

User Manual and  
Spare Parts List

**GARUDAN<sup>®</sup>**

GS-900 SERIES



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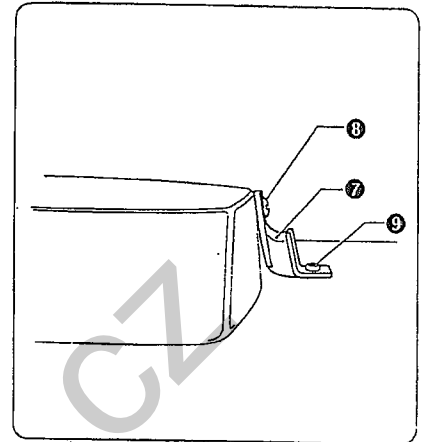
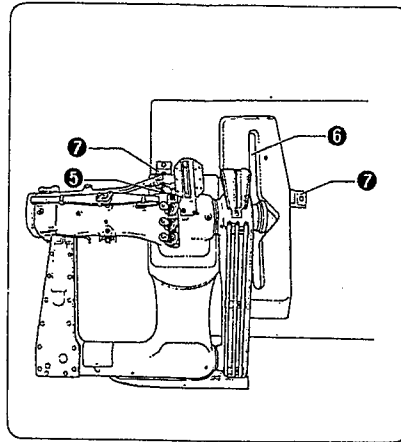
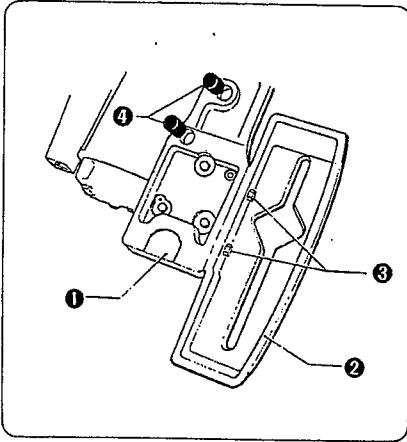
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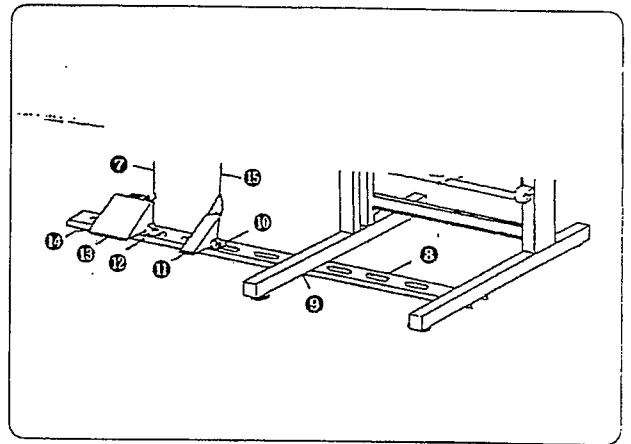
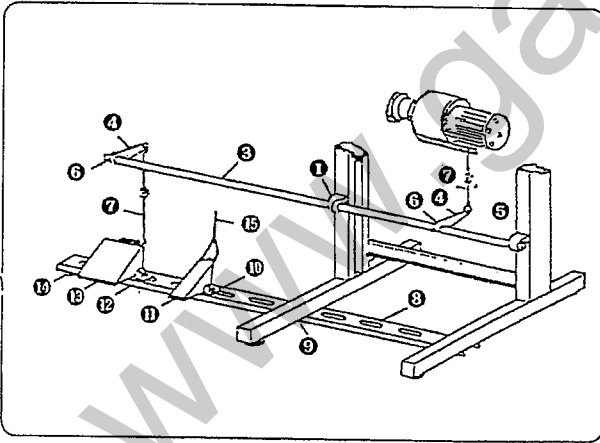
## INSTALLING

### 1 Installing the Machine Head



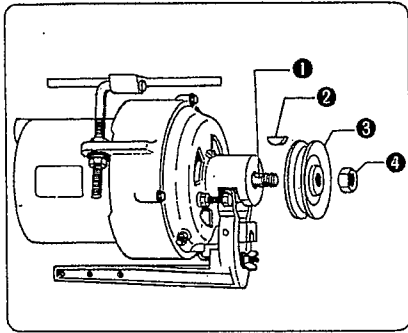
1. Install pulley cover base 2 on machine bed 1 with two hexagonal bolts 3.
2. Insert bar cushions 4 into the holes in the bottom of the bed.
3. Place the machine head on the table; adjust its position in forward and backward directions by aligning it with the hole for presser bar lifter chain 5, and in sidewise directions by aligning it with belt hole 6.
4. After fastening cushions 7 to the machine bed and pulley cover base with set screws 8, fix them to the table with screws 9.

### 2 Installing the Treadle and Chain



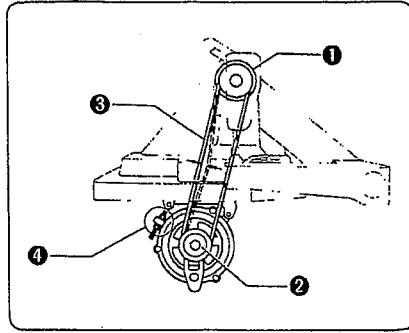
1. Fasten connecting lever bearing 1 to the beam in the upper part of the table legs with nut 2.
2. Slide connecting lever L 4 onto connecting lever shaft 3, fit it to connecting lever bearing 1, and secure it with connecting lever shaft collar 5.
3. Set connecting lever L 4 in line with the clutch lever hole, and tighten it with square head bolts 6.
4. Hook connecting rod 7 to the clutch lever and connecting lever L 4.
5. Slide another connecting lever L 4 onto connecting lever shaft 3, and fix it with square head bolts 6.
6. Fasten treadle shaft 8 onto the lower beam across the table legs with hexagonal bolts 9.
7. Slide pedal stopper 10 and presser foot lifter pedal 11 onto treadle shaft 8, and fasten it with pedal stopper 10.
8. Slide treadle stopper 12 and treadle 13 onto treadle shaft 8, and fasten treadle stopper 12 in such a way that treadle 13 will move lightly.
9. Slide treadle support 14 onto the end of treadle shaft 8, turn it until treadle shaft 8 is parallel with the floor, and fasten it.
10. Hook one end of connecting rod 7 to connecting lever L 4, and hook the other end of it to treadle 13.
11. Hook one end of chain 15 to the presser foot lifter lever, pass the other end through the hole in presser foot lifter pedal 11, and adjust the chain length so that the pedal will be at the same height as treadle 13.

### 3 Installing the Motor Pulley



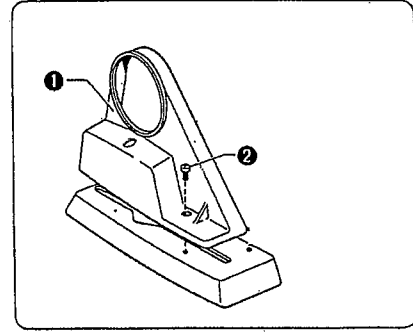
With motor shaft key way ① up, insert key ② into the key way, slide motor pulley ③ onto the motor shaft, and fasten it with nut ④.

### 4 Belt Tension Adjustment



Place belt ③ on machine pulley ① and motor pulley ②, and adjust the belt tension with tension regulator ④ so that the belt sags about 25 to 30 mm when it is pressed with the thumb at the center point between the pulleys.

### 5 Installing the Pulley Cover



Install pulley cover ① on the pulley cover base with two set screws ②.

### 6 Motor and Motor Pulley

#### 1. Use the motor specified below

Three-phase 200 V	2-pole, 400 W motor
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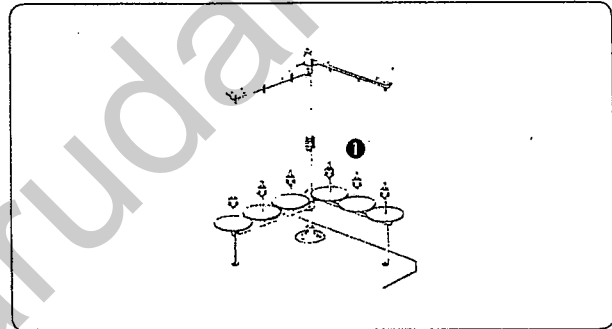
#### 2. Motor Pulley

Use the correct motor pulley suitable to the frequency of your power supply as specified below.

Frequency	Sewing speed	Motor pulley	Belt size
50Hz	3,100	85	M-45
	3,600	95	M-46
60Hz	3,100	70	M-44
	3,600	80	M-45

### 7 Spool Stand

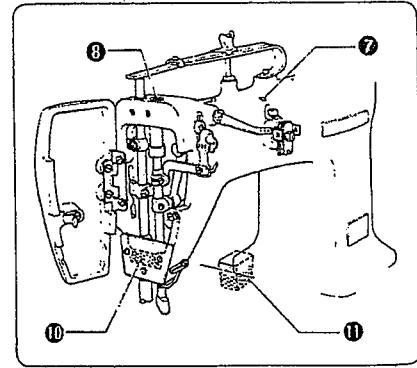
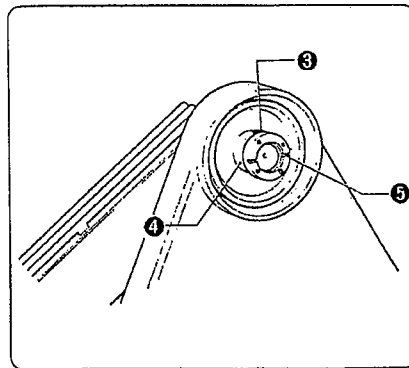
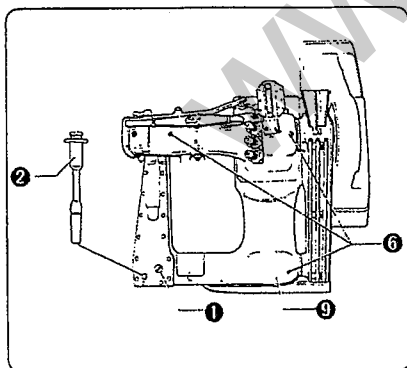
Assemble spool stand ① as shown below, and install it at the right frontal corner of the table with screws.



## LUBRICATION AND RUNNING IN

### 1 Lubrication

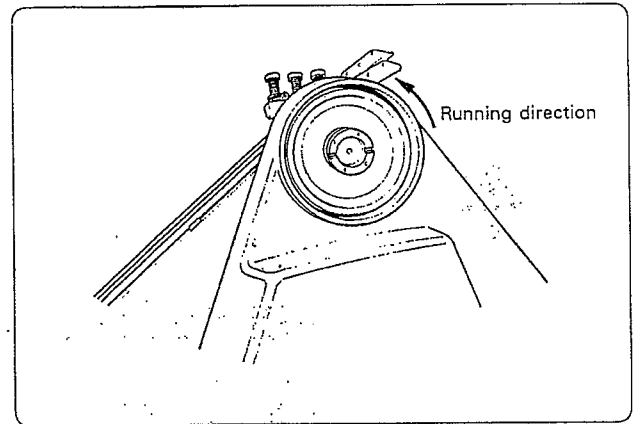
Be sure to oil the following points before using your sewing machine.



- After setting up the machine, remove adjusting cover screw ①, and pour oil in up to the reference line on oil gauge ②.
  - Turn the pulley until oil cap ③ is up, remove oil cap ③ and pour oil into oil tank ④ until it is full. If the oil in the oil tank decreases below tank center line ⑤, the oil will not be drawn into the upper shaft, causing imperfect lubrication. Be sure to keep the oil in the oil tank above oil tank center line ⑤.
  - Pour about 5 drops of oil weekly into three oil cups ⑥, upper thread nipper tension bracket oil hole ⑦, and needle bar bushing oil hole ⑧.
  - Remove oil drain screw ⑨ from time to time to discharge the used oil which has collected in the front bed oil sump.
  - Wipe arm jaw ⑩ and rear bed oil sump ⑪ from time to time to remove oil from them.
- ※ Use white spindle oil.

## 2 Running In

1. Motor switch on, depress the treadle, and make sure that the pulley runs in the arrow direction.  
If the pulley runs in the opposite direction, remove the plug, and reconnect two of the three wires (but not the earth wire) of the 3-phase cord.
2. To run in your machine, operate it at about 3,100 spm for the first 3 or 4 days.



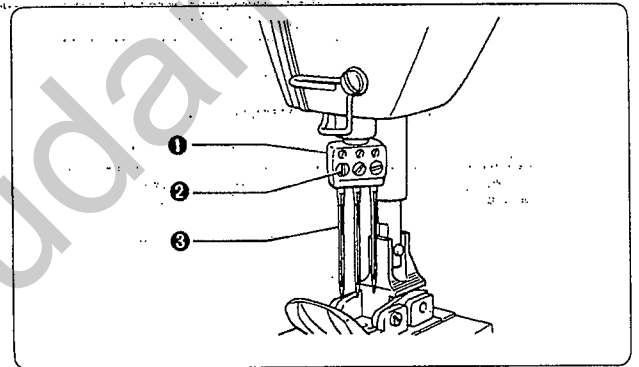
## CORRECT OPERATION

### 1 Needles and Threads

The needle and threads to be used vary depending on sewing conditions. Select the correct ones by referring to the table below.

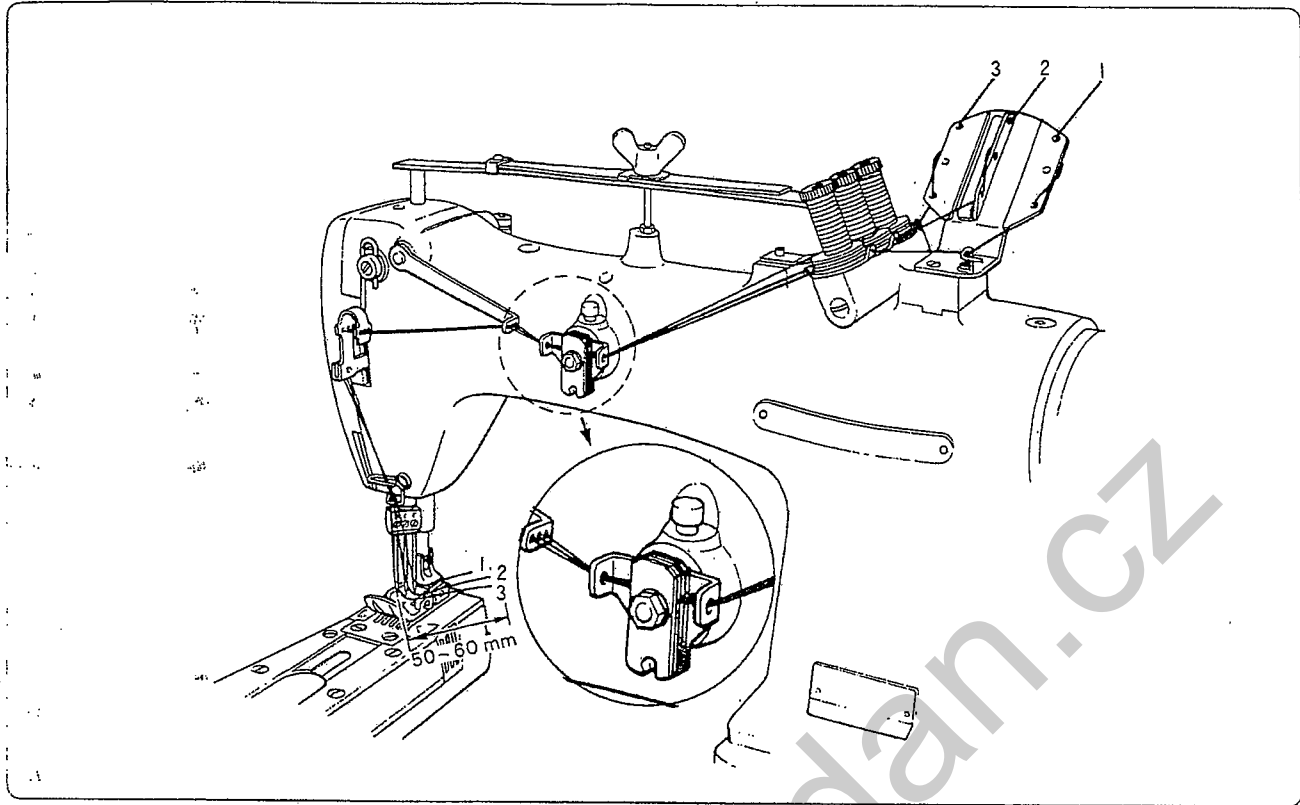
Needle	Thread	
	Upper thread	Lower thread
#16	Cotton #50	Cotton #60
#19	Cotton #30	Cotton #50
#22	Cotton #20	Cotton #30

### 2 Installing the Needles

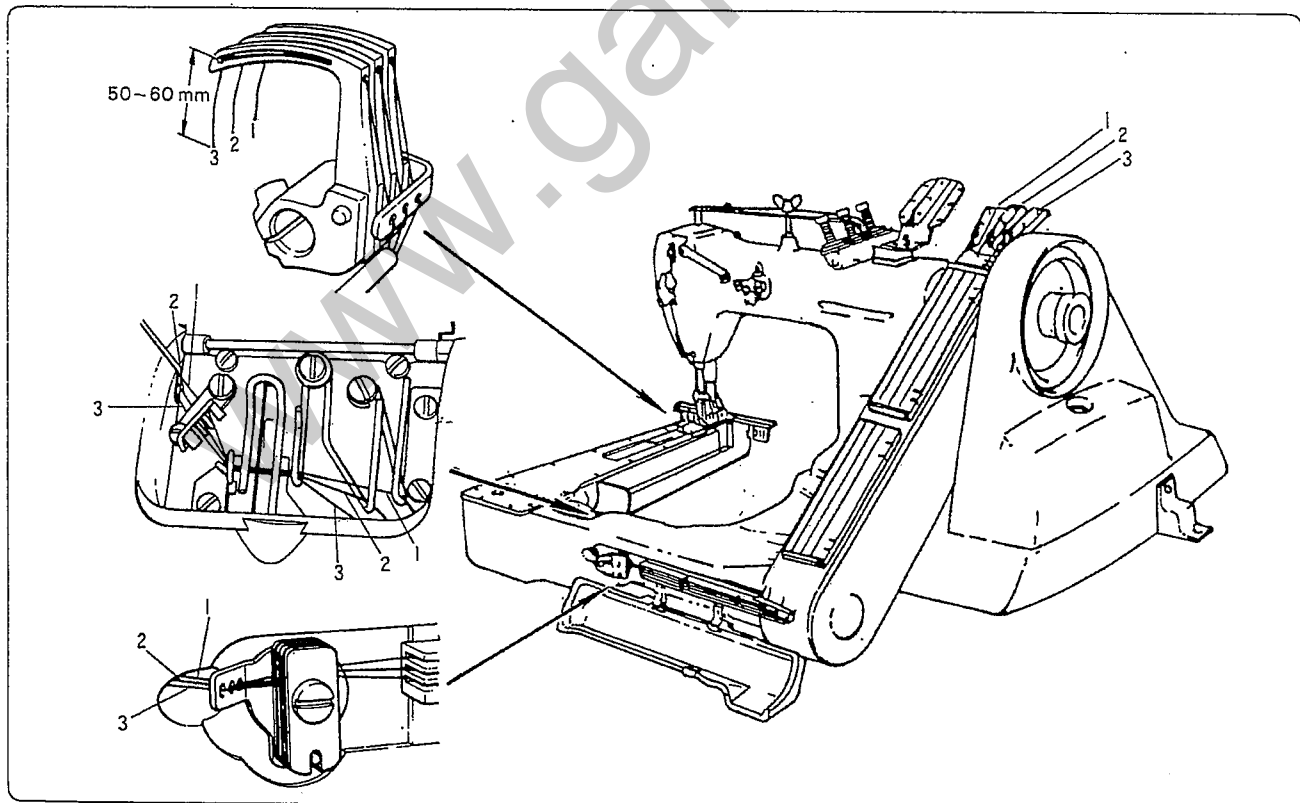


1. Turn the pulley until needle holder ① is raised to the highest position.
2. Loosen needle set screws ②, hold needles ③ with their long grooved side facing front, insert them into needle holder ① all the way, and fasten the needle with needle set screws ②.

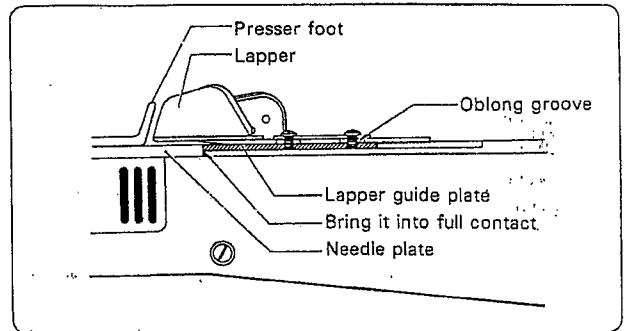
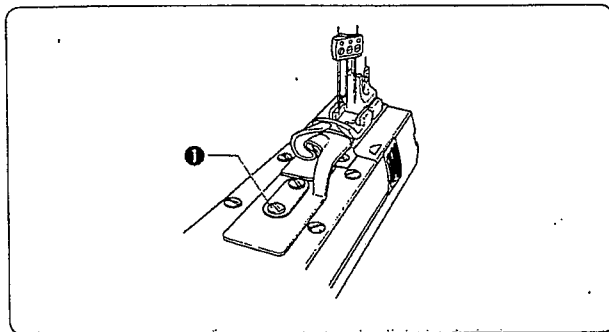
### 3 Upper Threading



### 4 Lower Threading



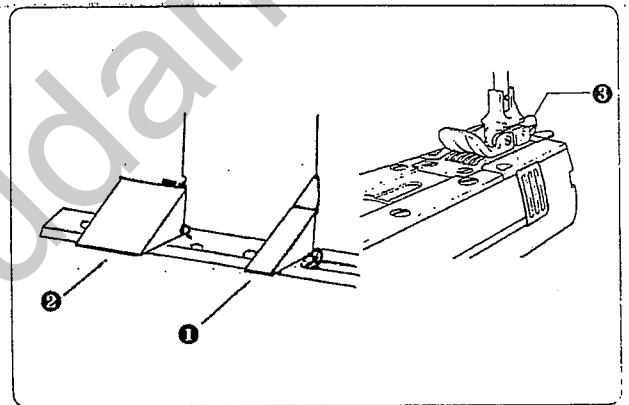
## 5 Installing the Lapper



- Insert the lapper guide plate into the oblong groove in the forward feed arm, and fit the lapper into place in such a way that its tip will not touch the presser foot.
- ✳ If the lapper is too hard to move, or fails to reach the correct position, loosen set screw ① slightly and adjust the lapper position.

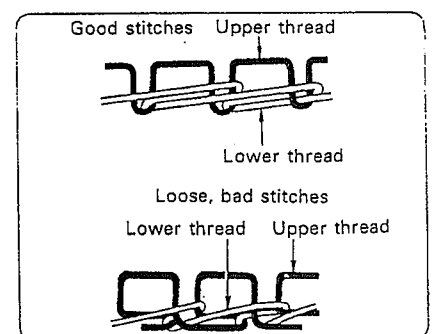
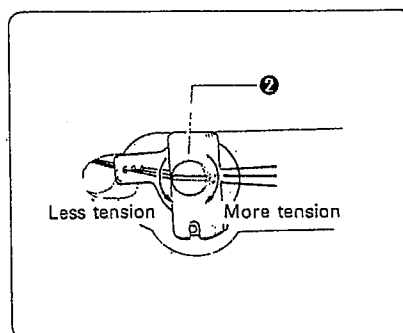
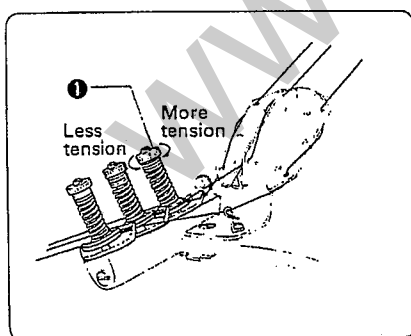
## 6 Sewing

1. Switch the power on, step down on presser foot lifter pedal ①, place a fabric under the presser foot, and release presser foot lifter pedal ①.
2. Depress treadle ② to start the machine.
3. After sewing the work, keep sewing until it reaches thread cutter ③, and then cut the threads with thread cutter ③.



## 7 Thread Tension

Thread tension differs with sewing conditions. Adjust it to suit your particular sewing conditions.

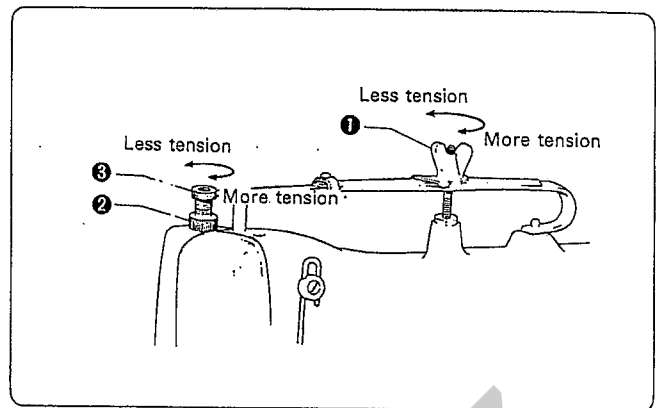


1. Adjust the upper thread tension properly by turning upper thread adjusting screw ①.
2. Adjust the lower thread tension properly by turning lower thread adjusting screw ②.

### ⑧ Presser Foot Pressure Adjustment

Adjust the presser foot pressure by turning wing nut ① to such a level that it is just enough to keep the work from slipping.

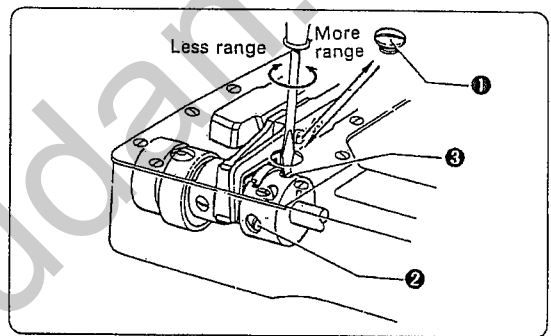
※ In case of Model -SP and -PL, the puller pressure can be adjusted as appropriate to the work by loosening adjusting thumbscrew nut ② and turning presser adjusting screw ③.



### ⑨ Stitch Length Adjustment

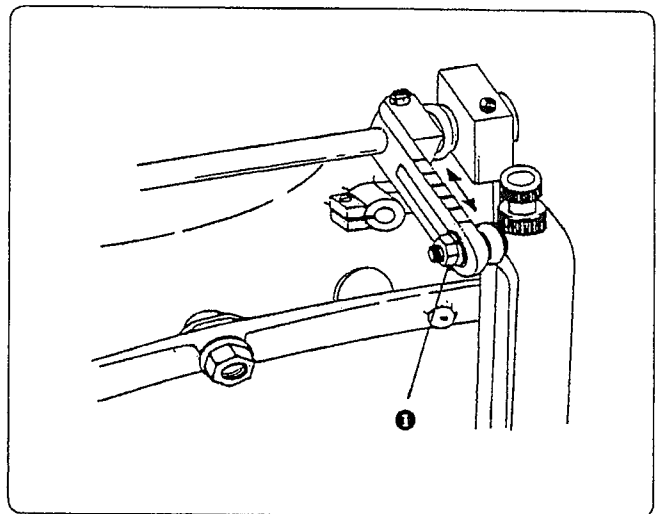
1. Remove adjusting cap screw ①.
2. Turn the pulley toward yourself until set screw ② comes to the position of the adjusting cap screw hole.
3. Loosen set screw ② with a screwdriver, turn the pulley again by about one-quarter of a turn in the same direction to bring horizontal eccentric adjusting screw ③ to the position of the adjusting cap screw hole.
4. Stitch length will decrease when horizontal eccentric adjusting screw ③ is turned clockwise with the screwdriver, and increase when it is turned counter-clockwise.
5. After the adjustment, tighten set screw ② securely.

※ In case of Model -SP and -PL, readjust the needle guard after adjusting the stitch pitch. In case of Model -7A and -8A, readjust the needle guard and puller feed.



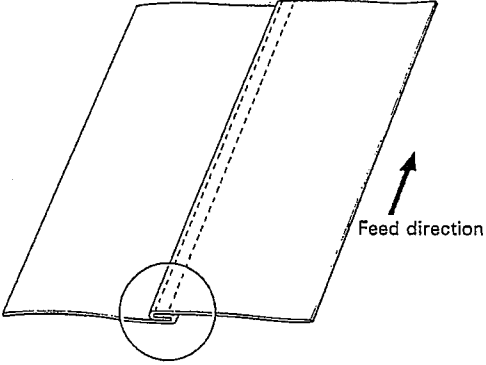
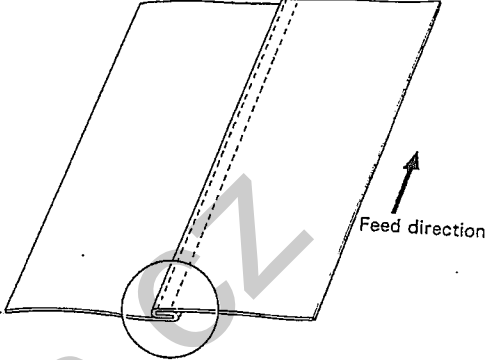
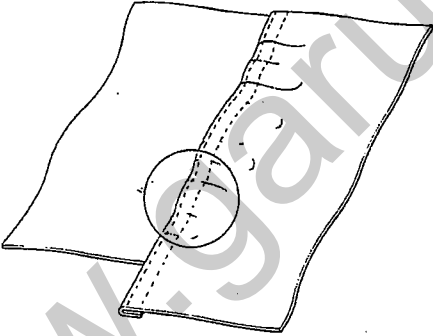
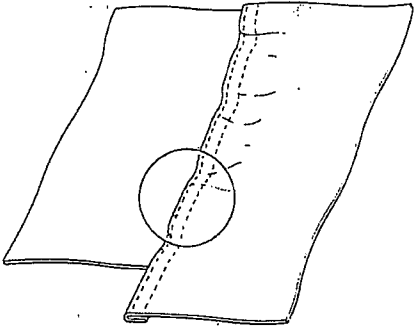
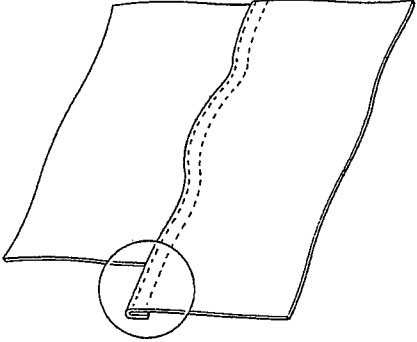
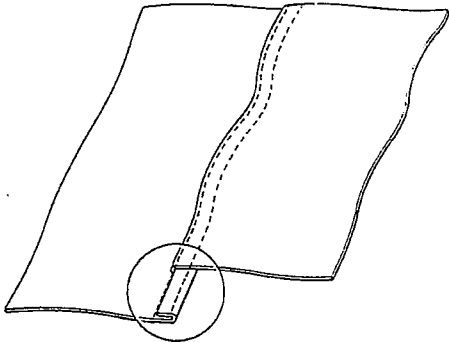
### ⑩ Puller Feed Adjustment (Model -SP, -PL)

1. After adjusting the STITCH LENGTH, you have to readjust the PULLER FEED again.
2. Loosen the nut ①, you can get more feed toward outside, get less toward inside.
3. After adjusting, tighten the nut ①.



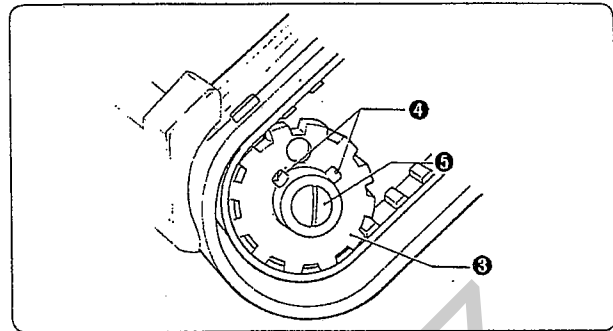
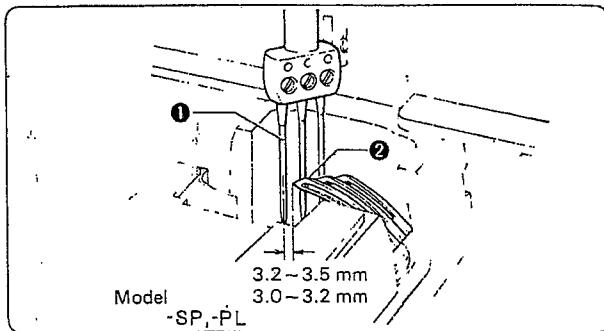


★The table below shows samples of stitches made with a highly elastic fabric and a fabric which is not so elastic. Adjust the puller feed by referring to this table.

Puller feed	Fabric with high elasticity	Fabric with low elasticity
Correct	 <p data-bbox="475 853 949 882">Neither non-alignment nor sewing wrinkles.</p>	 <p data-bbox="1018 853 1492 882">Neither non-alignment nor sewing wrinkles.</p>
Insufficient	 <p data-bbox="560 1429 836 1458">Non-aligned, and wrinkled.</p>	 <p data-bbox="1098 1429 1374 1458">Non-aligned, and wrinkled.</p>
Excessive	 <p data-bbox="552 2007 844 2036">Non-aligned, and very wavy.</p>	 <p data-bbox="1090 2007 1382 2036">Non-aligned, and very wavy.</p>

# STANDARD ADJUSTMENTS

## 1 Needle and Loper Timing Adjustment



### Model 926

Make an adjustment so that, when needles ① come down to the lowest position, loopers ② will be at the end of their backward travel and that the distance between the centers of the needles and the tips of the loopers will be somewhere from 3.2 to 3.5 mm.

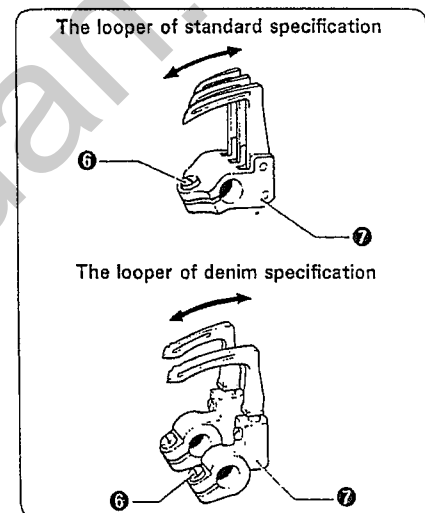
### Model 926-SP, -PL

Make an adjustment so that, when needles ① come down to the lowest position, loopers ② will be at the end of their backward travel and that the distance between the centers of the needles and the tips of the loopers will be somewhere from 3.0 to 3.2 mm.

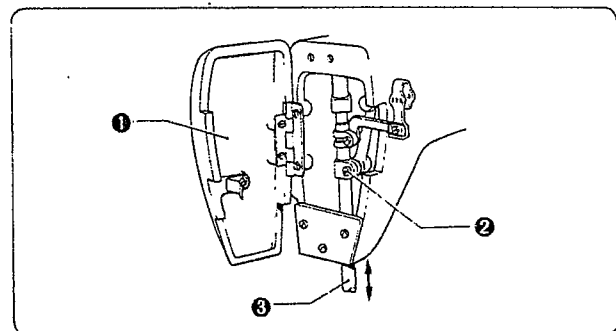
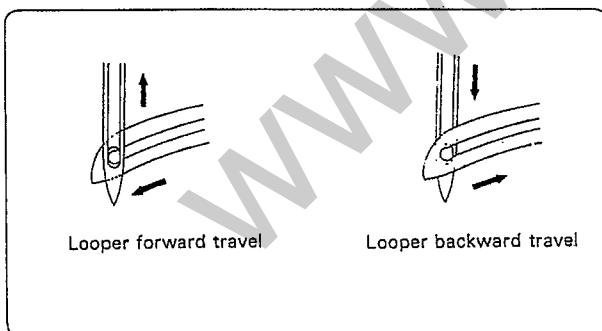
### <Adjusting Method>

1. Remove the presser foot, needle plate and feed dogs.
2. Loosen two set screws ④ and cap screw ⑤ on lower belt wheel ③.
3. Turn the pulley toward yourself until needles ① come down to the lowest position.
4. Turn the lower-shaft until loopers ② reach the end of their backward travel.
5. Tighten cap screw ⑤ and two set screws ④ securely.
6. Loosen set screw ⑥, move looper holder ⑦ in the arrow direction until the distance between the needle center and the looper tip is 3.2 to 3.5 mm, and retighten set screw ⑥ securely.

※In case of machines made to the denim specifications, the individual loopers must be adjusted because they are independent of one another.



## 2 Needle Bar Height Adjustment

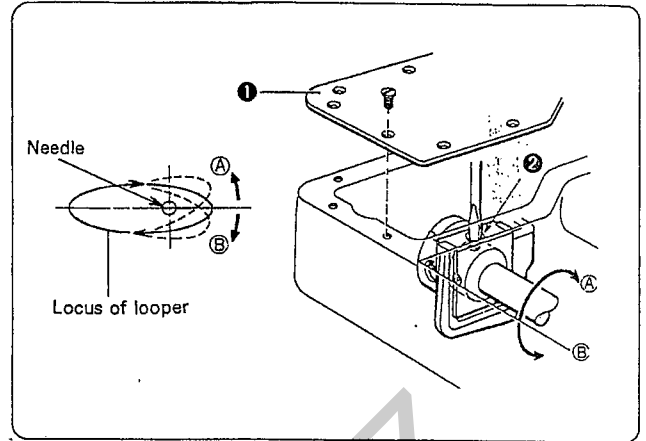
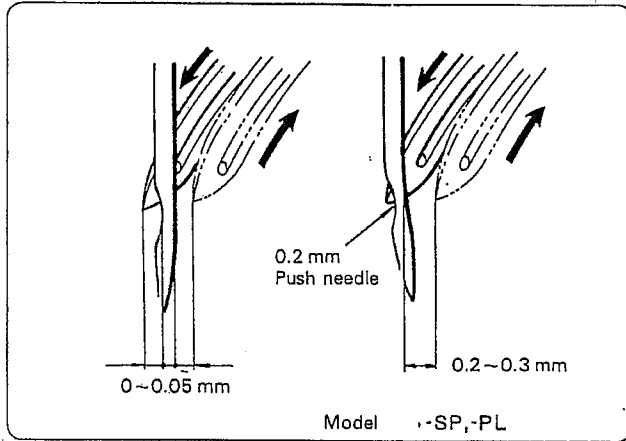


Adjust the needle bar height so that the looper thread eyes will match the needle eyes in the forward and backward travels of the loopers.

### <Adjusting Method>

1. Turn the pulley toward yourself until the loopers move forward from the rightmost position to a point where the looper thread eyes are in line with the needles eyes.
2. Open face plate ①, loosen needle bar clamp screw ②, and move needle bar ③ up or down until the looper thread eyes are in line with the needle eyes.
3. Retighten needle bar clamp screw ② securely.
4. After the adjustment, turn the pulley toward yourself and make sure that the looper thread eyes match the needle eyes in the forward and backward travels of the loopers.

### 3. Looper Timing for Avoiding Contact with Needles



Make an adjustment so that there will be a clearance of 0. to 0.05 mm between the needles and the loopers in the forward and backward movements of the loopers.

Model -SP,-PL

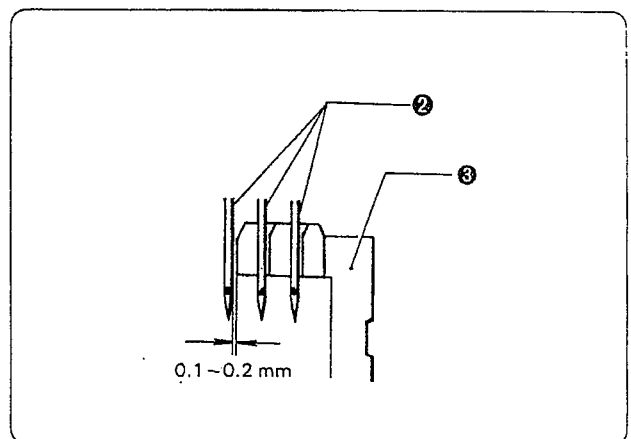
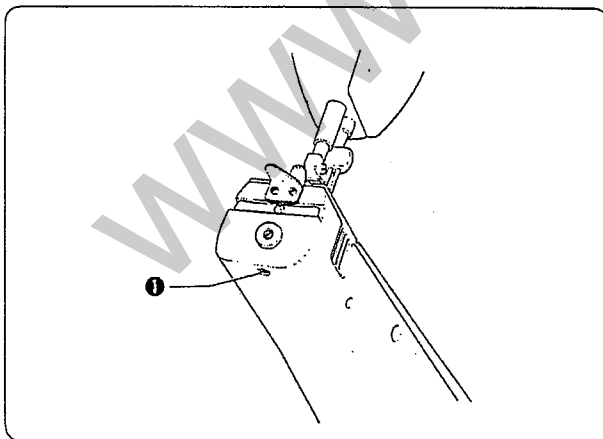
In the forward movement of the loopers, push needles by loopers by 0.2 mm. In the backward movement of the loopers, adjust that the clearance between the loopers and the needles will be 0.2 to 0.3 mm.

#### (Adjusting Method)

1. Remove forward feed arm cover ❶, and turn the pulley toward yourself until the longitudinal eccentric wheel stop screw shows itself at adjusting hole ❷.
2. Loosen the longitudinal eccentric wheel stop screw until it hardly comes out of the surface of the wheel, turn the pulley again toward yourself, and loosen the other stop screw.
3. With the screwdriver holding the stop screw, turn the pulley to adjust the clearance between the needles and the loopers.
4. After the adjustment, retighten the two stop screws and the forward feed arm cover screw.

### 4. Needle Guard Adjustment

Model 926



Make an adjustment so that, when the loopers meet the needles in their forward movement, there will be a clearance of 0.1 to 0.2 mm between the needles and the needle guard.

#### (Adjusting Method)

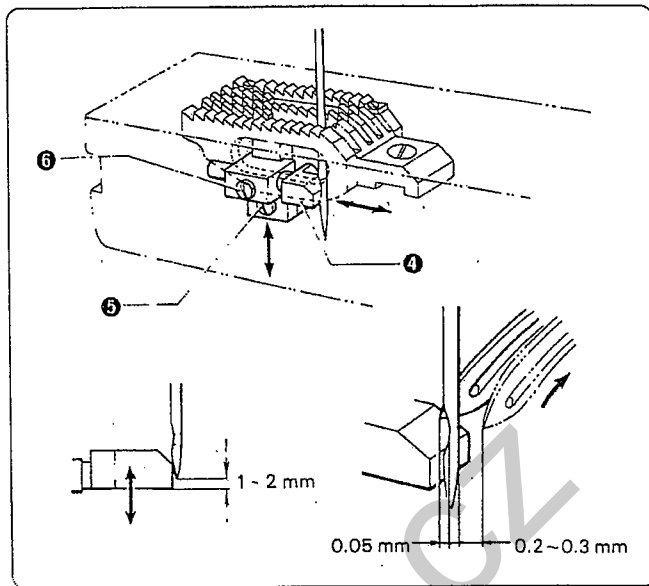
1. Turn the pulley toward yourself until the needles come down to the lowest position.
2. Loosen stop screw ❶ from the underside of the tip of the forward feed arm.
3. Adjust the clearance between needles ❷ and needles guard ❸ to somewhere from 0.1 to 0.2 mm by moving needle guard ❸
4. After the adjustment, retighten stop screw ❶ securely.

**Model** -SP,-PL

The clearance between the needles and the tips of the loopers will be 0.05 mm, pushing the needles by needle guard ④.

**<Adjusting Method>**

1. Turn the pulley toward yourself until the needles come down to the lowest position.
  2. Loosen stop screw ⑤, and raise or lower needle guard ④ so that the bottom ends of the needle eyes will be about 0.5 mm above the bottom of needle guard ④.
  3. Turn the pulley toward yourself again until the tips of the loopers come to the centers of the needles.
  4. Loosen stop screw ⑥, move needle guard ④ to the left or to the right, and adjust so that the clearance between the needles and the tips of the loopers will be 0.05 mm, pushing needle points by needle guard ④.
- At this time, please make sure that the clearance between the loopers and the needles is 0.2~0.3 mm in the backward movement of the loopers.



**⑤ Feed Dog Height Adjustment**

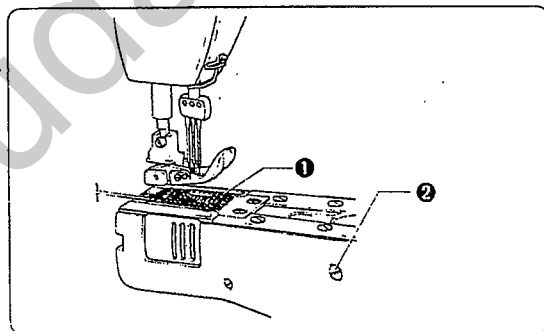
Make an adjustment so that, when feed dog ① is at the highest position, the feed dog will be 0.8 mm above the top surface of the needle plate.

**Model** -SP,-PL

Make an adjustment so that the highest part of the feed dog will be 1.2 mm above the top surface of the needle plate.

**<Adjusting Method>**

Adjusting the feed dog height by turning feed base eccentric shaft ②.

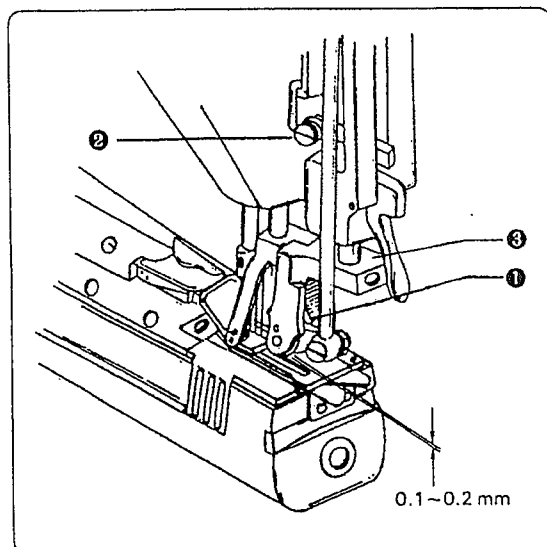


**⑥ Puller Height Adjustment (Model -SP, -PL)**

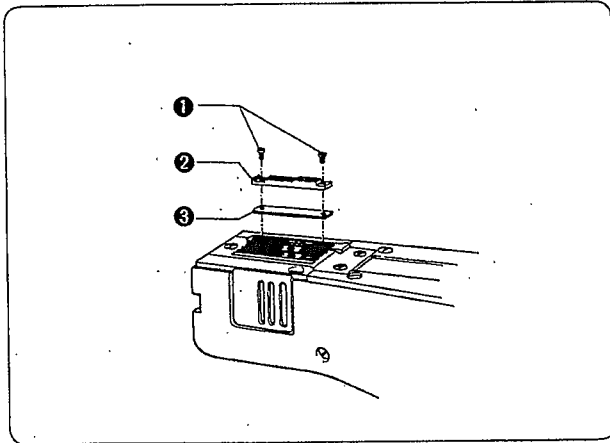
Adjust the height of puller ① so that it is 0.1 to 0.2 mm high from the top of the needle plate.

**<Adjusting Method>**

Loosen set screw ②, and move puller support ③ up or down until puller ① is 0.1 to 0.2 mm above the top of the needle plate.



**7 Installing the Spacer  
(For the denim specifications)**

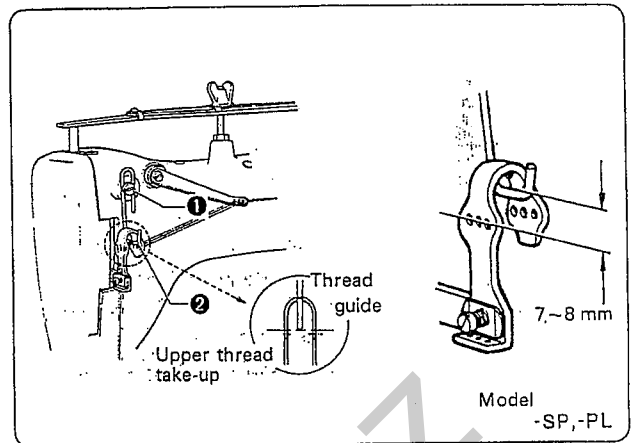


If stitch irregularities develop in sewing very heavy materials, adjust the sub-feed dog to the correct height by spacer.

**<Adjusting Method>**

1. Remove set screw ① and sub-feed dog ②.
  2. Place spacer ③ under sub-feed dog ② and retighten set screw ①.
- ※ The spacer is in the parts box.

**8 Upper Thread Take-up Thread Guide Adjustment**



**Model 926**

Make an adjustment so that, when the needle bar is down at the lowest position, the top of the upper thread take-up thread hole meets the bottom of the thread guide.

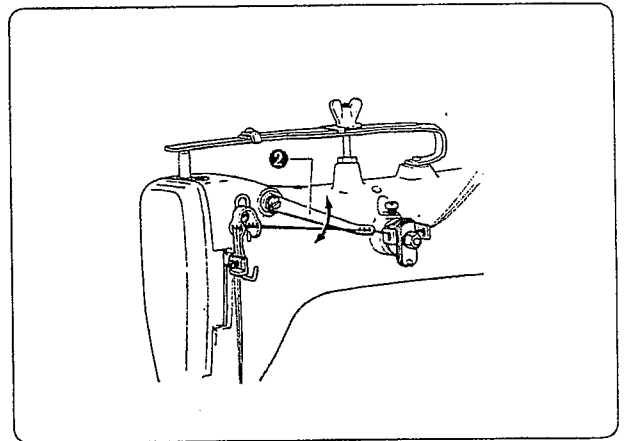
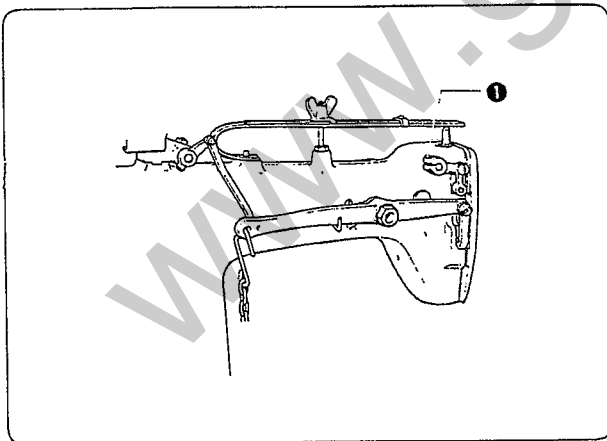
**Model 926-SP, -PL**

Please adjust the distance between the center of the upper thread take-up and the top of the thread guide will be 7-8 mm.

**<Adjusting Method>**

1. Turn the pulley toward yourself until the needle bar is down at the lowest position.
  2. Loosen set screw ①, and move upper thread take-up thread guide ② up or down until its bottom meets the top of the upper thread take-up thread hole.
- ※ The higher the upper thread take-up thread guide ②, the greater will be the upper thread loops.

**9 Thread Release Lever Adjustment**

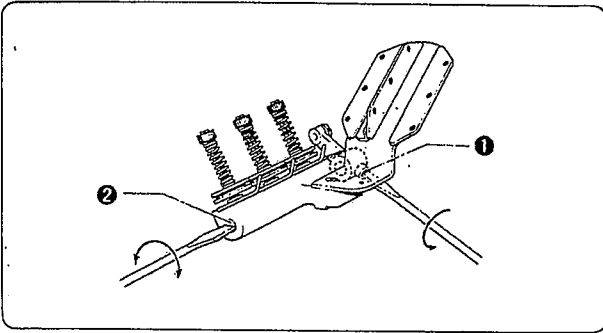


Make an adjustment so that, when the needle bar is down at the lowest position, the thread release lever thread hole meets the thread hole in upper thread tension bracket ④.

**<Adjusting Method>**

1. Turn the pulley until the needle bar is down at the lowest position.
  2. Loosen set screw ①, and raise or lower thread release lever ② until its thread hole meets the thread hole in upper thread tension bracket ④.
- ※ The higher the thread release lever, the tighter will be the stitches.

### 10 Thread Release Shaft Adjustment



Make an adjustment so that the thread tension discs will loosen when the presser foot is raised, and tighten when the presser foot is lowered.

#### (Adjusting Method)

1. Loosen stop screw ①.
2. Make an adjustment by turning thread release shaft ② so that the thread tension discs will begin to loosen when the presser foot is raised 4 mm above the top surface of the needle plate.
3. After the adjustment, retighten stop screw ① securely.

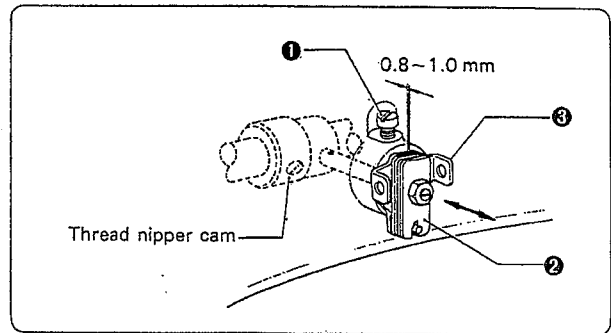
### 12 Lower Thread Take-up Timing Adjustment

Make an adjustment so that, when the loopers begin to move backward, lower thread take-up ① will rise about 5 to 7 mm above lower thread take-up bracket ②.

#### (Adjusting Method)

1. Insert a screwdriver into the adjusting hole in the bed, and loosen two stop screws ③.
2. Raise lower thread take-up ① 5 to 7 mm above thread take-up bracket ②.
3. After the adjustment, retighten two stop screw ③.

### 11 Upper Thread Nipper Adjustment



Adjust the clearance between the upper thread nipper tension bracket and tension plates to somewhere between 0.8 mm and 1.0 mm.

#### (Adjusting Method)

1. Loosen stop screw ①, and move upper thread nipper tension bracket ② in or out until the clearance between it and tension plates ④ is somewhere from 0.8 to 1.0 mm.
- ※Stitch tightness can be improved by narrowing the clearance between upper thread nipper tension bracket ② and the arm.

### 13 Puller Device Timing Adjustment (Model -SP, -PL)

1. With 3mm wrench to loosen the screw ① & ②.
2. The timing of the feed will be starting when the needle is away from the needle plate about 5 or 6mm, and stopping at 10mm.
3. After adjusting the timing, retighten the screw ① & ②.

