tension nut No. 1 ① clockwise Ⓐ to shorten the length of thread remaining on the top of needle after thread trimming. Turn the nut counterclockwise Ⓑ to lengthen it. (P1710-7, P1760-7)
2) Turn thread tension nut No. 2 ② clockwise Ⓒ to increase the needle thread tension, or counterclockwise Ⓓ to decrease it.

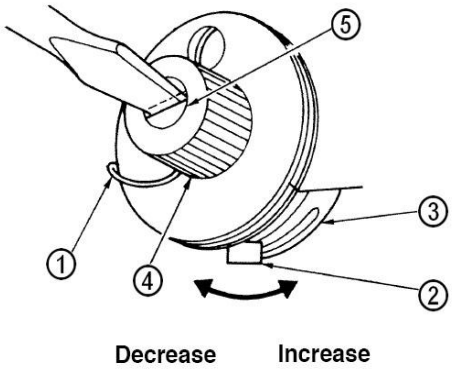
WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



(2) Adjusting the bobbin thread tension
Turn tension adjustment screw ③ clockwise Ⓐ to increase the bobbin thread tension, or counterclockwise Ⓑ to decrease it.

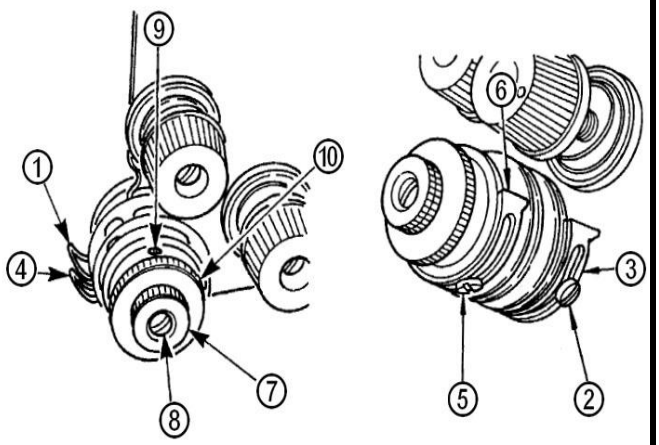
17. THREAD TAKE-UP SPRING

P1710/P1710-7



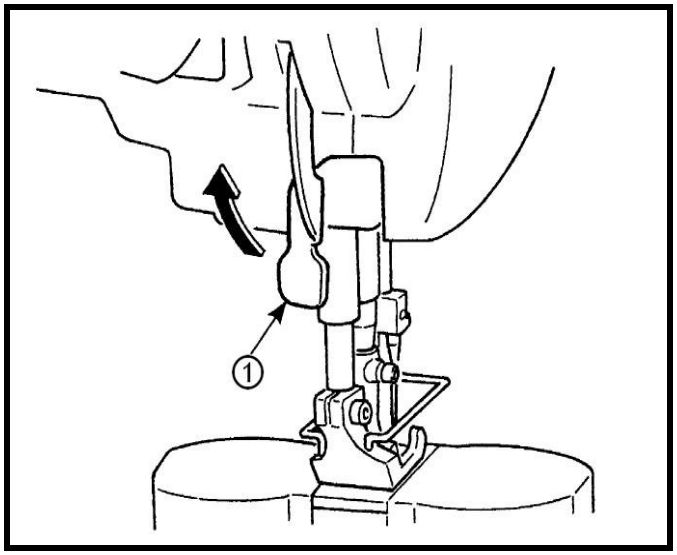
(1) When you want to change the stroke of the spring :
1) Loosen screw ② in the stopper, and move stopper ③ to the right or left to change the stroke of thread take-up spring ①.
2) Move the stopper to the right to increase the stroke of the thread take-up spring, or to the left to decrease it.
(2) When you want to change the tension of the spring :
1) Loosen nut ④, and turn spring stud ⑤ counterclockwise to increase the tension of the spring, or clockwise to decrease it.

P1760/P1760-7



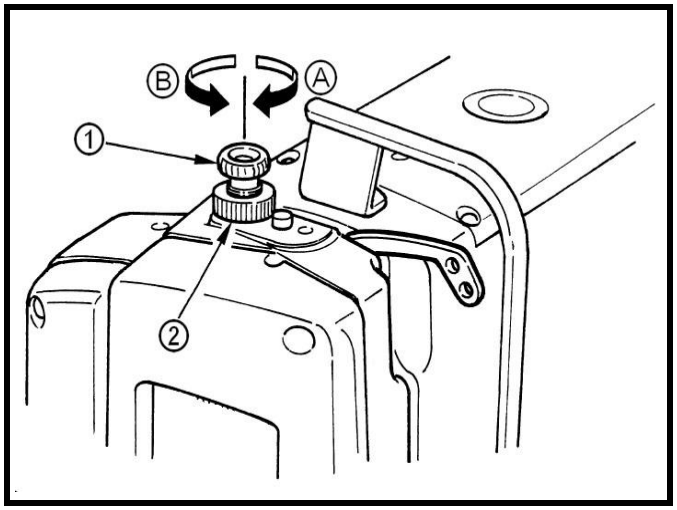
(1) To change the stroke of the thread take-up spring:
1) For thread take-up spring ① on the left-hand side, loosen stopper screw ② and move stopper ③ to the right or left.
2) For thread take-up spring ④ on the right-hand side, loosen stopper screw ⑤ and move stopper ⑥ to the right or left.
3) Move the stopper to the right to increase the stroke or to the left to decrease it.
(2) To change the tension of the thread take-up spring:
1) For the thread take-up spring on the left-hand side, loosen nut ⑦ and turn spring shaft ⑧ counterclockwise to increase the tension of the thread take-up spring or clockwise to decrease it.
2) For the thread take-up spring on the right-hand side, loosen screw ⑨ and turn thread take-up spring peg ⑩ counterclockwise to increase the tension of the thread take-up spring or clockwise to decrease it.

18. HAND LIFTER



1) When you want to keep the presser foot in the lifted position, lift hand lifter ① in the direction of the arrow. This makes the presser foot rise 9 mm and stay at that position.
2) To make the presser foot come down to its home position, lower the hand lifter.

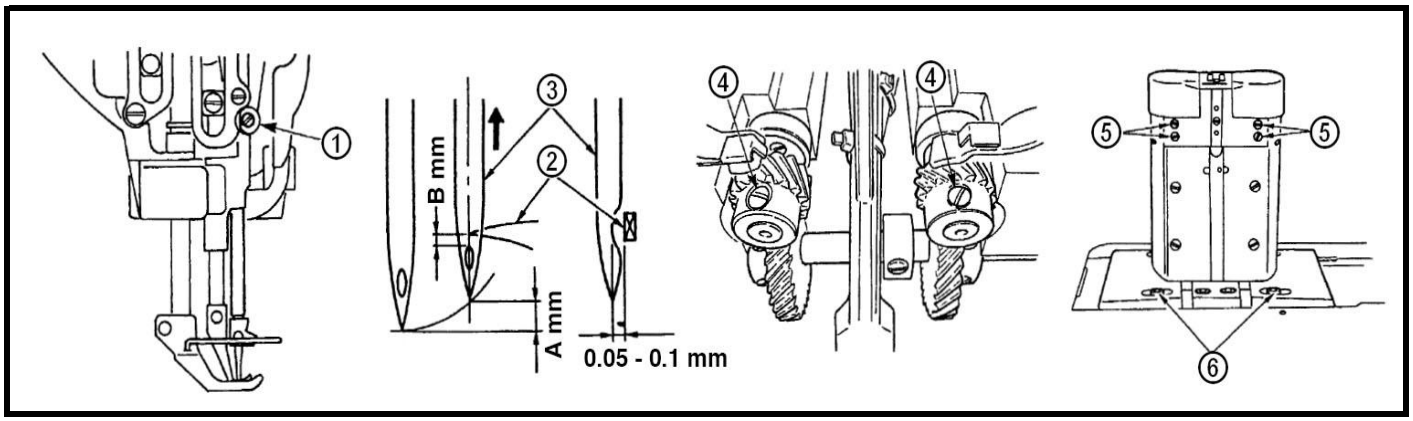
19. ADJUSTING THE PRESSURE OF THE PRESSER FOOT



Turn presser spring regulating dial ① clockwise Ⓐ to increase the pressure of the presser foot, or counterclockwise Ⓑ to decrease it.
After the adjustment, tighten nut ②.

20. NEEDLE-TO-HOOK RELATION

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



	A (mm)	B (mm)
P1710	2.5	2.2
P1710-7	2.5	2
P1760	2.5	2.2
P1760-7	2.9	2

(1) Preparation for adjustment of the needle-to-hook relation

1) Set the stitch dial to "0".

2) Turn the handwheel to bring the needle bar to its lowest position, and loosen two setscrews ① in the needle bar connection.

(2) Height of the needle bar

It is standard that the distance from the top end of the needle eye of needle ③ to blade point of hook ② is dimension B when the needle bar rises to dimension A from its lowest position.

(3) Positioning the hook

1) Loosen three setscrews ④ in the screw gear (small) and turn the handwheel to make the needle bar ascend to dimension A from the lowest position of the needle bar.

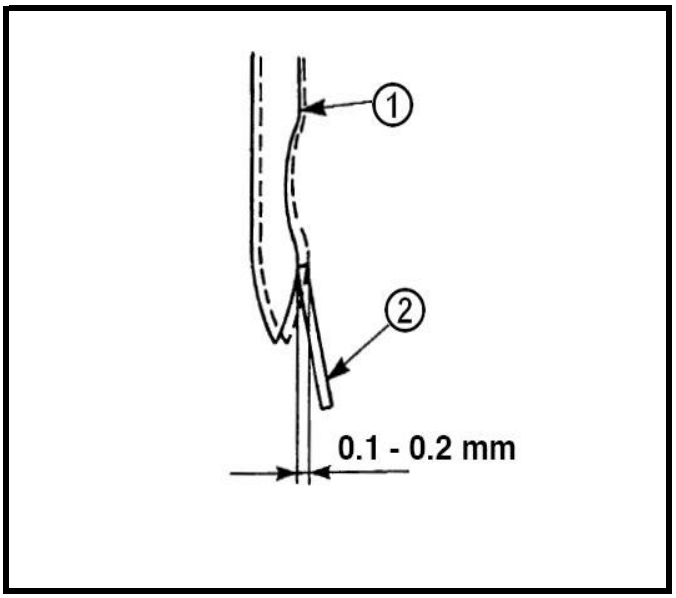
2) In this state, loosen 8 setscrews ⑤ in the throat plate support and 4 setscrews ⑥ in the left and right hook driving shaft saddles and move the hook driving shaft saddles to the right or left to adjust so that a clearance of 0.05 to 0.1 mm is provided between blade point of hook ② and needle ③. Then tighten setscrews ⑤ and ⑥.

3) Next, in the state of step 1), adjust blade point of hook ② to the center of needle ③, tighten setscrews ④ in the screw gear (small).

21. ADJUSTING THE HOOK NEEDLE GUARD



WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



When a hook has been replaced, be sure to check the position of the hook needle guard.

As the standard position of the hook needle guard, hook needle guard ① must push the side face of needle ② to lean the needle by 0.1 to 0.2 mm away from its straight position.

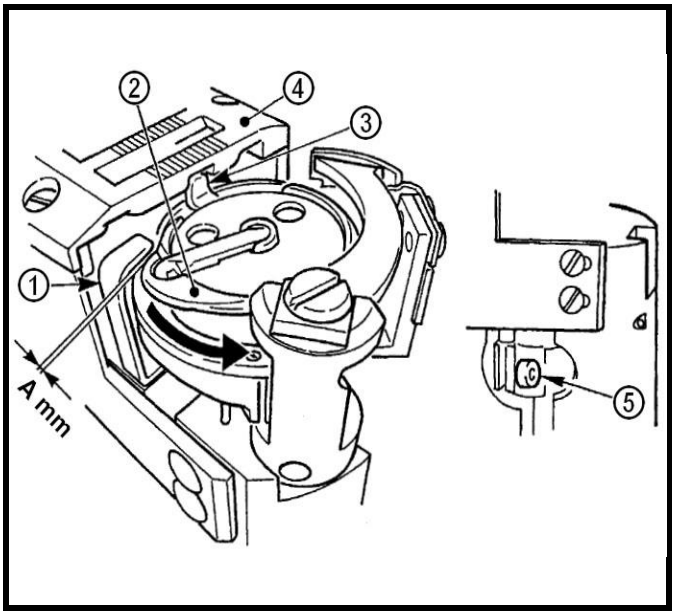
If not, adjust the hook needle guard by bending it.

1) To bend the hook needle guard inward, apply a screwdriver to the outside of the hook needle guard.

2) To bend the hook needle guard outward, apply a screwdriver to the inside of the hook needle guard.

22. ADJUSTING THE INNER HOOK GUIDE

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.

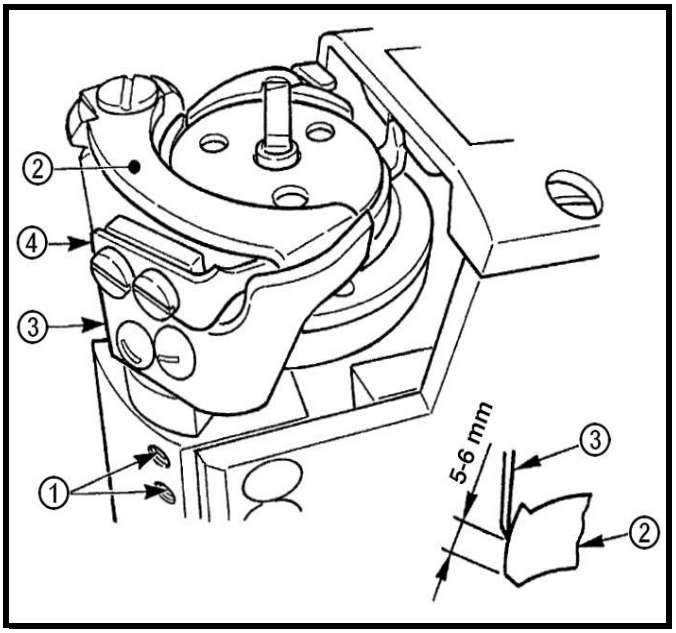


	A (mm)
P1710	0.1-0.3
P1710-7	
P1760-7	
P1760	0.2-0.4

1) Open the hook cover. (How to open: move the hook cover to the right or left after lifting it straight up.)
2) Turn the handwheel in its normal rotational direction to bring inner hook guide ① to its back end position.
3) Turn inner hook ② in the direction of the arrow until inner hook stopper ③ rests in the groove in throat plate ④.
4) Loosen setscrew ⑤ in the inner hook guide and adjust the clearance between the inner hook guide and the protruding section of the inner hook to dimension A. Then tighten setscrew ⑤ in the inner hook guide.
5) Move inner hook guide ① up and down to make sure that there is no play in the thrust direction.
(Caution) In case of 2-needle machine, perform the same adjustment to the right and left hooks.

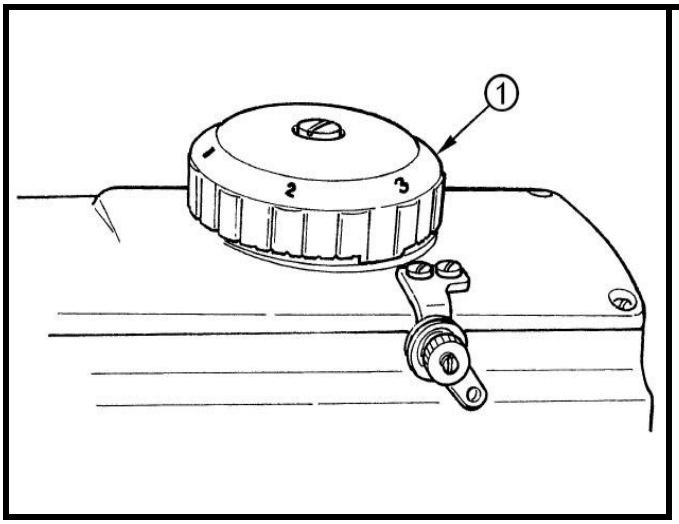
23. POSITION OF THE COUNTER KNIFE (P1710-7 / P1760-7)

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



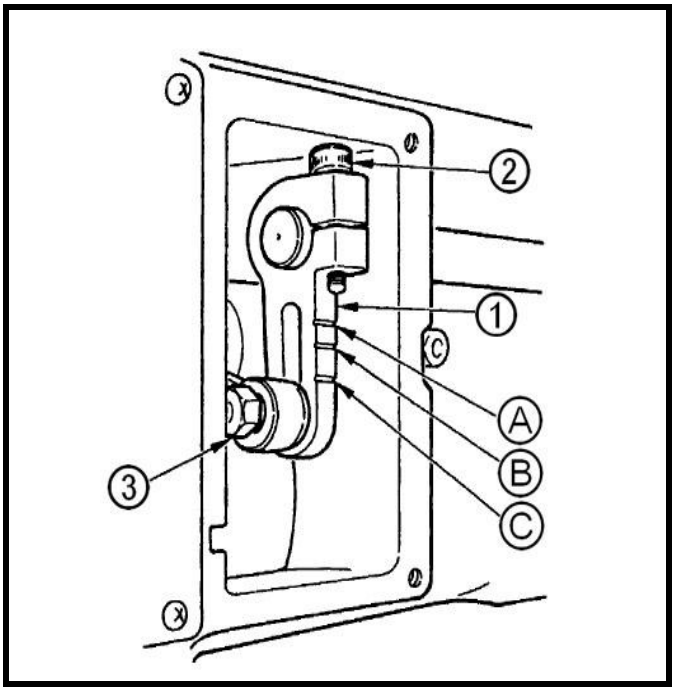
(1) Position of the counter knife
1) Loosen setscrews ① in the counter knife installing base.
2) Turn moving knife ② by hand and tighten setscrews ① so that the position where counter knife ③ and moving knife ② start to come in contact with each other is 5 to 6 mm.

24. ADJUSTING THE LIFTING AMOUNT OF THE PRESSER FOOT AND THE WALKING FOOT



The lifting amount of the presser foot and the walking foot is adjusted using dial ①. Turn the dial clockwise to increase the lifting amount or counterclockwise to decrease it.

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



The amount of alternate vertical movement of the presser foot and the walking foot is normally equal.
To increase the amount of alternate vertical movement, move upper feed arm ① upward in the range of the slot.
To decrease it, move the upper feed arm downward. Then, tighten the nut ③.
To change the lifting amount of the presser foot and that of the walking foot, loosen screw ② in the upper feed arm, turn the handwheel toward you and tighten screw ② when the bottom faces of the presser foot and the walking foot are flush at the top surface of the throat plate.
The lifting amount of the presser foot will then be greater than that of the walking foot. To make the walking foot lift more than the presser foot, turn the handwheel in the reverse direction.

Standard of the amount of alternate vertical movement	
Engraved marker Ⓐ	Approx. 5mm
Engraved marker Ⓑ	Approx. 4mm
Engraved marker ©	Approx. 3mm

25. SEWING SPEED TABLE

The maximum sewing speed has been specified in accordance with sewing conditions as shown in the table below. Set the maximum sewing speed appropriately in accordance with the sewing conditions given to satisfy the corresponding specified value.

1) Maximum sewing speed in accordance with the amount of alternate vertical movement of the walking foot

P1710/P1760

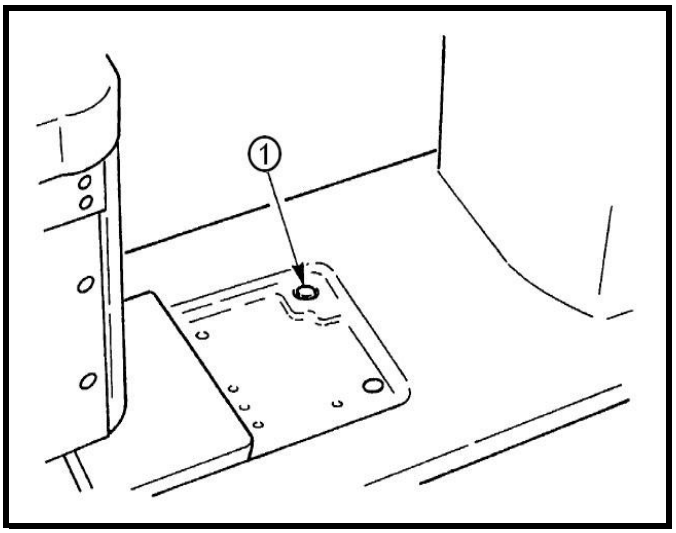
Amount of alternate vertical movement of the walking foot and presser foot	Stitch length: 6mm or less	Stitch length: more than 6 mm and up to 9 mm
Less than 3mm	2500 sti/min	1800 sti/min
More than 3mm and 4mm or less	1800 sti/min	1800 sti/min
More than 4mm and 6.5mm or less	1600 sti/min	1600 sti/min

P1710-7/P1760-7

Amount of alternate vertical movement of the walking foot and presser foot	Stitch length: 6mm or less	Stitch length: more than 6 mm and up to 9 mm
Less than 2.5mm	2500 sti/min	1800 sti/min
More than 2.5mm and 4mm or less	2200 sti/min	1800 sti/min
More than 4mm and 4.75mm or less	1800 sti/min	1800 sti/min
More than 4.75mm and 6.5mm or less	1600 sti/min	1600 sti/min

26. RESETTING THE SAFETY CLUTCH

WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



The safety clutch functions when an excessive load is applied to the hook or the other components during sewing. At this time, the hook will not rotate even when the handwheel is turned. When the safety clutch has functioned, remove the cause and reset the safety clutch as given in the following procedure.

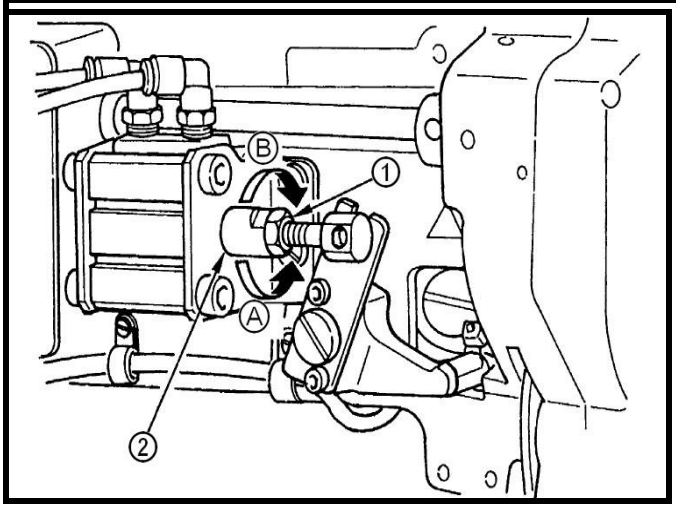
1) While pressing push button ① located on the top surface of the machine bed, turn the handwheel firmly in the reverse direction of rotation.

2) Resetting is complete when the handwheel clicks.

(Caution) Turn the handwheel by hand and make sure that push button ① has returned.

27. ADJUSTING THE AUTOMATIC PRESSER FOOT LIFTER (OPTIONAL)

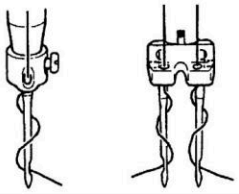
WARNING:
To avoid possible personal injury due to abrupt start of the machine, turn off the power to the machine and check to be sure that the motor has completely stopped rotating.



1) Loosen adjustment nut ①, turn cylinder rod ② and adjust so that the lifting amount of the presser foot is 16 mm when the cylinder is fully compressed. Turn the rod in the direction of Ⓐ to decrease the lifting amount, or turn it in the direction of Ⓑ to increase the lifting amount.

2) After the adjustment, tighten adjustment nut ①.

28. TROUBLES IN SEWING AND CORRECTIVE MEASURES

Troubles	Causes	Corrective measures
1. Thread breakage (Thread frays or is worn out.)	① Thread path, needle point, hook blade point or bobbin case resting groove on the throat plate has sharp edges or burrs.	○ Remove the sharp edges or burrs on the blade point of hook using a fine emery paper. Buff up the bobbin case resting groove on the throat plate.
	② Needle thread tension is too high.	○ Decrease the needle thread tension.
	③ Bobbin case opening lever provides an excessive clearance at the bobbin case.	○ Decrease the clearance provided between the bobbin case opening lever and the bobbin. Refer to "22. ADJUSTING THE INNER HOOK GUIDE".
	④ Needle comes in contact with the blade point of hook.	○ Refer to “20. NEEDLE-TO-HOOK RELATION”.
	⑤ Amount of oil in the hook is too small.	○ Adjust the amount of oil in the hook properly. Refer to "8. LUBRICATION".
	⑥ Needle thread tension is too low.	○ Increase the needle thread tension.
	⑦ Thread take-up spring works excessively or the stroke of the spring is too small.	○ Decrease the tension of the spring and increase the stroke of the spring.
(Needle thread trails 2 to 3 cm from the wrong side of the fabric.)	⑧ Timing between the needle and the hook is excessively advanced or retarded.	○ Refer to “20. NEEDLE-TO-HOOK RELATION”.
2. Stitch skipping	① Timing between the needle and the hook is excessively advanced or retarded.	○ Refer to “20. NEEDLE-TO-HOOK RELATION”.
	② Pressure of the presser foot is too low.	○ Increase the presser foot pressure. Refer to "19. ADJUSTING THE PRESSURE OF THE PRESSER FOOT".
	③ The clearance provided between the top end of the needle eyelet and the blade point of hook is not correct.	○ Refer to "20. NEEDLE-TO-HOOK RELATION".
	④ Hook needle guard is not functional.	○ Refer to “21. ADJUSTING THE HOOK NEEDLE GUARD”.
	⑤ Improper type of needle is used.	○ Replace the needle with one which is thicker than the current needle by one count.
	⑥ Twist of the needle thread has come undone	○ Wind the needle thread around the needle. 
3. Loose stitches	① Bobbin thread does not pass through the tension spring of the inner hook.	○ Thread the bobbin thread correctly.
	② Thread path has been poorly finished.	○ Remove rough parts with a fine emery paper or buff it up.
	③ Bobbin fails to move smoothly.	○ Replace the bobbin or hook with a new one.
	④ Bobbin case opening lever provides too much clearance at the bobbin.	○ Refer to “22. ADJUSTING THE INNER HOOK GUIDE”.
	⑤ Bobbin thread tension is too low.	○ Increase the bobbin thread tension.
	⑥ Bobbin has been wound too tightly.	○ Decrease the tension applied to the bobbin winder.
	⑦ Insufficient lubrication	○ Perform lubrication to the hook. (When using thick thread, it is recommended to perform lubrication to the hook every time the bobbin is replaced.
4. Thread is caught with the feed dog.	① Stroke of the thread take-up spring is small.	○ Increase the stroke of the thread take-up spring.
	② Tension of the thread take-up spring is low.	○ Increase the tension of the thread take-up spring.
5. Thread slips off the needle eyelet simultaneously with thread trimming.	① Needle thread tension set by thread tension nut No. 1 is too high.	○ Decrease the needle thread tension given by thread tension nut No. 1.
6. Thread slips off the needle eyelet at the start of sewing.	① Needle thread tension set by thread tension nut No. 1 is too high.	○ Decrease the needle thread tension given by thread tension nut No. 1.
	② Clamp spring has improper shape.	○ Replace the clamp spring with a new one or correct the current one.
	③ Bobbin thread tension is too low.	○ Increase the bobbin thread tension.
7. Thread is not cut sharply.	① The blades of moving knife and counter knife have been improperly adjusted.	○ Refer to "23. POSITION OF THE COUNTER KNIFE".
	② The knives have blunt blades.	○ Replace the moving knife and counter knife with new ones, or correct the current ones.
	③ Bobbin thread tension is too low.	○ Increase the bobbin thread tension.
8. Thread remains uncut after thread trimming. (Bobbin thread trimming failure when stitch length is comparatively short.)	① Initial position of the moving knife has been improperly adjusted.	○ Contact your Consew dealer.
	② Bobbin thread tension is too low.	○ Increase the bobbin thread tension.
9. Thread breaks at the start of sewing after thread trimming.	① The needle thread is caught in the hook.	○ Shorten the length of thread remaining on the needle after thread trimming. Refer to “16. THREAD TENSION”.