

ENGINEER'S MANUAL

1765

Introduction

This Engineer's Manual is for technical service engineers. In the Adjusting instruction manual for the maintenance engineers of sewing machine and sewing workers in a sewing factory, how to operate a sewing machine is also described in detail. However, in this manual, [Adjustment Procedure]. [Results of Value change for Adjustment], and the roles of each component are described: these are not included in the Adjusting instructions manual.

When maintenance is performed for our sewing machines, refer not only to this manual, but also to the Adjusting instructions / illustrated parts list.

In regard to the thread trimming machine motor, please refer to the Instruction Manual for the SC-510 motor and the Service Manual, separately furnished. In regard to the control panel also, please refer to the Instruction Manual for the control panel.

This Engineer's Manual describes the basic adjusting values as the reference values in the first page, and the observed events caused by sewing and mechanical faults as the [Results of Value Change for Adjustment], and [Adjustment Procedure] in the second page.

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1. Specifications

No.	Model name	Application					
	Item	PLC-1710	PLC-1760	PLC-1710-7	PLC-1760-7	PLC-1760L	
1	Specifications for sewing	Post bed, 1-needle, unison-feed lockstitch machine with a vertical-axis large hook	Post bed, 2-needle, unison feed lockstitch machine with vetical-axis large hooks	Post bed, 1-needle, unison feed, lockstitch machine with a vertical-axis large hook, with automatic thread trimmer	Post bed, 2-needle, unison feed, lockstitch machine with vertical-axis large hooks, with automatic thread trimmer	Post bed, 2-needle, unison feed lockstitch machine with vetical-axis large hooks (pachynema/long pitch specification)	
2	Application	Heavy-weight material					Heavy weight material (Thick thread specifications)
3	Max. sewing speed	* For max. sewing speed, refer to 13. List of the sewing speeds.					
4	Applicable needles (Range)	Schmetz 134 x 35 (R) (Nm 110 to Nm 160)					Schmetz 134 x 35 (R) (Nm 140 to Nm 200)
	(Standard needle No.)	(Standard Nm 140)					(Standard Nm 200)
5	Applicable thread size for sewing	#30 to #5 (US: #46 to #138, Europe : 60/3 to 20/3)					#8 to #0 (US: 92 to #266, Europe: 30/3 to 15/3)
6	Stitch length	Max. 9mm (for both forward and reverse feed stitching)					Max. 12mm (for both normal and reverse feed stitching)
7	Stitch adjusting system	By dial					
8	Thread take-up	By slide					
9	Reverse feed stitching	Using hand lever		With air cylinder touch-back switch		Using hand lever	
10	Needle bar stroke	36mm					38mm
11	Work clamp listing system	Using handle lifer : 9mm					
		Using a knee lifter : 16mm		Automatic presser lifter: 16mm		Using a knee lifter : 16mm	
12	Alternate vertical amount	2.5 to 6.5mm		1 to 6.5mm			
13	Adjustment of the amount of alternating vertical movement of the walking foot and presser foot	Oblong hole slide adjusting system		Alternate vertical dial adjusting system			
14	DL device (Alternate vertical dial)	Without		Provides as standard (DL-23)		Option (DL-23)	
15	Safety unit provided as standard	Provided as standard					
16	Bobbin winder	Arm built-in type					
17	Bottom feed fine adjustment mechanism	Provided as standard					
18	Hook	1.6-fold horizontal hook (latch type)					1.6-fold horizontal hook (cap type)
19	Feed mechanism	Box feed					
20	Vertical shaft drive	Timing belt					
21	Thread trimming method	_____		Cam-driven pinch-and-cut system		_____	
22	Lubrication	Concentrated tank type oil wick lubrication (manual lubrication for the surface of the hook section)					
23	Lubricating oil	JUKI NEW Defrix oil No. 2 (equivalent to ISO VG32)					
24	Space under the arm	255mm (distance from the center of the presser bar to the bottom of the arm)					
25	Hook shaft bed height	161.7mm (Bed top plane to throat plate top plane)					
26	Bed size	517mm x 178mm					
27	Knee presser lifter	Provided as standard		Not		Provided as standard	
28	Auto presser lifter	Option (AK-136)		Provided as standard (AK-136)		Option (AK-136)	
29	Hand wheel size	Effective diameter of V-belt section: ø93.3mm, outer diameter: ø160mm					Effective diameter of V-belt section: ø93.3mm Outer diameter: ø175mm
30	Motor	2P,400W, 4P,400W		SC-510/M51		2P,400W, 4P,400W	
31	Weight (gross weight)	55kg	56kg	55kg	56kg	58kg	
32	Air consumption	_____		0.3dm³/min (ANR)			
33	Working temperature/humidity	Temperature : 5℃ to 35℃, Humidity : 35% to 85% (no condensation)					
34	Supply voltage/frequency	Rated voltage ±10%, 50 / 60Hz					

2. Model Numbering system

(1) PLC-1710

Model name: Post bed, 1-needle, union-feed lockstitch machine with a vertical-axis large hook

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
P	L	C	1	7	1	0	S	□	□	△	△	△	□	—	A	A

8	Type classification
S	Standard

9 to 14	Classification of automatic presser lifter
Space	Nil
AK136B	AK-136B with pedal switch type

16	Place of destination
A	Standard

17	Accessories type
A	Standard

(2) PLC-1760

Model name: Post bed, 2-needle, union feed lockstitch machine with vertical-axis large hooks

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
P L C 1 7 6 0 ☐ ☐ ☐ / ☐ ☐ / ☐ ☐ / ☐
 19 20 21 22 23 24 25 26
☐ ☐ ☐ ☐ ☐ **- A A**

8	Type clasification
S	Standard
L	Thick-thread long-pitch

9	Needle gauge classification
B	6mm
C	8mm
D	10mm
E	12mm

* For thick-thread long pitch type 'L' is available only the needle gauge D (10mm).

10	Classification of presser
S	Standard
A	With center guide

12 to 16	Classification of units
Space	Nil
BT/DL	With BT/DL23

* Provisions of units are not available if S (Standard) is selected for the classification of specifications.

18 to 23	Classification of automatic presser lifter
Space	Nil
AK136B	AK-136B with pedal switch type

* The AK136B shall be selected if BT/DL is selected for the classification of units.

25	Place pf destonation
A	Standard

26	Accessories type
A	Standard

(3) PLC-1710-7

Model name: Post bed, 1-needle, unison feed, lockstitch machine with a vertical-axis large hook, with automatic thread trimmer

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

P L C 1 7 1 0 S 7 0 B A K 1 3 6 B – A A

8	Type clasification
S	Standard

12 to 17	Classification of automatic presser lifter
AK136B	AK-136B with pedal switch type

19	Place pf destonation
A	Standard

20	Accessories type
A	Standard

(4) PLC-1760-7

Model name: Post bed, 2-needle, unison feed, lockstitch machine with a vertical-axis large hooks, with automatic thread trimmer

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
P L C 1 7 6 0 S ☐ ☐ **7 0 B A K 1 3 6**
19 20 21 22
B – A A

8	Type clasification
S	Standard

9	Needle gauge classification
B	6mm
C	8mm
D	10mm
E	12mm

10	Classification of presser
S	Standard
A	With center guide

14 to 19	Classification of automatic presser lifter
AK136B	AK-136B with pedal switch type

21	Place pf destonation
A	Standard

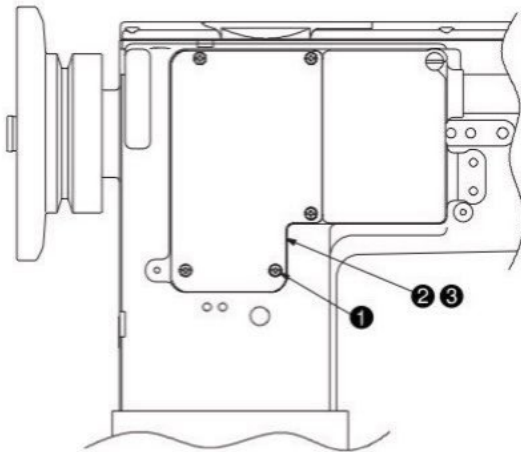
22	Accessories type
A	Standard

3. Standard adjustment

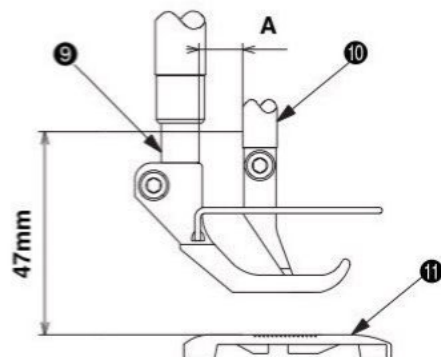
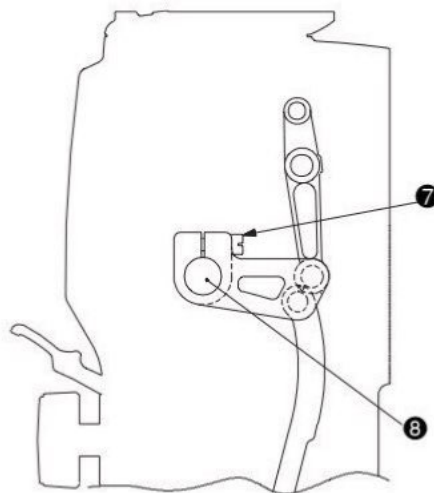
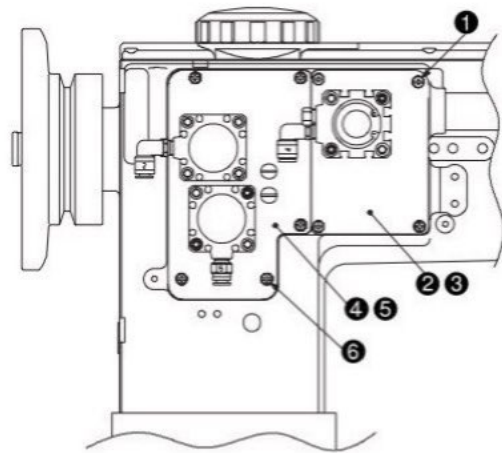
(1) Needle entry position

Standard Adjustment

o PLC-1710, 1760, 1760L



o PLC-1710-7, 1760-7

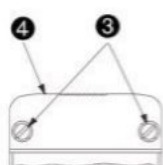
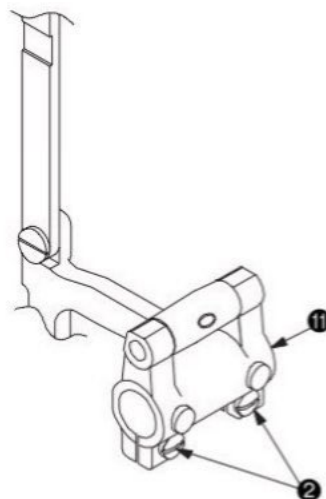
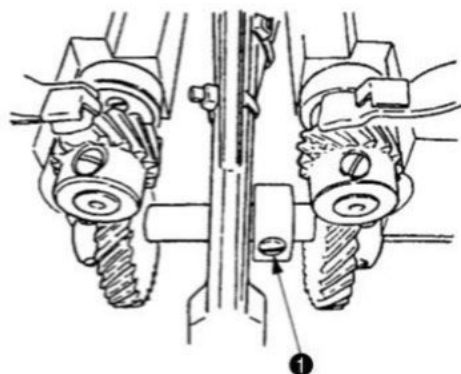


Model	Dimension A
PLC-1710	9.5±0.15mm
PLC-1760	
PLC-1710-7	10.5±0.15mm
PLC-1760-7	
PLC-1760L	9.9±0.15mm

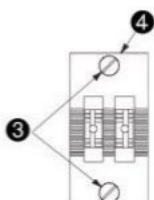
Adjustment Procedures	Results of Improper Adjustment
<p>o For PLC-1710, 1760, and 1760L</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Turn the hand wheel by hand and adjust the needle bar to the lowest position. 3. Loosen the window plate setscrews ❶ (5 positions) located behind the sewing machine. Remove the window plate ❷ and the window plate gasket ❸. 4. Loosen the rear needle bar rocking arm tightening screw ❷. 5. In the state that the presser is lifted, adjust the clearance between the presser bar ❹ and the upper feed bar ❿ to Dimension A at the level 47mm above the upper surface of the throat plate ⓫. Since then, tighten the rear needle bar rocking arm tightening screw ❷. 6. Return the window plate ❷ and the window plate gasket ❸ to their former positions, which have been removed as per 3. above. Then, tighten the setscrews ❶ (5 positions). <p>(Caution) After the rear needle bar rocking arm tightening screw ❷ has been tightened, confirm that there is no thrust backlash around the needle bar rocking shaft ⓬.</p> <p>o For PLC-1710-7 and 1760-7</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Turn the hand wheel by hand and adjust the needle bar to the lowest position. 3. Loosen the setscrews ❶ (4 positions) of the window plate ❷ located behind the sewing machine. Remove the window plate ❷ and the window plate gasket ❸. <p>At that time, removal can be done easily if the graduations of the alternate vertical dial have been set at the maximum level in advance.</p> <ol style="list-style-type: none"> 4. Loosen the setscrews ❻ (5 positions) of the window plate ❹ and remove the window plate ❹ and the window plate gasket ❺. 5. Loosen the rear needle bar rocking arm tightening setscrew ❷ (1 position). 6. In the state that the presser is lifted, adjust the clearance between the presser bar ❹ and the upper feed bar ❿ to Dimension A at the level 47mm above the upper surface of the throat plate ⓫. Since then, tighten the rear needle bar rocking arm tightening setscrew ❷ firmly. 7. Return the window plates ❷, ❹ and the window plate gaskets ❸, ❺ to their former positions, which have been removed as per 3. and 4. above. Then, tighten the setscrews ❶ (4 positions) and ❻ (5 positions), respectively. <p>(Caution) After the rear needle bar rocking arm setscrew ❷ has been tightened, confirm that there is no thrust backlash around the needle bar rocking shaft ⓬.</p>	<p>o Stitch skipping or needle breakage will be caused.</p> <p>o Poorly tense stitches will be caused.</p>

(2) Adjustment of the feed dog position

Standard Adjustment

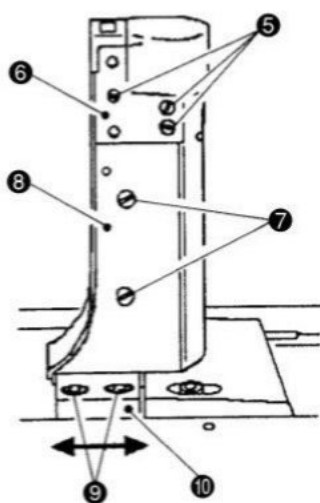


PLC-1710
PLC-1710-7



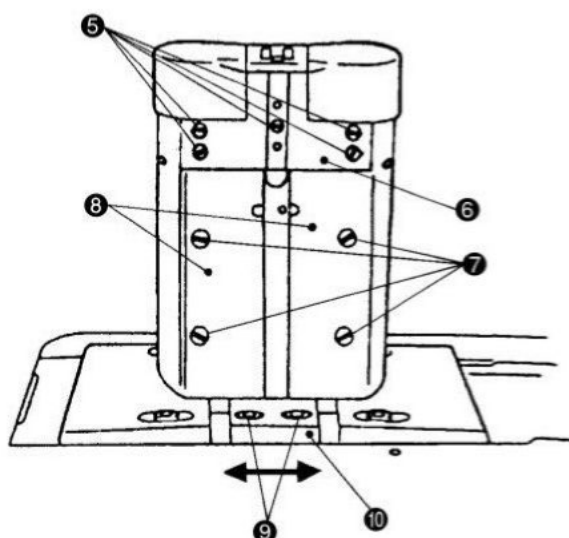
PLC-1760
PLC-1760-7
PLC-1760L

1-needle



PLC-1710
PLC-1710-7

2-needle

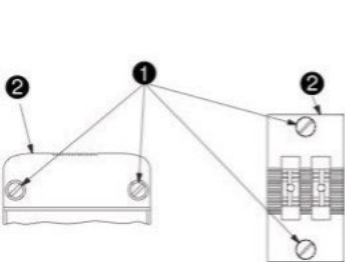


PLC-1760
PLC-1760-7
PLC-1760L

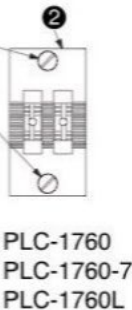
Adjustment Procedures	Results of Improper Adjustment
<ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Let the sewing machine fall down. 3. Loosen the vertical feed cam setscrews ❶ (2 positions). 4. Loosen the feed bracket arm tightening setscrews ❷ (2 positions). 5. Raise the sewing machine. 6. Loosen the throat plate setscrews ❸ (2 positions) and remove the throat plate ❹. 7. Loosen the throat plate holder setscrews ❺ (1-needle: 6 positions, 2-needle: 10 positions) and remove the throat plate holder ❻. 8. Loosen the hook shaft base cover setscrews ❼ (1-needle: 4 positions, 2-needle: 8 positions) and remove the hook shaft base cover ❽. 9. Loosen the feeding lever base setscrews ❾ (4 positions). Turn the hand wheel slowly so that the needle bar is adjusted to the lowest position. 11. Move the feeding lever base ❿ to the right and left so that the needle center can coincide with the needle hole center of the feed dog. At that time, the feed bed arm ⓫ should also be moved. 12. Fix the feeding lever base ❿ with the feeding lever base setscrews ❾ (4 positions). 13. Let the sewing machine fall down. 14. Confirm that there is coincidence between the needle center and the needle hole center of the feed dog and tighten the feed bracket arm tightening setscrews ❷ (2 positions). 15. Tighten the vertical feed cam setscrews ❶ (2 positions). For more details, refer to (11)-3, Vertical feed cam phase. 16. Raise the sewing machine. 17. Fix the throat plate holder ❻ with the throat plate holder setscrews ❺ (1-needle: 6 positions, 2-needle: 10 positions). 18. Fix the throat plate ❹ with the throat plate setscrews ❸ (2 positions). 19. Fix the hook shaft bed cover ❽ with the hook shaft bed cover setscrews ❼ (1-needle: 4 positions, 2-needle: 8 positions). 	<ul style="list-style-type: none"> o If the throat plate ❹ should come in contact with the feed dog, hitting sound will be generated, and the throat plate ❹ and the feed teeth may be broken. o Uneven stitching will be caused.

(3) Clearance between the throat plate and the inner hook clamp section

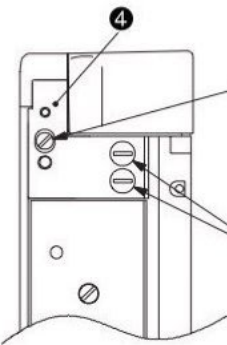
Standard Adjustment



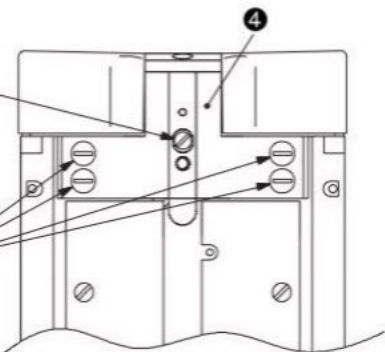
PLC-1710
PLC-1710-7



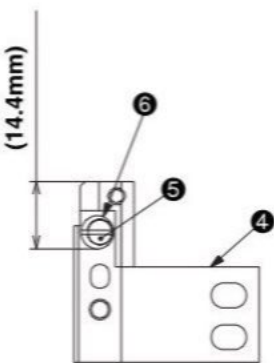
PLC-1760
PLC-1760-7
PLC-1760L



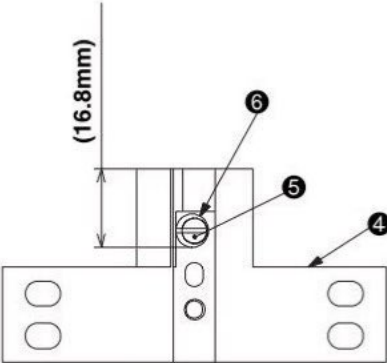
PLC-1710
PLC-1710-7



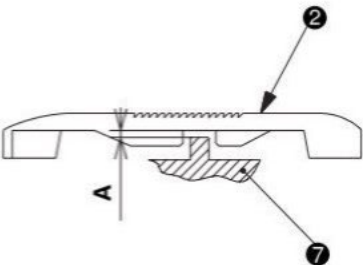
PLC-1760
PLC-1760-7
PLC-1760L



PLC-1710
PLC-1710-7



PLC-1760
PLC-1760-7
PLC-1760L

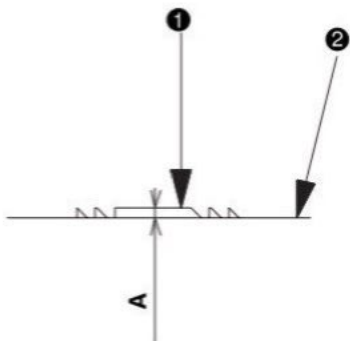


Model	Dimension A
PLC-1710	1.0±0.1mm
PLC-1710-7	
PLC-1760	
PLC-1760-7	
PLC-1760L	1.1±0.1mm

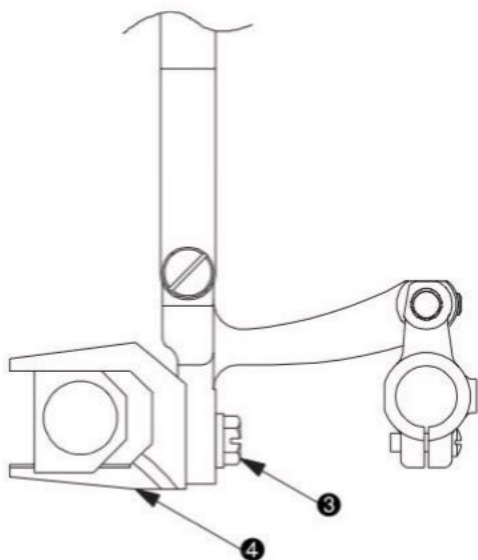
Adjustment Procedures	Results of Improper Adjustment
<ol style="list-style-type: none"> 1. Loosen the throat plate setscrews ❶ (2 positions) and remove the throat plate ❷. 2. Loosen the throat plate holder setscrews ❸ (1-needle: 6 positions, 2-needle: 10 positions). 3. Remove the throat plate holder ❹ (2 pcs). 4. Slightly loosen the eccentric roller hinge setscrew ❺ (2 positions) that is attached to the throat plate holder ❹ (2 pcs). Turn the eccentric roller ❻ (2 positions) and adjust the distance between the top plane of the throat plate holder ❹ (2 pcs) and the bottom plane of the eccentric roller ❻ (2 positions) until the clearance amounts to Dimension A between the throat plate ❷, inner hook clamp section and the top plane of inner hook ❼. 5. Fix the throat plate holder ❹ (2 pcs) with the throat plate holder setscrews ❸ (1-needle: 6 positions, 2-needle: 10 positions). 6. Fix the throat plate ❷ with the throat plate setscrews ❶ (2 positions). <p>(Caution) 1. For the adjustment of 2-needle sewing machines, compare the clearances of Dimension A between the right and left hooks. The side with a smaller clearance should be adjusted to Dimension A.</p> <p>2. The distance between the top plane of the throat plate holder ❹ (2 pcs) and the bottom end of the eccentric roller ❻ (2 positions) should be adjusted so that the same distance can be secured by the front and rear throat plate holders ❹ (2 pcs).</p> <p>If there is difference in distances between front and rear, the throat plate ❷ comes to be positioned slantwise when it is mounted on the throat plate holder ❹ (2 pcs).</p>	<ul style="list-style-type: none"> o Stitch skipping or needle breakage will be caused. o Thread breakage will be caused. o Uneven stitching will be caused.

(4) Height of the feed dog

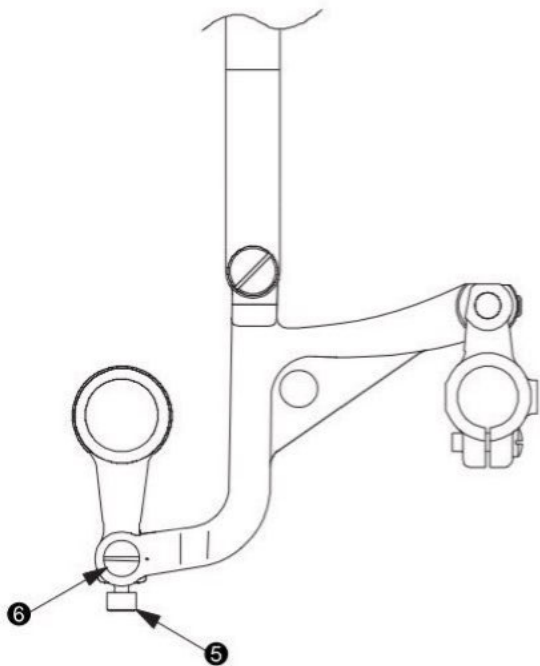
Standard Adjustment



Model	Dimension A
PLC-1710	0.6 to 0.7mm
PLC-1710-7	
PLC-1760	0.7 to 0.9mm
PLC-1760-7	
PLC-1760L	0.9 to 1.1mm



PLC-1710-7
PLC-1760-7

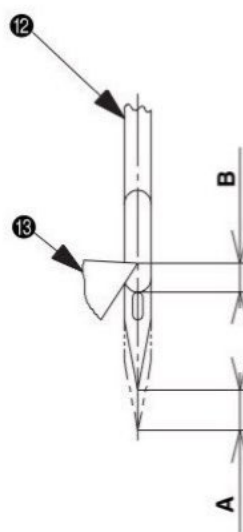
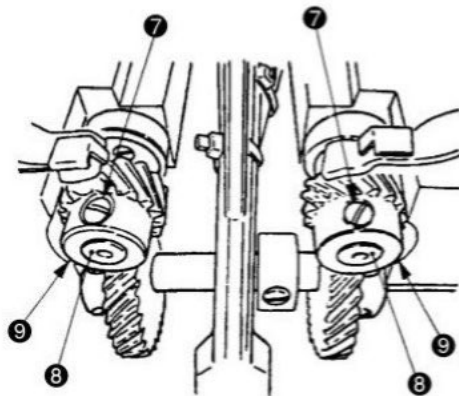
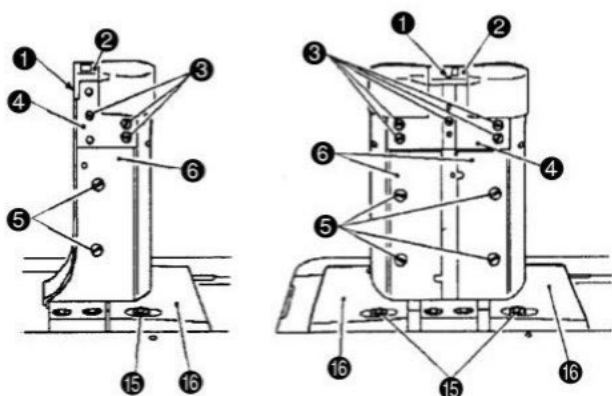


PLC-1710
PLC-1760
PLC-1760L

Adjustment Procedures	Results of Improper Adjustment
<ul style="list-style-type: none"> o For PLC-1710-7 and 1760-7 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Turn the hand wheel and stop it where the amount of protrusion of the feed dog ❶, appearing from the throat plate top face ❷, becomes maximum. 3. Loosen the setscrew ❸ (1 position) of the feed bar fork and move the feed bar fork ❹ up and down so that the height of the feed dog ❶ can be adjusted to Dimension A. 4. Firmly tighten the setscrew ❸ of the feed bar fork. o For PLC-1710, 1760, and 1760L 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Turn the hand wheel and stop it where the amount of protrusion of the feed dog ❶, appearing from the throat plate top face ❷, becomes maximum. 3. Loosen the setscrew ❺ of the vertical feed link shaft and turn the vertical feed link shaft ❻ until the height of the feed dog ❶ adjusted to Dimension A. 4. Tighten the vertical feed link shaft setscrew ❺ firmly. 	<p>If the height of the feed dog is excessive:</p> <ul style="list-style-type: none"> o The pitches of stitches become greater than the graduations of the feed adjusting dial. o Isolated idling loops will result. o A return of the sewing object is caused. <p>If the height of the feed dog is insufficient:</p> <ul style="list-style-type: none"> o The pitches of stitches become smaller than the graduations of the feed adjusting dial. o The feeding force is weakened.

(5) Timing between the needle and the hook (Except for PLC-1760L)

Standard Adjustment



Model	Dimension A	Dimension B
PLC-1710	2.5mm	2.2mm
PLC-1710-7	2.6mm	2.0mm
PLC-1760	2.5mm	2.2mm
PLC-1760-7	2.9mm	2.0mm

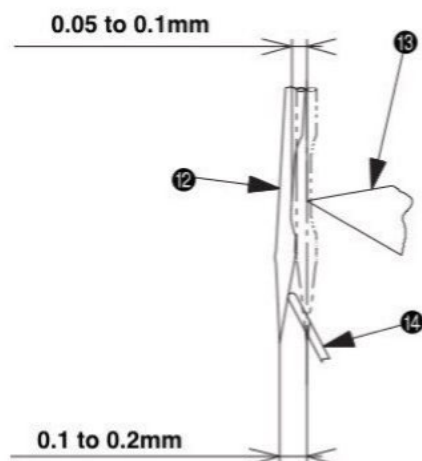
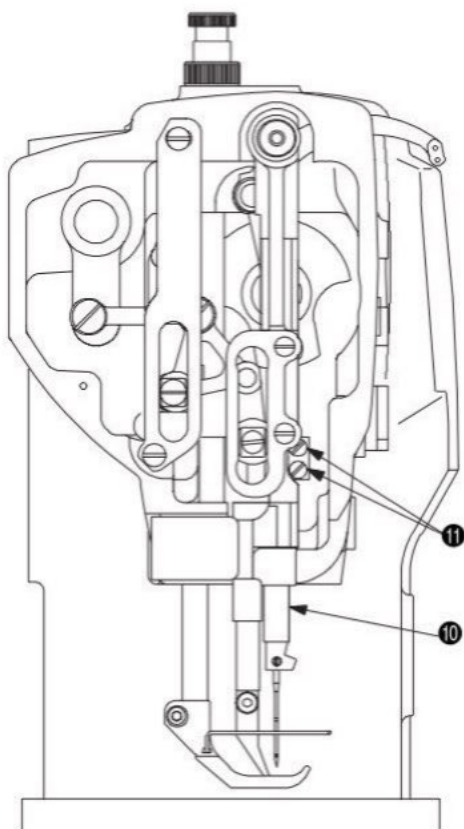
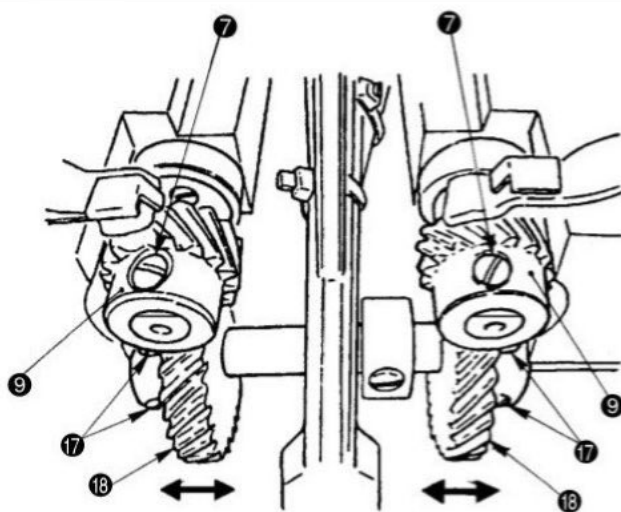
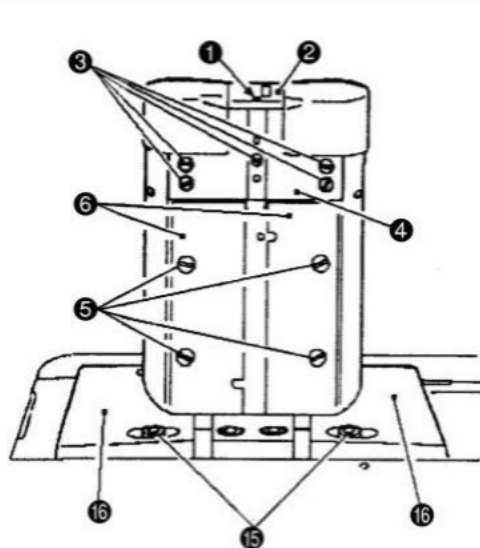


Fig. A

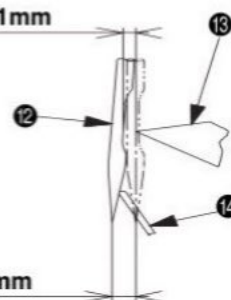
Adjustment Procedures	Results of Improper Adjustment
<p>(Caution) 1. In the case of the 2-needle sewing machine, the same adjusting values should be secured for both right and left.</p> <p>2. In the case of the thread trimming machine, work should be started after the eocking arm and the thread trimmer driving joint plate have been removed. These should be remounted after the completion of this work. Refer to 3.-(18) -1) to 9), Thread trimming device.</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Loosen the throat plate setscrews ❶ (2 positions) and remove the throat plate ❷. 3. Loosen the throat plate holder setscrews ❸ (1-needle: 6 positions, 2-needle: 10 positions) and remove the throat plate holder ❹. 4. Loosen the hook shaft base cover setscrews ❺ (1-needle: 4 positions, 2-needle: 8 positions) and remove the hook shaft base cover ❻. 5. Let the sewing machine fall down and loosen the hook shaft gear setscrews ❼ (1-needle: 3 positions, 2-needle: 6 positions) so that the hook shaft ❽ can be made free. For PLC-1710 and PLC-1760, remove the hook shaft gear ❾. 6. Raise the sewing machine. 7. Turn the hand wheel by hand and raise the needle bar ❿ from the lowest position to Dimension A. 8. Loosen the needle bar connection setscrews ⓫ (2 positions). If they are loosened too much at that time, the needle bar ❿ will come down. Therefore, they should be loosened to a degree where the needle bar ❿ can be moved vertically by hand. 9. Move the needle bar ❿ vertically by hand so that the hook blade tip ⓬ comes to the height of Dimension B, measured from the needle hole upper end of the needle ⓭. 10. Tighten the setscrews ⓫ (2 positions) of the needle bar connection. 11. Bend the hook's needle guard ⓮ in the direction of the hook center so that the effective amount of the needle guard ⓮ is reduced to 0. 12. Loosen the hook shaft base setscrews ⓯ (1-needle: 2 positions, 2-needle: 4 positions). 13. Turn the hand wheel by hand and raise the needle bar ❿ from the lowest position to Dimension A. 14. In the state that there is no contact between the needle ⓭ and the hook's needle guard ⓮, move and adjust the hook shaft base ⓯ to the right and left so that a clearance of 0 to 0.1mm can be secured between the needle ⓭ and the hook blade tip ⓬. 15. After adjustments, tighten the setscrews ⓯ (1-needle: 2 positions, 2-needle: 4 positions) of the hook shaft base. 16. Let the sewing machine fall down again and turn the hook by hand in the state of 13. above. Adjust the hook blade tip ⓬ to the center of the needle ⓭ and fix the hook shaft gear ❾ with the use of the hook shaft gear setscrews ❼ (1-needle: 3 positions, 2-needle: 6 positions). 17. Raise the sewing machine. 18. Confirm that a coincidence is secured between the center of the needle ⓭ and the hook blade tip ⓬ when the needle bar ❿ is raised from the lowest position to Dimension A. Otherwise, the work of 16. should be carried out once more again. 19. Bend the hook's needle guard ⓮ so that the effective amount of the hook's needle guard ⓮ is adjusted to 0.1 to 0.2mm at the tip of the needle ⓭. Refer to Fig. A. 20. Install the throat plate holder ❹ with the throat plate holder setscrews ❸ (1-needle: 6 positions, 2-needle: 10 positions). 21. Install the throat plate ❷ with the throat plate setscrews ❶ (2 positions). 22. Install the hook shaft base cover ❻ with the hook shaft base cover setscrews ❺ (1-needle: 4 positions, 2-needle: 8 positions). 	<ul style="list-style-type: none"> o Stitch skipping or thread breakage will be caused. o Poorly tense stitches will be caused.

(6) Timing between the needle and the hook (PLC-1760L)

Standard Adjustment

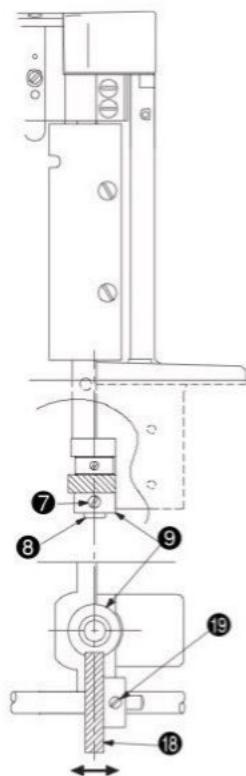
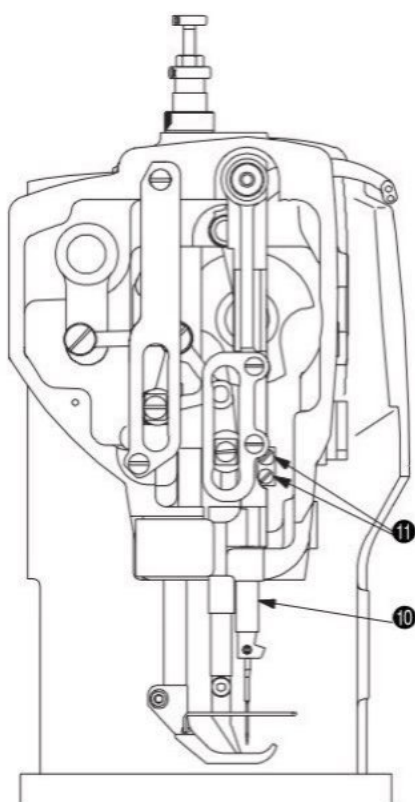
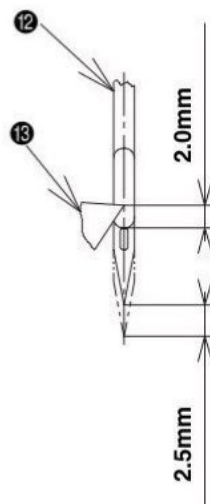


0.05 to 0.1mm



0.1 to 0.2mm

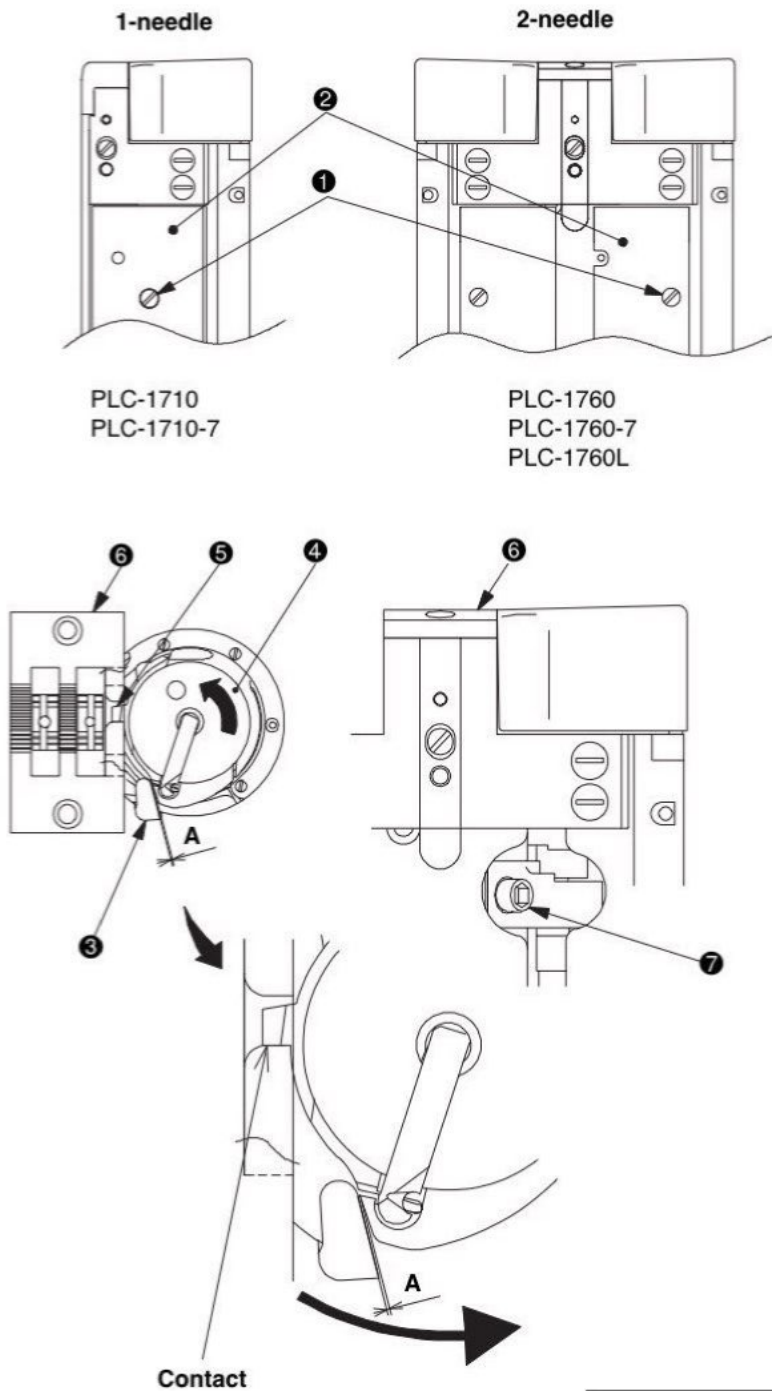
Fig. A



Adjustment Procedures	Results of Improper Adjustment
<p>(Caution) The same adjusting values should be secured for both right and left.</p> <ol style="list-style-type: none"> Adjust the graduations of the feed adjusting dial to [0]. Loosen the throat plate setscrews ❶ (2 positions) and remove the throat plate ❷. Loosen the throat plate holder setscrews ❸ (10 positions) and remove the throat plate holder ❹. Loosen the hook shaft base cover setscrews ❺ (8 positions) and remove the hook shaft base cover ❻. Lay down the sewing machine body and loosen the hook shaft gear setscrews ❼ (6 positions). Remove the hook shaft gear ❾ and raise the sewing machine body. Loosen the needle bar connection setscrews ❾ (2 positions). If they are loosened too much at that time, the needle bar ❿ will come down. Therefore, they should be loosened to a degree where the needle bar ❿ can be moved vertically by hand. Turn the hand wheel by hand so that the needle bar ❿ is positioned 2.5mm above its lowest position. Turn the hook by hand so that the center of the needle ❷ coincides with the hook blade tip ❸. Move the needle bar ❿ vertically by hand so that a distance of 2.0mm can be secured between the needle hole upper end of the needle ❷ and the hook blade tip ❸. Tighten the needle bar connection setscrew ❾ (2 positions). Bend the hook's needle guard ❶ in the direction of the hook center so that the effective amount of the needle guard ❶ is reduced to 0. Loosen the right and left hook shaft base setscrews ❶ (4 positions). Turn the hand wheel by hand so that the needle bar ❿ is positioned 2.5mm above its lowest position. In the state that there is no contact between the needle ❷ and the hook's needle guard ❶, move and adjust the hook shaft base ❷ to the right and left so that a clearance of 0.05 to 0.1 mm can be secured between the needle ❷ and the hook blade tip ❸. After adjustments, tighten the hook shaft base setscrews ❶ (4 positions). Let the sewing machine fall down and loosen the lower shaft gear setscrews ❶ (4 positions). Move the lower shaft gear ❷ so that the center of the hook shaft ❸ can coincide with that of the gear section of the lower shaft gear ❷. Temporarily tighten the lower shaft gear ❷ with the lower shaft gear setscrew ❶. <p>At that time, tentatively fasten the first screw of the lower shaft gear setscrew ❶ adjusted to the flat section of the lower shaft.</p> <ol style="list-style-type: none"> Assume the condition of 13. again and let the center of the needle ❷ coincide with the hook blade tip ❸. Mount the hook shaft gear ❾ and firmly tighten it by means of the hook shaft gear setscrews ❼ (6 positions). At that time, tighten the first screw of the hook shaft gear setscrew ❼ adjusted to the flat section of the hook shaft ❸. Loosen the lower shaft gear setscrew ❶ that has been fastened tentatively as per 17. above so that the lower shaft gear ❷ can be moved to the right and left. <p>At that time, the first screw of the lower shaft gear setscrews ❶ should have been loosened to an extent that it is not disengaged from the flat section of the lower shaft.</p> <ol style="list-style-type: none"> Move and adjust the lower shaft gear ❷ in the direction of the arrow so that the center of the needle ❷ can coincide with the hook blade tip ❸ when the needle bar ❿ is raised by 2.5mm from the lowest position of the needle bar. Tighten the lower shaft gear setscrews ❶ (4 positions). Raise the sewing machine. Bend the hook's needle guard ❶ so that the effective amount of the hook's needle guard ❶ is adjusted to 0.1 to 0.2mm at the tip of the needle ❷. Refer to Fig. A. Install the throat plate holder ❹ with the throat plate holder setscrews ❸ (10 positions). Install the throat plate ❷ with the setscrews ❶ (2 positions). Install the hook shaft base cover ❻ with the hook shaft base cover setscrews ❺ (8 positions). 	<ul style="list-style-type: none"> o Stitch skipping or thread breakage will be caused. o Poorly tense stitches will be caused.

(7) Adjusting the inner hook guide

Standard Adjustment



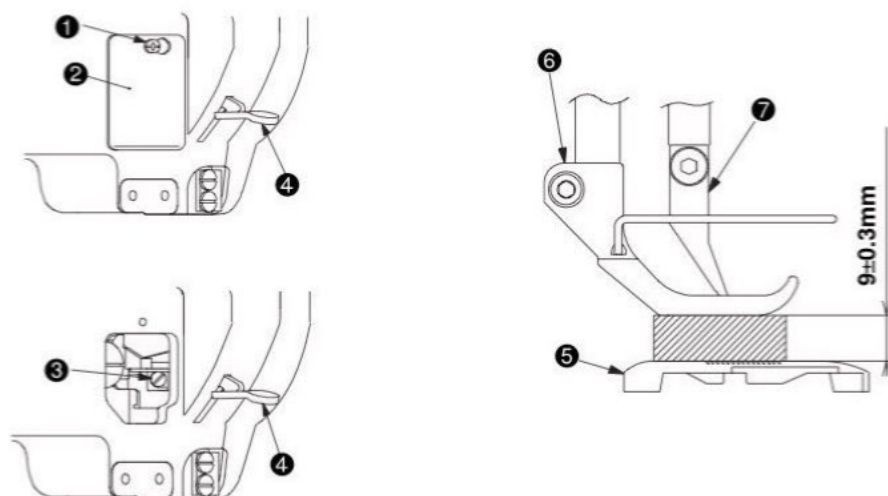
Model	Dimension A
PLC-1710	0.1 to 0.3mm
PLC-1710-7	
PLC-1760-7	
PLC-1760	0.2 to 0.4mm
PLC-1760L	0.3 to 0.5mm

Adjustment Procedures	Results of Improper Adjustment
<ol style="list-style-type: none"> 1. Loosen the hook shaft base cover setscrews ❶ (1-needle: 2 positions, 2-needle: 4 positions) and remove the hook shaft base cover ❷. (For the left hook, remove the hook shaft base cover ❷ located on the opposite side of the worker.) 2. Turn the hand wheel by hand and adjust the inner hook guide ❸ to the most retreat position. 3. Turn the inner hook ❹ in the direction (of the arrow) against the regular revolving direction and press the inner hook clamp section ❺ against the throat plate ❻. 4. Loosen the tightening screws ❼ (1-needle: 1 position, 2-needle: 2 positions) of the inner hook guide arm and adjust the clearance to Dimension A between the inner hook guide ❸ and the inner hook ❹. 5. After adjustments, tighten the tightening screws ❼ (1-needle: 1 position, 2-needle: 2 positions) of the inner hook guide. At that time, confirm the freedom from the vertical backlash in the inner hook guide ❸. 6. Install the hook shaft base cover ❷ with the hook shaft base cover setscrews ❶ (1-needle: 2 positions, 2-needle: 4 positions). <p>(Caution)</p> <ol style="list-style-type: none"> 1. For the 2-needle version, the same adjustments should be made for the right and left. 2. For the 2-needle version, the inner hook guide arm tightening screw ❼ of the left hook is located on the opposite side of the worker. 	<p>When the clearance is too much :</p> <ul style="list-style-type: none"> o Poorly tense stitches or thread breakage will be caused. <p>When no clearance is secured :</p> <ul style="list-style-type: none"> o The inner hook ❹ or the inner hook guide ❸ may be broken.

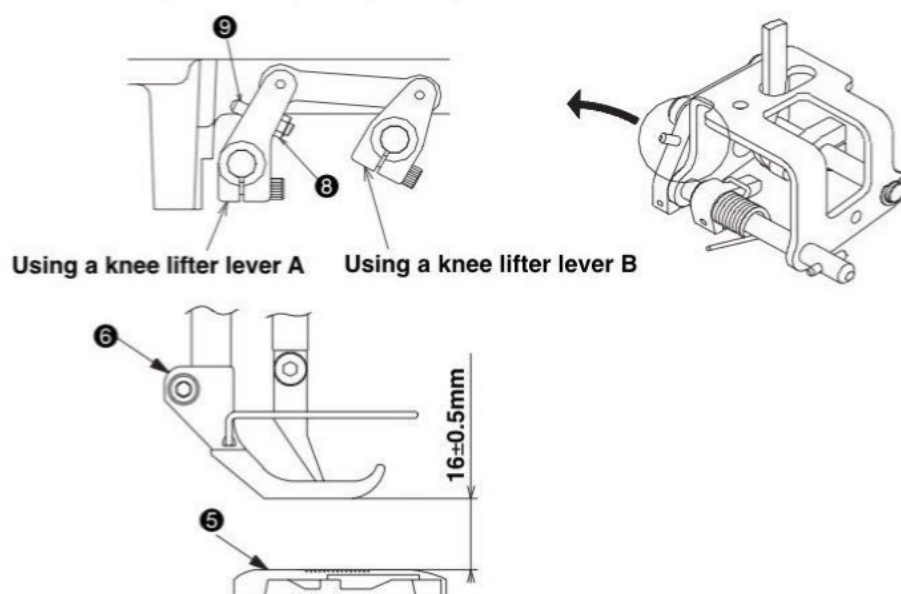
(8) Lifting amount of presser

Standard Adjustment

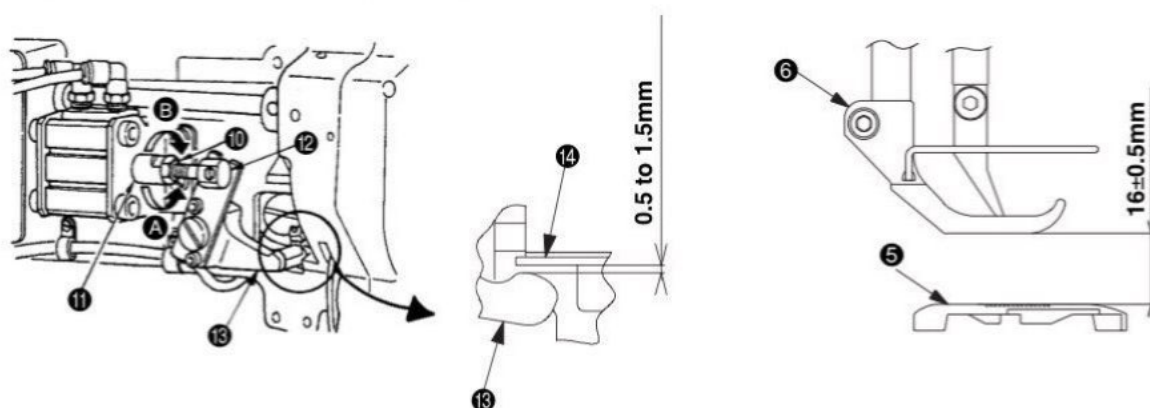
1) Presser lifter lever



2) Using a knee lifter (PLC-1710, 1760, 1760L)



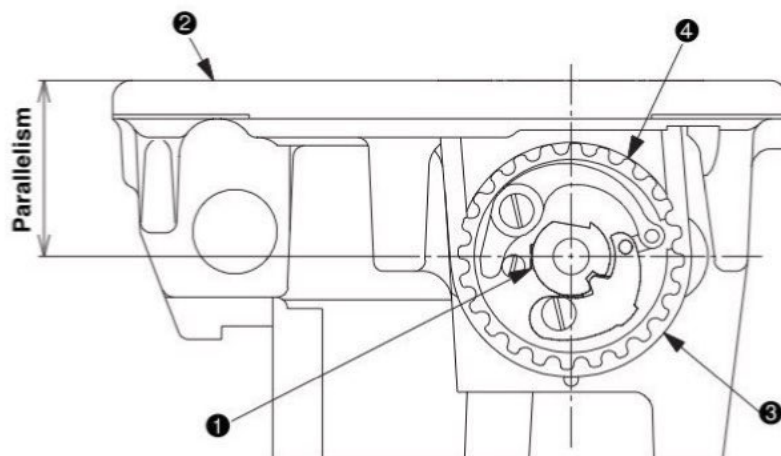
3) Auto presser lifter (PLC-1710-7, 1760-7)



Adjustment Procedures	Results of Improper Adjustment
<p>1) Presser lifter lever</p> <ol style="list-style-type: none"> Loosen the side cover setscrew ❶ (1 position) located on the arm's opposite side of the worker and remove the side cover ❷. (PLC-1710, 1760, 1760L only) Loosen the presser bar connecting bracket tightening screw ❸ (1 position) in the state that the presser lifting lever ❹ is lifted. Adjust the amount of presser rise to $9 \pm 0.3\text{mm}$. In this case, adjustments become easy if a sewing material of 9mm in thickness is inserted in between the top face of the throat plate ❺ and the bottom face of the presser foot ❻. After adjustments, tighten the hook shaft base screw ❸ (1 position). Prior to tightening, confirm that there is no contact between the presser foot ❻ and the feed foot ❼. Remove the object inserted in the clearance between the top face of the throat plate ❺ and the bottom face of the presser foot ❻. Install the side cover ❷ and tighten the side cover setscrew ❶ (1 position). (PLC-1710, 1760, 1760L only) <p>2) Using a knee lifter (PLC-1710, 1760, 1760L)</p> <ol style="list-style-type: none"> Remove the knee patch plate and let the sewing machine fall down. Loosen the stopper nut ❸ (1 position) and adjust the lifting amount by changing the screw-in value of the stopper screw ❹. Adjust the distance to $16 \pm 0.5\text{mm}$ between the top face of the throat plate ❺ and the bottom face of the presser foot ❻. Make sure not to move the stopper screw ❹ while the stopper nut ❸ is tightened. <ul style="list-style-type: none"> o Stopper screw ❹ tightened → Decrease in the amount of rise o Stopper screw ❹ loosened → Increase in the amount of rise <p>3) Auto presser lifter (PLC-1710-7, 1760-7)</p> <ol style="list-style-type: none"> Loosen the cylinder nut ❿ and adjust the screw-in value of the cylinder connecting screw ⓫ by turning the shaft section of the cylinder ⓬ so that the distance can be adjusted to $16 \pm 0.5\text{mm}$ between the top face of the throat plate ❺ and the bottom face of the presser foot ❻. <ul style="list-style-type: none"> Turned in the direction A → Increase in the lifting amount of the presser foot ❻. Turned in the direction B → Decrease in the lifting amount of the presser foot ❻. After adjustments, tighten the cylinder nut ❿. <p>(Caution) After adjustments, confirm that a clearance of 0.5 - 1.5mm is secured between the auto presser lifter lever A ⓭ and the thread tension releasing support plate ⓮ when the presser foot ❻ is lowered.</p>	<p>When the amount of presser rise is too much:</p> <ul style="list-style-type: none"> o The presser foot ❻ is kept clear of the top face of the throat plate ❺ even when the presser lifter lever ❹ is returned to its original position. <p>When the amount of presser rise is too less:</p> <ul style="list-style-type: none"> o Since the rise of the presser is insufficient, the workability can become worse. <p>When the amount of presser rise is too much:</p> <ul style="list-style-type: none"> o When the presser is lifted, the tip of the needle bar may interfere with the feed foot ❼ and the feed foot ❼ may be broken. <p>When the amount of presser rise is too less:</p> <ul style="list-style-type: none"> o Since the rise of the presser is insufficient, the workability can become worse. <p>When the amount of presser rise is too much:</p> <ul style="list-style-type: none"> o When the presser is lifted, the tip of the needle bar may interfere with the feed foot ❼ and the feed foot ❼ may be broken. <p>When the amount of presser rise is too less:</p> <ul style="list-style-type: none"> o Since the rise of the presser is insufficient, the workability can become worse.

(9) Timing belt setup

Standard Adjustment



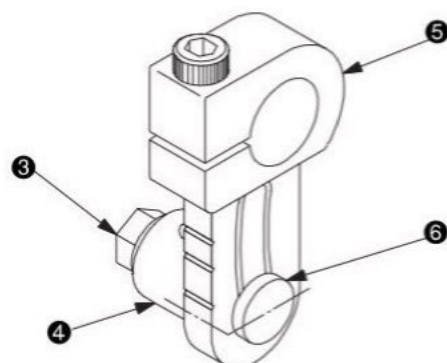
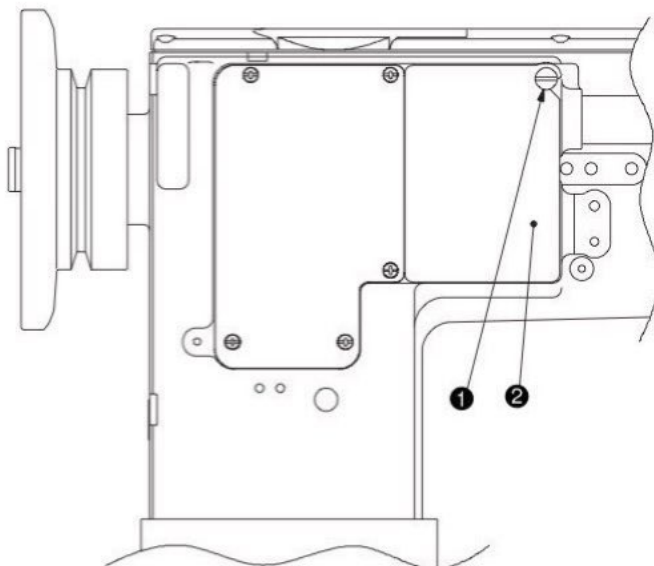
* The figure shows a view as seen from the hand wheel side.

Adjustment Procedures	Results of Improper Adjustment
<ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Let the sewing machine fall down. 3. Turn the hand wheel by hand and adjust the needle bar to the lowest position. 4. Turn the lower sprocket ④ by hand until the second screw ① of the lower sprocket ④ comes in parallel to the top face of the bed ②. 5. Apply the timing belt ③ to the lower sprocket. This action should be taken in the state that the timing belt ③ is correctly hung on the upper sprocket ④. 6. Raise the sewing machine. 	<ul style="list-style-type: none"> o The tightness of stitches becomes poor. o The feeding phase and the timing between needle and hook may be changed.

(10) Feed motion

Standard Adjustment

1) Alternate vertical amount

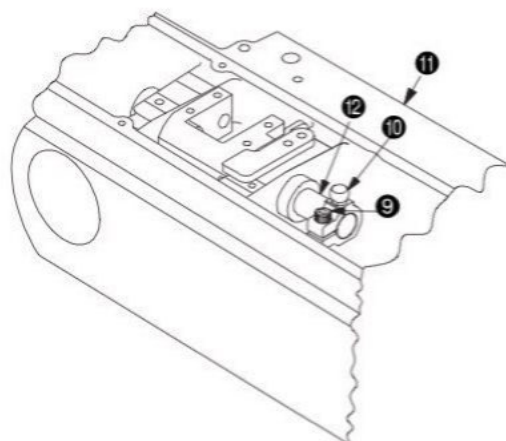
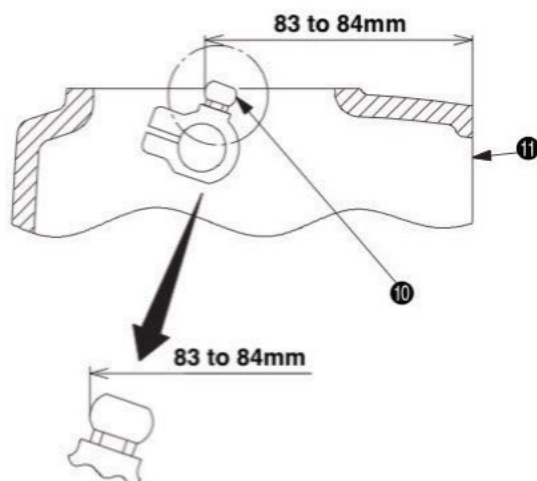
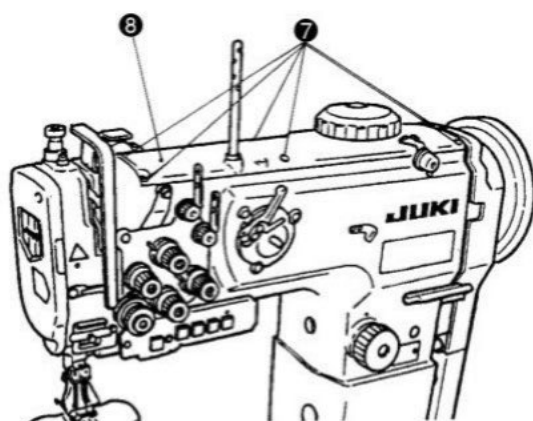


Guideline for the alternate vertical amount
 Upper engraved line : Approx. 5mm
 Middle engraved line : Approx. 4mm
 Lower marker line : Approx. 3mm

Standard Adjustment: Upper feed for the position of the hinge screw 6
 The lowest point of the oblong hole in the rear arm 6

List of the sewing speeds (PLC-1710, 1760)

Alternate vertical amount	Stitch 6mm or less	Stitch 6mm over 9mm or less
3mm or less	2500rpm	1800rpm
3mm over 4mm or less	1800rpm	1800rpm
4mm over 6.5mm or less	1600rpm	1600rpm

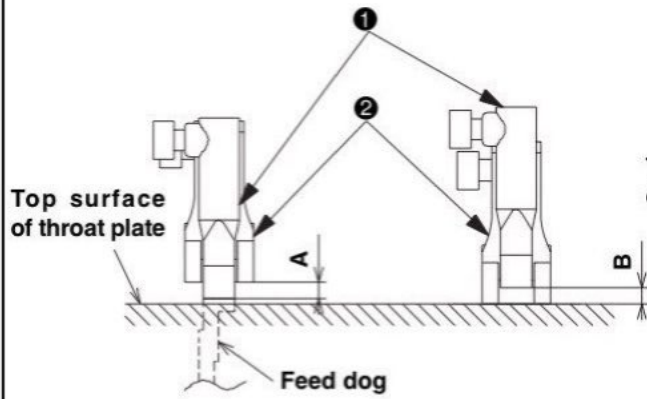


Adjustment Procedures	Results of Improper Adjustment
<ul style="list-style-type: none"> o For PLC-1710 and PLC-1760 1. Loosen the window plate screw ❶ (1 position) and remove the window plate ❷. 2. Loosen the upper feed rod hinge screw nut ❸. 3. Vertically move and adjust the position of the cam rod boss ❹. 4. Tighten the upper feed rod hinge screw nut ❸. 5. Install the window plate ❷ with the window plate setscrews ❶ (2 positions). o Upper section of the oblong hole → Alternate vertical amount: Large o Lower section of the oblong hole → Alternate vertical amount: Small (Caution) The maximum revolving speed has been set according to the sewing conditions. Set the maximum revolving speed according to each sewing condition so that the preset value cannot be exceeded. o For PLC-1710-7, 1760-7, 1760L 1. Set the graduations of the alternate vertical dial at the lowest level. 2. Loosen the top cover setscrews ❷ (6 positions) and remove the top cover ❸. 3. Loosen the Alternate vertical adjusting arm setscrew ❹ (1 position). 4. The position of the alternate vertical adjusting arm pin ❺ is maintained at 83 to 84mm when measured from the arm end face ❻. In the sidewise direction, it is positioned to coincide with the end face of the alternate vertical converter shaft ❼. 5. Tighten the Alternate vertical adjusting arm setscrew ❹ (1 position). 6. Set the graduations of the alternate vertical dial at the lowest level. Use the top cover setscrews ❷ (6 positions) to mount the top cover ❸. 7. Turn the alternate vertical dial and confirm that the dial digits correctly correspond to the alternate vertical amounts. 	<p>For certain types of sewing materials, the working height may be increased.</p> <ul style="list-style-type: none"> o Sewing of sponge materials o Sewing of stepped sections o When the working value is increased, difference may be caused between the stitching pitches and dial graduations. o When the working value is increased, the feeding force may be reduced. Accordingly, the motor speed should be somewhat lowered in such a case. <p>For certain types of sewing materials, the working height may be increased.</p> <ul style="list-style-type: none"> o Sewing of sponge materials o Sewing of stepped sections

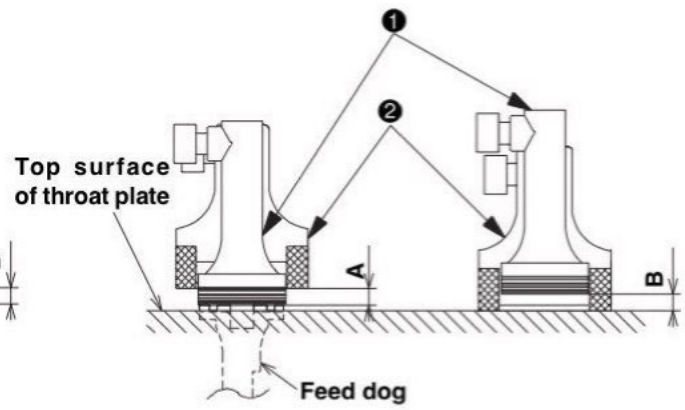
Standard Adjustment

2) Alternate momentum amount

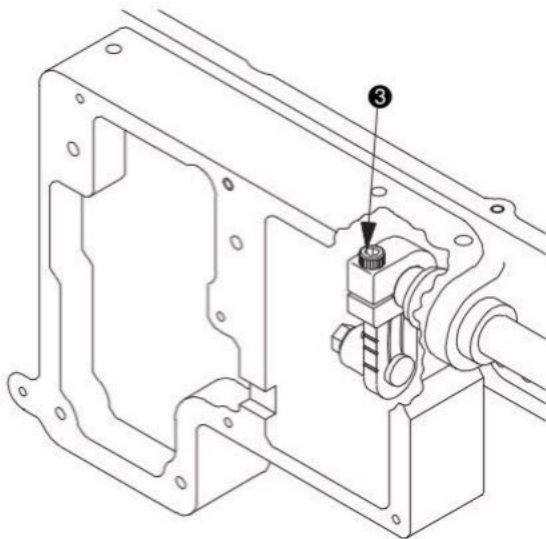
PLC-1710, 1710-7



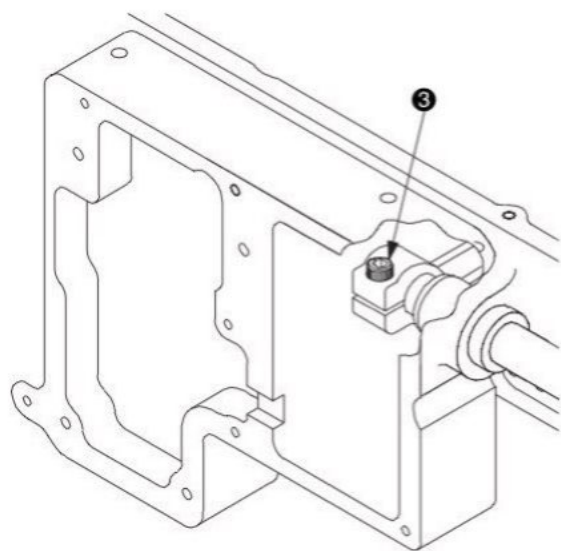
PLC-1760, 1760-7, 1760L



PLC-1710, 1760



PLC-1710-7, 1760-7, 1760L

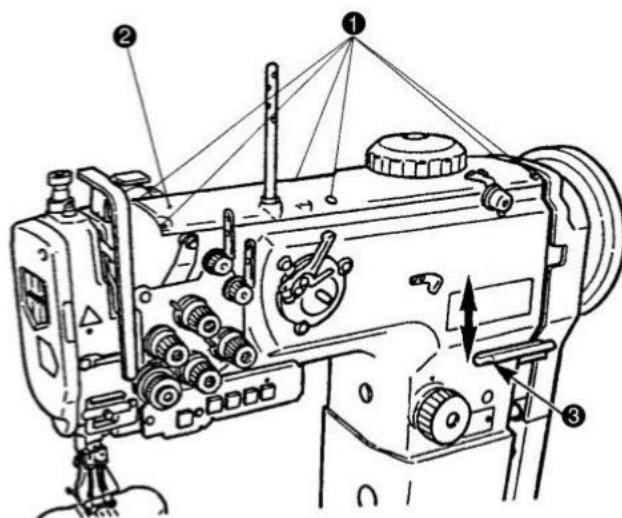


Adjustment Procedures	Results of Improper Adjustment
<ul style="list-style-type: none"> o For PLC-1710 and PLC-1760 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Turn the hand wheel by hand and confirm whether the vertical amount of motion is kept almost equalized between the feed foot ❶ and the presser foot ❷. 3. If the vertical amount of motion seems to be different, loosen the upper feed rear arm setscrew ❸ until equalized balancing is secured. Make adjustments until the condition of A = B is secured by visual check. <p>When the vertical amount of motion is too much in the feed foot ❶:</p> <ol style="list-style-type: none"> 1. In the state that the feed foot ❶ is somewhat lifted, loosen the upper feed rear arm setscrew ❸ and press the feed foot ❶ against the feed dog. 2. Tighten the upper feed rear arm setscrew ❸ again and examine the vertical amount of motion by turning the hand wheel. <p>When the vertical amount of motion is too much in the presser foot ❷:</p> <ol style="list-style-type: none"> 1. In the state that the presser foot ❷ is somewhat lifted, loosen the upper feed rear arm setscrew ❸ and press the presser foot ❷ against the throat plate. 2. Tighten the upper feed rear arm setscrew ❸ again and examine the vertical amount of motion by turning the hand wheel. 	<p>For certain types of sewing materials, the vertical amount of motion of the feed foot should be increased more than that of the presser foot.</p> <ul style="list-style-type: none"> o Sewing of sponge materials o Sewing of stepped sections <p>When the vertical amount of motion is extremely different:</p> <ul style="list-style-type: none"> o The pitches of stitches become different from the graduations of the dial. o Since the feeding force is reduced, the motor speed should be somewhat lowered.
<ul style="list-style-type: none"> o For PLC-1710-7, 1760-7, 1760L 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Set the alternate vertical dial at the graduations [3] in the case of the PLC-1710-7 and 1760-7, and at the graduation [2] in the case of the PLC-1760L. 3. Turn the hand wheel by hand and confirm whether the vertical amount of motion is kept almost equalized between the feed foot ❶ and the presser foot ❷. 4. If the vertical amount of motion seems to be different, loosen the upper feed rear arm setscrew ❸ until equalized balancing is secured. Make adjustments until the condition of A = B is secured by visual check. <p>When the vertical amount of motion is too much in the feed foot ❶:</p> <ol style="list-style-type: none"> 1. In the state that the feed foot ❶ is somewhat lifted, loosen the upper feed rear arm setscrew ❸ and press the feed foot ❶ against the feed dog. 2. Tighten the upper feed rear arm setscrew ❸ again and examine the vertical amount of motion by turning the hand wheel. <p>When the vertical amount of motion is too much in the presser foot ❷:</p> <ol style="list-style-type: none"> 1. In the state that the presser foot ❷ is somewhat lifted, loosen the upper feed rear arm setscrew ❸ and press the presser foot ❷ against the throat plate. 2. Tighten the upper feed rear arm setscrew ❸ again and examine the vertical amount of motion by turning the hand wheel by hand. 	<p>For certain types of sewing materials, the vertical amount of motion of the feed foot should be increased more than that of the presser foot.</p> <ul style="list-style-type: none"> o Sewing of sponge materials o Sewing of stepped sections <p>When the vertical amount of motion is extremely different:</p> <ul style="list-style-type: none"> o The pitches of stitches become different from the graduations of the dial. o Since the feeding force is reduced, the motor speed should be somewhat lowered.

(11) Feed cam phase

Standard Adjustment

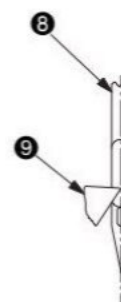
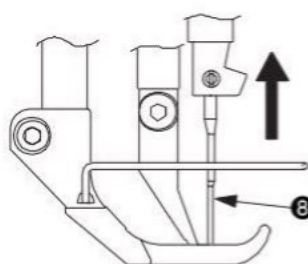
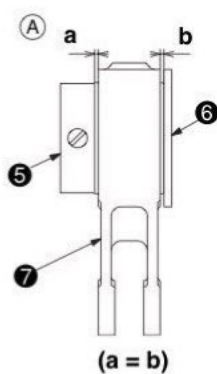
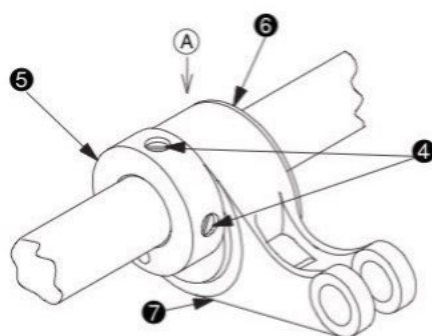
1) Horizontal feed cam phase



* According to the model type, the shape of the top cover ② will change.

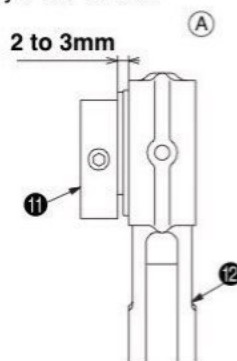
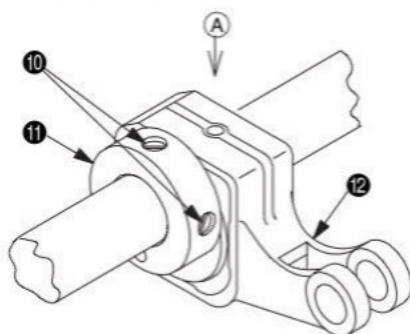
Besides PLC-1760L

Besides PLC-1760L



Only PLC-1760L

Only PLC-1760L

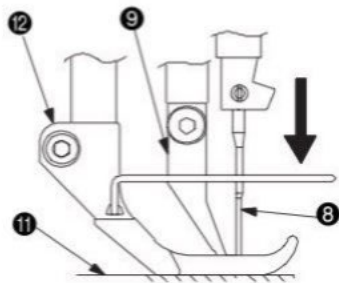
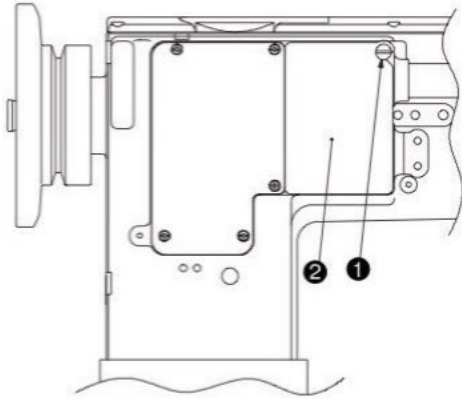


Adjustment Procedures	Results of Improper Adjustment
<p>o For PLC-1710, 1710-7, 1760, 1760-7</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [9]. 2. Loosen the top cover setscrews ❶ (6 positions) on the top of the sewing machine and remove the top cover ❷. 3. Loosen the horizontal feed eccentric cam setscrews ❹ (2 positions). 4. Turn the hand wheel by hand to lift the needle ❸ from its lowest point and stop it where the center of the needle ❸ coincides with the hook blade tip ❾. 5. Turn and adjust the horizontal feed eccentric cam ❺ to the phase where the feed dog does not move even when the reverse feed lever ❸ is moved vertically. 6. Tighten the horizontal feed eccentric cam setscrews ❹ (2 positions) firmly. 7. Install the top cover ❷ with the top cover setscrews ❶ (2 positions). <p>(Guideline) In the position where the center of the needle ❸ coincides with the hook blade tip ❾, the first screw of the horizontal feed eccentric cam ❺ is faced almost above.</p> <p>(Caution) 1. The torque is increased if the horizontal feed rod ❷ comes in contact with the end faces of the horizontal feed cam cover ❻ and the horizontal feed eccentric cam ❺. To avoid this, the horizontal feed rod ❷ should be positioned almost in the center of the end face of the horizontal feed cam cover ❻ and the flange end face of the horizontal feed eccentric cam ❺.</p> <p>2. After the completion of horizontal feed timing adjustments, the top feed timing should also be adjusted again.</p> <p>For more details, refer to (11)-2, Top feed cam phase.</p>	<ul style="list-style-type: none"> o High and low speed pitch errors become worse. o Thread tension changes. o Forward and reverse stitch tightness changes.
<p>o For PLC-1760L</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [12]. 2. Loosen the top cover setscrews ❶ (6 positions) of the top of the sewing machine and remove the top cover ❷. 3. Loosen the horizontal feed triangle cam setscrews ❿ (2 positions). 4. Turn the hand wheel to lift the needle ❸ and stop it where the needle attains the position that is 4mm above its lowest point. 5. Turn and adjust the horizontal feed triangle cam ⓫ to the phase where the feed dog does not move even when the reverse feed lever ❸ is moved vertically. 6. Tighten the horizontal feed triangle cam setscrews ❿ (2 positions) firmly. 7. Install the top cover ❷ with the top cover setscrews ❶ (2 positions). <p>(Guideline) In the position where the needle bar is lifted by 4mm above its lowest point, the first screw of the horizontal feed triangle cam ⓫ is faced almost above.</p> <p>(Caution) 1. The torque is increased if the horizontal feed rod ❷ comes in contact with the end face of the horizontal feed triangle cam ⓫. To avoid this, the horizontal feed rod ❷ should be set up so that a clearance of 2 ~ 3mm is secured between the horizontal feed rod ❷ and the flange end face of the horizontal feed triangle cam ⓫.</p> <p>2. After the completion of horizontal feed timing adjustments, the top feed timing should also be adjusted again.</p> <p>For more details, refer to (11)-2, Top feed cam phase.</p>	<ul style="list-style-type: none"> o High and low speed pitch errors become worse. o Thread tension changes. o Forward and reverse stitch tightness changes.

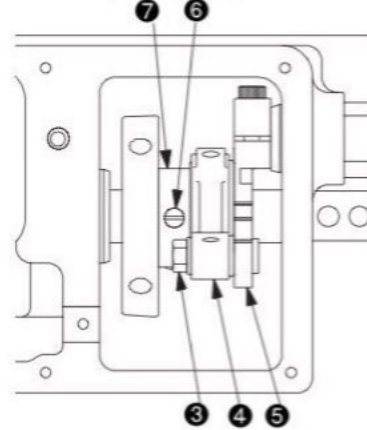
Standard Adjustment

2) Top feed cam phase

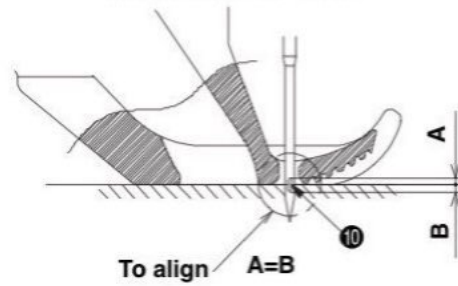
PLC-1710,1760



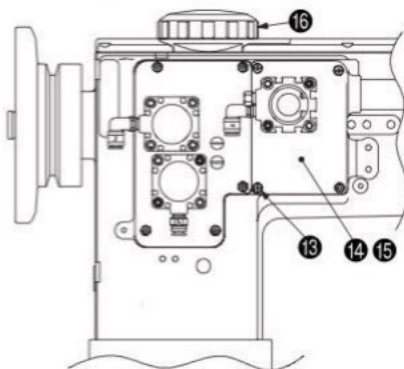
PLC-1710, 1760



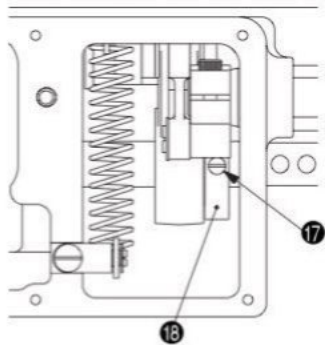
PLC-1710, 1760, 1760L



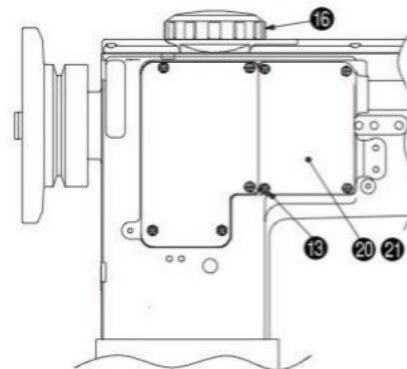
PLC-1710-7, 1760-7, 1760L



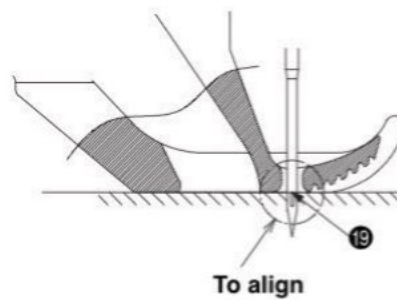
PLC-1710-7, 1760-7, 1760L



PLC-1710-7, 1760-7, 1760L



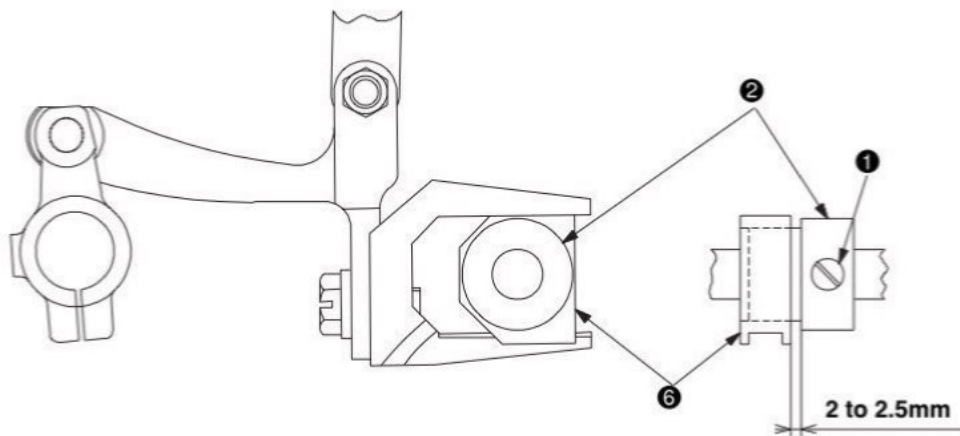
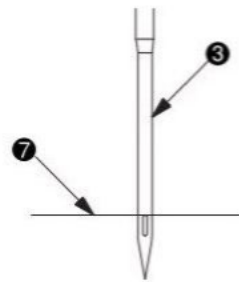
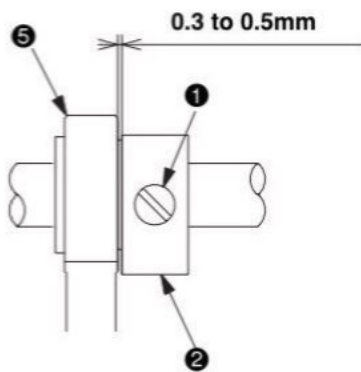
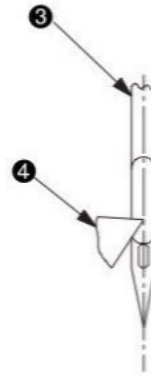
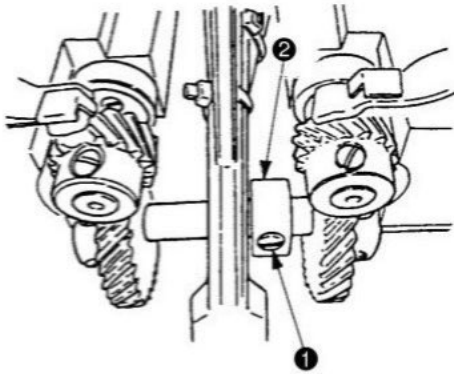
PLC-1710-7, 1760-7



Adjustment Procedures	Results of Improper Adjustment
<p>o For PLC-1710 and PLC-1760</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [6]. 2. Loosen the window plate setscrew ❶ (1 position) on the rear of the sewing machine and remove the window plate ❷. 3. Loosen the top feed rod hinge screw nut ❸ so that the position of the cam rod boss ❹ can be adjusted to the bottom section of the oblong hole of the top feed rear arm ❺. 4. Tighten the upper feed rod hinge screw nut ❸. 5. Loosen the top feed cam setscrews ❻ (2 positions). 6. Under the condition that the alternate momentum amount is unified, move and adjust the top feed cam ❼ so that a timing can be secured to start rising of the presser foot ❿ when the center of the needle hole ⓫ attains the top face of the throat plate ⓪ while the needle ❸ and the feed foot ❾ are lowering. In this state, firmly tighten the top feed cam setscrews ❻ (2 positions). <p>For more details, refer to "3-(10)-2) Alternate momentum amount".</p> <p>(Guideline) When the center of the needle hole ⓫ attains the top face of the throat plate ⓪ while the needle ❸ and the feed foot ❾ are lowering, the first screw of the top feed cam setscrew ❻ is faced almost to the front.</p> <p>o For PLC-1710-7 and 1760-7</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [6]. 2. Loosen the window plate setscrews ❸ (4 positions) and remove the window plate ❹ with cylinder and the window plate gasket ❺. At that time, the removal work becomes easy if the graduations of the alternate vertical dial ❻ are set at maximum. 3. Adjust the graduations of the alternate vertical dial ❻ to [3]. 4. Loosen the top feed cam setscrews ❼ (2 positions). 5. When the needle ❸ and the feed foot ❾ is lowered under the unified condition of the alternate momentum amount, move and adjust the top feed cam ❼ so that a timing can be secured to gather the three points of the feed foot ❾, the top end of the needle hole ❸, and the top face of the throat plate ⓪. In this state, tighten the top feed cam setscrews ❼ (2 positions). <p>For more details, refer to "3-(10)-2) Alternate momentum amount".</p> <ol style="list-style-type: none"> 6. Install the window plate ❹ with cylinder and the window plate gasket ❺ with the window plate setscrews ❸ (4 positions). <p>(Guideline) When the thread take-up lever is positioned at the lower dead point, the first screw of the top feed cam setscrews ❼ is faced almost to the front.</p> <p>o For PLC-1760L</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [6]. 2. Loosen the window plate setscrews ❸ (4 positions) and remove the window plate ❹ and the window plate gasket ❺. 3. Adjust the graduations of the alternate vertical dial ❻ to [2]. 4. Loosen the top feed cam setscrews ❼ (2 positions). 5. Under the condition that the alternate momentum amount is unified, adjust the top feed cam ❼ so that a timing can be secured to start rising of the presser foot ❿ when the center of the needle hole ⓫ attains the top face of the throat plate ⓪ while the needle ❸ is lowering. In this state, tighten the top feed cam setscrews ❼ (2 positions). <p>For more details, refer to "3-(10)-2) Alternate momentum amount".</p> <ol style="list-style-type: none"> 6. Install the window plate ❹ and the window plate gasket ❺ with the window plate setscrews ❸ (4 positions). <p>(Guideline) When the thread take-up lever is positioned at the lower dead point, the first screw of the top feed cam setscrews ❼ is faced almost to the front.</p>	<p>o High and low speed pitch errors become worse.</p> <p>o High and low speed pitch errors become worse.</p>

Standard Adjustment

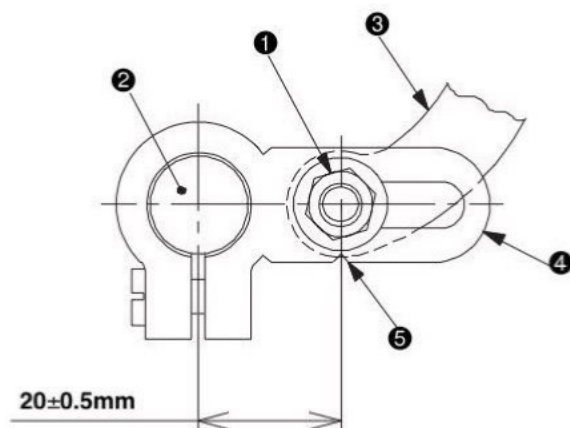
3) Vertical feed cam phase



Adjustment Procedures	Results of Improper Adjustment
<ul style="list-style-type: none"> o For PLC-1710, 1760, and 1760L 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Let the sewing machine fall down. 3. Loosen the vertical feed cam setscrews ❶ (2 positions). 4. Turn the hand wheel by hand to the position where the needle ❸ coincides with the hook blade tip ❹. 5. Turn the vertical feed cam ❷ by hand to the position where the amount of protrusion of the feed dog becomes maximum from the top face ❺ of the throat plate. 6. Tighten the vertical feed cam setscrews ❶ (2 positions) and fix the vertical feed cam ❷. 7. Raise the sewing machine. <p>(Caution) 1. Secure a clearance of 0.3 to 0.5mm between the end face of the vertical feed link ❸ and the flange end face of the vertical feed cam ❷.</p> <p>2. Prior to making adjustments for this item, confirm whether the feed dog height has been correctly adjusted.</p> <p>For more details, refer to 3.-(4) Height of the feed dog.</p> <ul style="list-style-type: none"> o For PLC-1710-7 and 1760-7 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Let the sewing machine fall down. 3. Loosen the vertical feed cam setscrews ❶ (2 positions). 4. Turn the hand wheel and adjust it to the position where the top end of the needle hole coincides with the top face of the throat plate ❺ while the needle ❸ is lowering. 5. Turn the vertical feed cam ❷ by hand to the position where the top face of the throat plate ❺ of the throat plate coincides with the highest part of the feed dog. 6. Tighten the vertical feed cam setscrews ❶ (2 positions) and fix the vertical feed cam ❷. 7. Raise the sewing machine. <p>(Caution) 1. Secure a clearance of 2 to 2.5mm between the end face of the vertical feed slide block ❹ and the flange end face of the vertical feed cam ❷.</p> <p>2. Prior to making adjustments for this item, confirm whether the feed dog height has been correctly adjusted.</p> <p>For more details, refer to 3.-(4) Height of the feed dog.</p>	<ul style="list-style-type: none"> o If the throat plate should come in contact with the feed dog, hitting sound will be generated, and the throat plate and the feed dog may be broken. o Uneven stitching will be caused.

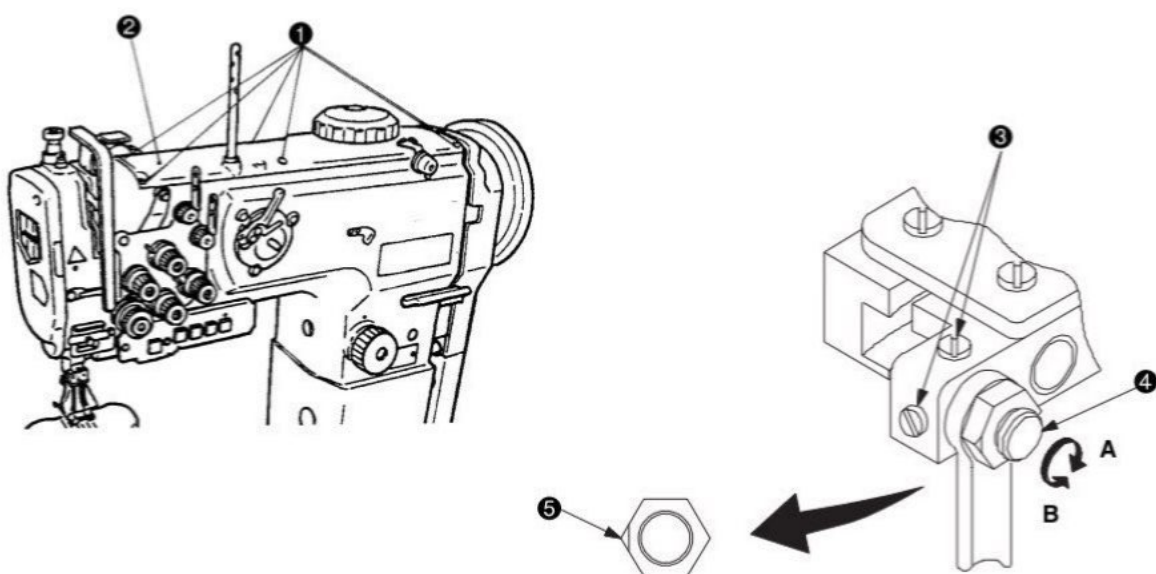
(12) Needle motion

Standard Adjustment



(13) Normal and reverse stitch length

Standard Adjustment

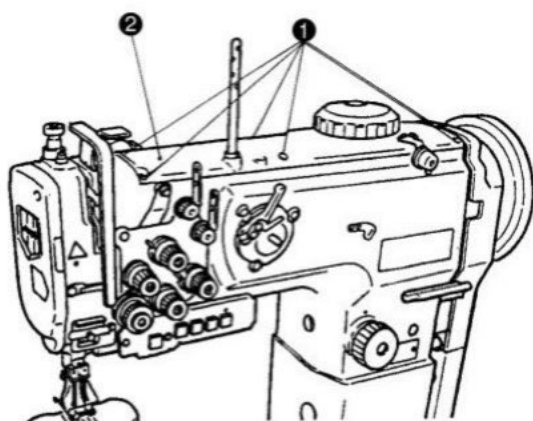


Adjustment Procedures	Results of Improper Adjustment
<ol style="list-style-type: none"> 1. Let the sewing machine fall down. 2. Loosen the horizontal feed rear arm hinge screw nut ❶. 3. Move the horizontal feed connecting rod ❸ until the distance from the shaft center of the horizontal feed shaft ❷ to the hinge screw center becomes $20 \pm 0.5\text{mm}$. After the horizontal feeding, tighten the rear arm hinge screw nut ❶. 4. Turn the hand wheel and check the needle motion. 5. Raise the sewing machine. <p>(Guideline) 1. The engraved marker line ❺ of the horizontal feed rear arm ❹ coincides with the center of the hinge screw.</p> <ol style="list-style-type: none"> 2. If the distance is increased more than the standard adjusting value ($20 \pm 0.5\text{mm}$), the amount of bottom feed is reduced. 	<ul style="list-style-type: none"> o This can be the cause of needle breakage or stitch skipping.

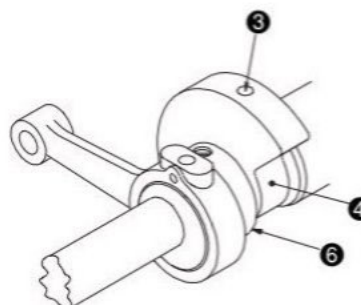
Adjustment Procedures	Results of Improper Adjustment
<ol style="list-style-type: none"> 1. Loosen the top cover setscrews ❶ (6 positions) and remove the top cover ❷. 2. Adjust the graduations of the feed adjusting dial to [6]. (For the PLC-1760L, adjust it to [12].) 3. Loosen the feed adjusting eccentric pin setscrews ❸ (2 positions). 4. Turn the feed adjusting eccentric pin ❹ and adjust the it. <ul style="list-style-type: none"> o Direction A → Reverse feed pitch increased o Direction B → Forward feed pitch increased 5. Tighten the feed adjusting eccentric pin setscrews ❸ (2 positions). 6. Install the top cover ❷ with the top cover screws ❶ (6 positions). <p>(Guideline) When the notch direction ❺ of the feed adjust eccentric pin ❹ is positioned sidewise, the amount of feed becomes almost the same between forward and reverse.</p>	<ul style="list-style-type: none"> o The stitch length becomes irregular between forward and reverse feed.

(14) Balance

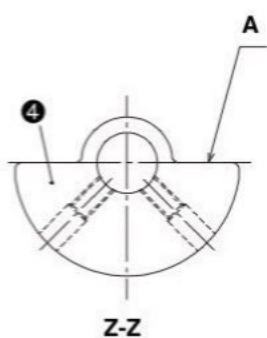
Standard Adjustment



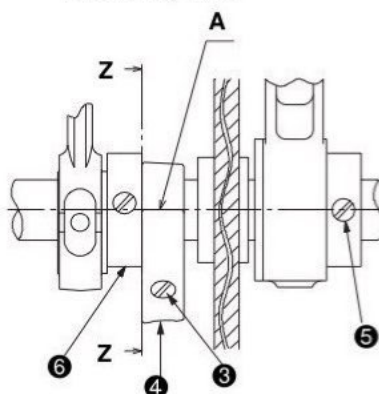
PLC-1710, 1760



PLC-1710, 1760

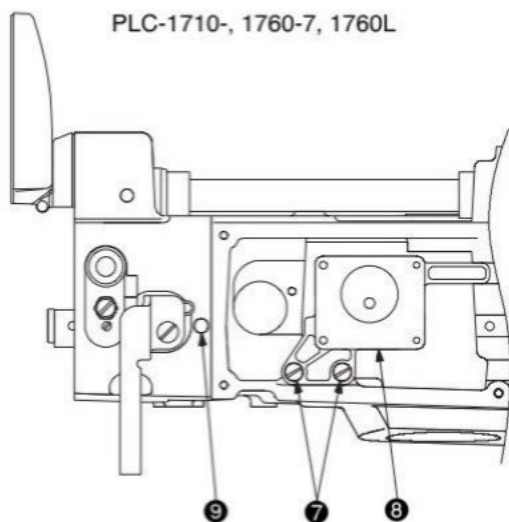


PLC-1710, 1760

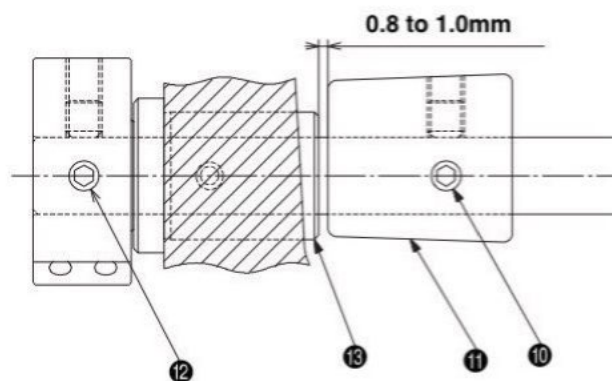


The above illustration shows a view of the arm interior as seen from the worker side.

PLC-1710-, 1760-7, 1760L



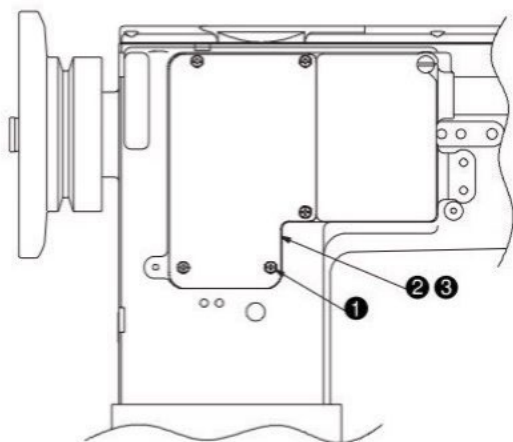
PLC-1710-7, 1760-7, 1760L



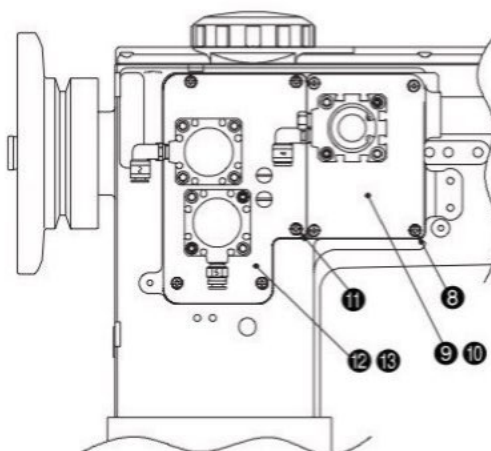
Adjustment Procedures	Results of Improper Adjustment
<ul style="list-style-type: none"> o For PLC-1710, 1760 1. Loosen the top cover setscrews ❶ (6 positions) and remove the top cover ❷. 2. Loosen the balancer setscrews ❸ (2 positions). 3. Adjust Section A of the balancer ❹ to the position where it coincides with the second screw of the horizontal feed cam setscrew ❺. Fix the balancer ❹ by means of the balancer setscrews ❸ (2 positions). At the time of this setup, the end face of the balancer ❹ is required to keep a close contact with that of the top feed cam ❻. 4. Install the top cover ❷ with the top cover setscrews ❶ (6 positions). o For PLC-1710-7, 1760-7, 1760L 1. Loosen the top cover setscrews ❶ (6 positions) and remove the top cover ❷. 2. Loosen the oil tank setscrews ❷ (2 positions) and remove the oil tank ❸. 3. Loosen the balancer setscrews ❿ (2 positions). 4. Turn the hand wheel until the first screw of the main shaft counterbalance setscrews ⓫ (2 positions) is faced upwards. If a 4mm hexagon head wrench is inserted in the hole ❾ of the sewing machine top face at that time, it becomes easy to check the position of the main shaft counterbalance. 5. Let the first screw of the balancer setscrews ❿ (2 positions) coincides with that of the main shaft counterbalance setscrews ⓫ (2 positions), and then tighten the balancer setscrews ❿ (2 positions). At that time, a clearance of 0.8 to 1.0mm should be secured between the balancer ❿ and the main shaft front metal ⓬. 6. Install the oil tank ❸ with the oil tank setscrews ❷ (2 positions). 7. Install the top cover ❷ with the top cover setscrews ❶ (6 positions). 	<ul style="list-style-type: none"> o Vibration is increased.

(15) Position of reverse feed lever

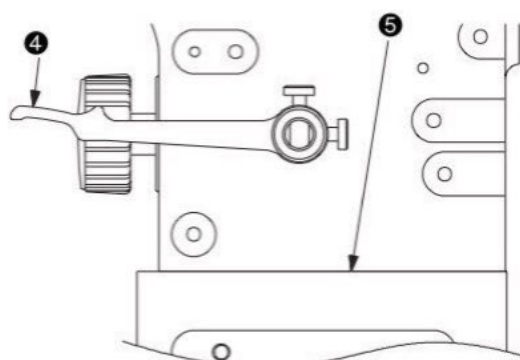
Standard Adjustment



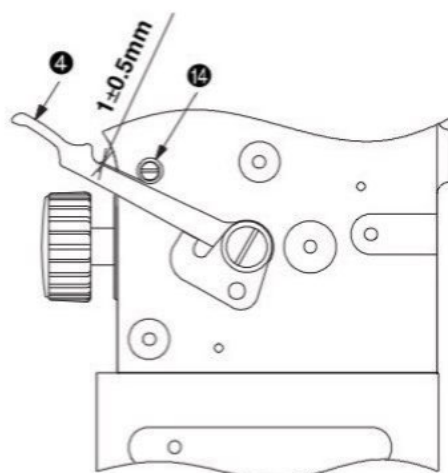
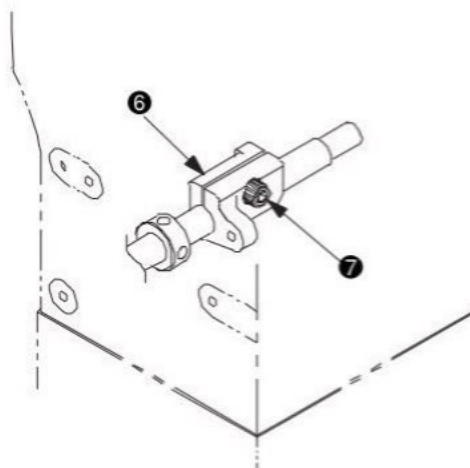
PLC-1710, 1760



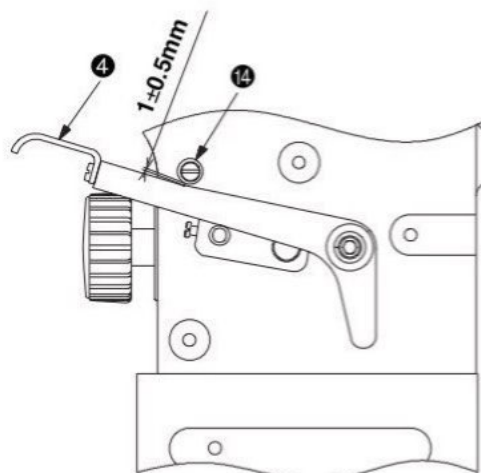
PLC-1710-7, 1760-7, 1760L



PLC-1710, 1760



PLC-1710-7, 1760-7

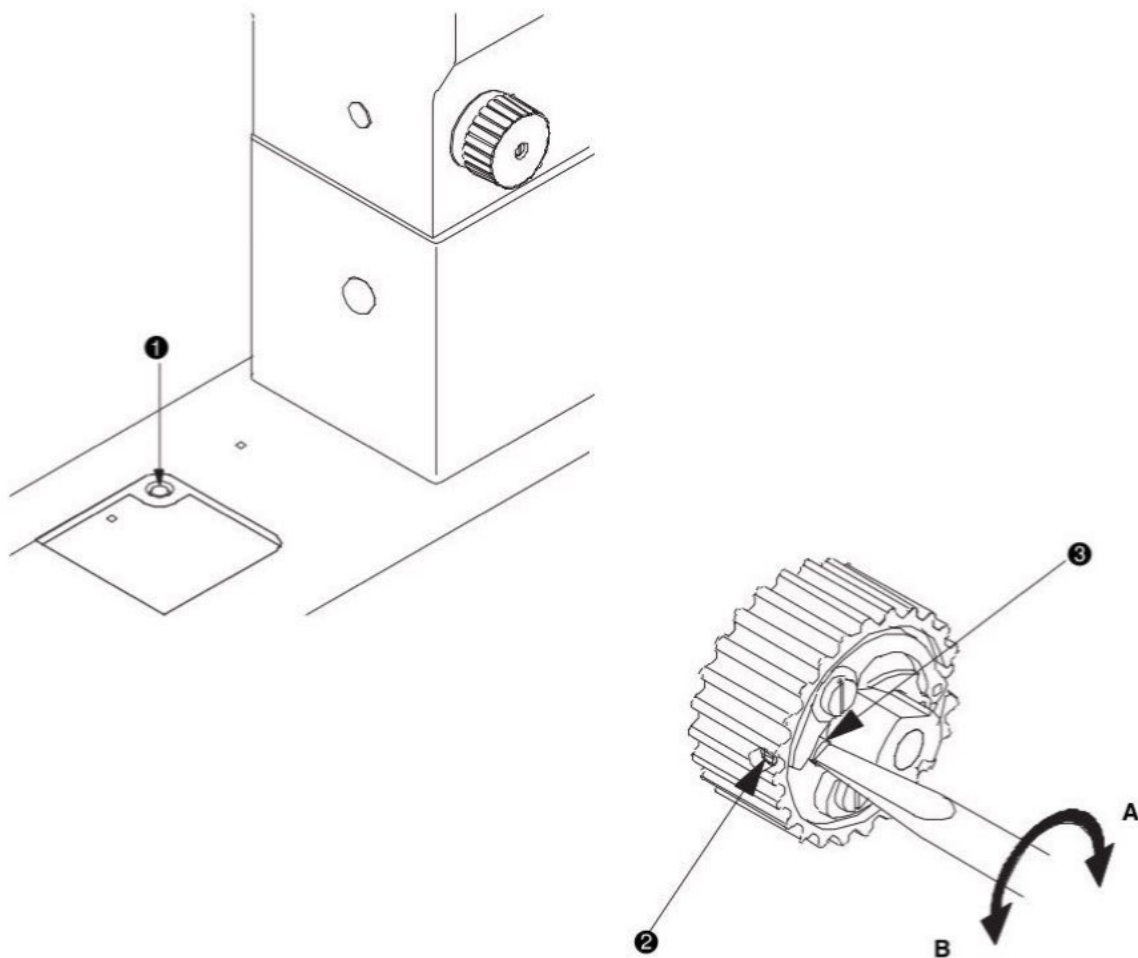


PLC-1760L

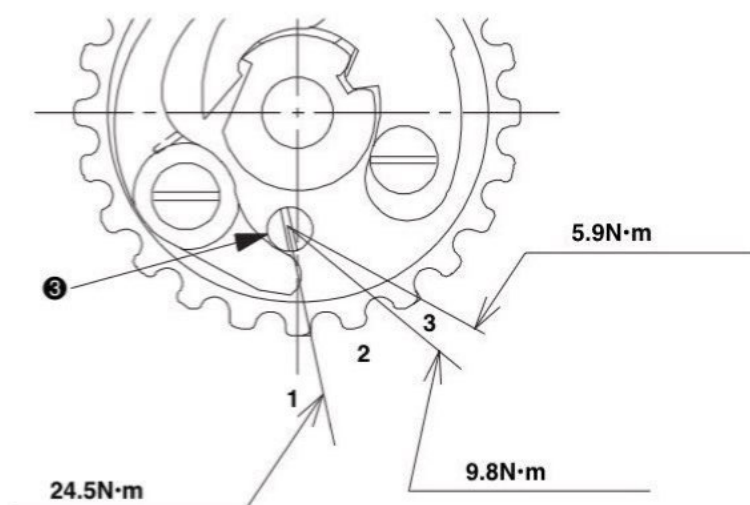
Adjustment Procedures	Results of Improper Adjustment
<p>o For PLC-1710, 1760</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to [0]. 2. Loosen the window plate setscrews ❶ (5 positions) located behind the sewing machine. Remove the window plate ❷ and the window plate gasket ❸. 3. Loosen the hexagon head bolt ❷ to adjust the feed adjuster ❸ so that the top face of the reverse feed lever ❹ is positioned approximately in parallel to the junction face ❺ between the arm and the post. After adjustments, tighten this bolt ❷. 4. Install the window plate ❷ and the window plate gasket ❸ with the window plate setscrews ❶ (5 positions). <p>(Caution) Confirm that the reverse feed lever ❹ does not interfere with the arm or the post when the graduations of the feed adjuster dial are set at [9].</p> <p>o For PLC-1710-7, 1760-7, 1760L</p> <ol style="list-style-type: none"> 1. Adjust the graduations of the feed adjusting dial to maximum value. 2. Loosen the window plate setscrews ❸ (4 positions) located behind the sewing machine. Remove the window plate ❹ and the window plate gasket ❺. 3. Loosen the window plate setscrews ❶ (5 positions) located behind the sewing machine. Remove the window plate ❷ and the window plate gasket ❸. 4. Loosen the hexagon head bolt ❷ to adjust the feed adjuster ❸ so that a clearance of $1 \pm 0.5\text{mm}$ can be secured between the reverse feed lever ❹ and the reverse feed lever stopper ❺. After adjustments, tighten this bolt ❷. 5. Install the window plate ❷ and the window plate gasket ❸ with the window plate setscrews ❶ (5 positions). 6. Install the window plate ❹ and the window plate gasket ❺ with the window plate setscrews ❸ (4 positions). <p>(Caution) Confirm that the reverse feed lever ❹ does not interfere with the arm or the post when the graduations of the feed adjuster dial are set at the maximum position.</p>	<p>When the reverse feed lever is positioned too low:</p> <p>o At the time of reverse feed stitching, the reverse stitch pitches may be decreased as a result of interference between the reverse feed lever ❹ and the post.</p> <p>When the reverse feed lever is positioned too high:</p> <p>o The forward feed stitch pitches may be decreased as a result of interference between the reverse feed lever ❹ and the arm.</p> <p>When the clearance is too large between the reverse feed lever and the stopper:</p> <p>o In the case of reverse feed stitching with the reverse feed lever ❹, the reverse feed lever ❹ may interfere with the post, thus decreasing the reverse feed stitch pitches.</p> <p>When the clearance is too small between the reverse feed lever and the stopper:</p> <p>o The reverse feed lever ❹ may interfere with the reverse feed lever stopper ❺, thus decreasing the forward feed stitch pitches.</p>

(16) Safety mechanism

Standard Adjustment



(Guideline for the release pressure)



Adjustment Procedures	Results of Improper Adjustment
<p>The safety device will be actuated if unreasonable forces are exerted on the lower shaft and others during operation.</p> <p>If the safety device is actuated, no power is transmitted to the lower shaft and the hook does not rotate even when the hand wheel is turned. In such a case, the lower shaft sprocket only makes idling.</p> <ul style="list-style-type: none"> o Method of resetting: <ol style="list-style-type: none"> 1. Check the moving section of the sewing machine to look for the reason why the safety device has been actuated. Remove the possible cause. 2. Pressing the push button switch ❶ that is located on the top face of the bed. Strongly turn the hand wheel by hand in the reverse direction. 3. When the "click" sound is heard and the hand wheel cannot be turned any more, this is the sign for the completion of the resetting work for the safety device. o Adjustment of the safety device actuating torque: <ol style="list-style-type: none"> 1. Let the sewing machine fall down. 2. Loosen the setscrew ❷ (1 position) that is located on the outer periphery of the lower shaft sprocket, and turn the release pressure adjuster pin ❸ to adjust the release torque. 3. Fix the release pressure adjuster pin ❸ by means of the setscrew ❷ (1 position). <p>(Guideline for the release pressure)</p> <p>When the direction of the slot of the release pressure adjuster pin ❸ is located near the position specified below, it corresponds to the release pressure in that case.</p> <ul style="list-style-type: none"> o 24.5N·m : First tooth crest of the sprocket o 9.8N·m : In the center between the second and third tooth roots of the sprocket o 5.9N·m : Third tooth crest of the sprocket <p>This value is set at 9.8N·m at the time of shipment from the factory.</p>	<p>When the release torque is too high:</p> <ul style="list-style-type: none"> o The hook, lower shaft gears, and such parts may be broken. <p>When the release torque is too low:</p> <ul style="list-style-type: none"> o Since the safety device is easily actuated, smooth sewing work may be disturbed.

4. 針の取り付け方 / ATTACHING THE NEEDLE / ANBRINGEN DER NADEL / POSE DE L'AIGUILLE / MODO DE COLOCAR LA AGUJA / POSIZIONAMENTO AGO / 机针的安装方法

注意：

不意の起動による人身事故を防ぐために電源を切り、モータの回転が止まったことを確認してから行ってください。

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 totally stopped rotating in prior.

WARNUNG :

Um mögliche Verletzungen durch plötzliches Anlaufen der Maschine zu verhüten, schalten Sie die Stromversorgung der Maschine aus, und vergewissern Sie sich, daß der Motor vollkommen stillsteht, bevor Sie mit dieser Arbeit beginnen.



AVERTISSEMENT :

Pour ne pas risquer des blessures dues à une brusque mise en marche de la machine, toujours mettre la machine hors tension et s'assurer que le moteur est complètement arrêté avant de commencer l'opération ci-dessous.

AVISO :

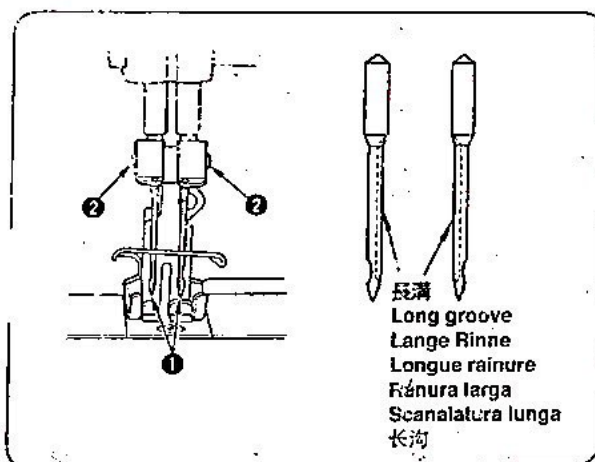
Para evitar posibles lesiones personales debido a un arranque brusco de la máquina, desconecte la corriente eléctrica de la máquina y compruebe de antemano para mayor seguridad que el motor está completamente parado.

AVVERTIMENTO :

Al fine di evitare ferimenti causati dall'avvio improvviso della macchina, spegnere la macchina ed assicurarsi in anticipo che il motore abbia completamente cessato di ruotare.

注意：

为了防止突然启动造成人身事故，请关掉电源，确认马达确实停止转动后再进行。



- 1) はずみ車を回して、針棒を最高に上げます。
- 2) 針止めねじ ② をゆるめ、針 ① の長溝が各々内側にくるように持ちます。
- 3) 針 ① を穴の奥に突き当たるまで深く差し込みます。
- 4) 針止めねじ ② を固く締めます。

(注意) 針を交換した時には、針と釜剣先のすき間を確認してください。

(17. 針と釜の関係、18. 釜針受けの調整を参照ください。)

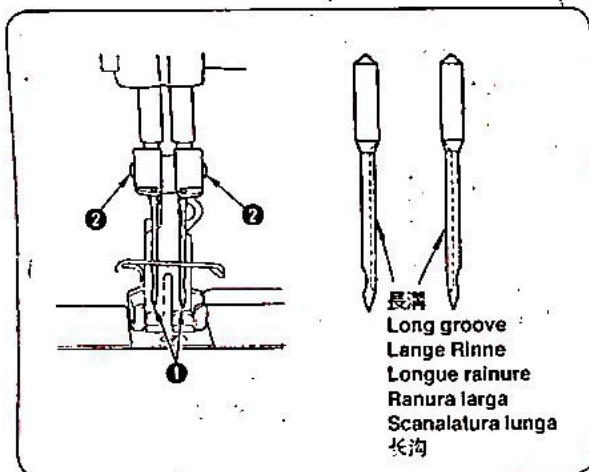
すき間がない場合、針および釜の破損原因となります。

- 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 grooves in the needles come inside respectively.
- 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 "17. NEEDLE-TO-HOOK RELATION" and "18. ADJUSTING THE HOOK NEEDLE GUARD".)

If there is no clearance, the needle and hook will be damaged.



- 1) Das Handrad drehen, um die Nadelstange in ihre Hochstellung zu bringen.
- 2) Die Nadelspannschrauben ② lösen, und die Nadeln ① so halten, daß ihre langen Rinnen jeweils nach innen zeigen.
- 3) Die Nadeln ① bis zum Anschlag in die Nadelstangenbohrungen einführen.
- 4) Die Nadelspannschrauben ② fest anziehen.

(Vorsicht) Überprüfen Sie beim Auswechseln der Nadel den Abstand zwischen der Nadel und der Greiferblattspitze. (Siehe "17. NADEL-GREIFER-BEZIEHUNG" und "18. EINSTELLEN DES GREIFERNADELSCHUTZES".) Falls kein Abstand vorhanden ist, können Nadel und Greifer beschädigt werden.

- 1) Tourner le volant pour remonter la barre à aiguille au maximum.
- 2) Desserrer les vis de pince-aiguille ② et présenter les aiguilles ① avec leur longue rainure tournée vers l'intérieur.
- 3) Enfoncer les aiguilles ① à fond dans les orifices de pince-aiguille.
- 4) Resserrer complètement les vis de pince-aiguille ②.

(Attention) Lors du remplacement de l'aiguille, vérifier le jeu entre l'aiguille et la pointe de la lame du crochet.
(Voir "17. RELATION ENTRE L'AIGUILLE ET LE CROCHET" et "18. REGLAGE DU PARE-AIGUILLE DE CROCHET".)

S'il n'y a pas de jeu, l'aiguille et le crochet seront endommagés.

- 1) Gire el volante para llevar la barra de aguja a la posición más alta de su recorrido.
- 2) Afloje los tornillos ② sujetadores de aguja, y sostenga las agujas ① de modo que las ranuras largas en las agujas queden hacia adentro respectivamente.
- 3) Empuje las agujas ①, todo lo que puedan entrar en los agujeros del sujetador.
- 4) Apriete bien los tornillos ② sujetadores de aguja.

(Precaución) Cuando reemplace la aguja, compruebe la separación que se provee entre la aguja y la punta de la hoja del gancho.

(Consulte "17. RELACION DE AGUJA A GANCHO" y "18. MODO DE AJUSTAR EL PROTECTOR DE AGUJA Y GANCHO".)

Si no queda separación, se dañará la aguja y el gancho.

- 1) Girare il volantino per sollevare la barra ago fino alla posizione più alta della sua corsa.
- 2) Allentare le viti di fissaggio dell'ago ②, e tenere gli aghi ① in modo che le scanalature lunghe negli aghi siano volte verso l'interno rispettivamente.
- 3) Inserire gli aghi ① completamente nei fori di fissaggio dell'ago finché i fondi dei fori vengano raggiunti.
- 4) Stringere le viti di fissaggio dell'ago ② saldamente.

(Attenzione) Quando si sostituisce l'ago, controllare il gioco lasciato tra l'ago e la punta della lama del crochet.
(Fare riferimento al par. "17. RELAZIONE FASE AGO-CROCHET" e "18. REGOLAZIONE DELLA PROTEZIONE AGO DEL CROCHET".)

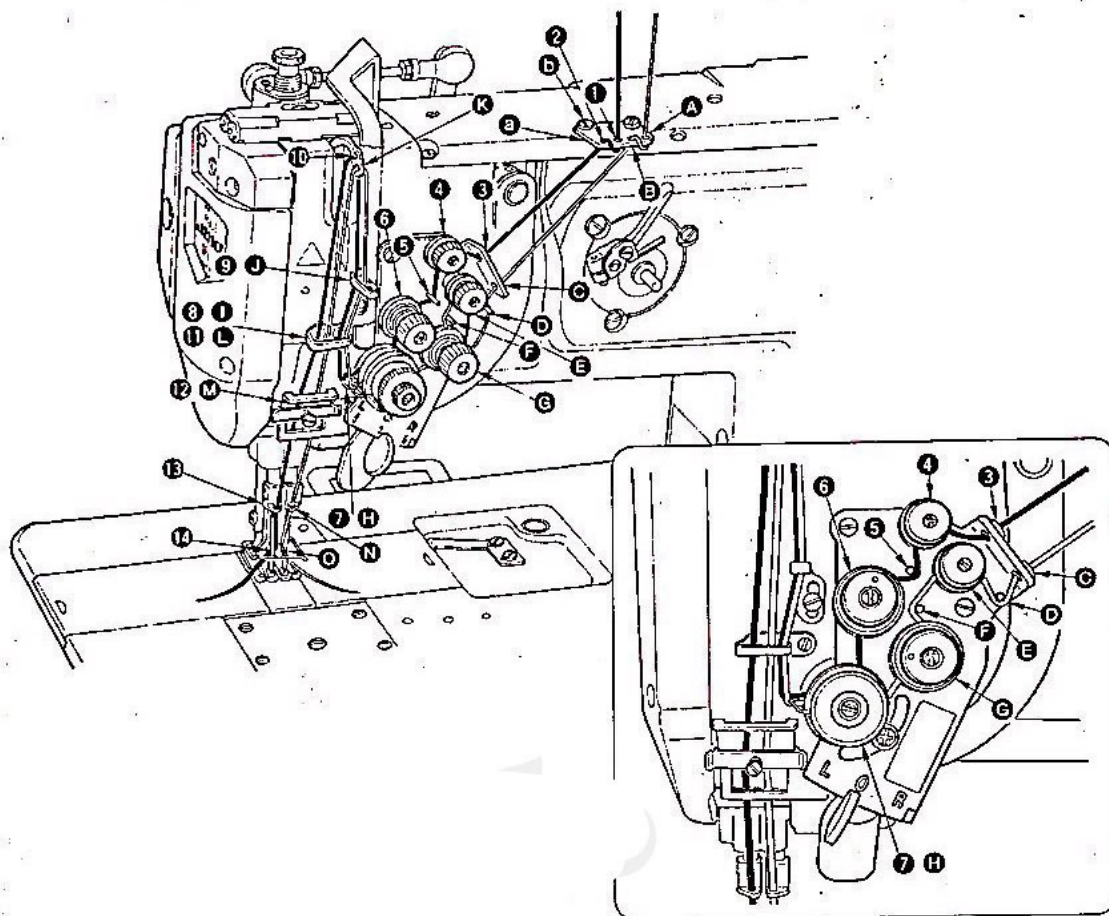
Se non c'è gioco, l'ago e il crochet saranno danneggiati.

- 1) 转动飞轮, 把针杆上升到最高位置。
- 2) 拧松机针固定螺丝 ②, 把机针 ① 的长槽分别朝向内侧。
- 3) 把机针 ① 插到最里面。
- 4) 拧紧固定机针固定螺丝 ②。

(注意) 更换机针后, 请确认机针与旋梭尖的间隙。

(请参照 17. 机针和旋梭的关系, 18. 旋梭针座的调整。)

如果没有间隙, 会使机针和旋梭损坏。



1. アーム糸案内 ② を止めねじ ③ でトップカバーに取り付けます。
2. 上糸は図のように左側の針糸 ① ~ ⑭、右側の針糸 ① ~ ⑭ の順に通します。

1. Attach arm thread guide ② to the top cover with setscrew ③.
2. Pass the left-hand needle thread in the order of ① to ⑭.
Pass the right-hand needle thread in the order of ① to ⑭ as illustrated in the figure.

1. Die Maschinenarm-Fadenführung ② mit den Halteschrauben ③ an der Oberabdeckung befestigen.
2. Den linken Nadelfaden in der Folge ① bis ⑭ einfädeln.
Den rechten Nadelfaden in der Folge ① bis ⑭ einfädeln, wie in der Abbildung gezeigt.

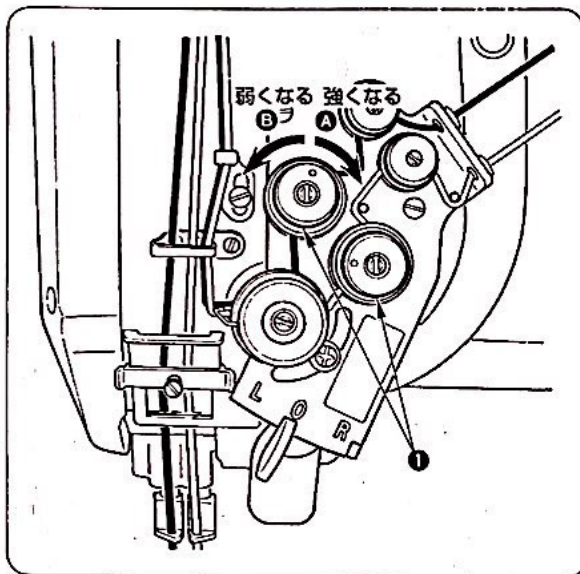
1. Poser le guide-fil du bras ② sur le couvercle supérieur avec les vis de fixation ③.
2. Faire passer le fil de l'aiguille gauche dans l'ordre de ① à ⑭.
Faire passer le fil de l'aiguille droite dans l'ordre de ① à ⑭ comme sur la figure.

1. Monte la guía ② del hilo del brazo en la cubierta superior con los tornillos ③.
2. Pase el hilo de aguja del lado izquierdo en el orden de ① a ⑭.
Pase el hilo de aguja del lado derecho en el orden de ① a ⑭ como se ilustra en la figura.

1. Attaccare il guidafilo del braccio ② al coperiore superiore con le viti di fissaggio ③.
2. Fare passare il filo dell'ago di sinistra nell'ordine da ① a ⑭.
Fare passare il filo dell'ago di destra nell'ordine da ① a ⑭ come mostrato nella figura.

1. 用固定螺丝 ③ 把机架倒导线器 ② 安装到顶盖上。
2. 如图所示，把左侧的上线如 ① ~ ⑭，把右侧的上线如 ① ~ ⑭ 那样穿线。

5. 糸調子 /
 THREAD TENSION /
 FADENSPANNUNG /
 TENSION DES FILS /
 TENSION DEL HILO /
 TENSIONE DEL FILO /
 线张力



(1) 上糸張力の調節

第二糸調子ナット ① を右に回すと上糸張力は強くなり、左へ回すと弱くなります。

(1) Adjusting the needle thread tension

Turn thread tension nut No. 2 ① clockwise A to increase the needle thread tension, or counterclockwise B to decrease it.

(1) Einstellen der Nadelfadenspannung

Die Fadenspannermutter Nr. 2 ① im Uhrzeigersinn A drehen, um die Nadelfadenspannung zu erhöhen, bzw. entgegen dem Uhrzeigersinn B, um sie zu verringern.

(1) Réglage de la tension du fil d'aiguille

Pour augmenter la tension du fil d'aiguille, tourner l'écrou de tension n° 2 ① à droite A. Pour la diminuer, tourner l'écrou à gauche B.

(1) Modo de ajustar la tensión del hilo de aguja

Gire la tuerca de tensión de hilo N° 2 ① hacia la derecha A para aumentar la tensión de hilo de aguja, o hacia la izquierda B para disminuirla.

(1) Regolazione della tensione del filo dell'ago

Girare il dado di tensione del filo No.2 ① in senso orario A per aumentare la tensione del filo dell'ago, o in senso antiorario B per diminuirla.

(1) 上线张力的调节

向右转动 A 第二线张力螺母 ①，上线张力变强，向左转动 B 则变弱。

(1) Comment changer la course du ressort de relevage du fil

- 1) Pour le ressort de relevage du fil gauche ❶, desserrer la vis ❷ de la butée et déplacer la butée ❸ vers la droite ou la gauche.
- 2) Pour le ressort de relevage du fil droit ❹, desserrer la vis ❺ de la butée et déplacer la butée ❻ vers la droite ou la gauche.
- 3) Pour augmenter la course, déplacer la butée vers la droite. Pour la diminuer, déplacer la butée vers la gauche.

(2) Comment changer la tension du ressort de relevage du fil

- 1) Pour le ressort de relevage du fil gauche, desserrer l'écrou ❷ et tourner l'arbre du ressort ❸ dans le sens inverse des aiguilles d'une montre pour augmenter la tension du ressort de relevage du fil ou dans le sens des aiguilles d'une montre pour la diminuer.
- 2) Pour le ressort de relevage du fil droit, desserrer la vis ❹ et tourner l'axe du ressort de relevage du fil ❺ dans le sens inverse des aiguilles d'une montre pour augmenter la tension du ressort de relevage du fil ou dans le sens des aiguilles d'une montre pour la diminuer.

(1) Para cambiar el recorrido del muelle tirahilo

- 1) Para el muelle ❶ tirahilo en el lado izquierdo, afloje el tornillo ❷ del retenedor y mueva el retenedor ❸ hacia la derecha o hacia la izquierda.
- 2) Para el muelle ❹ tirahilo en el lado derecho, afloje el tornillo ❺ del retenedor y mueva el retenedor ❻ hacia la derecha o hacia la izquierda.
- 3) Mueva el retenedor hacia la derecha para aumentar el recorrido o hacia la izquierda para disminuirlo.

(2) Para cambiar la tensión del muelle tirahilo

- 1) Para el muelle tirahilo en el lado izquierdo, afloje la tuerca ❷ y gire el eje ❸ del muelle hacia la izquierda para aumentar la tensión del tirahilo o hacia la derecha para disminuirla.
- 2) Para el muelle tirahilo en el lado derecho, afloje el tornillo ❹ y gire la clavija ❺ del muelle tirahilo hacia la izquierda para aumentar la tensión del muelle tirahilo o hacia la derecha para disminuirla.

(1) Per modificare la corsa della molla tirafilo

- 1) Per molla tirafilo ❶ sul lato sinistro, allentare vite di fissaggio ❷ e spostare scontro ❸ verso sinistra o destra.
- 2) Per molla tirafilo ❹ sul lato destro, allentare vite di fissaggio ❺ e spostare scontro ❻ verso sinistra o destra.
- 3) Spostare lo scontro verso destra per aumentare o verso sinistra per ridurre la corsa.

(2) Per modificare la tensione della molla tirafilo

- 1) Per molla tirafilo sul lato sinistro, allentare dado ❷ e girare albero ❸ della molla in senso antiorario per aumentare o in senso orario per ridurre la tensione della molla tirafilo.
- 2) Per molla tirafilo sul lato destro, allentare vite ❹ e girare guida ❺ della molla in senso antiorario per aumentare o in senso orario per ridurre la tensione della molla tirafilo.

(1) 变更挑线弹簧的移动量时

- 1) 拧左侧的挑线弹簧 ❶, 请拧松止动器固定螺丝 ❷, 左右移动止动器 ❸。
- 2) 右侧的挑线弹簧 ❹, 请拧松止动器固定螺丝 ❺, 左右移动止动器 ❻。
- 3) 向右移动, 活动量变大, 向左移动, 活动量变小。

(2) 变更挑线弹簧的强度时

- 1) 拧松左侧的挑线弹簧螺母 ❷, 向左转动弹簧轴 ❸ 变强, 向右转动则变弱。
- 2) 拧松右侧的挑线弹簧固定螺丝 ❹, 向左转动挑线弹簧钩 ❺ 变强, 向右转动则变弱。

6. 押え圧力の調節 /

ADJUSTING THE PRESSURE OF THE PRESSER FOOT /

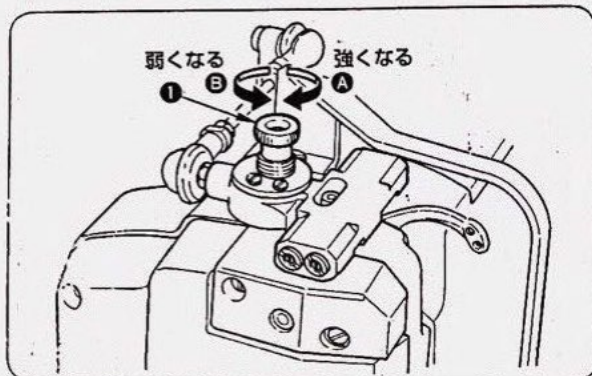
EINSTELLEN DES NÄHFUSSDRUCKS /

REGLAGE DE LA PRESSION DU PIED PRESSEUR /

MODO DE AJUSTAR LA PRESION DEL PRENSATELAS /

REGOLAZIONE DELLA PRESSIONE DEL PIEDINO PREMISTOFFA /

压脚压力的调整



1) 押え調節ダイヤル ① を右へ回すと強くなり、左へ回すと弱くなります。

(注) 圧力は必要最小限の強さでご使用ください。

1) Turn presser spring regulating dial ① clockwise A to increase the pressure of the presser foot, or counter-clockwise B to decrease it.

(Note) Be sure to operate the sewing machine with the pressure of the presser foot minimized as long as the presser foot securely holds the material.

1) Das Druckfeder-Einstellrad ① im Uhrzeigersinn A drehen, um den Nähfußdruck zu erhöhen, bzw. entgegen dem Uhrzeigersinn B, um ihn zu verringern.

(Hinweis) Die Nähmaschine sollte mit möglichst geringem Nähfußdruck betrieben werden, solange der Nähfuß das Nähgut einwandfrei hält.

1) Pour augmenter la pression du pied presseur, tourner le bouton de réglage du ressort de presseur ① à droite A. Pour diminuer la pression du pied presseur, le tourner à gauche B.

(Note) Utiliser la machine avec une pression du pied presseur aussi faible que possible, mais toutefois suffisante pour que le tissu soit bien maintenu.

1) Gire el cuadrante ① regulador de presión del muelle hacia la derecha A para aumentar la presión del prensatelas o hacia la izquierda B para disminuirla.

(Nota) Cerciórese de opera su máquina de coser con la presión del prensatelas al mínimo en tanto que el prensatelas mantenga sujeto el material.

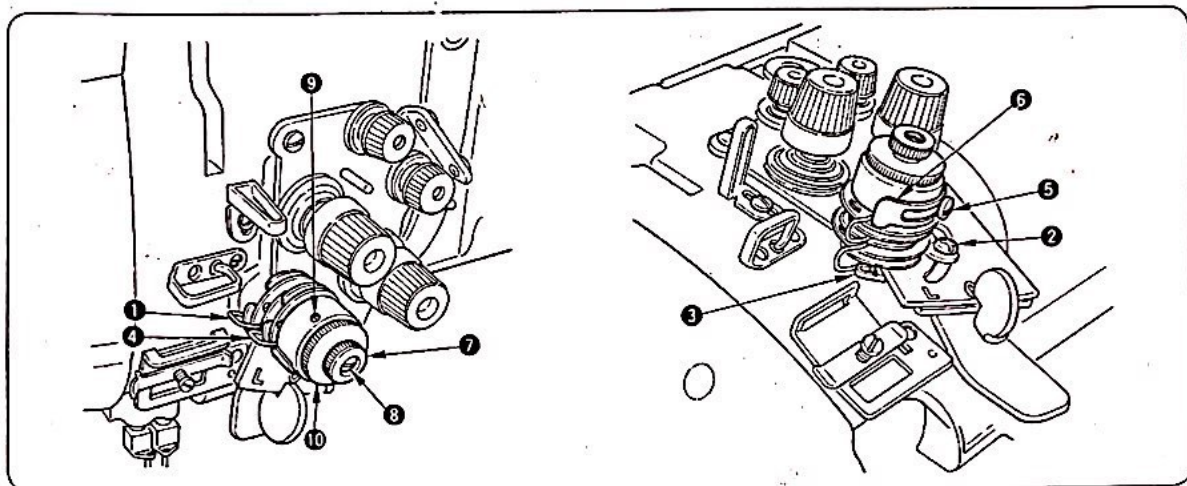
1) Girare la manopola di regolazione della molla del piedino ① in senso orario A per aumentare la pressione del piedino premistoffa, o in senso antiorario B per diminuirla.

(Nota) Aver cura di azionare la macchina per cucire con la pressione del piedino premistoffa minimizzata purché il piedino premistoffa tenga sicuramente il materiale.

1) 向右转动 A 压脚压力调节盘 ① 压力变强，向左转动 B 压力变弱。

(注) 请把压力调整到需要的最小限度的压力。

**7. 糸取りばね / THREAD TAKE-UP SPRING / FADENANZUGSFEDER /
RESSORT DE RELEVAGE DU FIL / MUELLE DEL TIRAHILO /
MOLLA TIRAFILO / 挑线弹簧**



(1) 糸取りばねの動き量を変える時

- 1) 左側の糸取りばね ① はストップ止めねじ ② をゆるめ、ストップ ③ を左右に動かします。
- 2) 右側の糸取りばね ④ はストップ止めねじ ⑤ をゆるめ、ストップ ⑥ を左右に動かします。
- 3) ストップを右へ動かせば動き量は大きくなり、左へ動かせば小さくなります。

(2) 糸取りばねの強さを変える時

- 1) 左側の糸取りばねはナット ⑦ をゆるめ、ばね軸 ⑧ を左へ回すと強くなり、右へ回すと弱くなります。
- 2) 右側の糸取りばねは止めねじ ⑨ をゆるめ、糸取りばね掛け ⑩ を左へ回すと強くなり、右へ回すと弱くなります。

(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

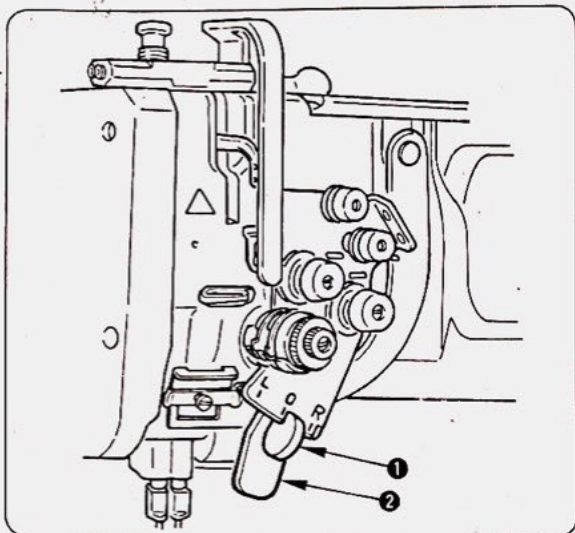
- 1) For the thread take-up spring on the left-hand side, loosen nut ⑦ and turn spring shaft ⑧ counterclockwise to increase the tension of the thread take-up spring or clockwise to decrease it.
- 2) For the thread take-up spring on the right-hand side, loosen screw ⑨ and turn thread take-up spring peg ⑩ counterclockwise to increase the tension of the thread take-up spring or clockwise to decrease it.

(1) Änderung des Federwegs der Fadenanzugsfeder

- 1) Der Federweg der Anzugsfeder ① auf der linken Seite kann nach Lösen der Anschlagfeststellschraube ② durch Verschieben des Anschlags ③ nach links oder rechts eingestellt werden.
- 2) Der Federweg der Anzugsfeder ④ auf der rechten Seite kann nach Lösen der Anschlagfeststellschraube ⑤ durch Verschieben des Anschlags ⑥ nach links oder rechts eingestellt werden.
- 3) Den Anschlag nach rechts schieben, um den Federweg der Anzugsfeder zu vergrößern, oder nach links, um den Federweg zu verkleinern.

(2) Änderung der Spannung der Fadenanzugsfeder

- 1) Die Spannung der Anzugsfeder auf der linken Seite kann nach Lösen der Mutter ⑦ durch Drehen der Federwelle ⑧ entgegen dem Uhrzeigersinn erhöht, bzw. durch Drehen im Uhrzeigersinn verringert werden.
- 2) Die Spannung der Anzugsfeder auf der rechten Seite kann nach Lösen der Feststellschraube ⑨ durch Drehen des Federbolzens ⑩ im Uhrzeigersinn erhöht, bzw. durch Drehen entgegen dem Uhrzeigersinn verringert werden.



(1) Arresto delle barre ago (destra e sinistra)

Se leva di commutazione ❶ viene spostata a posizione L, la barra ago sinistra si arresterà. Se la leva viene spostata a posizione R, la barra ago destra si arresterà.

(2) Per ripristinare il funzionamento a 2 aghi

Premere leva del fissaggio della commutazione ❷.

Leva di commutazione ❶ ritornerà alla posizione 0 (zero) per ripristinare il modo di cucitura a 2 aghi.

(Attenzione) 1. Se il prodotto di cucitura sulla macchi-

na viene girato verso sinistra o destra per la cucitura dello spigolo, non girarlo quando la barra ago si solleva di 2 mm dalla posizione più bassa della sua corsa. Se il prodotto viene girato in tal modo, salti di punto si verificheranno allo spigolo.

2. Se l'angolo di girata del prodotto di cucitura è 40° o meno, la quantità del tirafilo della molletta preventiva lentezza filo della bobina sarà insufficiente. In questo caso, il filo potrebbe rimanere sul rovescio del prodotto di cucitura.

(1) 针杆 (左, 右) 的停止

把变换拨杆 ❶ 移动到 L 的位置之后, 左针杆停止, 移动到 R 位置之后, 右针杆停止。

(2) 返回双针运转时

请按压变换固定拨杆 ❷。

变换拨杆 ❶ 返回到 0 的位置, 变为双针缝纫。

(注意) 1. 左, 右的任何方向转动缝制物进行角缝时, 针杆超过最下点 2 mm 以上, 至上升的位置, 转动缝制物之后, 在角部会发生跳针。

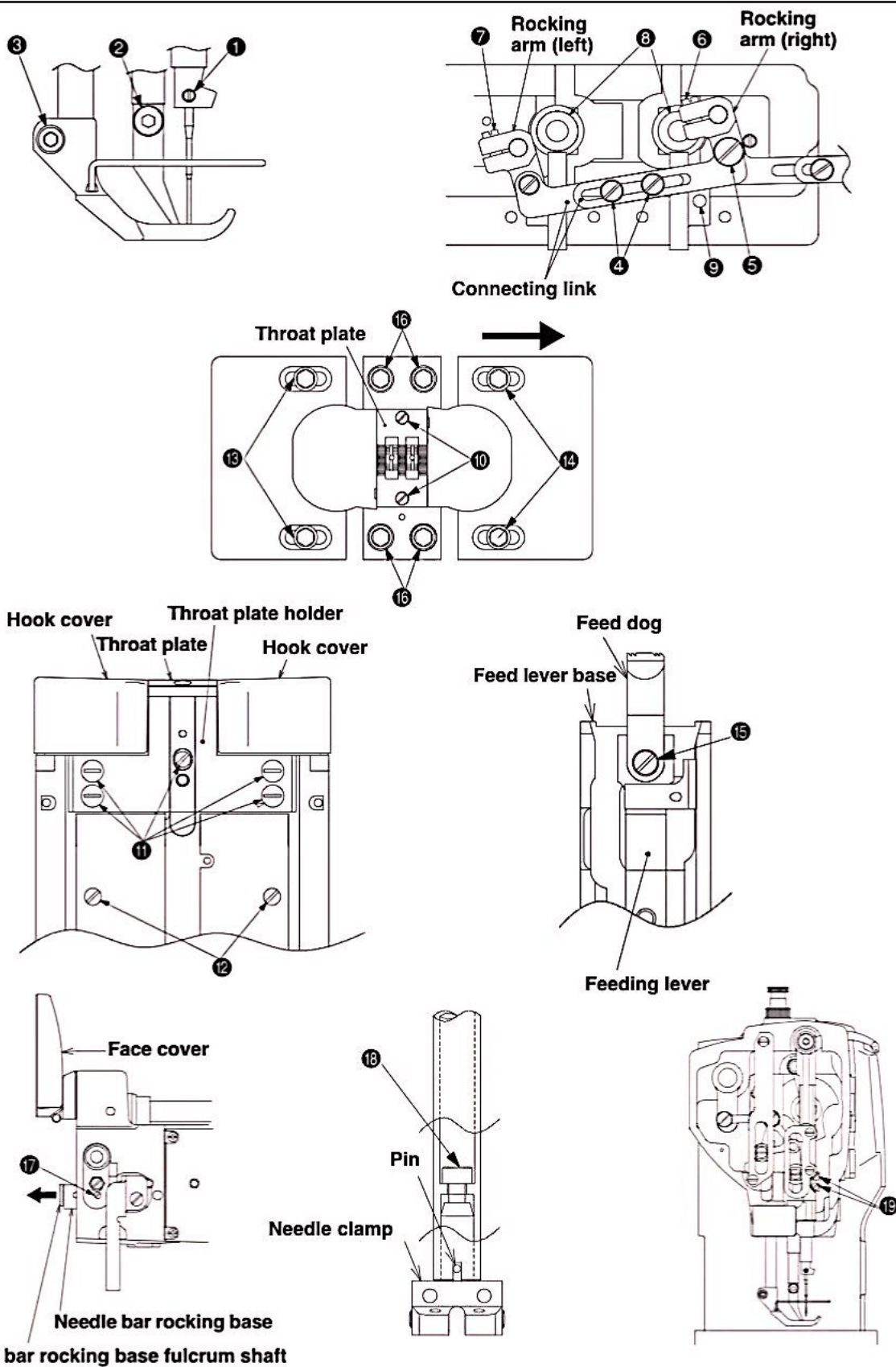
2. 弯曲角度 40° 以下时, 有时因底线吸收弹簧挑线不足, 线残留到布的背面。

8. TROUBLES IN SEWING AND CORRECTIVE MEASURES

Troubles	Causes	Corrective measures
<p>1. Thread breakage (Thread frays or is worn out.)</p> <p>(Needle thread trails 2 to 3 cm from the wrong side of the fabric.)</p>	<p>① Thread path, needle point, hook blade point or bobbin case resting groove on the throat plate has sharp edges or burrs.</p> <p>② Needle thread tension is too high.</p> <p>③ Bobbin case opening lever provides an excessive clearance at the bobbin case.</p> <p>④ Needle comes in contact with the blade point of hook.</p> <p>⑤ Amount of oil in the hook is too small.</p> <p>⑥ Needle thread tension is too low.</p> <p>⑦ Thread take-up spring works excessively or the stroke of the spring is too small.</p> <p>⑧ Timing between the needle and the hook is excessively advanced or retarded.</p>	<p>○ 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.</p> <p>○ Decrease the needle thread tension.</p> <p>○ Decrease the clearance provided between the bobbin case opening lever and the bobbin.</p> <p>Refer to "19. ADJUSTING THE BOBBIN CASE OPENING LEVER".</p> <p>○ Refer to "17. NEEDLE-TO-HOOK RELATION".</p> <p>○ Adjust the amount of oil in the hook properly.</p> <p>Refer to "5. LUBRICATION".</p> <p>○ Increase the needle thread tension.</p> <p>○ Decrease the tension of the spring and increase the stroke of the spring.</p> <p>○ Refer to "17. NEEDLE-TO-HOOK RELATION".</p>
2. Stitch skipping	<p>① Timing between the needle and the hook is excessively advanced or retarded.</p> <p>② Pressure of the presser foot is too low.</p> <p>③ The clearance provided between the top end of the needle eyelet and the blade point of hook is not correct.</p> <p>④ Hook needle guard is not functional.</p> <p>⑤ Improper type of needle is used.</p>	<p>○ Refer to "17. NEEDLE-TO-HOOK RELATION".</p> <p>○ Tighten the presser spring regulator.</p> <p>○ Refer to "17. NEEDLE-TO-HOOK RELATION".</p> <p>○ Refer to "18. ADJUSTING THE HOOK NEEDLE GUARD".</p> <p>○ Replace the needle with one which is thicker than the current needle by one count.</p>
3. Loose stitches	<p>① Bobbin thread does not pass through the tension spring of the inner hook.</p> <p>② Thread path has been poorly finished.</p> <p>③ Bobbin fails to move smoothly.</p> <p>④ Bobbin case opening lever provides too much clearance at the bobbin.</p> <p>⑤ Bobbin thread tension is too low.</p> <p>⑥ Bobbin has been wound too tightly.</p>	<p>○ Thread the bobbin thread correctly.</p> <p>○ Remove rough parts with a fine emery paper or buff it up.</p> <p>○ Replace the bobbin or hook with a new one.</p> <p>○ Refer to "19. ADJUSTING THE BOBBIN CASE OPENING LEVER".</p> <p>○ Increase the bobbin thread tension.</p> <p>○ Decrease the tension applied to the bobbin winder.</p>

9. Gauge replacement for the 2-needle sewing machine

Standard Adjustment



Adjustment Procedures

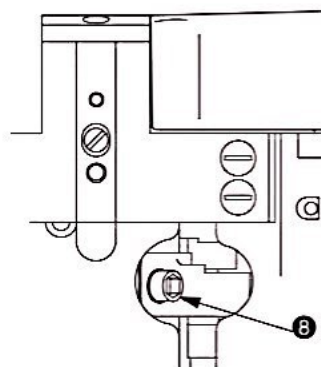
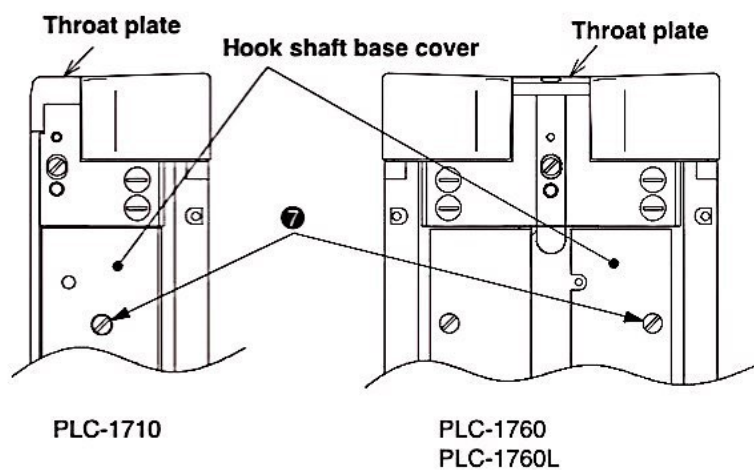
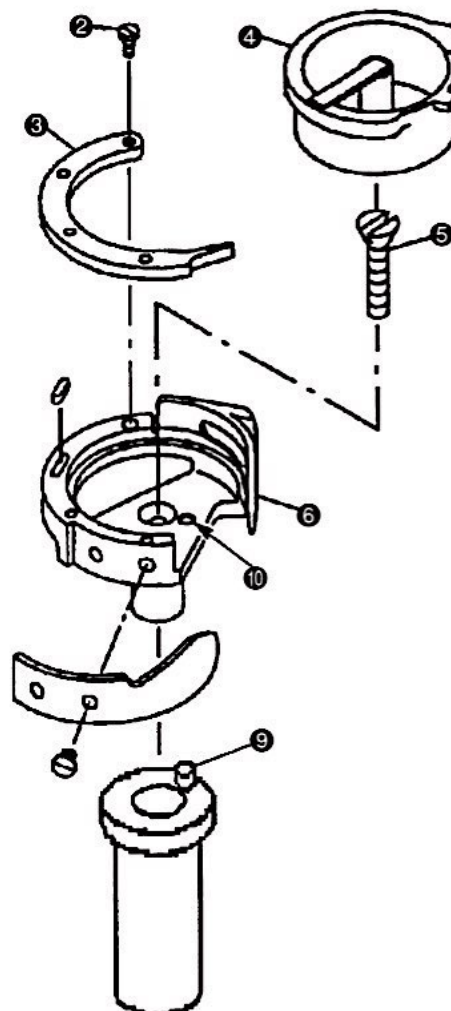
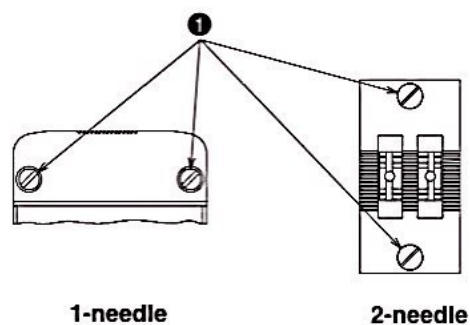
1. Loosen the needle setscrews ❶ (2 positions) and remove the needle.
 2. Loosen the feed foot setscrew ❷ (1 position) and take out the feed foot.
 3. Loosen the presser foot setscrew ❸ (1 position) and take out the presser foot.
 4. Let the sewing machine fall down.
 5. Loosen the connecting link setscrews ❹ (2 positions). (PLC-1760-7 only)
 6. Remove the rocking arm (right) hinge screw ❺ (1 position). (PLC-1760-7 only)
 7. Loosen the rocking arm (right) tightening screw ❻ (1 position) and the rocking arm (left) tightening screw ❼ (1 position) and remove the rocking arm (left) and the connecting link (2 pcs.). (PLC-1760-7 only)
 8. Loosen the hook shaft gear setscrews ❽ (6 positions).
 9. Loosen the lower shaft gear setscrews ❾ (4 positions) so that the lower shaft gear can move to the right and left.
In this case, make sure that the first screw of the lower shaft gear setscrews can never be disengaged from the flat face of the lower shaft.
 10. Raise the sewing machine.
- (Caution) For the PLC-1760-7, pay attention to the connecting link that is attached to the thread trimmer driving arm.**
11. Loosen the throat plate setscrews ❿ (2 positions) and remove the throat plate.
 12. Loosen the screws ⓫ (10 positions) of the throat plate base and remove the throat plate holder.
 13. Loosen the screws ⓬ (8 positions) of the hook shaft base cover and remove the hook shaft base cover (4 pcs.).
 14. Loosen the left hook shaft base setscrews ⓭ (2 positions) and remove the left hook shaft base.
 15. Loosen the right hook shaft base setscrews ⓮ (2 positions) and shift the right hook shaft base to the right in advance.
 16. Loosen the feed dog setscrew ⓯ (1 position) to replace the feed tooth and tighten the feed dog setscrew ⓯ again.
(The feed dog setscrew ⓯ shall be tightened at the tightening torque of 5.39 to 6.37N·m.)
 17. Remove the needle bar rocking fulcrum shaft setscrew ⓰ (1 position).
 18. Open the face cover and draw out the needle bar rocking fulcrum shaft in the direction of the arrow until the top face of the needle bar can be seen from the top screw hole.
 19. Insert the accessory hexagon head wrench (2.5mm) in the needle bar through the hole of the needle bar rocking fulcrum shaft setscrew ⓰ and loosen the needle clamp setscrew ⓱ (1 position) that is located in the needle bar.
 20. Mount the replacing needle clamp on the needle bar and tighten the needle clamp setscrew ⓱ (1 position).
(In this case, the pin attached to the needle clamp shall be adjusted to the groove that is located at the bottom end of the needle bar.)
 21. Return the needle bar rocking fulcrum shaft that has been drawn out as per 18. above. Tighten the needle bar rocking fulcrum shaft setscrew ⓰ (1 position).
At that time, this setscrew shall be tightened until it comes in contact with the flat face of the shaft. After screw tightening, confirm that there is no thrust backlash in the needle bar rocking base.
 22. After the needle has been mounted, loosen the needle bar connecting bracket tightening screws ⓲ (2 positions) to a degree so that the needle bar can move lightly.
 23. Turn the needle clamp by hand so that the right and left needles are positioned in parallel to the lower shaft and temporarily tighten the needle bar connecting screws ⓳ (2 positions).
 24. Loosen the feed lever base setscrews ⓴ (4 positions) and the feed base arm tightening screws to adjust the position of the feed needle hole in relation to the needle center.
For more details, refer to 3. -(2), Adjustment of the feed dog position.
 25. Mount the left hook shaft base setscrews ⓵ (2 positions) that have been removed, and adjust the timing for the needle and the hook.
For more details, refer to 3. -(5), Timing between the needle and the hook (Except for PLC-1760L).
 26. Mount the replacing throat plate base by means of the throat plate holder setscrews ⓫ (10 positions).
 27. Mount the replacing throat plate by means of the throat plate setscrews ❿ (2 positions).
At that time, adjust the vertical clearance between the throat plate and the inner hook clamp section.
For more details, refer to 3. -(3), Clearance between the throat plate and the inner hook clamp section.
 28. Adjust the clearance between the inner hook guide and the inner hook.
For more details, refer to 3. -(7), Adjustment the inner hook guide.
 29. Adjust the feed dog height.
For more details, refer to 3. -(4), Height of the feed dog.
 30. Adjust the vertical feed timing.
For more details, refer to 3. -(11) -3), Vertical feed cam phase.
 31. Adjust the vertical cam timing.
For more details, refer to 3. -(11) -2), Top feed cam phase.
 32. Mount the replacing feed foot and fix it by means of the feed foot setscrew ❷ (1 position).
At that time, mount the feed foot so that its needle hole center coincides with the needle center.
 33. Mount the replacing presser foot and fix it with the presser foot setscrew ❸ (1 position).
At that time, turn the hand wheel by hand and fix this screw so that the feed foot does not come in contact with the presser foot.
 34. Fix the hook shaft base covers (4 pcs.) by means of the hook shaft base cover setscrews ⓬ (8 positions).

10. Replacement of the consumable parts

Standard Adjustment

(1) Hook replacement

o PLC-1710, 1760, 1760L



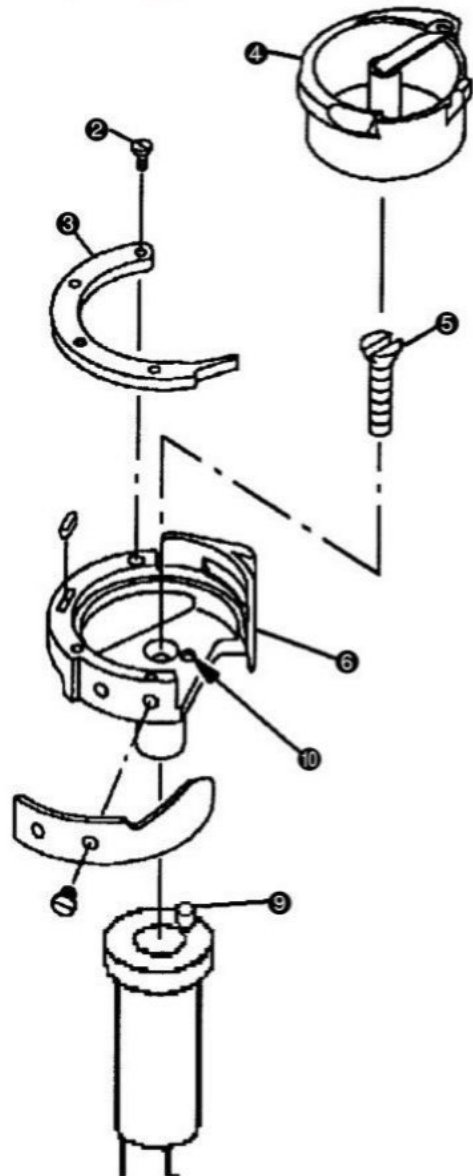
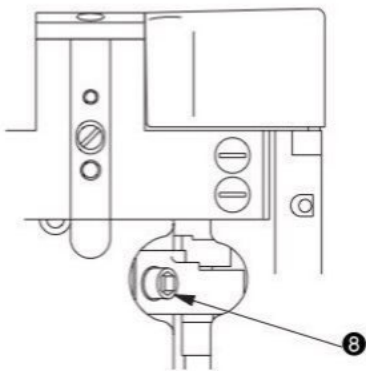
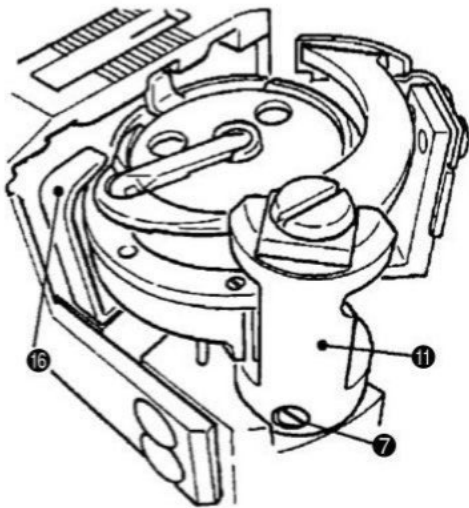
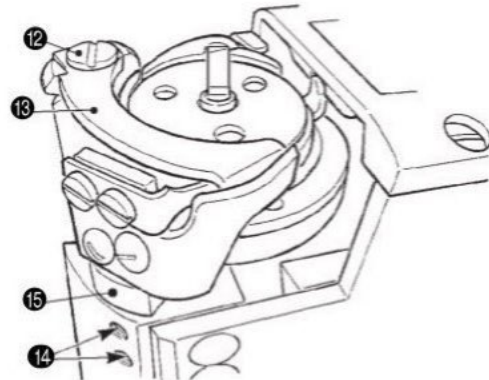
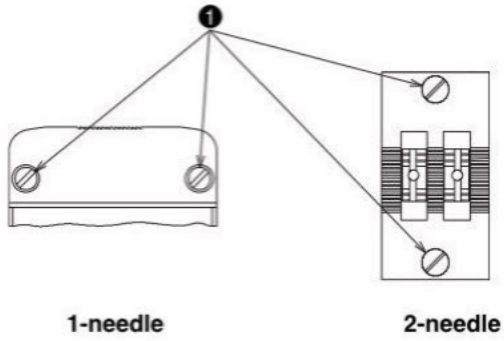
Adjustment Procedures

o PLC-1710, 1760, 1760L

1. Loosen the throat plate setscrews ❶ (2 positions) and remove the throat plate.
 2. Loosen the feed track clamp setscrews ❷ (3 positions) and remove the feed track clamp ❸.
 3. Remove the inner hook ❹.
 4. Loosen the screws ❷ (2 positions) of the hook shaft base cover and remove the hook shaft base cover.
 5. Loosen the inner hook guide arm tightening setscrew ❸ (1 position).
 6. Loosen the hook setscrew ❺ (1 position) and lift the outer hook ❻ and the inner hook guide at the same time to take out the outer hook ❻.
 7. Mount the outer hook ❻ of the new hook in the reverse procedures as for the removal of the outer hook ❻.
 8. Fix the outer hook ❻ by means of the hook setscrew ❺ (1 position).
At that time, fix the outer hook ❻ in the state that the positioning pin ❾ of the hook shaft top face is entered in the hole ❿ of the outer hook.
 9. Mount the inner hook ❹ in the outer hook ❻.
 10. Fix the feed track clamp ❸ by means of the feed track clamp setscrews ❷ (3 positions).
 11. Check the timing for the needle and the hook.
For more details, refer to 3. -(5) and -(6) Timing between the needle and the hook.
 12. Fix the throat plate with the throat plate setscrews ❶ (2 positions).
 13. Check the vertical clearance between the top face of the inner hook clamp section and the throat plate.
For more details, refer to 3. -(3) Clearance between the throat plate and the inner hook clamp section.
 14. Tighten the inner hook guide arm tightening setscrew ❸ (1 position).
At that time, make sure that there is no vertical backlash around the inner hook guide.
For more details, refer to 3.-(7) Adjusting the inner hook guide.
 15. Mount the hook shaft base cover by means of the hook shaft base cover setscrews ❷ (2 positions).
- (Caution) There is difference in the shape of the inner hook ❹ between the PLC-1710, 1760 and the PLC-1760L. However, replacement can be carried out in the same procedures.**

Standard Adjustment

o PLC-1710-7, 1760-7



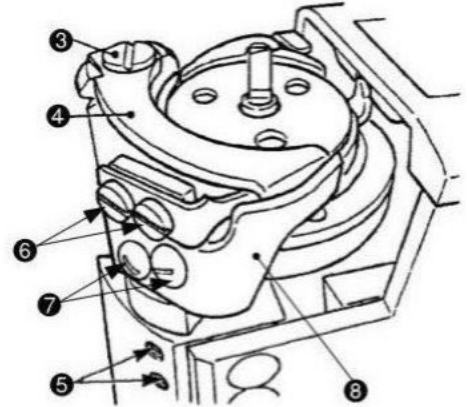
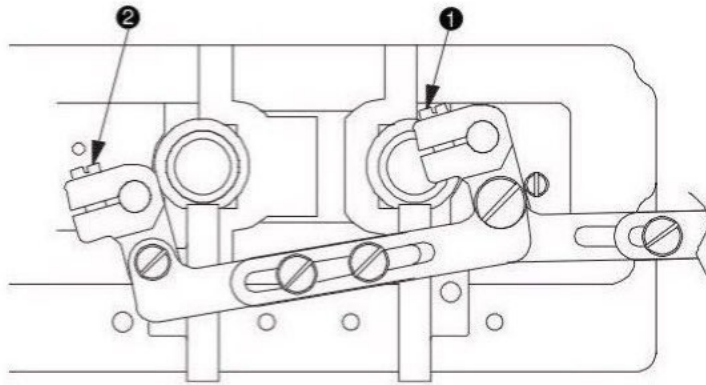
Adjustment Procedures

o PLC-1710-7, 1760-7

1. Loosen the throat plate setscrews ❶ (2 positions) and remove the throat plate.
2. Loosen the moving knife setscrew ❷ (1 position) and remove the moving knife ❸.
3. Loosen the feed track clamp setscrews ❹ (3 positions) and remove the feed track clamp ❺.
4. Remove the inner hook ❻.
5. Loosen the hook shaft base cover setscrews to take out the hook shaft base cover and loosen the inner hook guide arm tightening screw ❸ (1 position).
6. Loosen the counter knife installing base setscrews ❿ (2 positions).
7. Loosen the moving knife installing base setscrews ❼ (2 positions).
8. Loosen the hook setscrew ❶ (1 position) and lift the outer hook ❷, the counter knife installing base ❿, the moving knife installing base ❼, and the inner hook guide ⓫ at the same time in order to take out the outer hook ❷.
9. In the same procedures as when the outer hook ❷ is removed as per 8. above for the replacement by a new outer hook ❷, mount the counter knife installing base ❿, the moving knife installing base ❼, and the inner hook guide ⓫ all together.
10. Fix the new outer hook ❷ by means of the hook setscrew ❶ (1 position).
At that time, fix the outer hook in the state that the positioning pin ❶ of the hook shaft top face is entered in the hole ❷ of the new outer hook ❷.
11. Mount the inner hook ❸ in the outer hook ❷.
12. Fix the feed track clamp ❺ by means of the feed track clamp setscrews ❹ (3 positions).
13. Check the timing for the needle and the hook.
For more details, refer to 3. -(5) Timing between the needle and the hook.
14. Fix the throat plate with the throat plate setscrews ❶ (2 positions).
15. Check the vertical clearance between the top face of the inner hook clamp section and the throat plate.
For more details, refer to 3. -(3) Clearance between the throat plate and the inner hook clamp section.
16. Tighten the inner hook guide arm tightening setscrew ❸ (1 position).
At that time, make sure that there is no vertical backlash around the inner hook guide ⓫.
For more details, refer to 3.-(7) Adjusting the inner hook guide ⓫.
17. Fix the moving knife ❸ to the moving knife installing base ❼ by means of the moving knife mounting screw ❷ (1 position).
18. Adjust the height of the moving knife
For more details, refer to 3.-(18)-1) Adjusting the height of the moving knife.
19. Adjust the counter knife and the clamp spring.
For more details, refer to 3.-(18)-2) Adjusting the position of the counter knife and knife pressure, and 3.-(18)-3) Adjusting the clamp spring.
20. Adjust the position of the moving knife ❸ on the right hook shaft base.
For more details, refer to 3.-(18)-8) Adjusting the position of the moving knife (Right) (PLC-1710-7, 1760-7).
21. Adjust the position of the moving knife ❸ on the left hook shaft base.
For more details, refer to 3.-(18)-9) Adjusting the position of the moving knife (Left) (PLC-1760-7 only).
22. Mount the hook shaft base cover by means of the hook shaft base cover setscrews.

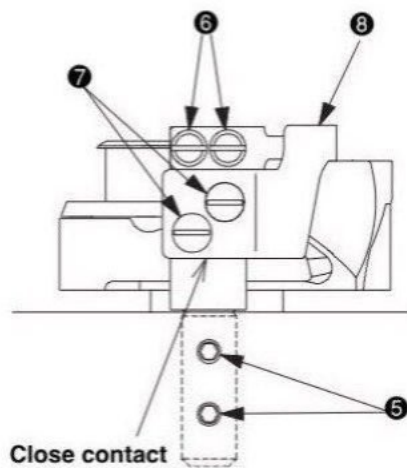
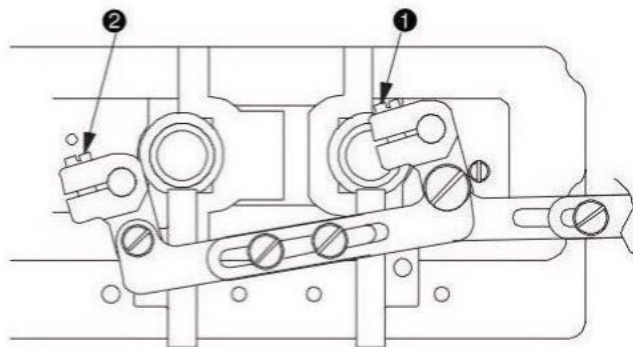
Standard Adjustment

(2) Replacing the moving knife (PLC-1710-7, 1760-7)



(3) Replacing the counter knife (PLC-1710-7, 1760-7)

(4) Replacing the clamp spring (PLC-1710-7, 1760-7)



Adjustment Procedures

(2) Replacing the moving knife (PLC-1710-7, 1760-7)

1. Let the sewing machine fall down.
2. Loosen the rocking arm (right) tightening screw ❶ or the rocking arm (left) tightening screw ❷ (1 position each) and move the moving knife ❹ by hand to the position apart from the counter knife ❸. In this state, temporarily tighten the rocking arm (right) tightening screw ❶ or the rocking arm (left) tightening screw ❷.
3. Raise the sewing machine.
4. Loosen the moving knife setscrew ❸ (1 position) and remove the moving knife ❹.
5. Fix the new moving knife ❹ with the moving knife setscrew ❸ (1 position).
6. Loosen the counter knife base setscrews ❺ (2 positions) to make adjustments of the knife pressure.
For more details, refer to 3.-(18)-2) Adjusting the position of the counter knife and knife pressure

(Caution) The knife pressure should be kept as low as possible.

7. Lay down the sewing machine body and fix the rocking arm (right) tightening screw ❶ or the rocking arm (left) tightening screw ❷.
In this case, refer to 3.-(18) -8), -9) Adjusting the position of the moving knife (Right), (Left).
8. Raise the sewing machine.

(3) Replacing the counter knife (PLC-1710-7, 1760-7)

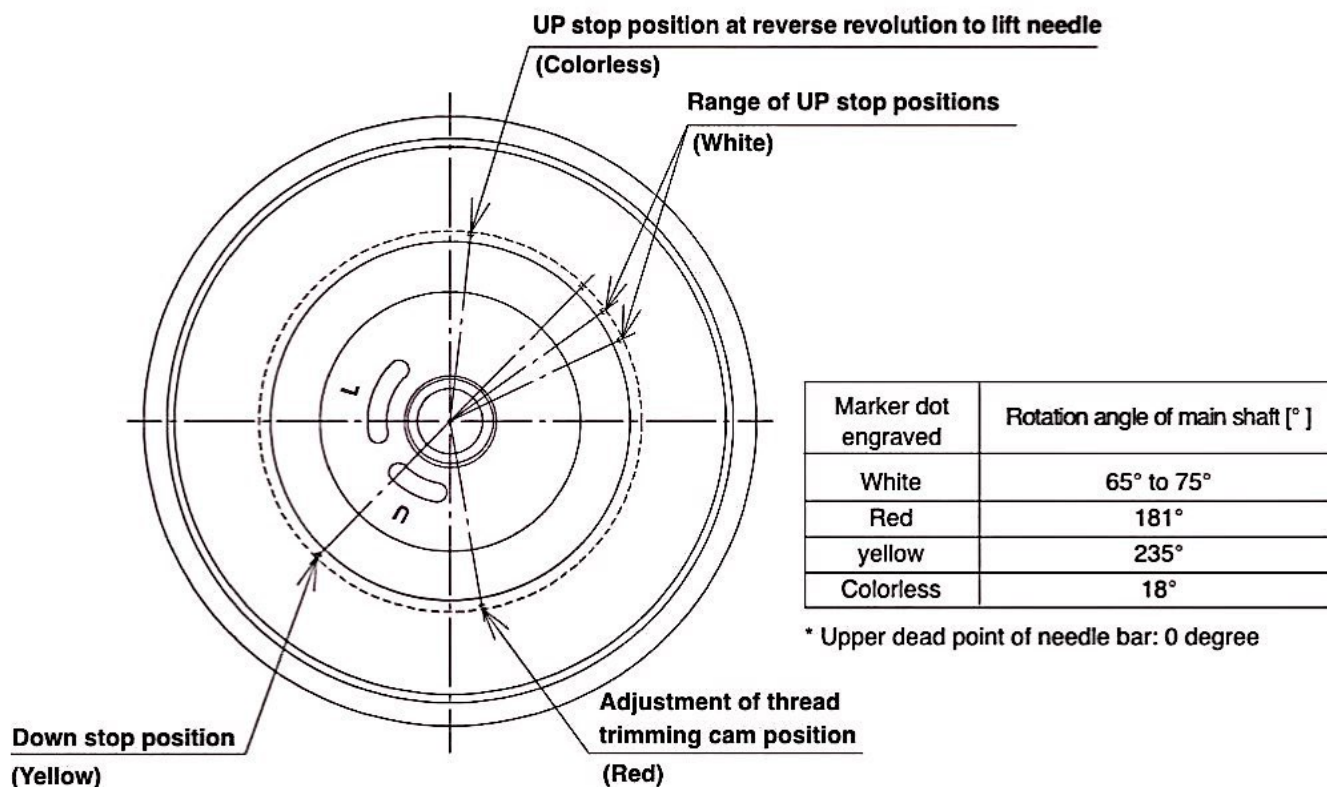
1. Let the sewing machine fall down.
2. Loosen the rocking arm (right) tightening screw ❶ (1 position).
3. Loosen the rocking arm (left) tightening screw ❷ (PLC-1760-7 only)
4. Raise the sewing machine.
5. Loosen the clamp spring setscrews ❻ (2 positions).
6. Loosen the counter knife setscrews ❼ (2 position) and remove the counter knife ❸.
7. Fix the new counter knife ❸ with the counter knife setscrew ❼ (2 position).
At that time, let the bottom face of the counter knife ❸ come in close contact with the counter knife mounting holder.
8. Loosen the counter knife base setscrews ❺ (2 positions) to make adjustments of the knife pressure.
For more details, refer to 3.-(18)-2) Adjusting the position of the counter knife and knife pressure
9. Fix the clamp spring with the clamp spring setscrews ❻ (2 positions).
For more details, refer to 3.-(18)-3) Adjusting the clamp spring.
10. Lay down the sewing machine body and fix the rocking arm (right) tightening screw ❶ or the rocking arm (left) tightening screw ❷ (1 position).
In this case, refer to 3.-(18) -8), -9) Adjusting the position of the moving knife (Right), (Left).
11. Raise the sewing machine.

(4) Replacing the clamp spring (PLC-1710-7, 1760-7)

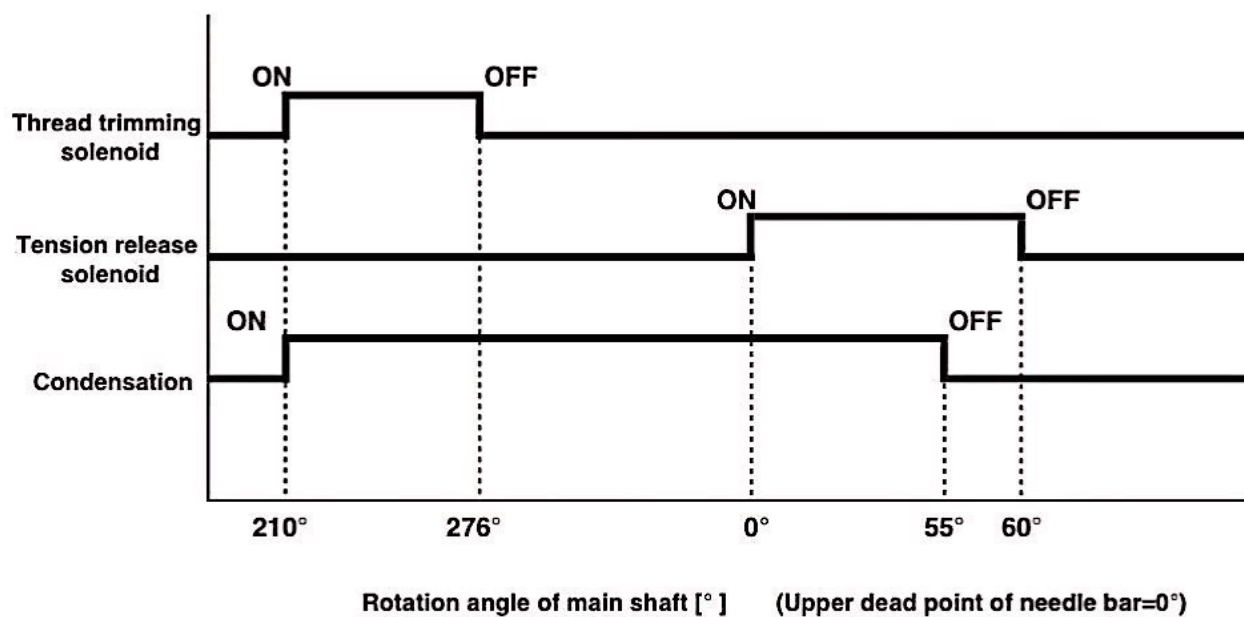
1. In the state of 5. above, [(3) Replacement the counter knife], remove the clamp spring that has been used.
2. Replace the new clamp spring and fix the clamp spring setscrews ❻ (2 positions).
For more details, refer to 3.-(18)-3) Adjusting the clamp spring.
3. Lay down the sewing machine body and fix the rocking arm (right) tightening screw ❶ or the rocking arm (left) tightening screw ❷.
In this case, refer to 3.-(18) -8), -9) Adjusting the position of the moving knife (Right), (Left).
4. Raise the sewing machine.

11. Marking points on flywheel (PLC-1710-7, 1760-7)

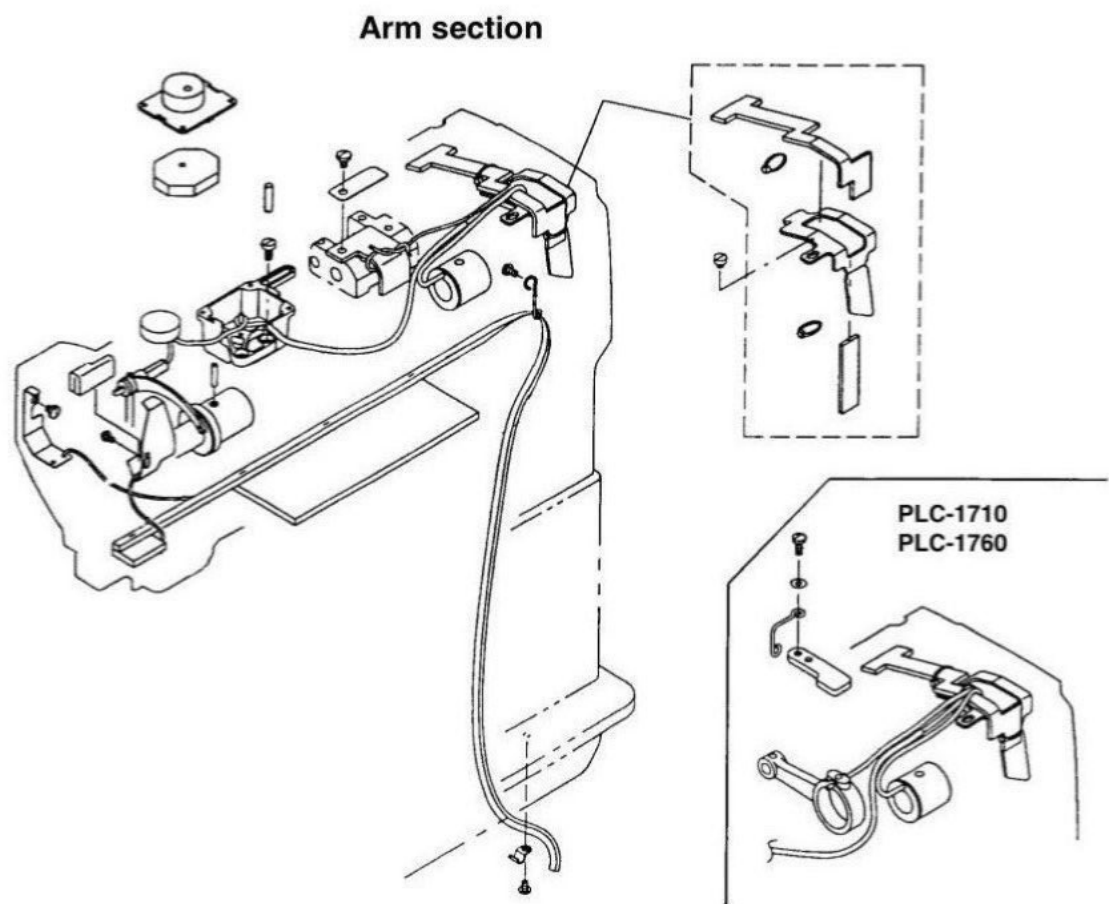
(1) Marking points on flywheel



(2) Thread trimming timing chart

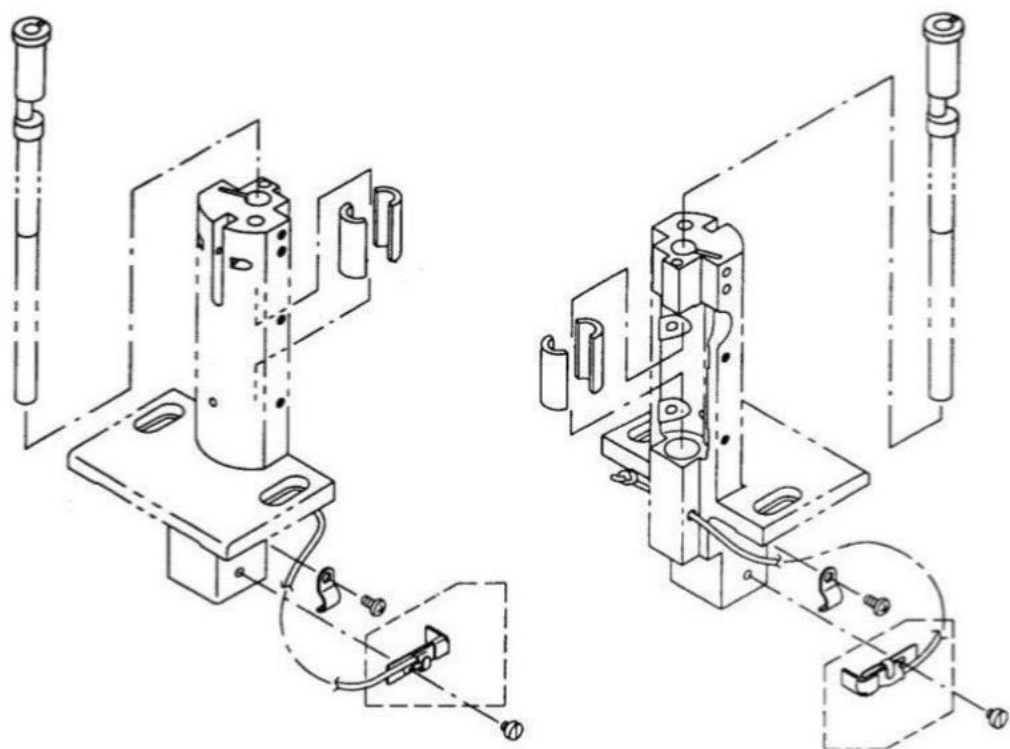


12. Lubrication diagram



Base of left hook shaft

Base of right hook shaft



13. LOCKTITE applied portion

LOCKTITE was applied the following portions in the assembly line at the factory, and minimize the possibility of disassembly.

In case of disassembly by necessity, apply LOCKTITE at reassembly.

Be sure to clean the surface well with thinner or the like and dry the surface before LOCKTITE application.

If the LOCKTITE applied portion cannot be released, use a blowtorch or the like to increase the possibility of release.

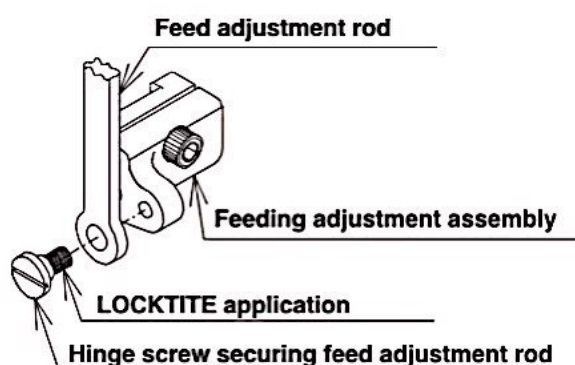
No.	Applied portion	Part No.	LOCKTITE No.
1	Hinge screw securing feed adjustment rod	SD0800402TP	LOCKTITE 638
2	Alternate vertical adjusting arm pin (*1)	10715308	LOCKTITE 638
3	Bushing for alternate dial shaft (*1)	10715100	LOCKTITE 638
4	Screw securing the shaft that supports the alternate vertical amount change assembly (*1)	SS8150710SP	LOCKTITE 243
5	Hinge screw securing feeding lever square block	23009509	LOCKTITE 243
6	Presser auto-lifting lever shaft (*2)	21356704	LOCKTITE 243
7	Hinge screw attaching to cylinder connecting screw (AK) (*2)	SD0720331SP	LOCKTITE 243
8	Hinge screw attaching to cylinder connecting screw (BT) (*2)	SD0800352SP	LOCKTITE 243
9	Hinge screw attaching to cylinder connecting screw (DL) (*2)	SD0600403TP	LOCKTITE 243
10	Tension release bar (*3)	21441209	LOCKTITE 243
11	Hinge screw securing thread trimming roller arm (*3)	SD0640325SP	LOCKTITE 243

(*1): PLC-1710 and PLC-1760 excluded

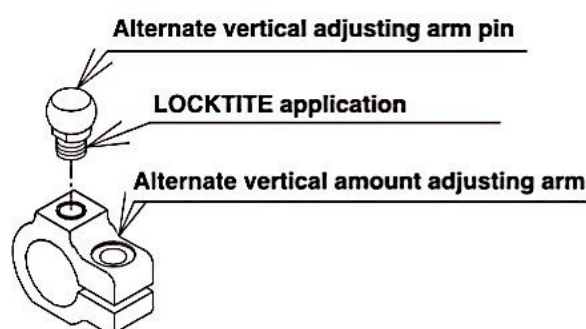
(*2): Optional parts included

(*3): Only sewing machines with thread trimmer

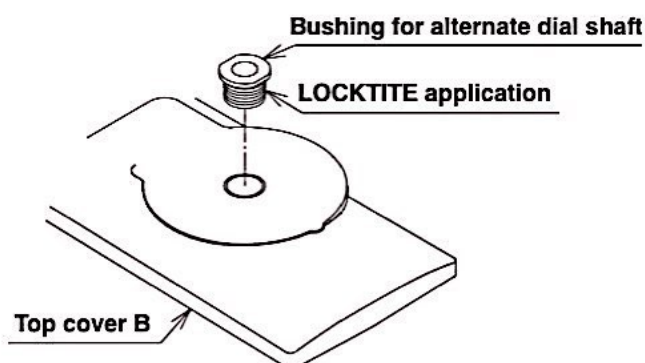
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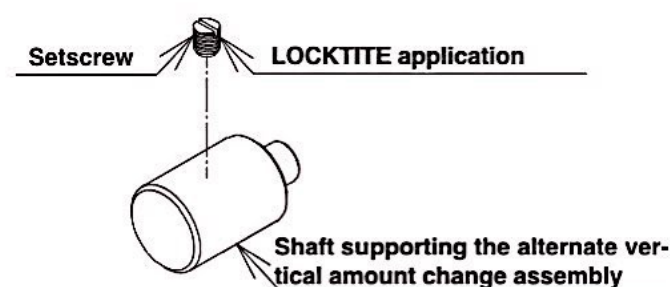
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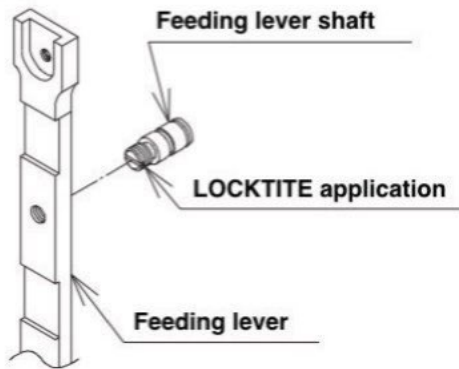
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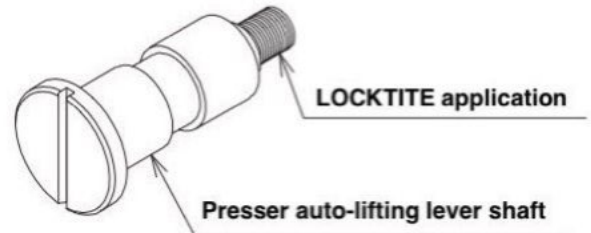
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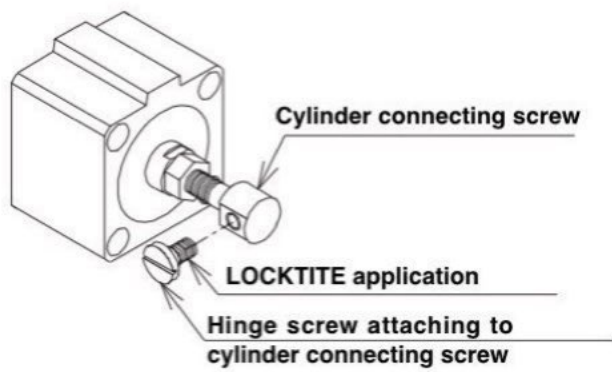
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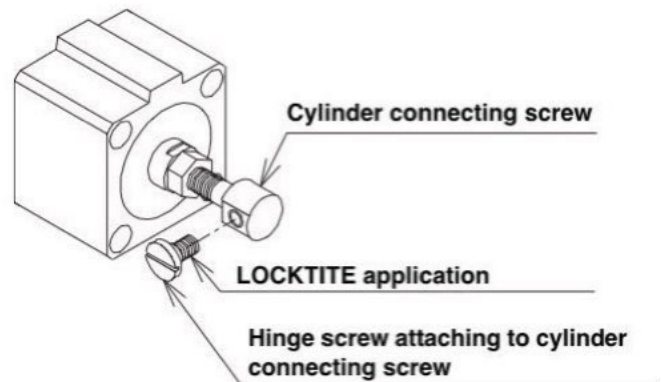
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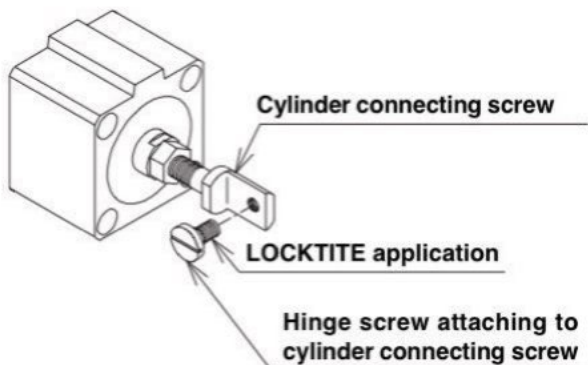
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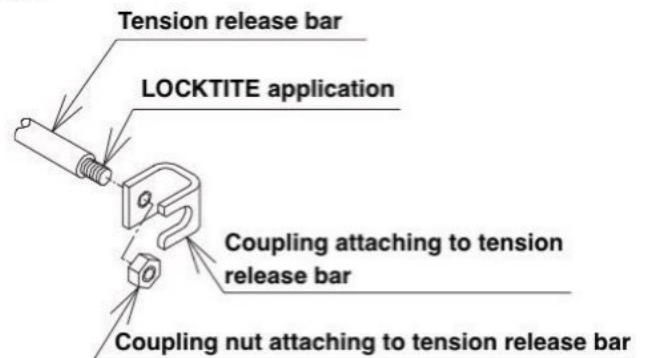
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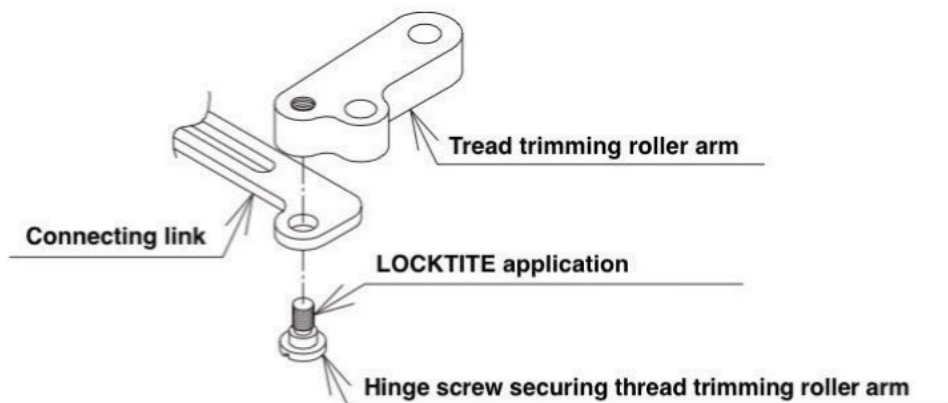
No. 9



No. 10



No. 11



14. Consumable part list/replaceable gauge part list

(1) Consumable part lists

o PLC-1710, 1760

Consumable part	Part No.	Remarks
Needle	MC321001400	Schmetz 134-35 Nm140
Hook (assembly)	40039010	
Bobbin	10759603	Aluminum bobbin (with a knurling tool)

o PLC-1710-7, 1760-7




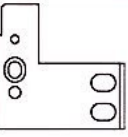
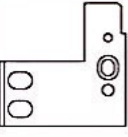
Consumable part	Part No.	Remarks
Needle	MC321001400	Schmetz 134-35 Nm140
Hook (assembly)	40038731	
Bobbin	10759603	Aluminum bobbin (with a knurling tool)
Moving knife	40038746	
Counter knife	40038747	
Clamp spring	40039404	


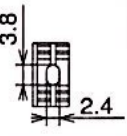



o PLC-1760L

Consumable part	Part No.	Remarks
Needle	MC321002000	Schmetz 134-35 Nm200
Hook (assembly)	40038870	
Bobbin	10759603	Aluminum bobbin (with a knurling tool)






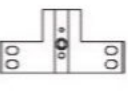
(2) Replaceable gauge part lists

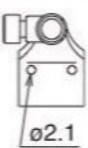
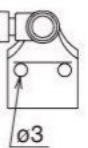
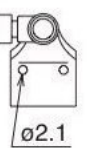
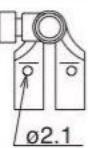

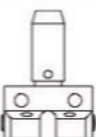
o PLC-1710, 1710-7


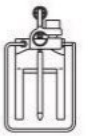
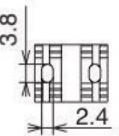
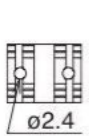
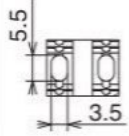
PLC-1710	○		○	○	○
PLC-1710-7		○	○	○	○
Location	Throat plate		Presser foot	Throat plate holder A	Throat plate holder B
Appearance					
Part No.	40038970	40038969	40017286	40038972	40038976

PLC-1710	○	○	○	○	○
PLC-1710-7	○		○		○
Location	Feed dog		Feeding foot		
	Standard	For thick thread	Standard	For thick thread	With slit
Appearance					
Part No.	40038971	40040294	21444559	40040295	23032055

o PLC-1760, 1760-7, 1760L

PLC-1760			○				○		○
PLC-1760-7				○			○		○
PLC-1760L					○				○
Location			Throat plate			Throat plate for lower tape		Throat plate holder	
			Standard	For thread trimming	For L	Standard	For thread trimming		
Appearance									
Part No.	Needle gauge	6mm	40038996	40038759	—	40039004	40038769	40038790	
		8mm	40038995	40038758	—	40039001	40038767	40038788	
		10mm	40038994	40038757	40038893	40038999	40038765	40038786	
		12mm	40038993	40038756	—	40038997	40038762	40038784	

PLC-1760			○		○	○		○
PLC-1760-7			○		○	○		○
PLC-1760L				○			○	○
Location			Feeding foot			Feeding foot for guiding		Needle clamp
			Standard	For L	With slit	Standard	For L	
Appearance								
Part No.	Needle gauge	6mm	40038846	—	10783157	40038854	—	40038778
		8mm	40038844	—	10783256	40038852	—	40038776
		10mm	40038842	40038898	10783355	40038850	40039271	40038774
		12mm	40038840	—	10783454	40038848	—	40038772

PLC-1760			○	○	○		
PLC-1760-7			○	○		○	
PLC-1760L			○	○			○
Location			Presser foot	Presser foot with guide	Feed dog		
					Slot	Circular hole	For L
Appearance							
Part No.	Needle gauge	6mm	40038800	40038810	40039009	40038783	—
		8mm	40038797	40038808	40039008	40038782	—
		10mm	40038795	40038806	40039007	40038781	40038897
		12mm	40038792	40038802	40039006	40038780	—

* Only [10mm] of needle gauge is available for PLC-1760L.

15. Wiring in machine head (only for machines with thread trimmer)

(1) Connector from machine head

• 12-pin connector

Pin No.	Function
1	Thread trimming (–)
2	Tension release (–)
3	—
4	DL Limit1
5	DL Limit 2 & Speed Limit
6	GND
7	Thread trimming (+)
8	Tension release (+)
9	—
10	—
11	—
12	Ground

• Integrated synchronizer

Pin No.	Function
1	+5V
2	UDET
3	DDET
4	GND

• 16-pin connector

Pin No.	Function
1	BT SW
2	NU SW
3	DL SW
4	DL (–)
5	DL (–)
6	2P (–)
7	BT (–)
8	FL (–)
9	GND
10	ABT SW
11	2P SW
12	+24V
13	+24V
14	—
15	+24V
16	+24V

(2) Connector from pneumatic air

• 14-pin connector (Blue)

Pin No.	Function
1	—
2	—
3	Condensation (–)
4	—
5	—
6	—
7	—
8	—
9	—
10	Condensation (+)
11	—
12	—
13	—
14	—

• 10-pin connector

Pin No.	Function
1	DL (–)
2	AK (–)
3	BT (–)
4	—
5	—
6	DL (+)
7	AK (+)
8	BT (+)
9	—
10	—

(3) Connector from relay cable

• Connector CN50-1 to 4

Pin No.	Function			
	CN50-1	CN50-2	CN50-3	CN50-4
1	+24V	+24V	+24V	+24V
2	FL (–)	DL (–)	Condensation (–)	Signal indicating sewing machine is in operation
3	BT (–)	2P (–)	Short tail (–)	—
4	GND	GND	GND	GND

• Connector CN51-1 to 4

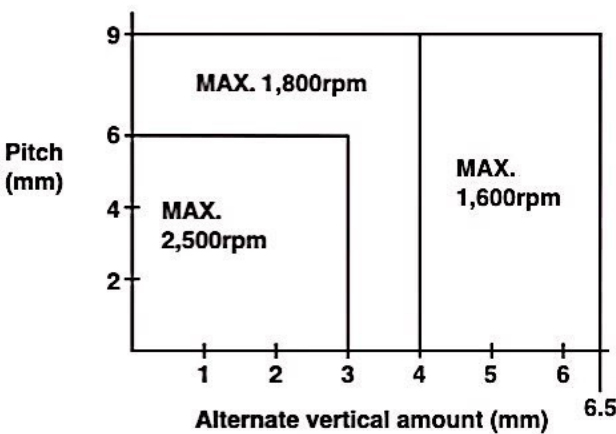
Pin No.	Function			
	CN51-1	CN51-2	CN51-3	CN51-4
1	+12V	+12V	+12V	+12V
2	NU SW	DL SW	Sewing machine stop signal	DL Limit 1
3	ABT SW	2P SW	Thread rack switch	DL Limit 2 & Speed Limit
4	GND	GND	GND	GND

• 4-pin connector (Blue)

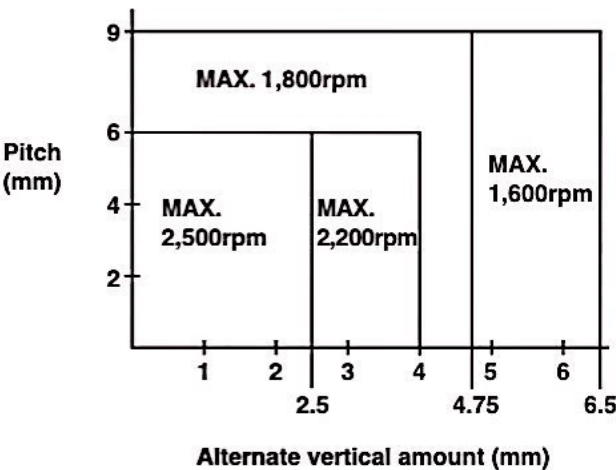
Pin No.	Function
1	Thread trimming (–)
2	—
3	—
4	—
5	BT SW
6	—
7	Tension release (–)
8	Thread trimming (+)
9	—
10	Ground
11	—
12	GND
13	—
14	Tension release (+)

16 . List of the sewing speeds

o PLC-1710, 1760



o PLC-1710-7, 1760-7



o PLC-1760L

