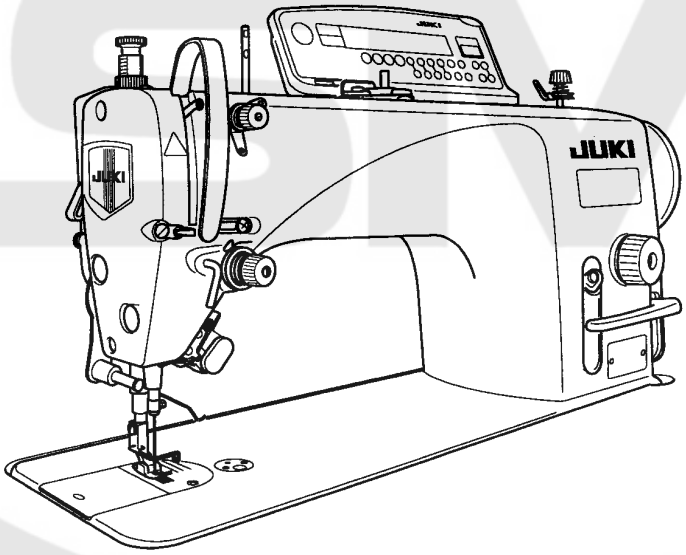
JUKI®

Direct-drive, High-speed, 1-needle, Lockstitch Machine with Automatic Thread Trimmer

DDL-9000B

ENGINEER'S MANUAL



40089335
No.E392-01

PREFACE

This Engineer’s Manual is written for the technical personnel who are responsible for the service and maintenance of the machine.
The Instruction Manual for these machines intended for the maintenance personnel and operators at an apparel factory contains operating instructions in detail.
It is advisable to use the Instruction Manual and Parts List for SC-920 together with this Engineer's Manual when carrying out the maintenance of these machines.
This manual gives the "Standard Adjustment" on the former section under which the most basic adjustment value is described and on the latter section the "Results of Improper Adjustment" under which stitching errors and troubles arising from mechanical failures and "How To Adjust" are described.

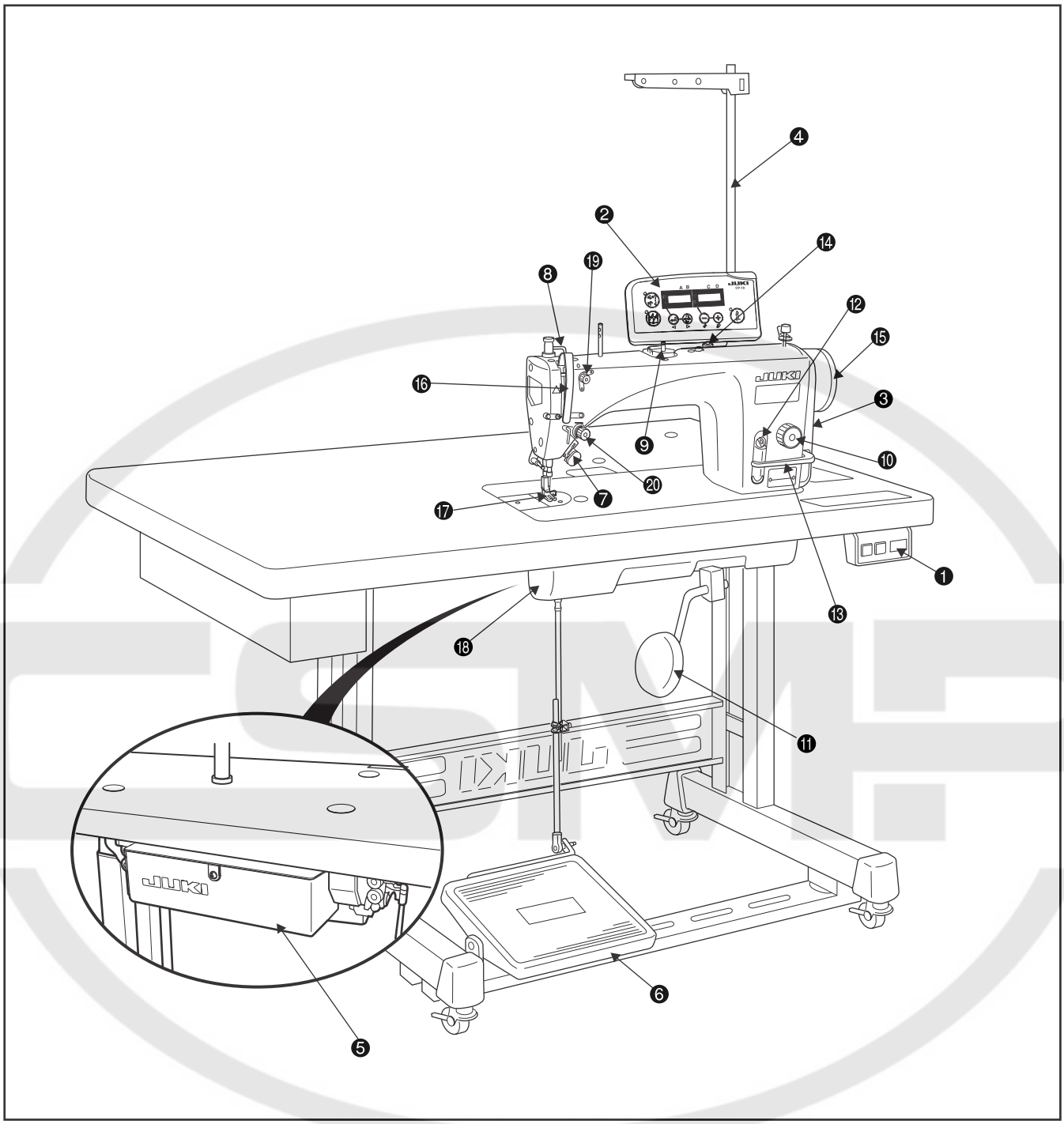
CONTENTS

1. Specifications

No.	Model / Item		DDL-9000B-SS Minute-quantity lubrication For standard materials	DDL-9000B-SH Minute-quantity lubrication For heavy-weight materials	DDL-9000B-MA Semi-dry *4 For light-weight materials	DDL-9000B-MS Semi-dry For standard materials	DDL-9000B-DS Dry For standard materials
1	Max. sewing speed		5000sti/min *1	4500sti/min *1	5000sti/min *1, *4		4000sti/min
2	Max. stitch length		Difference of stitch length 5 mm		Difference of stitch length 4 mm	Difference of stitch length 5 mm	
3	Needle bar stroke		30.7mm	35mm	29mm	30.7mm	30.7mm
4	Take-up lever stroke (standard value)		110mm	108mm	110mm	110mm	110mm
5	Thread trimming method		Horizontal type				
6	Lower bobbin winder unit		Built-in, top surface of machine head (with bobbin thread holding plate)				
7	Wiper (only for WB specification)		Electromagnetic side wiper				
8	Automatic reverse feeding unit		Built-in electromagnetic type				
9	Lubrication system	Plate (needle bar)	Oil wick lubrication		Grease lubrication		
		Hook	Plunger pump type				No lubrication
		Gearbox	Sealed type				
10	Oil supply	Plate (needle bar)	With oil tank (capacity: 200 ml)		No lubrication		
		Hook	With oil tank (capacity: 200 ml)				No lubrication
11	Oil to be used (grease)	Plate (needle bar)	JUKI New Defrix Oil No. 1 or JUKI Machine Oil 7 (equivalent to ISO VG7) *2		Exclusive grease JUKI Grease A (product No.: 40006323) 20g contained		
		Hook	JUKI New Defrix Oil No. 1 or JUKI Machine Oil 7 (equivalent to ISO VG7) *2				No lubrication
		Gearbox	JUKI New Defrix Oil No.2 (equivalent to ISO VG32) *3				
12	Lifting amount of presser		Presser lifter lever: 5.5 mm/By knee: 15 mm/AK: 8.5 mm				
13	Needle *5		DB x 1 (#11) #9 to 18	DB x 1 (#21) #20 to 23	DB x 1 (SF#9) #8 to 11	DB x 1 (#11) #9 to 18	DB x 1 (#11) #9 to 18
			DP x 5 (#75) #65 to 110	DP x 5 (#130) #125 to 160	DP x 5 (#65) #60 to 75	DP x 5 (#75) #65 to 110	DP x 5 (#75) #65 to 110
			134 (Nm75) Nm65 to 110	134 (Nm130) Nm125 to 160	134 (Nm65) Nm60 to 75	134 (Nm75) Nm65 to 110	134 (Nm75) Nm65 to 110
14	Dimensions	Sewing space width	303mm				
		Sewing space height	139mm				
		Bed size	178mmX517mm				
15	Machine head weight		38kg, 40kg (with AK)				
16	Power consumption		SC-920 : 320VA				
17	Working temperature and humidity		Temperature: 5 °C to 35°C, humidity: 35% to 85% (No dew condensation permissible)				
18	Supply voltage and frequency		Rated voltage ±10%, 50/60Hz				

***1: The machine shall be used at maximum of 4,000 rpm for the stitch of 4 mm.**
***2: JUKI New Defrix Oil No. 1 or JUKI Machine Oil 7 (equivalent to ISO VG7)**
***3: JUKI New Defrix Oil No.2 (equivalent to ISO VG32)**
***4: When a version of the DDL-9000B-MA specification is used over a speed of 4,000sti/min, the presser pressure adjusting spring should be replaced for the standard type.**
***5: The needle can change according to the destination.**

2. Name of each component



❶ Power switch
❷ Operation panel (CP-18, 180 or IP-110)
❸ Pulley cover
❹ Thread stand
❺ Control box (SC-920)
❻ Operation pedal
❼ One-touch type reverse feed button
❽ Wiper
❾ Bobbin winder unit
❿ Stitch dial
⓫ Knee lifter
⓬ Oil filler port (except for DDL-9000B-DS)
⓭ Feed lever
⓮ Minute adjustable presser lifting screw
⓯ Hand wheel
⓯ Take-up lever cover
⓰ Finger guard
⓱ Under cover
⓳ 1st thread tension
⓴ 2nd thread tension

❶ Power switch
This switch turns on and off the power to the head unit motor, electric components, and operation panel.

❷ Operation panel (CP-18, 180 or IP-110)
This panel allows users to conduct the settings of automatic reverse stitching, head sewing, sewing speed, and more.

❸ Pulley cover
This cover protects the machine head motor.

❹ Thread stand

❺ Control box (SC-920)
The box contains the circuit that controls the head unit and motor, the output circuit that operates each output (the thread trimming solenoid, back solenoid, wiper solenoid, etc.), the pedal sensor that detects the pedal operation, and the power circuit that performs each function.

❻ Operation pedal
This pedal allows users to conduct machine speed control, thread trimming, presser lifting motion (only for AK-138), and more by depressing the front or back part of the pedal.

❼ One-touch type reverse feed button
This button allows users to conduct reverse stitching.

❽ Wiper
The wiper moves the needle from the sewing material after thread trimming under control of the wiper signal from the control box.

❾ Bobbin winder unit
This unit is integrated into the head unit.

❿ Stitch dial
This dial adjusts the front feeding amount.

⓫ Knee lifter

⓬ Oil filler port (except for DDL-9000B-DS)
This port is used for lubrication to the hook.

⓭ Feed lever
This lever allows users to conduct reverse stitching.

⓮ Minute adjustable presser lifting screw

⓯ Hand wheel

⓯ Take-up lever cover
This cover prevents users from touching the take-up lever.

⓰ Finger guard
This guard prevents users (mainly thumb and fingers) from touching the needle.

⓱ Under cover

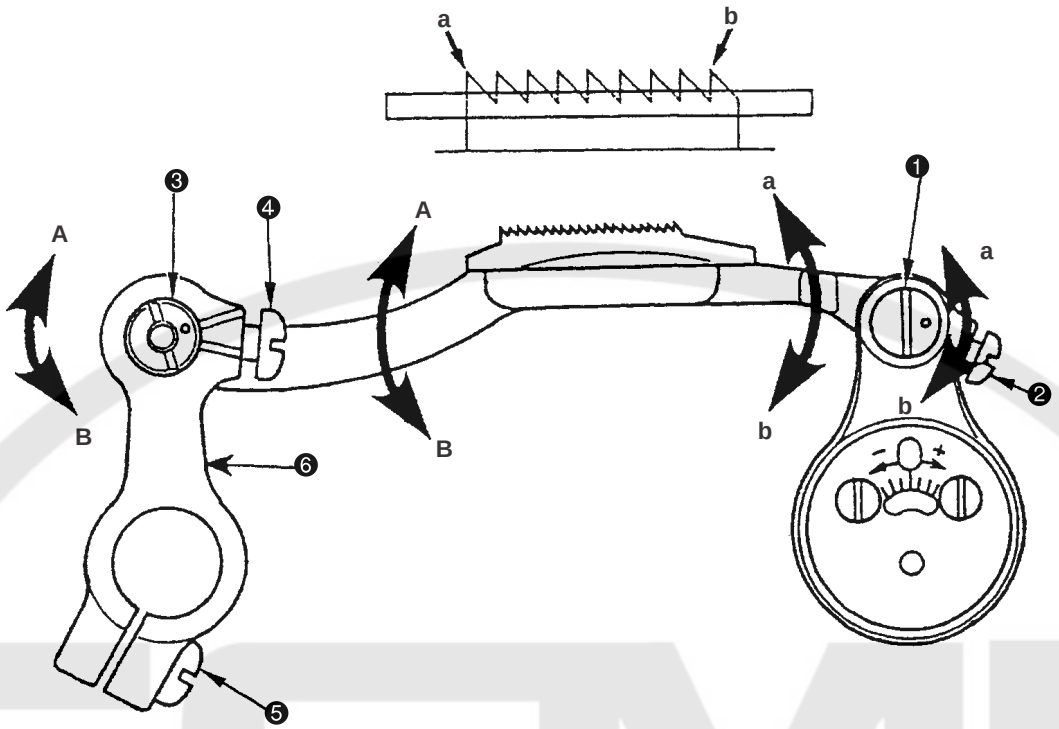
⓳ 1st thread tension

⓴ 2nd thread tension

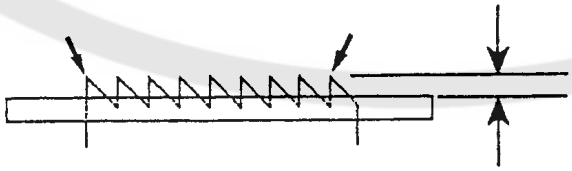
3. Standard adjustment

(1) Feed dog height and gradient

Standard Adjustment

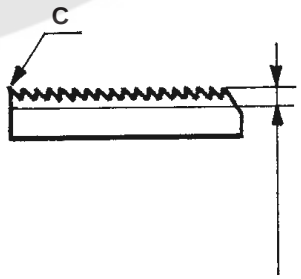


Shipped feed dog	• B1613012I00 (B-□ S, B-MA) • D1613155W00 (B-MA)	• 23614506 (B-□ S) • 11403003, 11062601 (B-SH)
Engraved marker dot position on the horizontal feed bar shaft		



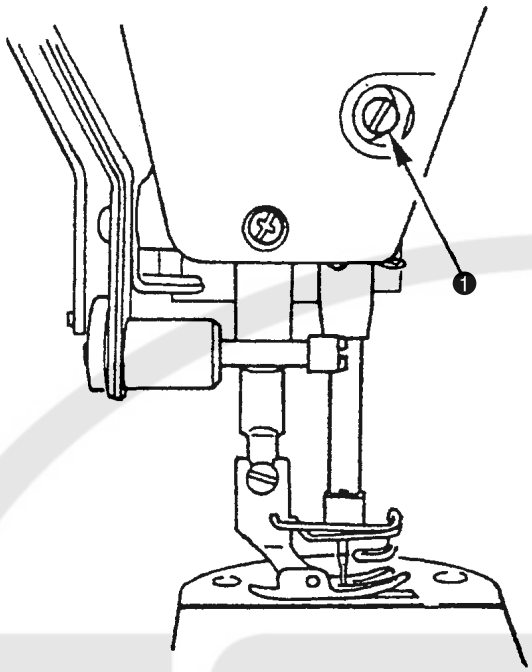
9000B-□ S, 9000B-MA : 0.8mm
9000B-SH : 1.2mm

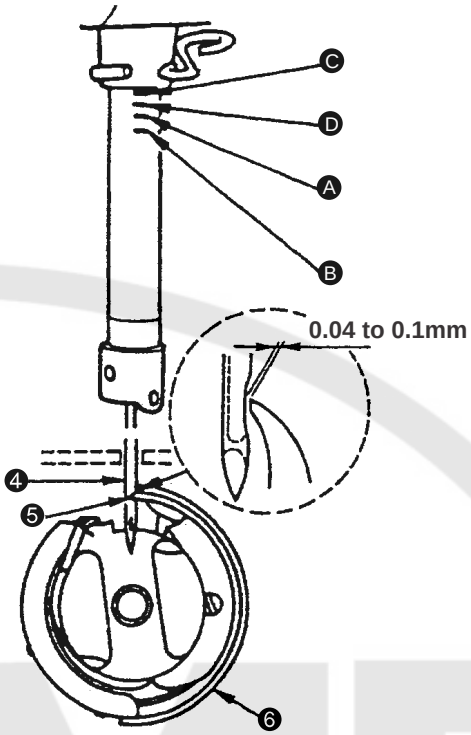
Standard feed dog height (Feed dial graduation 0)
0.8mm : DDL-9000B-□ S, DDL-9000B-MA
1.2mm : DDL-9000B-SH
Standard feed dog gradient
The engraved marker dot on the feed bar shaft ❸ is adjusted by a feed dog of relevant standard.

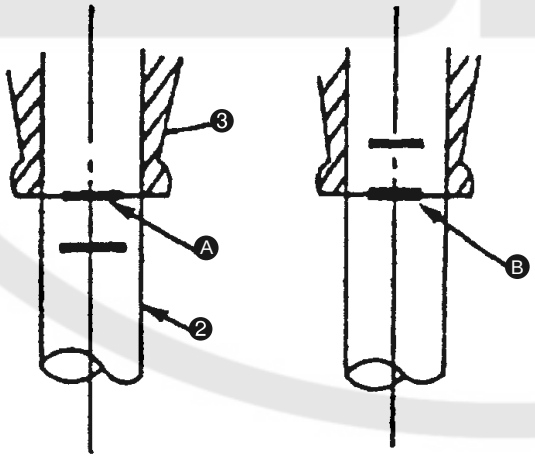
Adjustment Procedure	Results of Improper Adjustment
1. Set the amount of feeding (feed dial graduation) at 0. 2. Loosen the setscrew ❷ of the vertical feed bracket shaft ❶ and the setscrew ❹ of the horizontal feed bracket shaft ❸. 3. The feed dog height and gradient are changed when both shafts of the vertical feed bracket shaft ❶ and the horizontal feed bracket shaft ❸ are turned by means of a screwdriver. 4. After adjustments, firmly tighten the screws that have been loosened. (Screw tightening should be done under the condition that the setscrews ❷ and ❹ are pushed against the vertical feed bracket shaft ❶ and the horizontal feed bracket shaft ❸.) **(Cautions) 1. In regard to the locus of standard feeding, the throat plate and the feed dog rise almost horizontally when the throat plate rises.** **2. The direction of the engraved marker dots for the vertical feed bracket shaft ❶ and the horizontal feed bracket shaft ❸ should be adjusted on the right side (operator side).** **3. If there is rattle in the vertical feed bracket shaft ❶ and the horizontal feed bracket shaft ❸, this can be a cause of unusual sound and improper linearity.**	o If the gradient of the feed dog is adjusted for either shaft only, the feed dog height may be changed. Adjustments are needed for both shafts in all cases. o According to the shaft adjusting position, the position of feed dog motion may be shifted. In such a case, loosen the tightening screw ❺ of the X feed arm ❻ to adjust the position of motion. o According to the result of feed dog height or gradient adjustments, there is possibility of interference with the thread trimmer unit. o When the feed dog height is set above the standard level, the feeding power is improved. Instead, there can be problems of presser jumping at high speed and flaws in light materials. o If the feed dog height is too much, a return will be given to the front side (Section C) of the feed dog. As a result, the behavior of material feeding may be affected. If the height has to be increased for an unavoidable reason, the amount of return can be reduced by adjusting the gradient of the feed dog to raise its tip.  0.8mm DDL-9000B-□S, MA 1.2mm DDL-9000B-SH

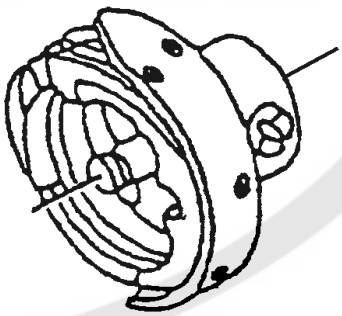
(2) Timing for the needle and the inner hook

Standard Adjustment









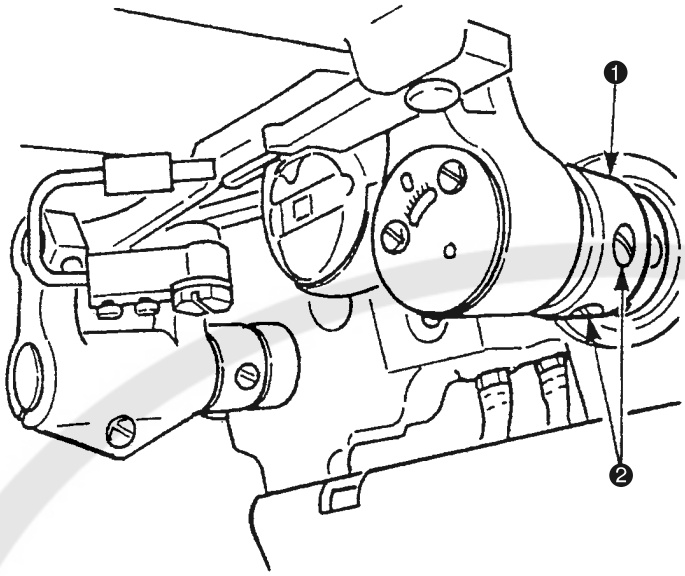
Lubricated hook K
Part No. : 23621303

Adjustment Procedure	Results of Improper Adjustment
1. Turn the flywheel until the needle bar ❷ comes to its lowest position, and loosen the needle bar connecting setscrew ❶. 2. Determine the needle bar height. Adjust the engraved marker line (marker line Ⓐ for the DB needle and marker line Ⓒ for the DA needle) of the needle bar ❷ to the lower end of the needle bar lower metal ❸ and tighten the needle bar connecting setscrew ❶. (Be careful not to tighten the needle bar connecting setscrew ❶ too much.) 3. Determine the mounting position of the hook ❻. Turn the three hook setscrews in the direction of flywheel forward revolutions to raise the needle bar. In this direction, adjust the engraved marker line (marker line Ⓑ for the DB needle and marker line Ⓓ for the DA needle) to the lower end of the needle bar lower metal ❸. 4. In this state, adjust the blade point ❺ of the inner hook to the center of the needle ❹ so that a clearance of 0.04 to 0.1mm (goal value) is secured between the needle ❹ and the hook ❻. Since then, firmly tighten the three hook setscrews. **(Cautions) 1. Since the needle bar ❷ of the DDL-9000B-MS, -DS is black, the engraved marker line may be hard to see. Work should be carried out under bright circumstances by giving a light to the spot, for example.** <Information about the dry hook> A dry hook (RP hook) is employed for the DDL-9000B-DS type. For replacement, use the part numbers specified below. The hook part numbers come in two types according to the specifications. 22890206 (without the needle guard) 22890404 (with the needle guard) 22890305 (22890206 with special surface treatment) **(Cautions) The dry hook (RP hook) tends to collect thread chips and material dust. This can cause malfunction or defective stitches. Periodic cleaning is required.** <Lubricated hook K: Available separately> This is a hard blade point hook with a needle holder applicable to needle size #9 (#65). Where a thin needle has to be used for reasons of sewing processes, this type of hook is applicable to the prevention of stitch skipping and needle breakage. About the needle bar	o If this clearance is too small, the blade point of the hook ❻ may be damaged. o Too much clearance may give rise to stitch skipping.

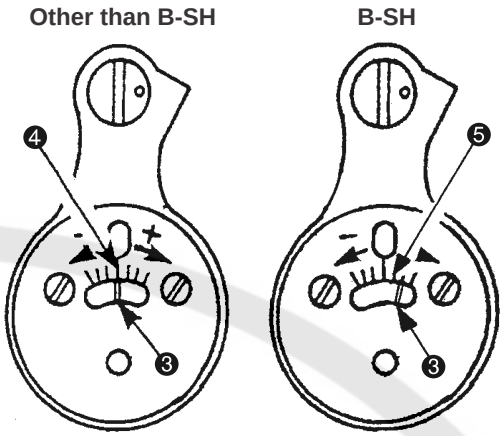
Specifications	Part No.	Amount of looper return	Needle shank
DDL-9000B-SS	22886904	1.8mm	ø1.64
DDL-9000B-SS	22887004	1.8mm	ø2.02
DDL-9000B-M □, DS	40086602	1.8mm	ø1.64
DDL-9000B-M □, DS	40086604	1.8mm	ø2.02
DDL-9000B-SH	40061767	2.3mm	ø2.04

(3) Needle and feed timing

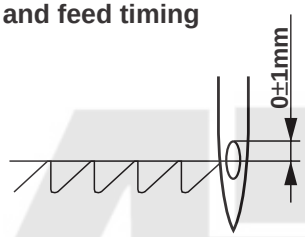
Standard Adjustment

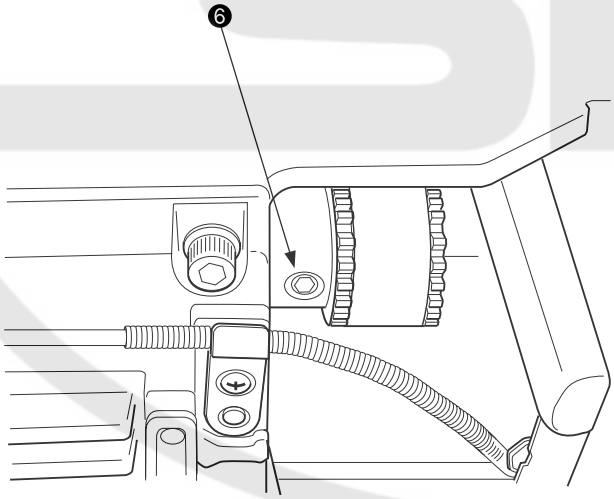


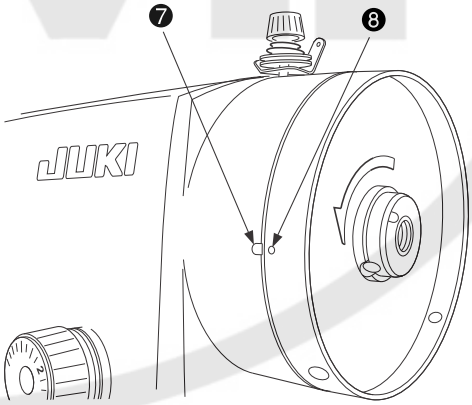
Vertical feed cam phase
(engraved marker line position)



Needle and feed timing







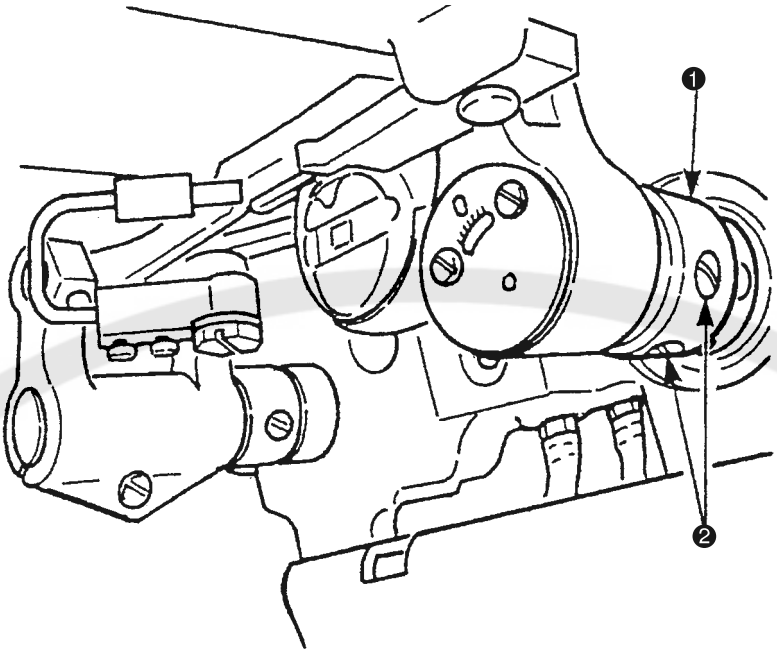
Standard Adjustment

Models	Other than DDL-9000B-SH	DDL-9000B-SH
Vertical feed cam engraved marker line	0°	+20°
Feed dial graduations	3	4
Needle and feed timing	In a moment when the feed dog is positioned below the upper surface of the throat plate, the upper end (lower end of the throat plate for B-SH) of the needle hole shall be 0±1mm from the upper plane of the throat plate.	

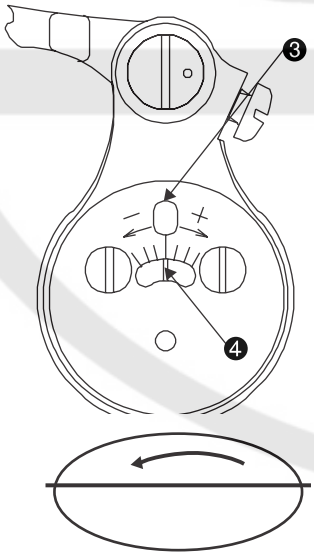
Adjustment Procedure	Results of Improper Adjustment
1. Adjust the feed dial graduations. o DDL-9000B-SH: Feed dial graduation 4 o Other than DDL-9000B-SH: Feed dial graduation 3 2. Let the sewing machine fall down and check the engraved marker line position of the vertical feed cam ❶. o DDL-9000B-SH: +20° (❺) o Other than DDL-9000B-SH: 0° (❹) For adjustments, loosen two vertical feed cam setscrews ❷ and adjust the cam to the engraved marker line ❸. **(Cautions) The angle of the engraved marker line graduation 1 denotes 10°.** 3. Loosen two lower sprocket screws ❻. 4. At the feed dog lowering timing (position where the upper end of the feed dog coincides with the upper plane of the throat plate), fix the vertical feed cam ❶ and slowly turn the flywheel in forward direction until the upper end of the needle hole coincides with the upper plane of the throat plate. * In cases other than the DDL-9000B-SH, coincidence of the engraved marker dot ❼ of the pulley cover with the engraved marker dot ❽ of the flywheel can be regarded as the standard for needle hole upper end lowering. When coincidence is confirmed, tighten two lower sprocket screws ❷. (Tightening torque for reference: 4.5N•m) 5. Adjust the thread trimmer cam timing. Refer to [3.–(11) Thread trimmer unit -3) Thread trimmer cam standard timing]. 6. Adjust the hook timing. Refer to [3.-(2) Needle and hook timing]. **(Cautions) When the above-mentioned adjustments are finished, operate the sewing machine and examine whether any unusual sound or torque is generated or the thread trimmer unit works normally.**	o When tightening the two vertical feed cam setscrews ❷, this work should be done while a good centering is secured. Otherwise, there will be adverse torque or unusual sound generation, or abnormal wear may be caused.

(4) Feed locus and phase

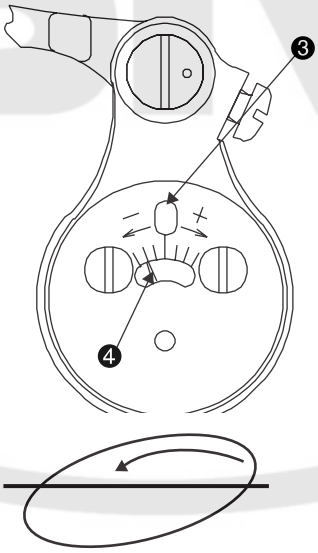
Standard Adjustment



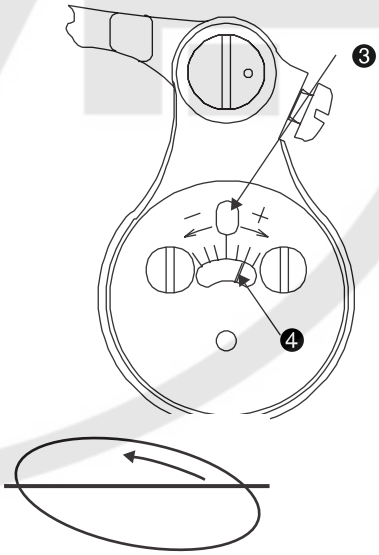
1. Timing standard



2. Timing fast



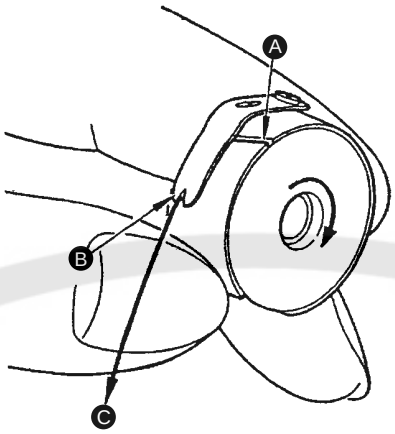
3. Timing slow



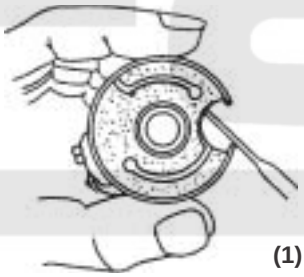
Adjustment Procedure	Results of Improper Adjustment
[Feed locus change] By adjusting the phase of the vertical feed cam ❶, it is possible to change the up/down timing for the feed locus and needle. Adjustments can be carried out with two setscrews ❷. 1. Timing standard The vertical feed shaft engraved marker line ❹ coincides with the vertical feed cam engraved marker line ❸ at 0°. Refer to [3.-(3) Needle and feed timing]. 2. Timing fast If you adjust the vertical feed shaft engraved marker line ❹ to the vertical feed cam engraved marker line ❸ and the minus side, the vertical feed timing is hastened against horizontal feed. (Also hastened against the needle) **(Cautions) Adjustments should be done within –20° (2 graduations).** 3. Timing slow If you adjust the vertical feed shaft engraved marker line ❹ to the vertical feed cam engraved marker line ❸ and the plus side, the vertical feed timing is delayed against horizontal feed. (Also delayed against the needle) **(Cautions) Adjustments should be done within +20° (2 graduations).** **(Cautions) 1. When timing of the vertical feed cam ❶ is changed, the feed timing is also changed against the needle. When the timing is adjusted, re-adjustment is required in accordance with [(3) Needle and feed timing].** **2. The angle of the engraved marker line graduation 1 denotes 10°.**	o When tightening the two setscrews ❷ of the vertical feed cam ❶, this work should be done while a good centering is secured. Otherwise, there will be adverse torque or unusual sound generation, or abnormal wear may be caused. o Since the motion in horizontal direction is reduced at the beginning of feeding, the material cloth is fed assuredly by the effect of creep reduction. o Feeding force is reduced around the end of feeding because the feed dog lowers faster. o The motion becomes moderate at the beginning of feeding, thus making the material cloth biting worse. o Light materials tend to be less damaged. o The material cloth is fed assuredly at the end of feeding. Thanks to the leading effect, puckering tends to be improved.

(5) Bobbin insertion

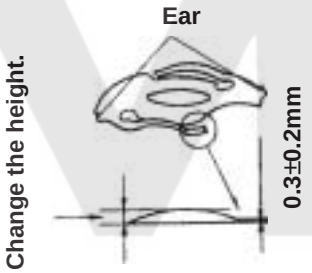
Standard Adjustment



1) Bobbin case with idling prevention spring
(Drawing is for 40000264.)

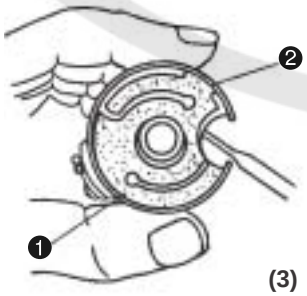


(1)

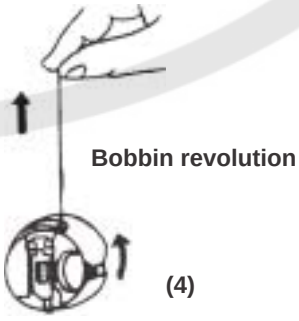


(2)

o For the bobbin case with idling prevention spring



(3)



(4)

Adjustment Procedure	Results of Improper Adjustment
1. Hold the bobbin so that it turns to the right and insert it in the bobbin case. (See Drawing.) 2. Pass the thread through the threading port Ⓐ of the bobbin case. When the thread is pulled in the direction of Ⓒ, it can be pulled toward the threading port Ⓑ passing beneath the thread tension spring. 3. Examine if the bobbin turns in the direction of the arrow when the bobbin thread is pulled.	o If the direction of clockwise winding is adopted, variation is lessened possibly caused by a change in the amount of bobbin thread.

About the standard part numbers (DDL-9000B-□□)

Part name	MS, SS	DS	SH	MA
Bobbin case	D1837555 BAAA	22896252	40000264	40000264
Bobbin case with idling prevention spring	D1837555 BOBA	11038700		
Bobbin	40091141 (Made of aluminum)		B9117012000 (Made of iron)	40091141 (Made of aluminum)

1) Bobbin case with idling prevention spring
The DDL-9000B Series employs the bobbin case with an idling prevention spring.
Adjustments of idling prevention spring tension can be carried out in the procedures below.
If bobbin idling occurs, increase the idling prevention spring tension

When the bobbin runs idle → Increase the tension of the idle-prevention spring.

When the thread is not well tightened → Decrease the tension of the idle-prevention spring.

* Adjustment of idling prevention spring tension

(1) Insert an old needle as illustrated and remove the spring by lifting it up.
(Suggestion: Use the thumb to prevent the spring from popping out.)

(2) The spring tension can be changed by changing the height of the arch-shaped section of the spring.
(Make sure not to permit the free end of the spring to come out of the bobbin case.)

(3) Firstly, set the ear ❶ and insert the needle. Then, settle the ear ❷ is the state that the center part of the spring is lifted.

(4) When a bobbin case with an idling prevention spring is used, it should be inserted in the winding direction as illustrated.

(Unevenness in sewing at high or low speed)

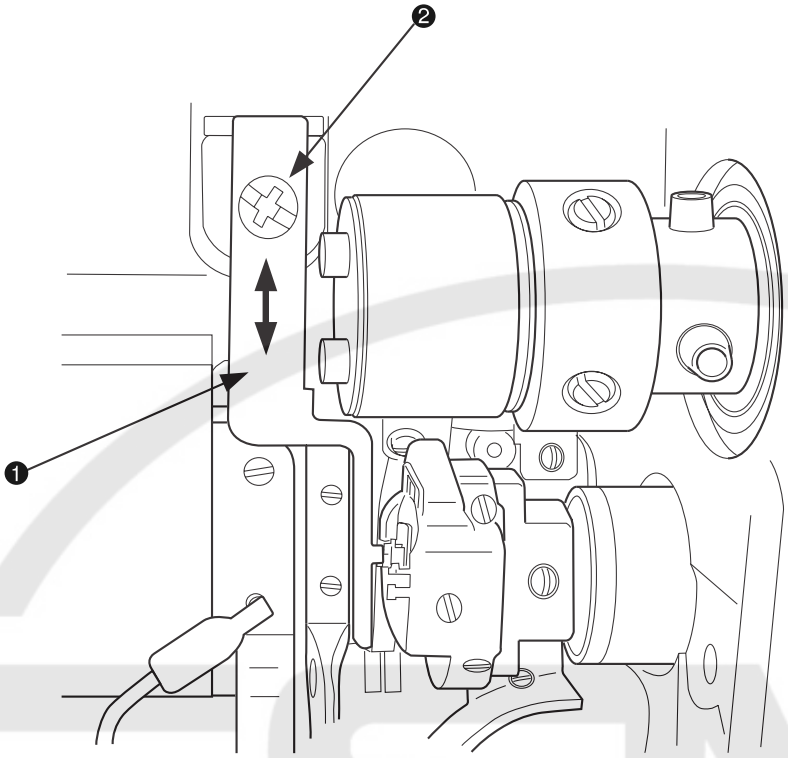
When sewing seems to be too tight at low speed: → Adjust the bobbin thread tension and the idling prevention spring tension to be strengthened.

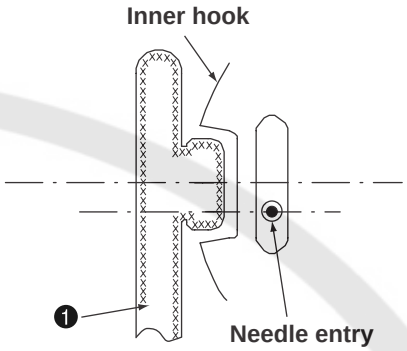
When sewing seems to be too weak at low speed: → Adjust the bobbin thread tension and the idling prevention spring tension to be weakened.

* If there is a problem of bobbin idling or uneven sewing at high or low speed, use of a bobbin case with an idling prevention spring is effective.

(6) Adjustment of inner hook presser position

Standard Adjustment





*** As seen from above, after removing the throat plate**

About the standard part numbers

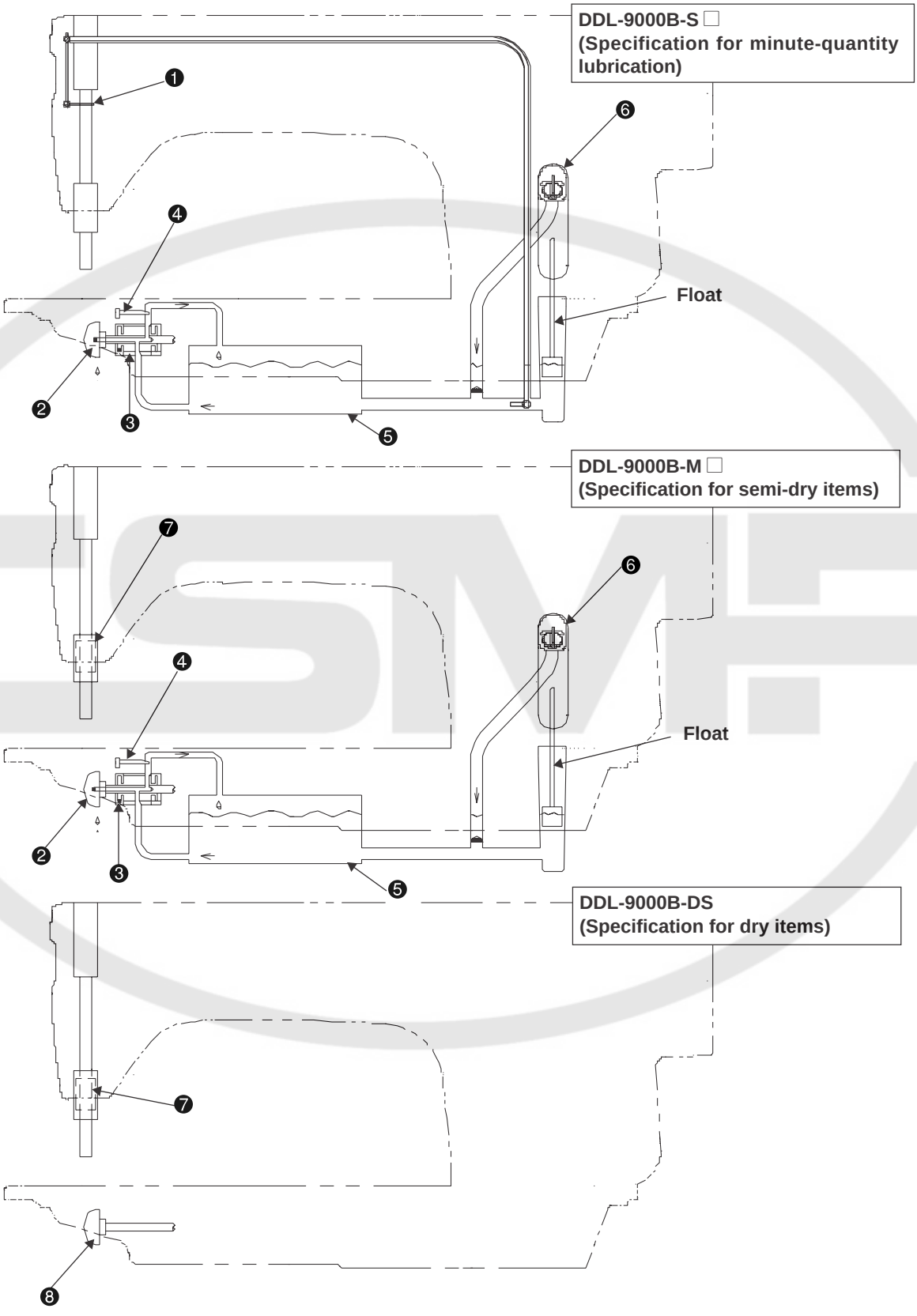
	Other than DDL-9000B-SH	DDL-9000B-SH
Inner hook presser	40089607	40089610

Adjustment Procedure	Results of Improper Adjustment
1. The front and rear positions of the inner hook presser ❶ can be adjusted by means of the setscrew ❷. [Standard adjusting value] Fasten the needle entry section by means of the setscrew ❷ so that it is located closer to the shoulder section toward the front side from the center of the embossed part in the inner hook presser ❶.	o If the embossed part of the inner hook presser ❶ has any flaw, this can be a cause of thread breakage or uneven sewing. In such a case, the damaged part shall be replaced with a new one. o If the inner hook presser ❶ is positioned inadequately, an extra tension is exerted when the thread comes out of the embossed part. This can be a cause of shrinkage errors.

(7) Lubrication

Standard Adjustment

1) Method of lubrication

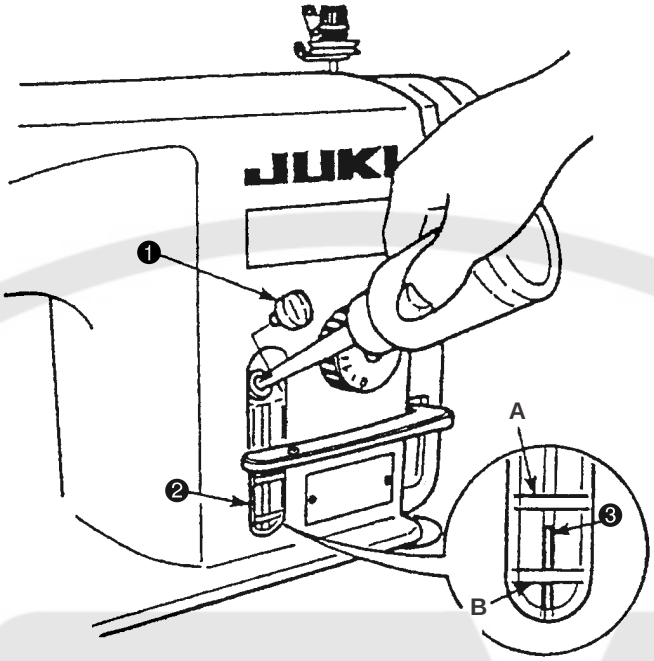


Adjustment Procedure	Results of Improper Adjustment
1. DDL-9000B-S □ (Specification for minute-quantity lubrication) Face plate needle bar lubrication : Minute-quantity lubrication by the oil wick ❶ Hook ❷ : Forced lubrication by the plunger pump ❸ Quantity of oil can be adjusted by the hook oil adjusting screw ❹. Lubricant can be fed to the oil tank ❺ through the arm lubrication hole ❻. 2. DDL-9000B-M □ (Specification for semi-dry items) Face plate needle bar lubrication : Lubrication by grease sealed in the needle bar lower metal ❸ Hook ❷ : Forced lubrication by the plunger pump ❸ Quantity of oil can be adjusted by the hook oil adjusting screw ❹. Lubricant can be fed to the oil tank ❺ through the arm lubrication hole ❻. 3. DDL-9000B-DS (Specification for dry items) Face plate needle bar lubrication : Lubrication by grease sealed in the needle bar lower metal ❼ Hook ❽ : Dry hook (RP hook)	

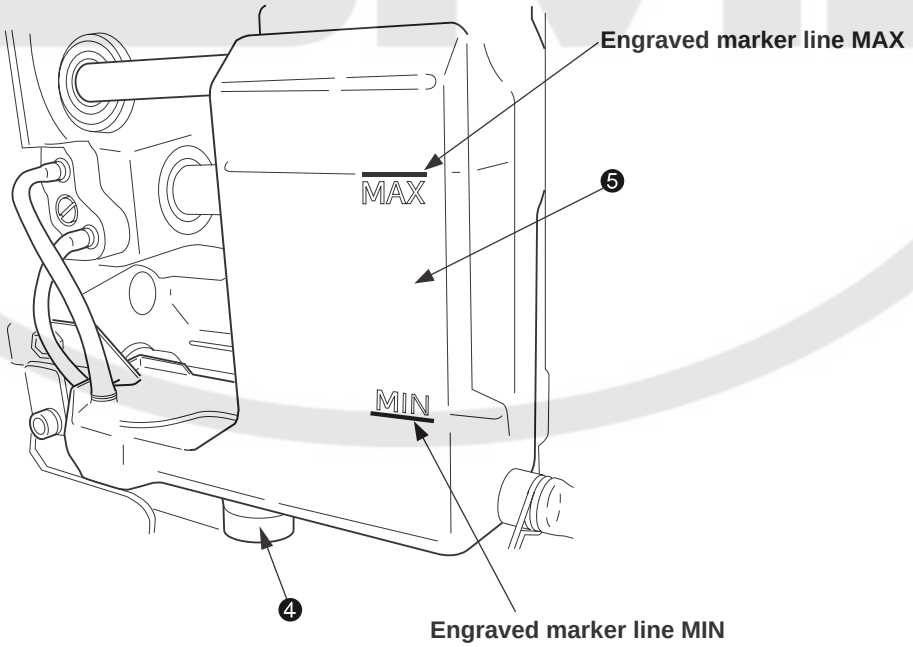
(7) Lubrication

Standard Adjustment

2) Method of lubrication to the oil tank (DDL-9000B-S □ and DDL-9000B-M □ only)



3) Method of oil drainage from the oil tank (DDL-9000B-S □ and DDL-9000B-M □ only)

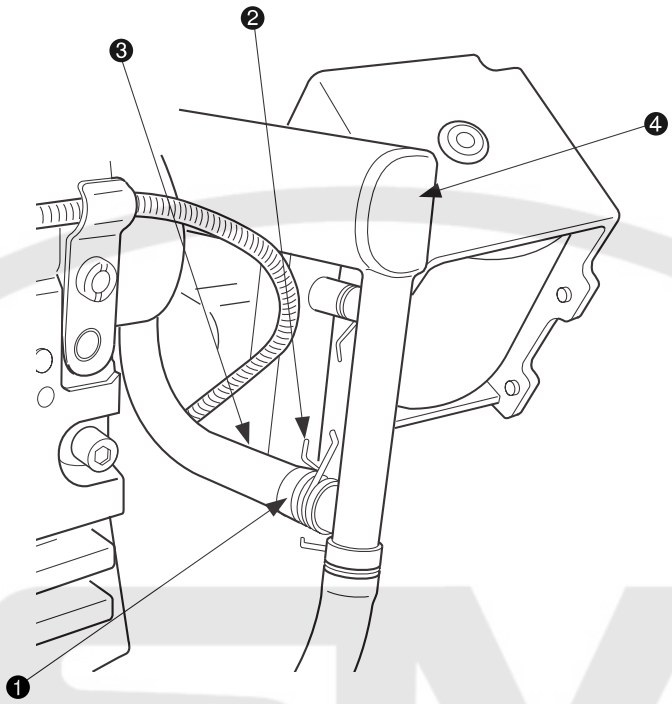


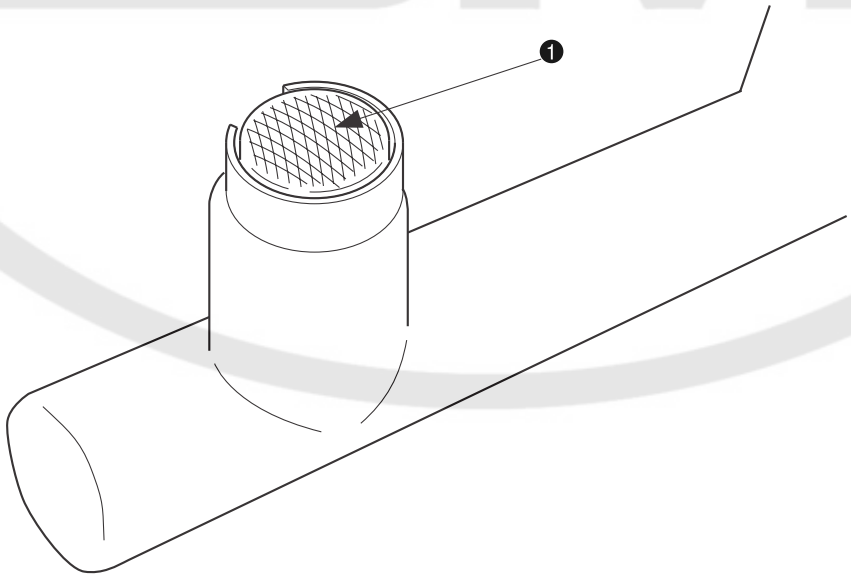
Adjustment Procedure	Results of Improper Adjustment
2) Method of lubrication to the oil tank (DDL-9000B-S □ and DDL-9000B-M □ only) 1. Remove the lubrication hole cap ❶ and replenish the JUKI New Defrex Oil No. 1 (Part No.: MDFRX160000) or the JUKI Machine Oil 7 (Part No.: MML007600CA) with the use of an accessory oilcan. 2. Feed the oil until the tip of the oil level indicator bar ❸ stays between the upper and lower engraved marker lines A and B of the oil gauge window ❷. Be careful at that time that no dust and others enter the interior. 3. Lubrication is needed if the tip of the oil level indicator bar ❸ comes below the lower engraved marker line B of the oil gauge window ❷ while the sewing machine is used. **(Cautions) 1. When using a new sewing machine or the one that has not be used for a long time, trial running is required at the speed of 2000sti/min or below.** **2. The hook oil shall be the one recommended by Juki.** **3. Clean oil shall be replenished at all times.** **4. Never operate the sewing machine while the lubrication hole cap ❶ is removed. Carefully manage this cap not to loose it.** (For reference) Even after making the sewing machine fall down, it is possible to check the quantity of oil in the oil tank. The quantity of oil is adequate if the oil level stays between the MAX and MIN lines.	o If too much oil is replenished, there will be oil leakage from the air relief hole of the oil tank ❺. In addition, there can be possibility of failure in adequate lubrication. o Violent lubrication can result in overflow from the lubrication hole.
3) Method of oil drainage from the oil tank (DDL-9000B-S □ and DDL-9000B-M □ only) When carrying the sewing machine or during maintenance servicing, it is possible to remove the lubricant from the oil tank. 1. Let the sewing machine fall down. 2. Insert the oil pan in the undercover. 3. Turn the oil drain screw ❹ of the oil tank ❺ to drain oil. 4. A maximum of 200ml of oil (to the MAX line) is contained in the oil tank ❺. **(Cautions) 1. Be careful not to forget to tighten the oil drain screw ❹.** **Otherwise, this can be a cause of oil leakage.** **2. Do not tighten the oil drain screw ❹ too much.** **Otherwise, this can be a cause of oil leakage as a result of breakage.**	o Lubricant shall be removed, without fail, when transporting the sewing machine. Due to vibration during transportation, oil leakage may be caused through the air relief hole located on top of the oil tank ❺.

(7) Lubrication

Standard Adjustment

4) Cleaning of the oil filter (DDL-9000B-S □ and DDL-9000B-M □ only)



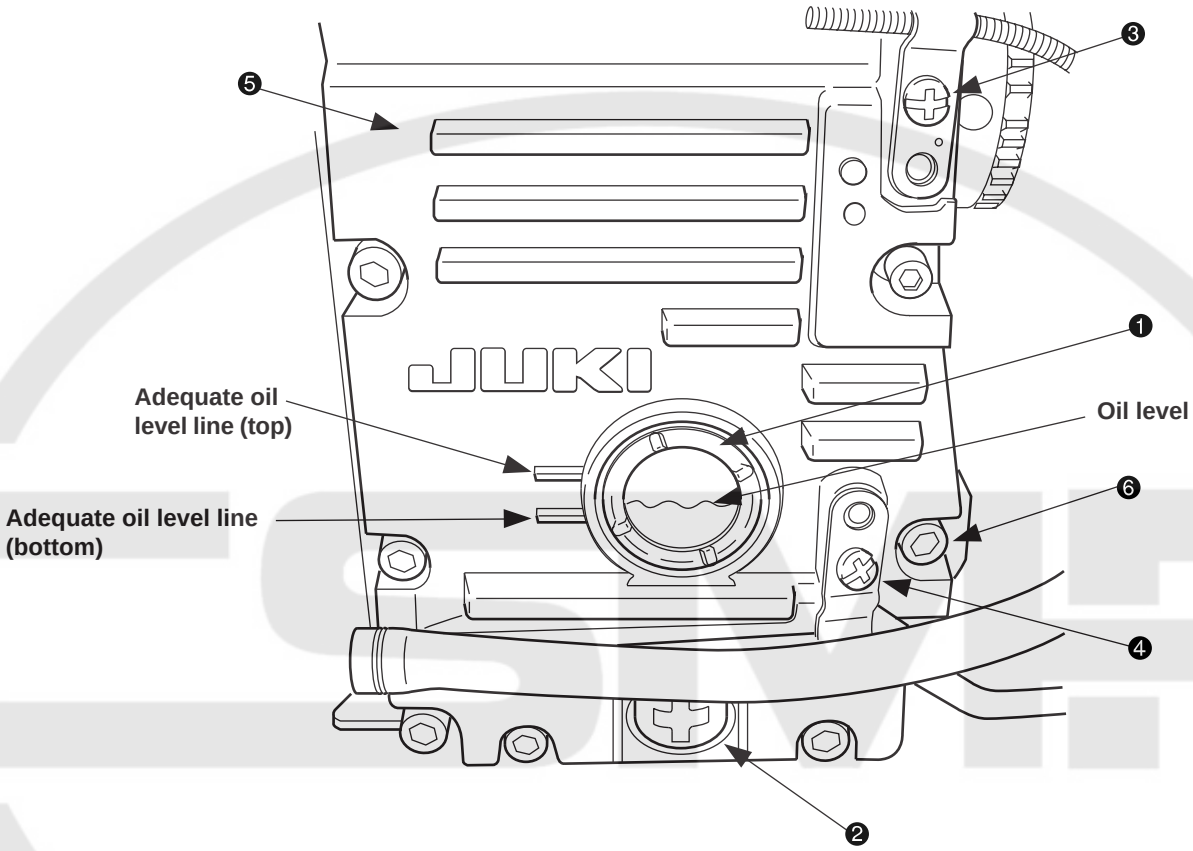


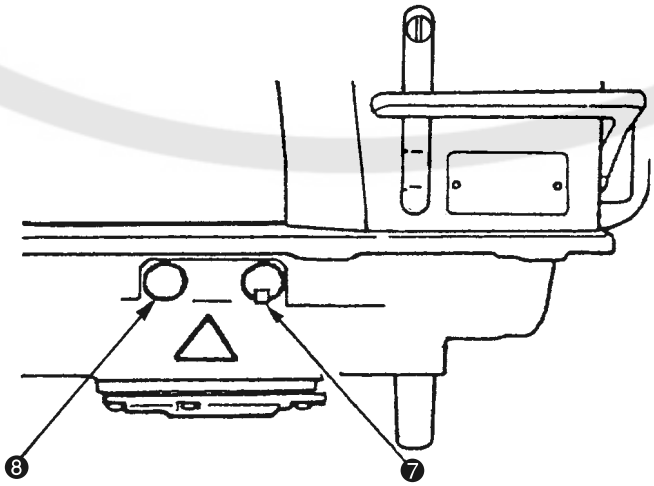
Adjustment Procedure	Results of Improper Adjustment
(DDL-9000B-S □ and DDL-9000B-M □ only) Clean the oil filter ❶ periodically (approximately once every three months). 1. Let the sewing machine fall down. 2. Remove the lubrication pipe stop ring ❷. 3. Remove the lubrication pipe ❸ from the float case ❹. 4. Remove thread chips and material dust accumulated in the oil filter ❶. Refer to [4. Maintenance – (4) Lubrication mechanism configuration and adjustments (DDL-9000B-SS, SH, MA, MS)].	o If there is clogging in the oil filter ❶, smooth lubrication cannot be maintained from the lubrication hole.

(7) Lubrication

Standard Adjustment

5) Oil in the gear box
6) Placement/displacement of the gear box cover
7) Cautions for gear box cover oil during transportation



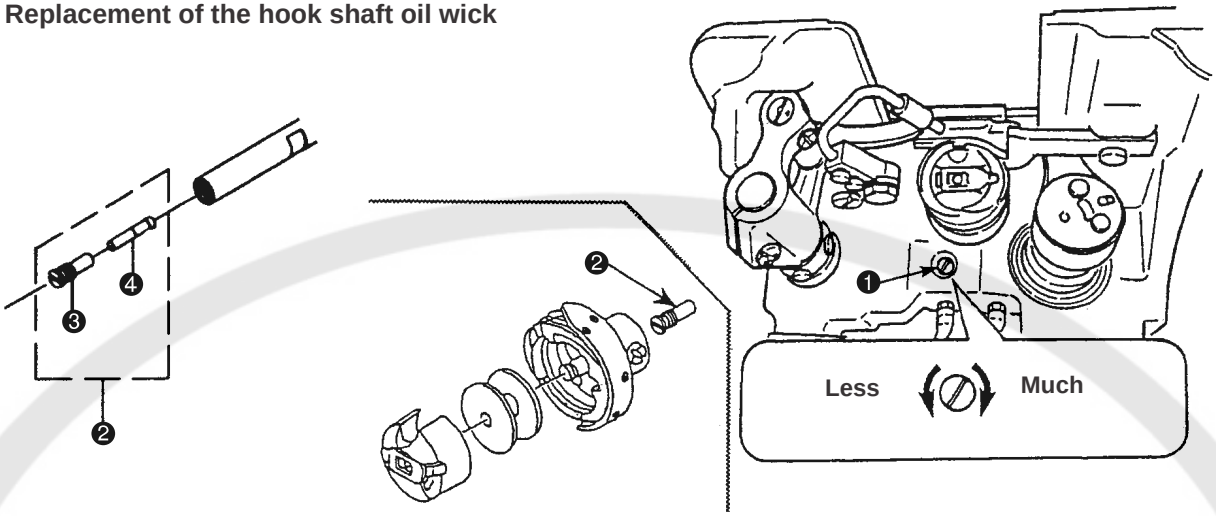


Adjustment Procedure	Results of Improper Adjustment
5) Oil in the gear box 1. The condition is normal (within the range between the upper and lower lines for the oil quantity) if the oil level in the gear box can be seen through the oil peep window ❶ when the sewing machine is made to fall down. (Same as for the AK unit installed) **(Cautions) 1. The gear box oil and the internal mechanism are maintenance-free.** **The oil type is different from that of the hook oil.** **Except for unavoidable problems, never open the gear box cover ❺.** **2. The quantity of oil is normal if the oil level can be seen through the oil peep window ❶.**	o Too less quantity of oil can result in mechanical wear or heat generation. o Too much quantity of oil can raise inner pressure in the gear box. As a result, there will be oil leakage from the air relief hole or the oil seal of each shaft.
6) Placement/displacement of the gear box cover Never open the gear box unless any problem occurs. In the case of placement/displacement for unavoidable reasons, pay attention to the cautions specified below. **[Displacement procedures]** 1. Let the sewing machine fall down. 2. Insert the oil pan in the undercover. 3. Remove the oil drain screw ❷ to drain oil. 4. Remove the setscrew ❸ of the thread tension releasing wire holder and remove the thread tension releasing wire. 5. Loosen the thread trimmer SOL cable setscrew ❹ and remove the thread trimmer SOL cable. 6. Loosen nine setscrews ❻ of the gear box cover and remove the gear box cover ❺ and the gasket. **[Placement procedures]** 1. Provide for a new gasket. Gear box cover gasket Part No.: 40037166 2. The gear box cover ❺ and the bed mounting face shall be kept clean. Wipe off waste oil from these parts. 3. Tighten nine setscrews ❻ of the gear box cover. (2-turn tightening) 4. Remove the lubrication stop plug ❽ from the bed side and replenish 140cc of the JUKI New Defrex Oil No. 2. (JUKI New Defrex Oil No. 2 Part No.: MDFRX2700C0) * After replenishment, confirm the oil level through the oil peep window ❶. * Apply a sealant when mounting the lubrication stop plug ❽ again.	o According to the position of the head support bar on the sewing table, the oil level may change. Use, without fail, the table exclusively specified by JUKI. o Oil leakage may occur unless the coupling face is kept clean.
7) Cautions for gear box cover oil during transportation When the sewing machine is transported, there may be oil leakage from the air relief hole of the bed side due to vibration. During transportation, mount the air relief cap ❽, without fail. **(Cautions) Never operate the sewing machine while the air relief cap ❽ is mounted.** **Air relief cap ❽ : 23601305**	o Change in the oil quantity can be a cause of problem. o Inner pressure is raised and oil leakage occurs.

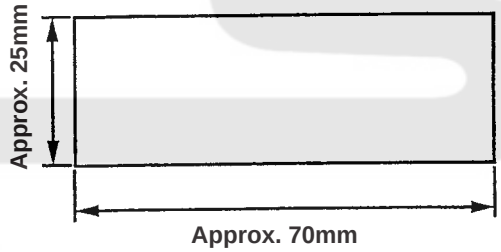
(7) Lubrication

Standard Adjustment

8) Adjustment of hook oil quantity
9) Hook oil adjustment procedures
10) Essentials for hook oil adjustments
11) Replacement of the hook shaft oil wick

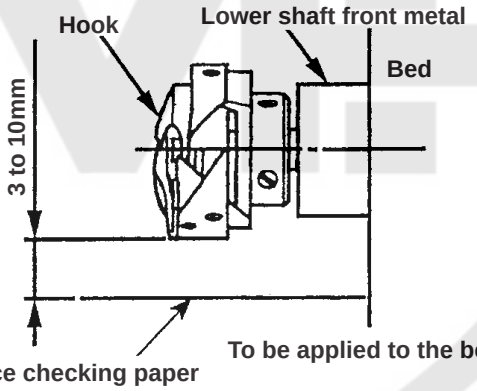


Oil quantity (trace) checking paper



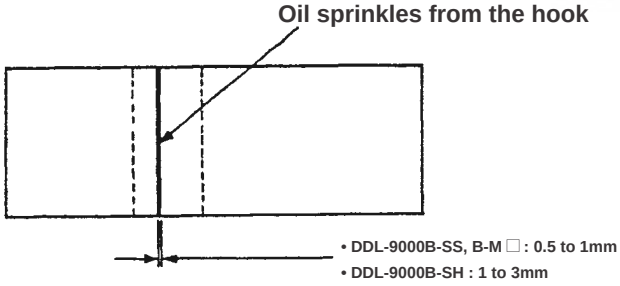
*** Unnecessary to worry about the quality of paper.**

Oil quantity (trace) checking paper

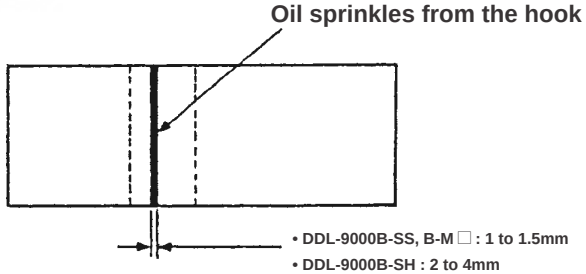


*** Apply the oil quantity (trace) checking paper to hook's lower side and check it from a distance of 3 to 10mm.**

Oil quantity (small)



Oil quantity (large)



Adjustment Procedure	Results of Improper Adjustment
8) Adjustment of hook oil quantity When the hook oil quantity adjusting screw ❶ is tightened (turned to the right), the amount of hook oil is increased. When it is loosened (turned to the left), the amount of hook oil is decreased.	
9) Hook oil adjustment procedures 1. Tighten the hook oil quantity adjusting screw ❶ to obtain the maximum oil rate and operate the machine for about 30 seconds. 2. Loosen the oil adjusting screw by two turns and check the quantity of oil. In this case, give 30 seconds of idling to the sewing machine and measure the quantity of oil at the intervals of 5 seconds (about 35 seconds in total). 3. According to the quantity of oil secured at that time, determine the amount of turning for the hook oil quantity adjusting screw ❶. Give 30 seconds of idling to the sewing machine after re-adjustment and measure the quantity of oil at the intervals of 5 seconds. 4. Adjust the screw position in the procedures of 2. to 3. above until an adequate quantity of oil has been attained.	o By feeding very much oil, let the oil prevalent around the hook and through the lubrication route as a whole so that the oil path can be stabilized.
(Cautions) When the hook is replaced or in the case of the head (including the heads in a new state) not used for a long time, it takes about 10 to 20 seconds (4,000sti/min) until the oil begins to appear from the hook. **he machine stays in the state of causing seizure. Therefore, use the machine after running-in operation at 2,000rpm or below.**	
10) Essentials for hook oil adjustments 1. When the quantity of hook oil is adjusted from excessive oiling condition to reducing condition (loosening the screw), it is possible to carry out stable adjustments. 2. Check the oil quantity about three times to confirm the stability. 3. If the quantity of oil is too much before adjustments, operate the machine continuously for about one minute so that the oil attached to the hook and remaining in the oil path can be flung off completely.	<When the quantity of hook oil is too much> o Too much oil can stain the materials to be sewn. o Oil consumption in the oil tank is increased. <When the quantity of hook oil is too less> o The lubrication route tends to be affected easily by factors such as dust. It is, therefore, necessary to check the condition of oil quantity periodically. o Under rigorous conditions (operation at high speed or continuous operation), pay attention to the possible occurrence of problems such as hook seizure and thread breakage by heat. o If a contaminated oil is used, filter clogging occurs earlier and this can be a cause of unstable oil quantity.
11) Replacement of the hook shaft oil wick The hook shaft filter ❹ is a consumable item. Periodic replacement is recommended for the stabilization of hook oil quantity. 1. Remove the hook. 2. Remove the hook shaft filter screw ❸. **(Cautions) Make sure not to hurt the tip hole of the hook shaft filter screw ❸.**	

	Part name	Part No.
❷	Hook shaft filter asm.	22916555
❸	Hook shaft filter screw	22916506
❹	Hook shaft filter	11015906

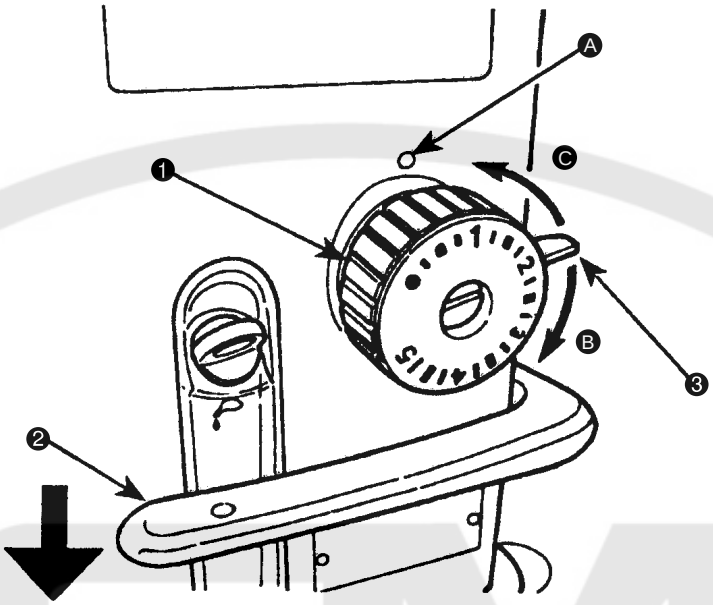
3. Enter a new hook shaft filter ❹ to the inner part of the hook shaft filter screw ❸ and then get it around the hook shaft.

(8) Adjustment of the amount of feeding

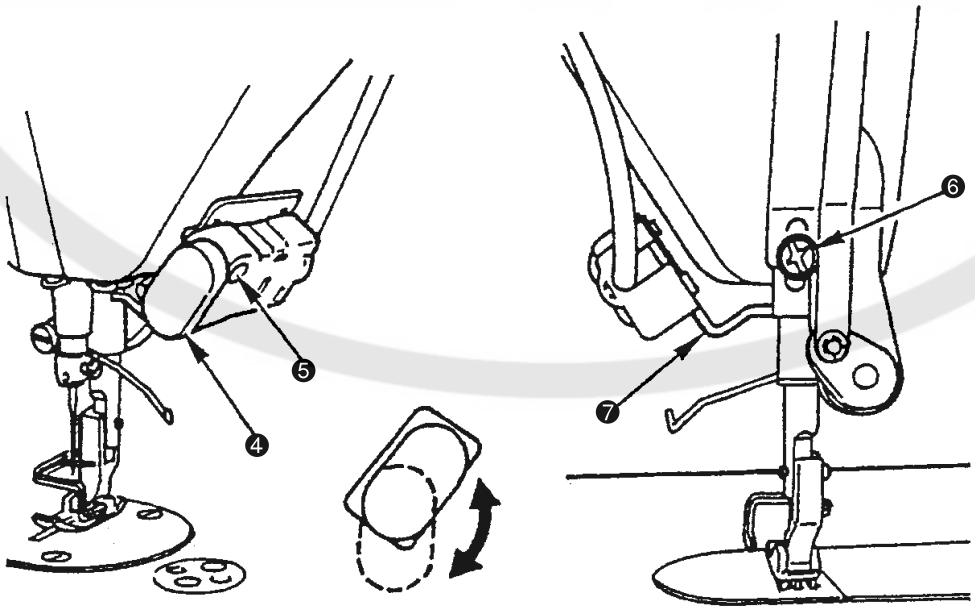
Standard Adjustment

1) Adjustment of forward feed stitch length

2) Reverse feed stitch length check (manual)



3) Reverse feed stitch length check (motor-power)

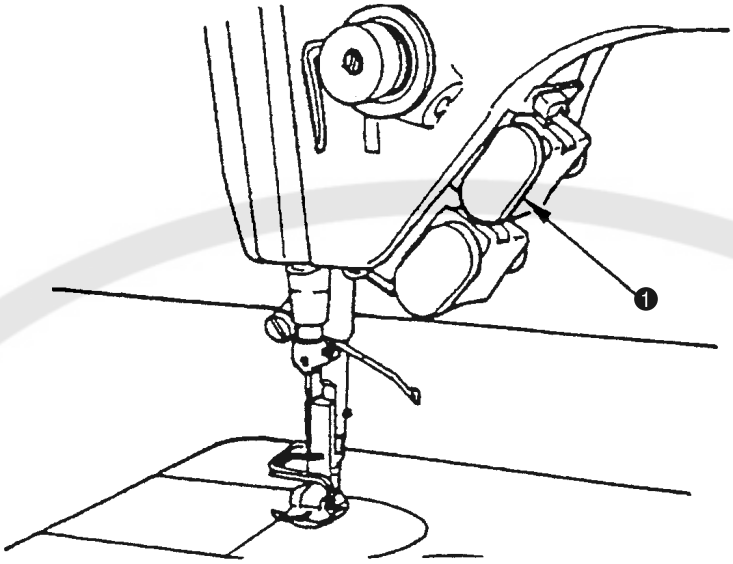


Adjustment Procedure	Results of Improper Adjustment
* Figures on the graduations are indicated in the unit of mm. **1) Adjustment of forward feed stitch length** 1. Turn the feed adjust dial ❶ in the direction of the arrow so that the required figure is adjusted to the engraved marker dot Ⓐ of the arm. 2. When changing a feed graduation from high to low, turn the feed adjust dial ❶ while pressing the feed lever ❷ in the direction of the arrow. 3. When the stopper ❸ is turned in the direction of the arrow Ⓑ, the feed adjusting dial ❶ is fixed. 4. If the feed adjusting dial ❶ is not fixed, the stopper ❸ is turned in the direction of the arrow Ⓒ. **2) Reverse feed stitch length check (manual)** 1. Turn the feed adjust dial ❶ in the direction of the arrow so that the required figure is adjusted to the engraved marker dot Ⓐ of the arm. 2. Reverse feed takes place when the feed lever ❷ is pressed. The status that the lever is pressed at the maximum corresponds to the graduation value of the feed adjust dial ❶. **3) Reverse feed stitch length check (motor-power)** 1. When the switch ❹ is pressed, the sewing machine assumes the condition of reverse feed. When this switch is released, the condition of forward feed is promptly recovered. [Adjustment of switch position] 1. Loosen the setscrew ❺ and move the switch ❹ main body vertically to adjust the height. 2. If the switch ❹ is turned, it can be used in two positions. 3. If the switch ❹ is required to be moved to a lower position, loosen the setscrew ❻ located behind the sewing machine and lower the switch base ❼.	

(8) Adjustment of the amount of feeding

Standard Adjustment

4) Optional switch

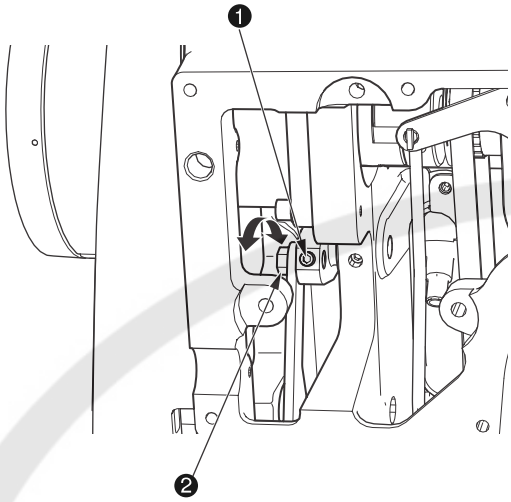


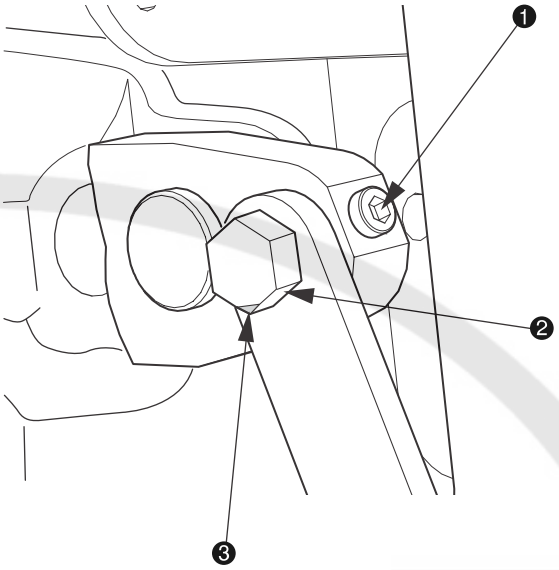
Adjustment Procedure	Results of Improper Adjustment
4) Optional switch When an optional switch ❶ is used, the functions specified below become available by a one-touch action. (SC-920) **(Cautions) Select one of the functions specified below by taking a one-touch action.** Optional switch part No.: 23632656 1. Needle up/down compensating stitching Needle up/down stitching operation is possible by pressing the switch ❶. 2. Back compensating stitching Each time the switch ❶ is pressed, back compensating stitching can be performed at low speed. (Effective only if the constant-dimension stitching pattern is selected on the CP panel) 3. Function of canceling reverse stitching at end once When the switch ❶ is pressed, reverse stitching at end is canceled once for the next sequence. 4. Thread trimming When the switch ❶ is pressed, thread trimming can be carried out. 5. Presser lifter function When the switch ❶ is pressed, automatic presser lifting is carried out. 6. 1-stitch compensating stitching Each time the switch ❶ is pressed, 1-stitch compensating stitching can be carried out. **(Cautions) When the optional switch ❶ is used, functional setup is needed at the control box.** **For more details, refer to the relevant instruction manual for the control box.**	

(8) Adjustment of the amount of feeding

Standard Adjustment

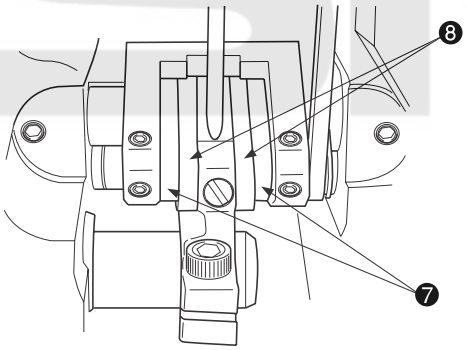
5) Adjustment of normal/reverse stitching

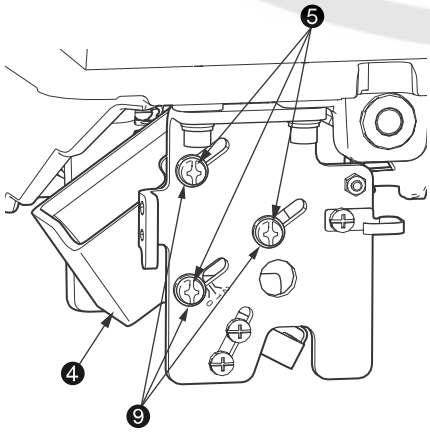


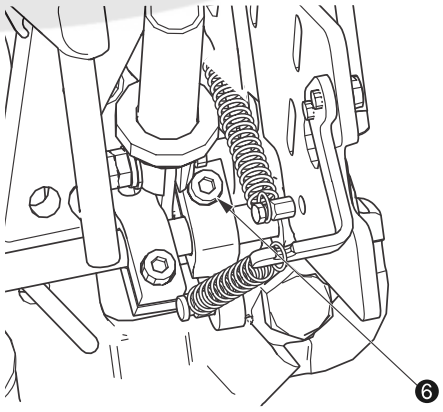


6) Adjustment of Feed 0

1. Method by removing the gear box cover (standard adjustment)







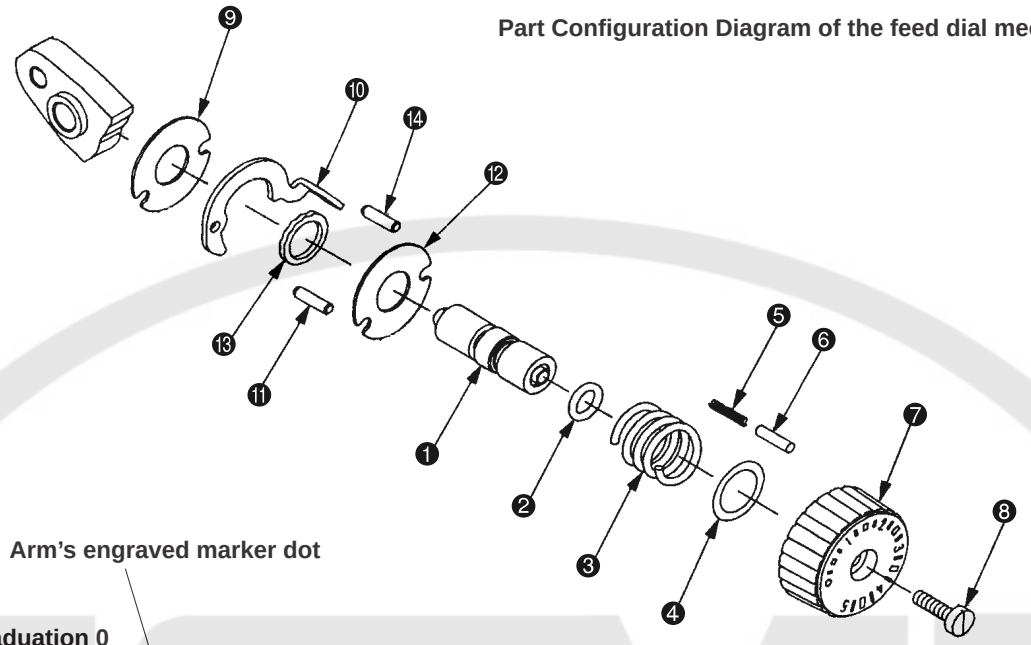
Adjustment Procedure	Results of Improper Adjustment
5) Adjustment of normal/reverse stitching 1. Pinch a piece of paper beneath the presser hardware and set the feed dial graduation at 3. 2. Remove the window plate (6 pcs.) of the sewing machine. * If it is difficult to work, or in the case of the AK-type machine head, work should be carried out after the pulley cover has been removed. Refer to [(14)-1) Adjustment of the pulley cover]. 3. Loosen a feed adjusting pin setscrew ❶. Using a 10mm hexagon head spanner, turn the feed adjusting pin ❷ for forward/reverse adjustments. 4. By turning the flywheel by hand in forward direction, confirm that the normal and reverse pitches coincide with each other. 5. When coincidence is confirmed, tighten the one feed adjust pin setscrews ❶.	o The chamfered section ❸ of the feed adjusting pin ❷ should be adjusted on the bed side. o Under the condition that the feed adjust pin ❷ is pressed, tighten the one feed adjust pin setscrews ❶. Pay attention so that there is no presence of thrust rattling. o When normal/reverse stitching is adjusted, the Feed 0 position begins to be shifted slightly.
6) Adjustment of Feed 0 1. Method by removing the gear box cover (standard adjustment) * Set the chamfered section ❸ of the feed adjusting pin ❷ on the bed side. (See the drawing at left.) (1) Set the feed dial graduation at 0. (2) Remove the gear box cover. Refer to [3. – (7) Lubrication –6] Removal/mounting of the gear box cover]. (3) Loosen three setscrews ❺ of the auto-reverse feed solenoid ❹ and remove this auto-reverse feed solenoid ❹. (4) Loosen the feed changing arm B setscrew ❻. (5) Adjust the feed adjusting link A ❼ and the feed adjusting link B ❽ so that they are aligned in a straight line. Tighten them with the feed changing arm B setscrew ❻. (6) Pinch a piece of paper beneath the presser hardware and turn the flywheel by hand in forward direction to see that the paper is not fed. (7) Tighten three setscrews ❺ of the automatic reverse feed solenoid ❹. Refer to [3.-(8)-8) Installation of the reverse feed solenoid.]	o Adjustment of the Feed 0 position results in slight displacement of normal/reverse stitching.

(8) Adjustment of the amount of feeding

Standard Adjustment

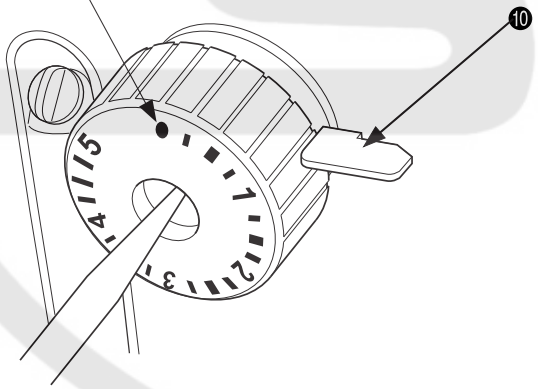
7) Adjustment of the feed dial section

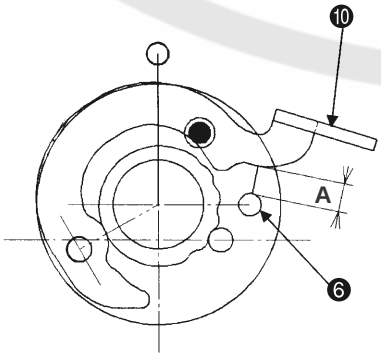
Part Configuration Diagram of the feed dial mechanism



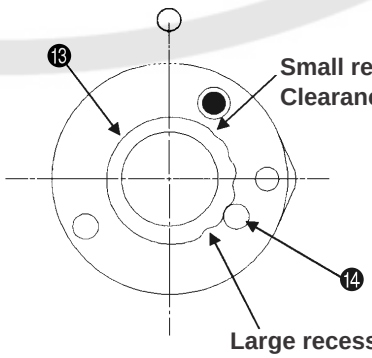
Arm's engraved marker dot

Feed dial graduation 0





When the feed lever is pushed down, the clearance A is 0.5 to 5mm between the feed dial stopper ❿ and the feed dial pin ❻.



Small recess:
Clearance A becomes wide.

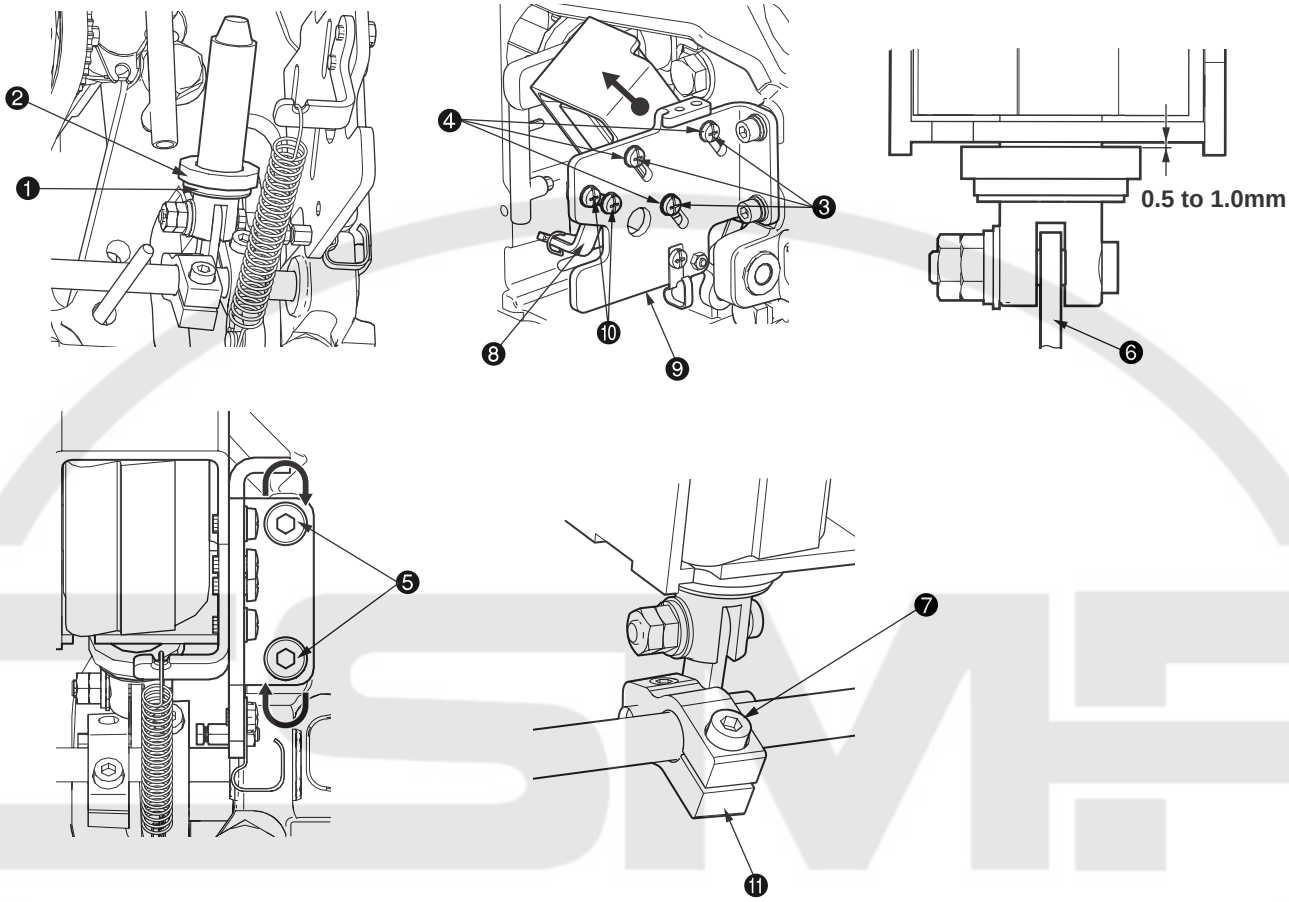
Large recess:
Clearance A becomes narrow.

Adjustment Procedure	Results of Improper Adjustment
1. Apply appropriate grease to the groove section of the feed adjusting screw ❶ and mount the O ring ❷ in the groove section. Information about the appropriate grease (Optional item) Part name: JUKI grease A; Part No.: 40006323 2. Adjust the feed dial ❼ and the feed adjusting screw ❶, and temporarily join them with the feed dial screw ❽. 3. Set the feed dial stopper washer C ❾ on the arm side and attach the feed dial stopper and its washer A to the feed dial stopper pins ⓫ and ⓮ that have been driven into the frame. Then, pinch them with the feed dial stopper washer B. Position of the feed dial stopper washer A ⓭ is determined by changing the joint between the recess of the feed dial stopper washer A ⓭ and the feed dial stopper pin ⓮ so that the clearance A becomes 0.5 to 5mm between the feed dial stopper ⓾ and the feed dial pin ❻ when the feed lever is pushed down. 4. Enter the feed dial pin spring ❺ and the feed dial pin ❻ in the arm. 5. Attach the feed dial washer ❹ and the feed dial spring ❸ to the shaft section of the joined feed dial ❼. Enter the assembly in the arm.	
Feed dial of respective specifications Specifications: DDL-9000B-S □, MS,DS — Part No.: 40036433 — Maximum graduation: 5 Specifications: DDL-9000B-MA — Part No.: 40050584 — Maximum graduation: 4	
6. In the state that the feed dial graduation 0 coincides with the engraved marker dot of the arm, join the feed dial screw ❽ with the feed adjust screw ❷. **(Cautions) After joining, confirm that the engraved marker dot of the arm coincides with the feed dial graduation 0.**	o If there is no clearance of A when the feed lever is pushed down, there is no effect of fixing the feed dial ❼. o If the clearance of A is too much when the feed lever is pushed down, the feed lever will be returned unexpectedly while the sewing machine is operated. o If there is any displacement between the arm's engraved marker dot and the feed dial graduation, there is no coincidence between the dial graduation value and the pitch.

(8) Adjustment of the amount of feeding

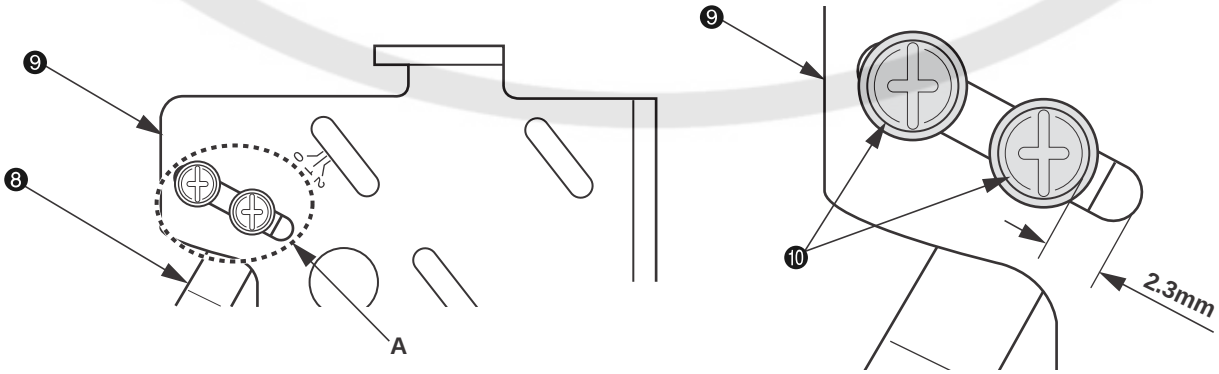
Standard Adjustment

8) Installation of the reverse feed arm and the reverse feed solenoid



9) Stop position of the feed control spring rack

Install the feed control spring rack ❽ (40086728) so that a distance of 2.3mm is kept between the oblong hole end plane of the bed column B ❾ and the end part of the setscrew ❿.



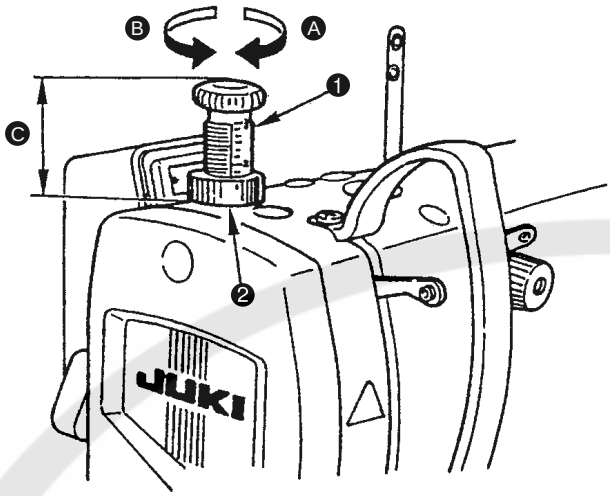
Details in Part A

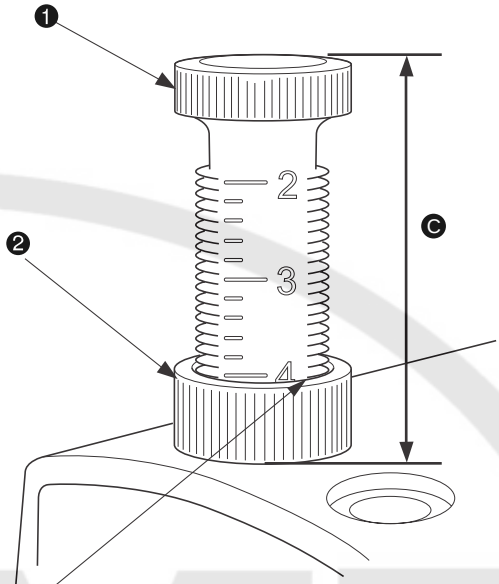
Adjustment Procedure	Results of Improper Adjustment
8) Installation of the reverse feed solenoid 1. **Installation of the reverse feed arm and the reverse feed solenoid** 1. Attach the washer ❶ and the rubber seat ❷ to the reverse feed solenoid plunger in this order. 2. Install the reverse feed solenoid and temporarily fasten it with three each of setscrews ❸ and washers ❹. In this case, confirm that the direction of the reverse feed arm ⓫ is as shown in the illustration. 3. Pull the reverse feed solenoid to your side and regularly fasten it in its utmost position by means of three setscrews ❸. 4. Adjust the feed dial to Graduation 5 and move the reverse feed arm so that the gap length becomes 0.5 to 1.0mm between the rubber seat ❷ and the reverse feed solenoid when the reverse feed lever is pulled to its limit position. In the position where the reverse feed link ❻ is positioned in the center of the reverse feed plunger groove, tighten the reverse feed arm setscrew ❼. 5. If the motion of the reverse feed plunger is not smooth, this may result from the tilting of the bed column B ❾. Therefore, loosen the two setscrews ❺ and adjust the bed column B to stand upright on the bed. After adjustment, fix the two setscrews ❺.	o If the position of the reverse feed link ❻ is not precise, this may be a cause of abrasion and breakage. o If the bed column B ❾ is tilted, the reverse feed solenoid cannot be pulled fully and the reverse feed pitch may be decreased.
9) Stop position of the feed control spring rack 1. Loosen two setscrews ⓾ of the feed control spring rack ❽. Adjustments are hard to do if the spring is hooked. Therefore, remove this spring as required. 2. Tighten the setscrews ⓾ where a distance of 2.3mm is kept between the oblong hole end and the end part of the setscrew ⓾. 3. Attach the spring again.	

(9) Adjustment of the presser lifter

Standard Adjustment

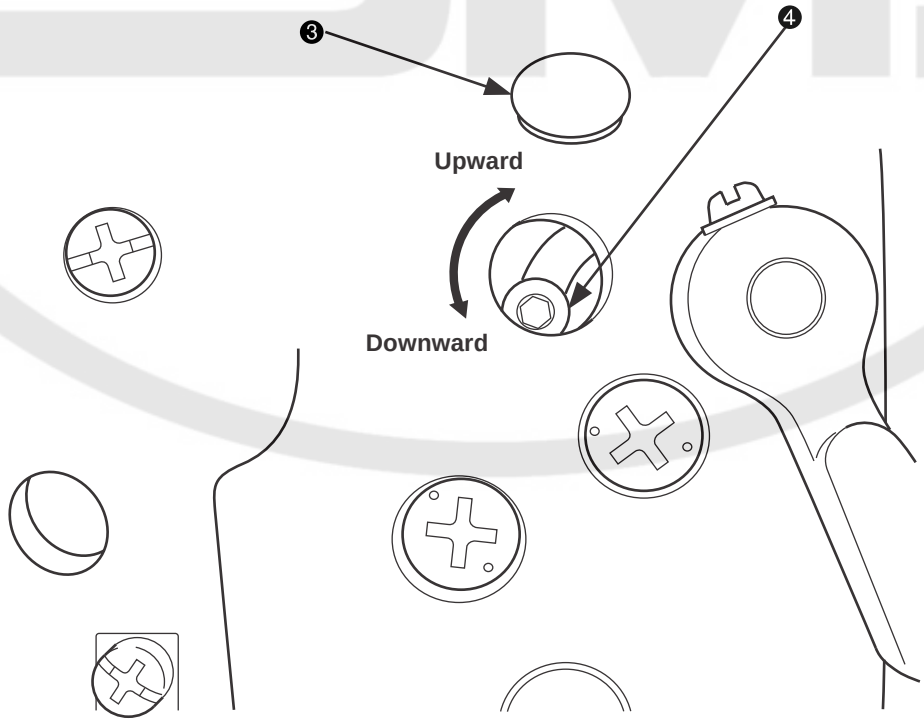
1) Adjustment of the presser pressure





Height of the presser adjusting screw ❶ can be read from the upper face value of the nut ❷.
Example: Approx. 40mm

2) Adjustment of thread release changeover



Adjustment Procedure	Results of Improper Adjustment
1) Adjustment of the presser pressure 1. Loosen the nut ❷ and turn the presser adjusting screw ❶. Turning in Direction Ⓐ for strengthening Turning in Direction Ⓑ for weakening 2. Tighten the nut ❷ after adjustments. * Standard value of the presser adjusting screw height Ⓒ	

Specifications	Height mmⒸ	Presser pressure N	Presser pressure kg
DDL-9000B-□ S	33	40	4
DDL-9000B-SH	28	60	6
DDL-9000B-MA	22	20	2

2) Adjustment of thread release changeover

1. When thread release changeover is adjusted, thread tension disc floating can be cleared.
2. With the aid of the knee presser lifter and the AK unit, the thread tension release function becomes effective when the presser hardware is raised by more than 3.5mm. This causes the thread tension disc to rise and no tension is exerted on the needle thread.

o Adequate thread tension can be maintained even when the knee presser lifter is raised at the time of heavy material processing and sewing around the corner sections. Therefore, thread tension error can be avoided.

[Method of adjustment]

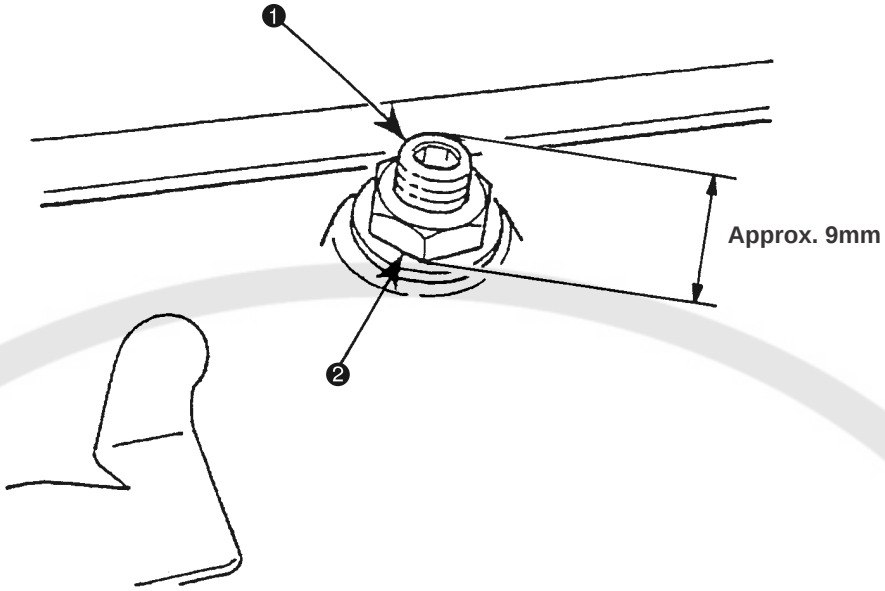
1. Remove the wiper unit. [OB Specifications excluded]
2. Remove the cap ❸ that is located behind the sewing machine. Using a hexagonal wrench of 3mm, loosen the changeover screw ❹.
   - o Lowermost mounting: Thread tension release is possible with the knee presser lifter. (Standard)
   - o Uppermost mounting: Thread tension release is impossible with the knee presser lifter.

(Cautions) Even when thread tension release changeover is ON, there is no problem because the thread tension release function is available at the time of thread trimming.

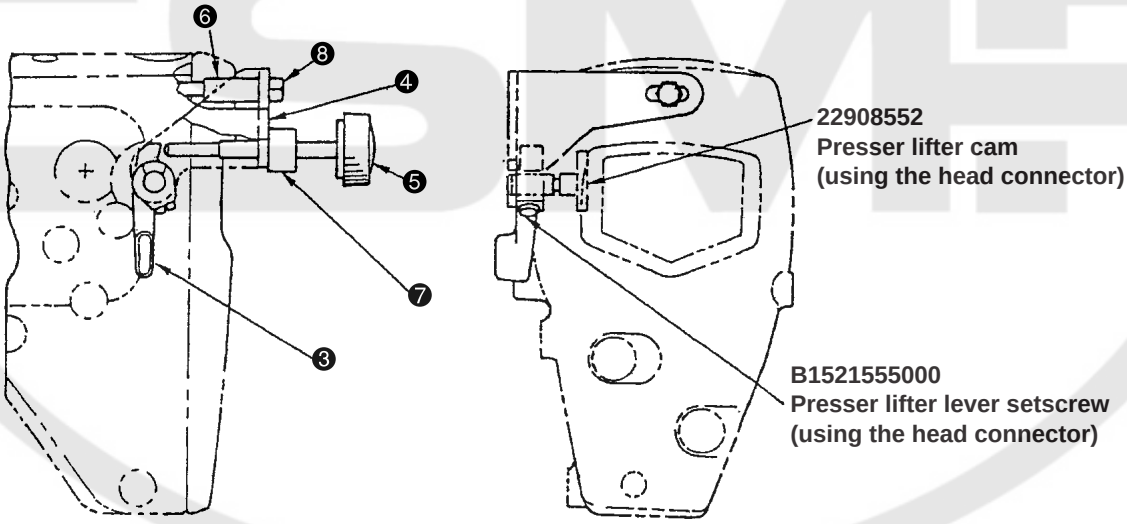
(9) Adjustment of the presser lifter

Standard Adjustment

3) Adjustment of the micro-lifter



4) Adjustment of the micro-lifter unit (available separately)



Components of the micro-lifter unit

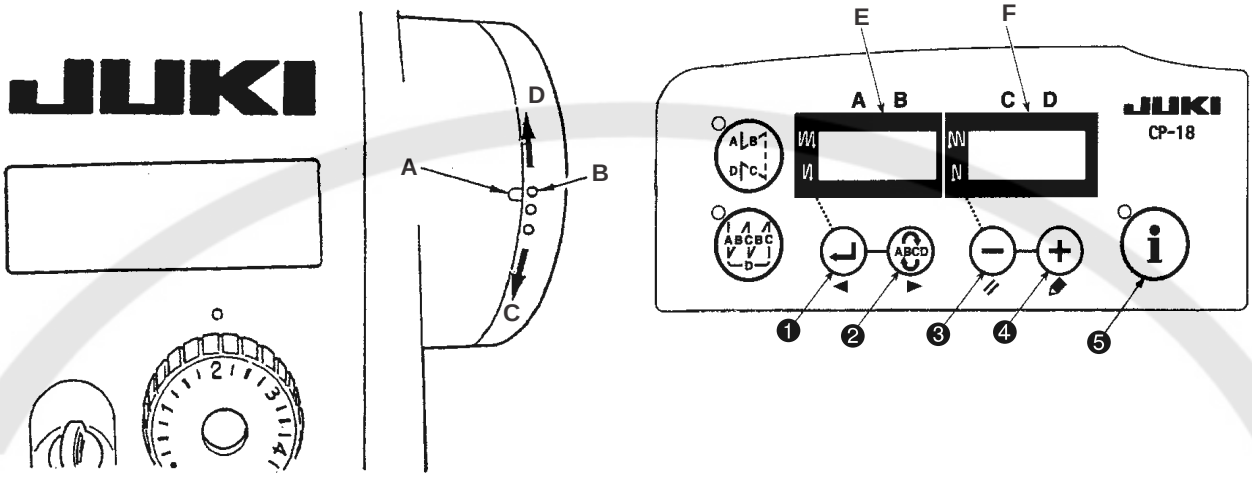
	Part No.	Part name	Quantity
❸	23611106	Presser lifter lever	1
❹	23610504	Stopper base	1
❺	23610652	Stopper screw	1
❻	D5119206K0K	Stopper collar	2
❼	23610702	Stopper screw nut	1
❽	SL6053592TN	Stopper base setscrew	1

Adjustment Procedure	Results of Improper Adjustment
3) Adjustment of the micro-lifter According to the material to be sewn, the presser can be lifted in the middle of sewing. 1. Lower the presser hardware to assume the condition where the feed dog is lower than the throat plate. 2. In the state that the nut ❷ is loosened, slowly tighten the micro-lifter screw ❶ so that fine adjustment can be conducted in regard to the height of the presser hardware until proper status is secured for the material being sewn. 3. Fix the nut ❷. Standard height of the micro-lifter screw ❶ : 9mm	o When handling fluffy materials such as elastic materials or velvets, material shifting and damage can be relieved.
4) Adjustment of the micro-lifter unit (available separately) Standard DDL-9000B is equipped with a micro-lifter unit. If frequent adjustments are anticipated, however, it is recommended to use the micro-lifter unit that is available separately. Micro-lifter unit (available separately) : Part No. 40056622 [Method of mounting] 1. Remove the setscrew of the presser lifter lever ❸ and take out the presser lifter lever ❸ made of resin material. 2. Remove the face plate and hold the presser lifter cam with the fingers in order not to let it move toward inside of the arm. Get the presser lifter lever ❸ around the presser lifter cam shaft and fix it with the setscrew of the presser lifter lever ❸. 3. Temporarily fasten the two screws of the face plate and get the upper setscrew section around the accessory stopper collar ❻. Confirming that the presser lifter lever ❸ moves lightly, fix the stopper base ❹ with the accessory setscrew ❽. [Method of adjustment] 1. Loosen the stopper screw nut ❼ and turn the stopper ❺. When it is turned toward you, the presser hardware rises. 2. Make fine adjustments of the presser hardware height until it becomes suitable for the material being handled. 3. Fix the stopper screw nut ❶.	o No tools are required. Fine adjustments can be carried out in a sitting posture.

(10) Adjustment of needle stop position

Standard Adjustment

1) Adjustment of upper stop position (Stop position after thread trimming)
2) Adjustment of lower stop position



Setup No.	Functions	Standard	Setting range
121	Upper needle stop position	0	–15 to 15
122	Lower needle stop position	0	–15 to 15

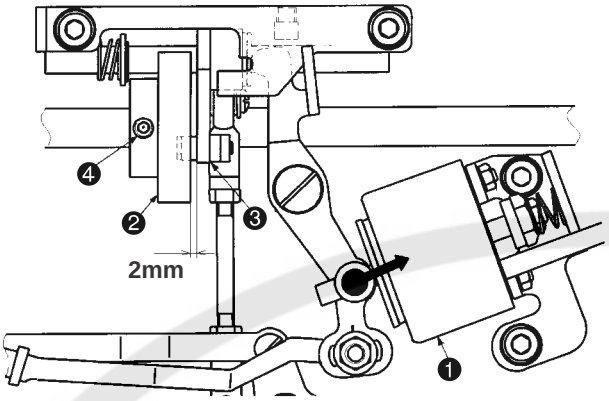
Adjustment Procedure	Results of Improper Adjustment
1) Adjustment of upper stop position (Stop position after thread trimming) The standard needle stop position is located where the engraved marker dot A of the pulley cover coincides with the white marker dot B of the hand wheel. 1. Turn off the power supply. 2. Pressing the (i) switch ❺ of the panel (CP 18), turn ON the Power switch. **(Cautions) Screen display setup No. E is 121 and the setup contents F is for the angular indication. If the screen display is kept unchanged, repeat the operation of 1. and 2. again.** 3. Using the switch ❶ or the switch ❷, set up the screen display setup No. E. 4. Set up the setup contents F within the range of –15 to 15, by means of the switch ❸ or ❹. (Standard setting is 0. The setup value denotes an approximate revolving angle.) When the value is set in + direction, the upper needle stop position is lowered. (Direction of C) When the value is set in – direction, the upper needle stop position is raised. (Direction of D) 5. When this setting is finished, press the switch ❶ or ❷ to fix the updated value. **(Cautions) If the power supply is turned OFF prior to this work, the contents cannot be updated.** **2) Adjustment of lower stop position** The goal stop position is secured when reading on the front part of the pedal to obtain a neutral condition. 1. Similar to the adjustment of upper stop position (stop position after thread trimming). **(Cautions) Screen display setup No. E is 122.**	<When it is fast> o The remaining needle thread length becomes shorter after thread trimming. <When it is slow> o Interference between the needle and the thread wiper unit o The remaining needle thread length becomes longer after thread trimming. o The remaining needle thread length becomes uneven after thread trimming.

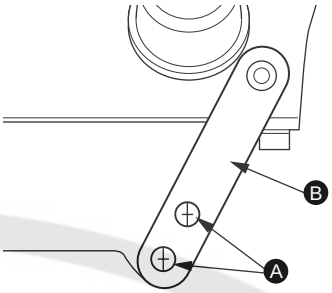
(11) Thread trimming unit

Standard Adjustment

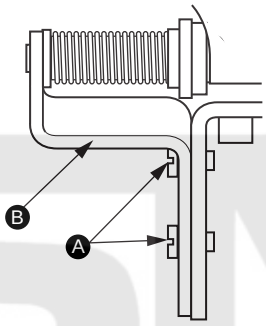
1) Adjustment of the thread trimming cam position

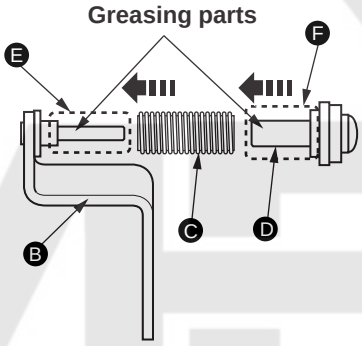
[Type I]



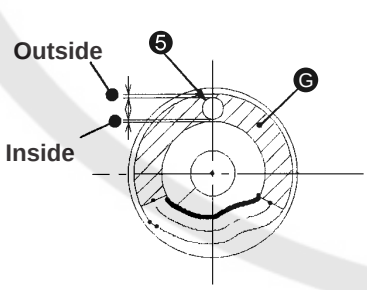


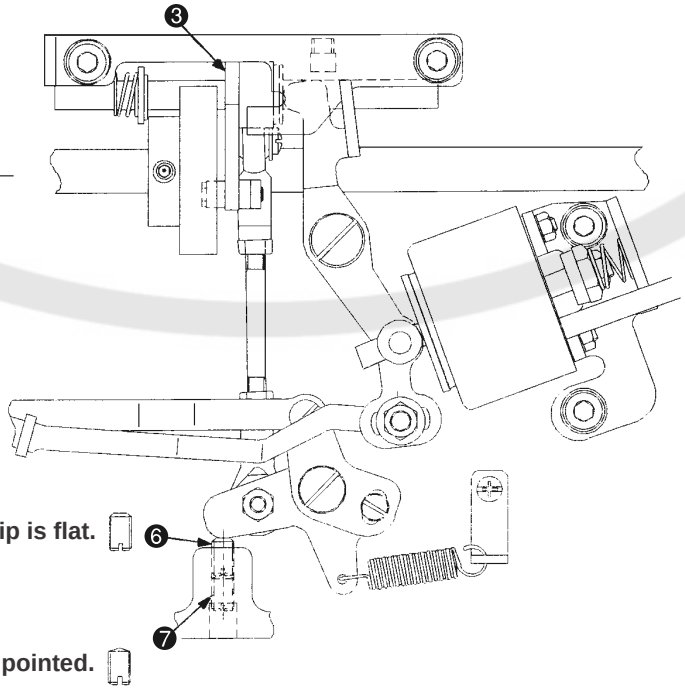
[Type II]





2) Adjustment of the thread trimming link stopper screw



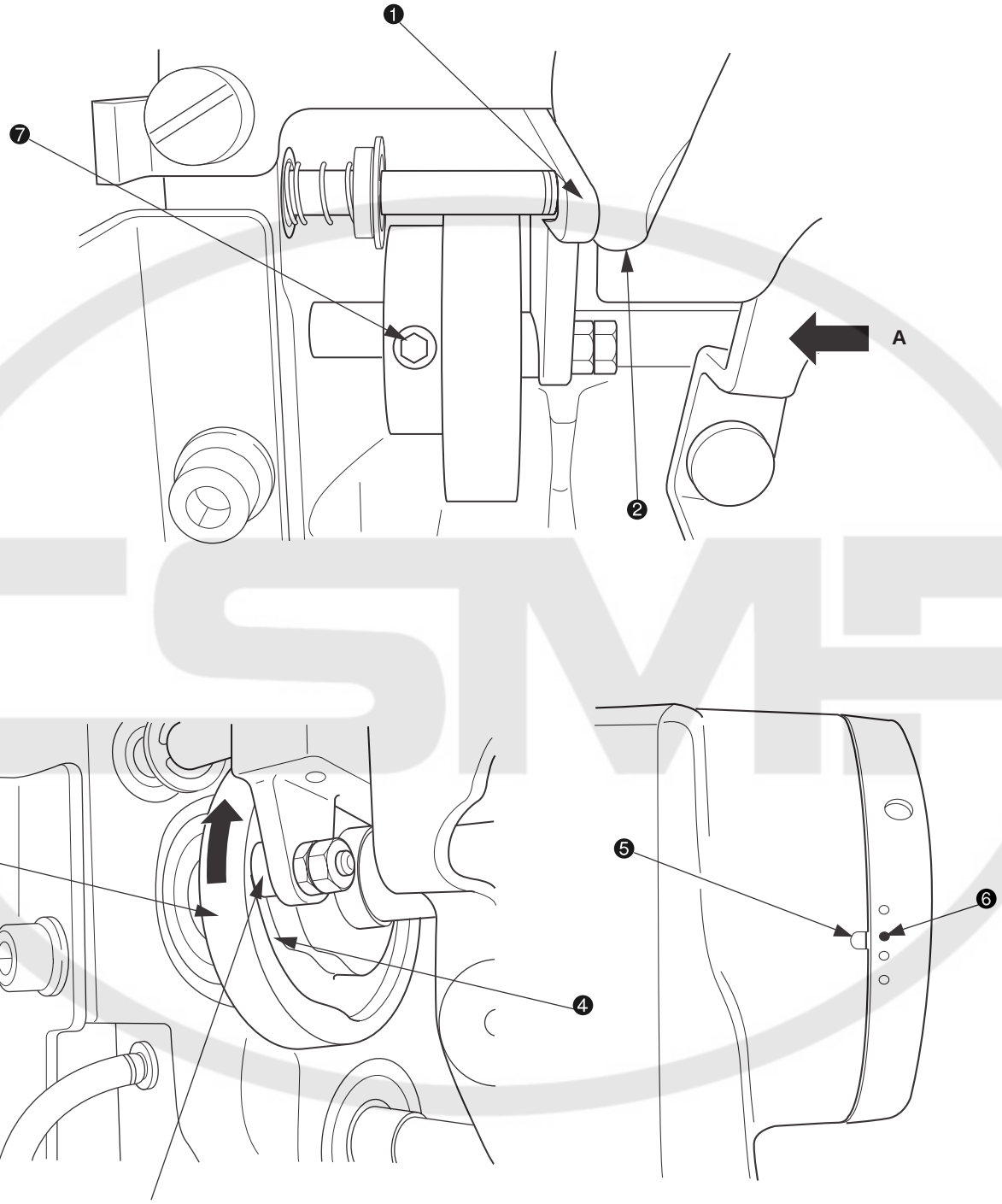


Adjustment Procedure	Results of Improper Adjustment
1) Adjustment of the thread trimming cam position 1. Let the sewing machine fall down, loosen two stopper plate setscrews Ⓐ, and remove the stopper plate Ⓑ. 2. Assume the condition such that the thread trimming solenoid ❶ is attracted by hand. 3. Loosen and adjust the thread trimming cam setscrew ❹ so that the gap length becomes 2mm between the thread trimming cam ❷ and the cam follower ❸. 4. After adjustment, tighten two thread trimming cam setscrews ❹. **(Caution) After adjustment, make confirmation according to [3.-(11)-3) Standard timing for the thread trimming cam].** [Type I] 5. Fix the stopper plate Ⓑ with the two stopper plate setscrew Ⓐ. [Type II] 5. Apply a slightly increased amount of appropriate grease (JUKI Grease A) to Part Ⓔ of the stopper plate Ⓑ and Part Ⓕ of the stopper guide Ⓓ. 6. Insert the stopper spring Ⓒ and the stopper guide Ⓓ in this order in Part Ⓔ of the stopper plate Ⓑ. 7. Fix the stopper plate Ⓑ with two stopper plate setscrews Ⓐ. **2) Adjustment of the thread trimming link stopper screw** 1. Turn the hand wheel and adjust the thread trimming roller ❺ to the inlet section Ⓖ of the thread trimming cam groove. 2. Loosen the thread trimming link stopper setscrew B ❼. 3. Move the thread trimming link stopper setscrew A ❻ and adjust the clearance to be uniform between the thread trimming roller ❺ and the thread trimming cam groove on both inside and outside. 4. Tighten the thread trimming link stopper setscrew B ❼. In this case, make sure that the thread trimming link stopper setscrew A ❻ does not move. 5. Try to move the cam follower ❸ to the right and left and confirm that the thread trimming roller ❺ enters smoothly without touching the thread trimming cam groove.	

(11) Thread trimming unit

Standard Adjustment

3) Standard timing for the thread trimming cam



Turn the thread trimming cam ❸ in the direction of the arrow and fix the cam setscrew where the roller comes in contact with the outer periphery of the cam groove and stops there.

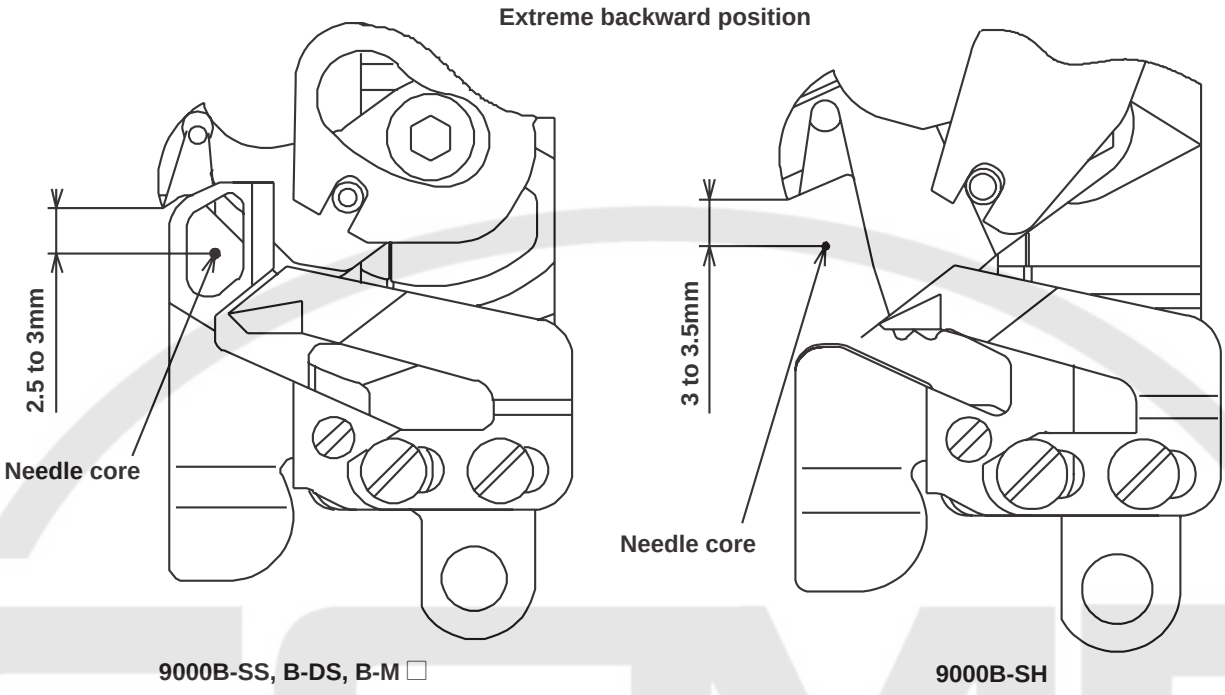
Drawing as seen from A (left side)

Adjustment Procedure	Results of Improper Adjustment
Arm's engraved marker dot ❺ coincides with hand wheel's engraved marker dot ❻ (green). 1. Method of confirmation (1) Let the sewing machine fall down. (2) Turn the hand wheel by hand in regular direction until the thread take-up lever reaches a bit toward the upper dead point. When the camís driven part notch ❶ is pushed by the finger ❷ to the left (in the direction of the arrow), the roller enters the thread trimming cam groove ❹ and is meshed there. (3) In this state, turn the hand wheel in forward and reverse directions. Then, there will be a position where the hand wheel comes in contact. (If the hand wheel is turned more, that position is where the camís driven part begins to move.) At that time, the armís engraved marker dot ❺ coincides with the hand wheelís engraved marker dot ❻ (in green). 2. Method of adjustment (1) Let the sewing machine fall down. (2) Loosen the second screw and the first screw of the thread trimming cam setscrew ❼ in this order. (3) Adjust the engraved marking dot of the hand wheel. (4) Pressing the cam's driven part notch ❶ to the left, make the thread trimming cam ❸ meshed with the roller and turn only the thread trimming cam ❸ by the finger tip in the reverse direction of the vertical feed shaft rotation without turning the vertical feed shaft. In the position where the thread trimming cam ❸ comes in contact, push the thread trimming cam ❸ to the roller and tighten the thread trimming cam setscrews ❼ in the order of the first screw and the second screw.	

(11) Thread trimming unit

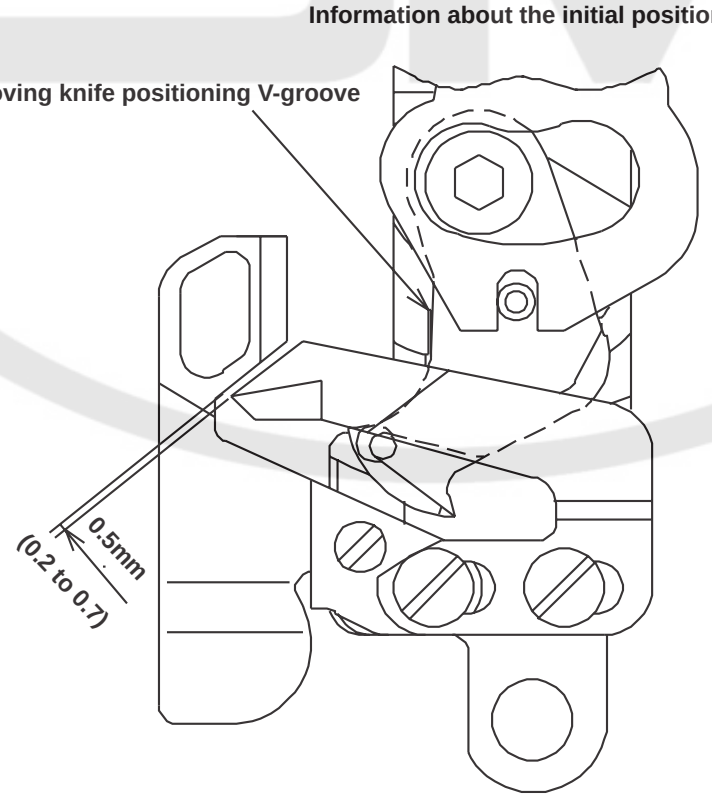
Standard Adjustment

4) Correct position of the moving knife



9000B-SS, B-DS, B-M □

9000B-SH



Adjustment Procedure	Results of Improper Adjustment
1. Extreme backward position When the moving knife moves at the maximum, its position is where its front tip is withdrawn by 2.5 to 3mm from the needle center. (Other than 9000B-SH) (3 to 3.5mm for 9000B-SH) 2. Initial position Coincidence of the moving knife outer periphery with the V-groove engraved marker line on the knife-mounting base	<When the amount of withdrawal is large> o It becomes impossible to scoop the needle thread or the bobbin thread at the time of thread trimming. <When the amount of withdrawal is small> o Interference between the feed dog and the moving knife

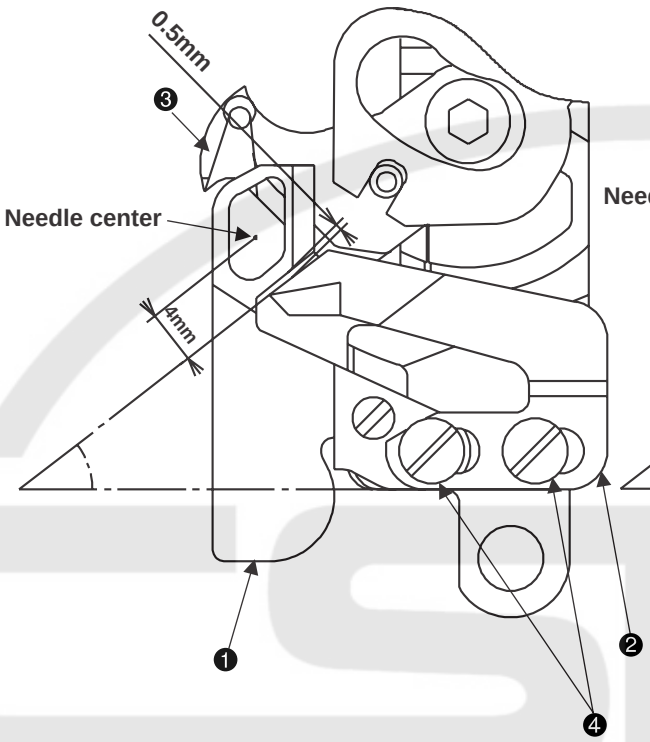
Specification	Max. amount of withdrawal
Other than 9000B-SH	2.5 to 3mm
9000B-SH	3 to 3.5mm

(11) Thread trimming unit

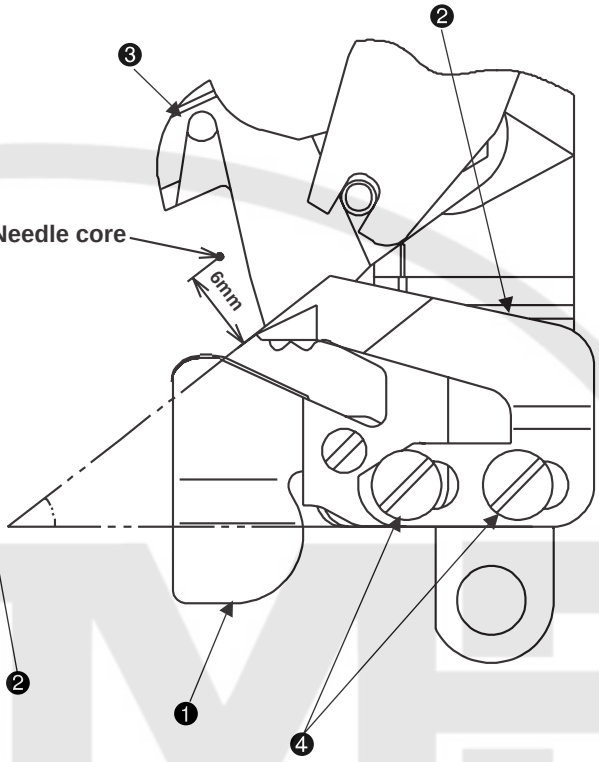
Standard Adjustment

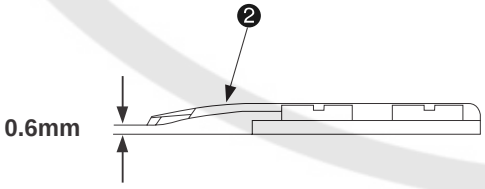
5) Correct position of the counter knife

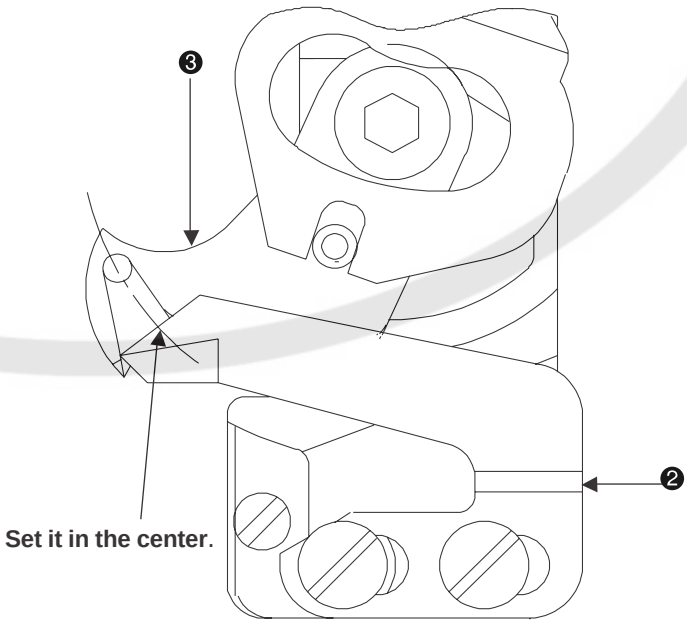
9000B-SS, B-DS, B-M □



9000B-SH





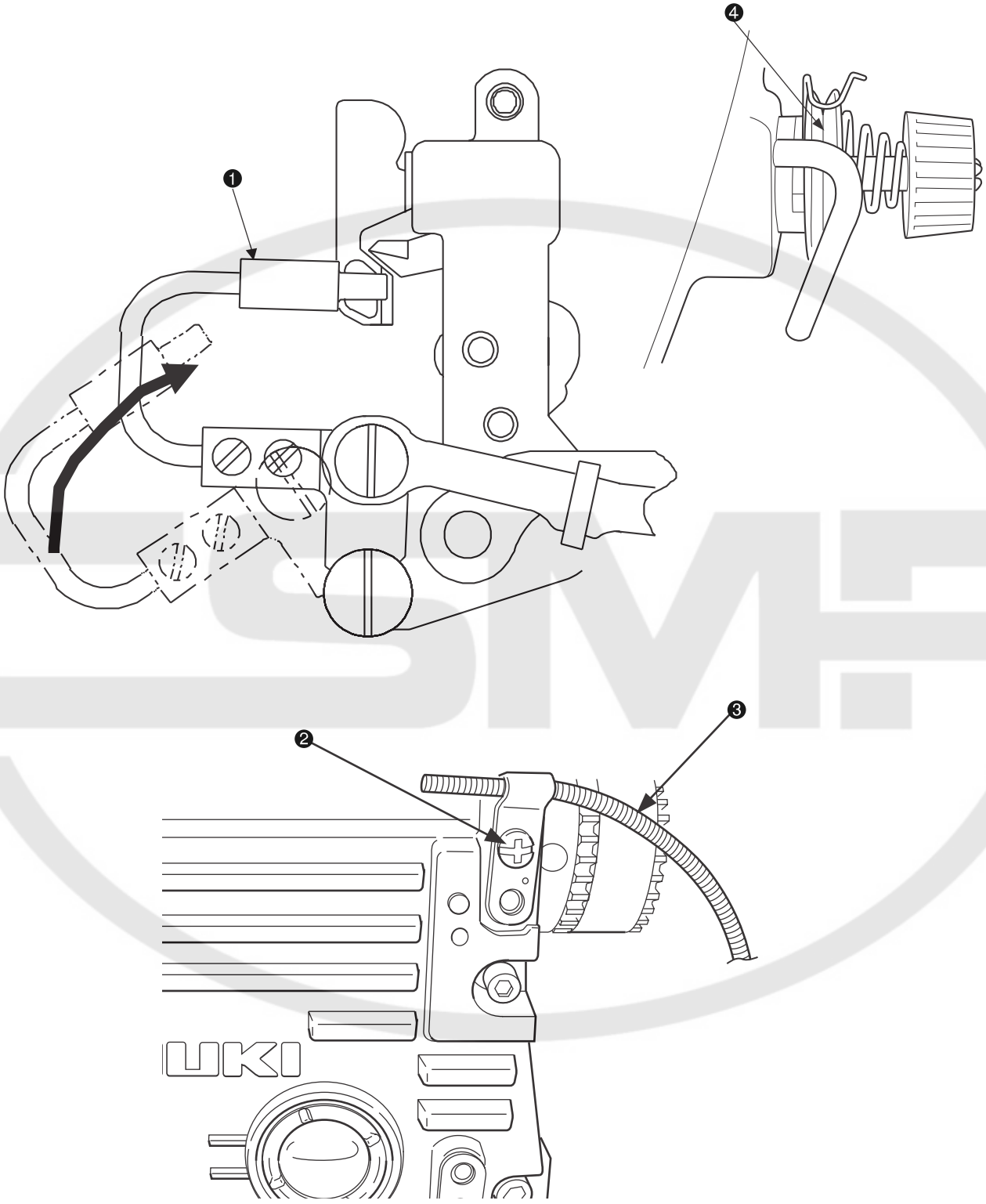


Adjustment Procedure	Results of Improper Adjustment
[9000B-SS, B-DS, B-M □] The distance is 0.5mm between the knife thread guide ❶ and the blade tip of the counter knife ❷. In this case, the distance is 4mm between the needle center and the blade tip of the counter knife ❷. The blade tip of the counter knife ❷ is located 0.6mm above the mounting face. [9000B-SH] The distance is 6mm between the needle center and the blade tip of the counter knife ❷. **(Cautions) 1. The blade sharpness is changed when the blade mounting angle is changed for the blade tip of the counter knife ❷. The sharpness becomes best when the blade section of the counter knife ❷ coincides exactly with that of the moving knife ❸.** **2. When the counter knife ❷ is adjusted or replaced, examine the blade sharpness, without fail. Also adjust the mounting angle of the counter knife ❷.** Loosen two the counter knife setscrews ❹ and adjust the position of the counter knife ❷. **(Cautions) The window (hole section) of the knife thread guide ❶ shall be adjusted so that the needle enters the center of the hole section.**	When the counter knife ❷ is adjusted to the right: o The bobbin and needle thread drawing length becomes longer than the standard by the distance of knife movement and the length of the needle thread remaining at the needle tip becomes longer. (There is a time lag in thread trimming.) When the counter knife ❷ is adjusted to the left: o The bobbin and needle thread drawing length becomes shorter than the standard by the distance of knife movement and the length of the needle thread remaining at the needle tip becomes shorter. (There is a time reduction in thread trimming.)

(11) Thread trimming unit

Standard Adjustment

6) Adjustment of rise of the second thread tension disc

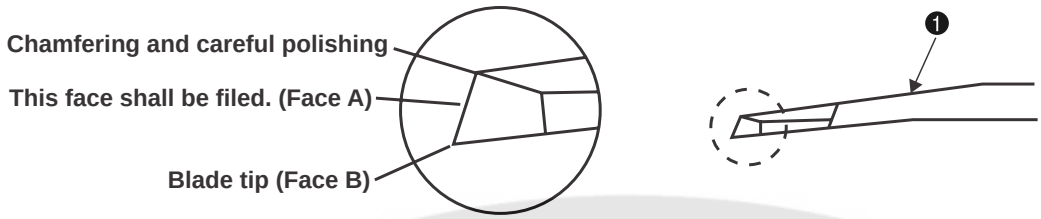


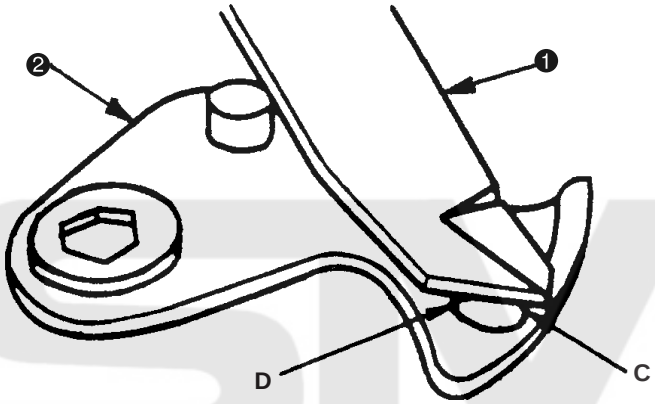
Adjustment Procedure	Results of Improper Adjustment
1. How to check the amount of rise of the second thread tension disc (1) Set the thread take-up lever slightly in front of the upper dead point. (2) Raise the presser. (3) The standard amount of the rise of the second thread tension disc ❹ is 0.5 to 1mm when the picker ❶ is pushed toward the bobbin case side.	o If the amount of rise of the second thread tension disc ❹ is too small, the needle thread length becomes short at the time of thread trimming and this can be a cause of thread entanglement and needle thread castoff errors at the beginning of sewing.
2. How to adjust the amount of rise of the second thread tension disc <When increasing the amount of rise> Loosen the thread tension release wire fixing screw ❷ and move the thread tension release wire ❸ to the right. <When decreasing the amount of rise> Loosen the thread tension release wire fixing screw ❷ and move the thread tension release wire ❸ to the left. **(Cautions) After adjustments, tighten the thread tension release wire fixing screw ❷ assuredly.**	

(11) Thread trimming unit

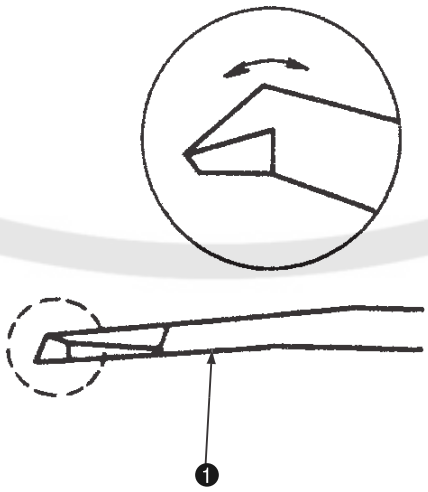
Standard Adjustment

7) Adjustment of the fixed knife blade tip





Sections C and D of the moving knife ❷ and the counter knife ❷ shall contact with each other at the same time.



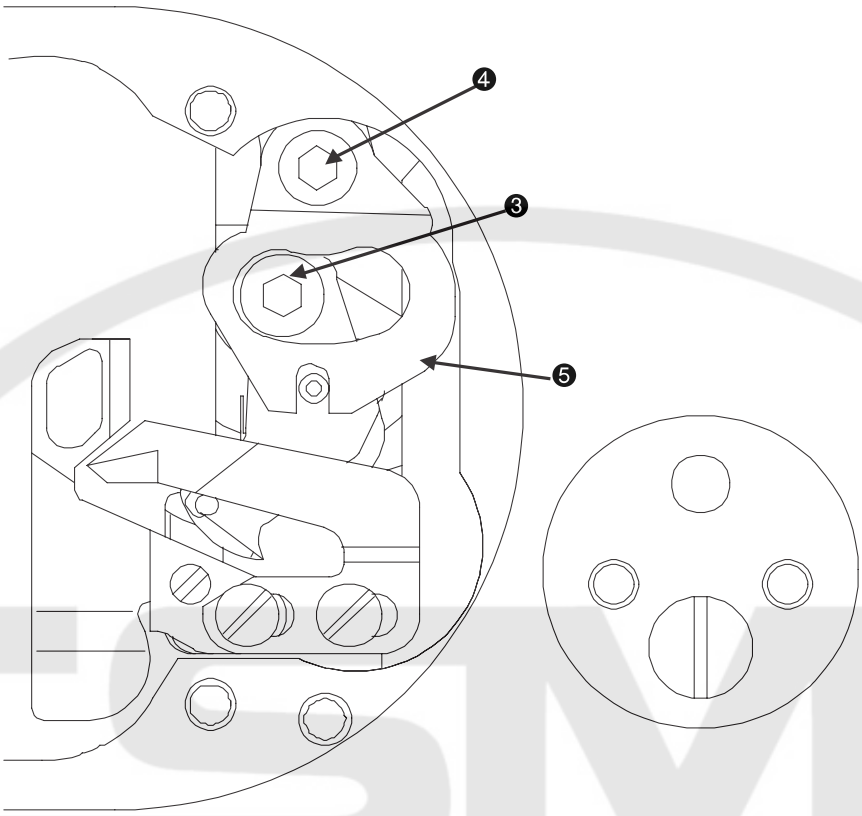
Adjustment Procedure	Results of Improper Adjustment
The knife sharpness is most rigorously influenced by the blade tip shape of the counter knife ❶. In many cases, the sharpness is improved by blade sharpening of the counter knife ❶. **(Cautions) It is important that the blade surface of the counter knife ❶ keeps contact with the blade area of the moving knife ❷.** [Method of adjustment] Step 1: Sharpen Face A. (Pay attention to the angle.) Step 2 : Even when the tip of Face B is abraded and round, the sharpness must have got worse. Make sure not to change the angle during sharpening. (For reference) 1. To obtain a good blade touch between the moving knife ❷ and the counter knife ❶, it is effective to change the angle in the direction of the arrow, as illustrated. 2. If the D side does not cut well, decrease this angle. If the C side does not cut well, increase this angle. About the counter knife	o If the sharpness is still not good even though the blade face has been sharpened sufficiently, this is because there is no simultaneous contact on the right and left of the blade faces between the moving knife ❷ and the counter knife ❶. In such a case, adjust the gradient of the counter knife ❶.

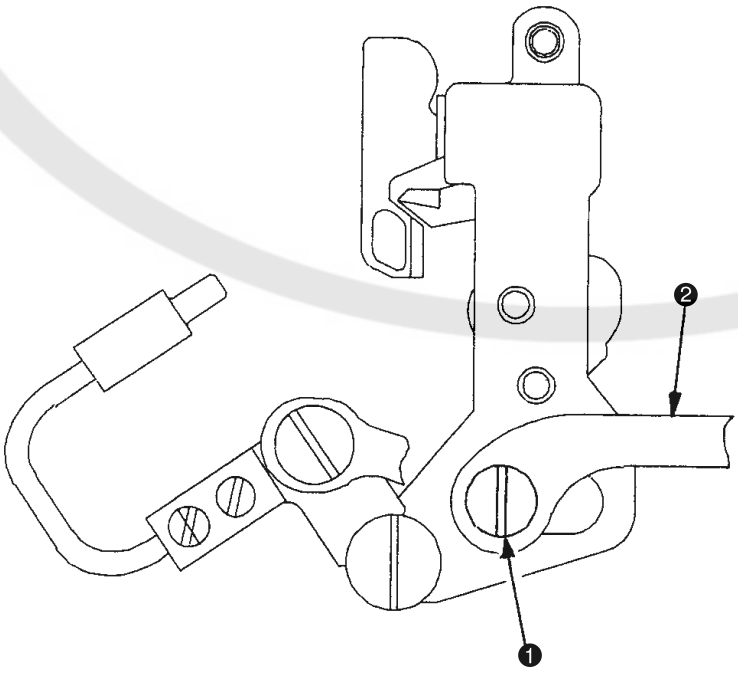
Specifications	Part No.	Remarks
DDL-9000B-SS, M □	D2406555D0H	
DDL-9000B-DS	22895908	D2406555D0H with special surface treatment
DDL-9000B-SH	40050589	

(11) Thread trimming unit

Standard Adjustment

8) Replacement of the moving knife



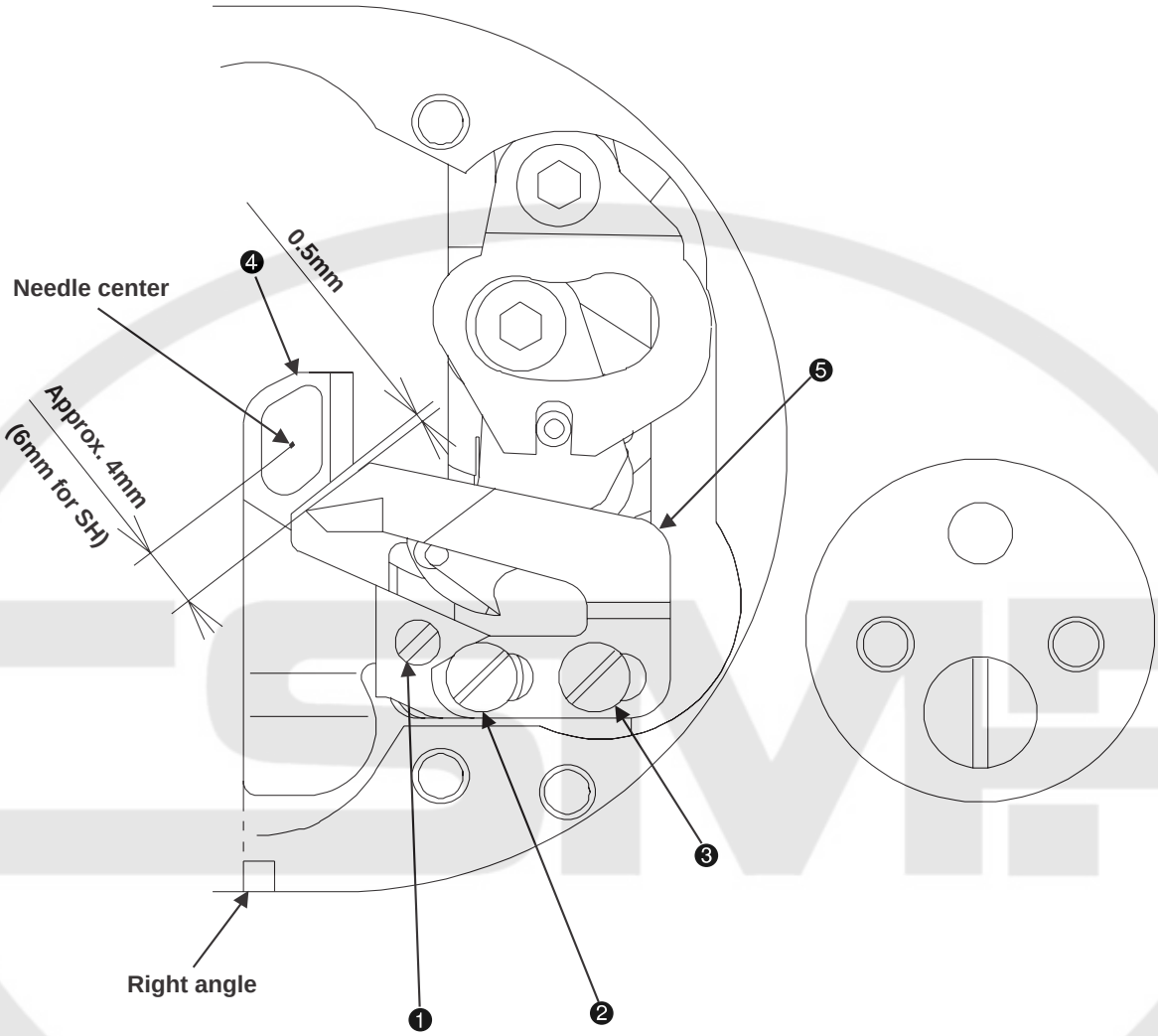


Adjustment Procedure	Results of Improper Adjustment
[Method of replacement] 1. Let the sewing machine fall down and remove the hinge screw A ❶ of the moving knife link. 2. Return the sewing machine to its original position and remove gauges of the needle, throat plate, feed dog, etc. 3. Remove the moving knife hinge screw ❸ using a 3mm hexagonal wrench. 4. Remove the knife yoke hinge screw ❹ and lift the knife yoke ❺. Then, remove the moving knife pin from the yoke groove of the knife yoke ❺. 5. When the moving knife pin has been removed, slide the moving knife to the left and take it out from the lower side of the knife yoke ❺. 6. Mounting steps follow the reverse order as above. When the moving knife hinge screw ❸ is loosened, try to move the moving knife by hand to see whether it moves smoothly without rattling. 7. Correctly set the yoke groove of the knife yoke ❺ in the moving knife pin and tighten the knife yoke hinge screw ❹. 8. Mount the moving knife link stepped screw A ❶. 9. Lastly, move the moving knife link ❷ to the right and left, and confirm that the moving knife moves assuredly.	o In the case of reassembly, apply appropriate grease to the moving knife link stepped screw A ❶. Appropriate grease part No.: 40006323

(11) Thread trimming unit

Standard Adjustment

9) Replacement of the knife thread guide



Knife thread guide ❹	Part No.	Remarks
9000B-SS, B-MS, B-MA	40044189	
9000B-DS	40050588	40044189 with special surface treatment
9000B-SH	40044190	

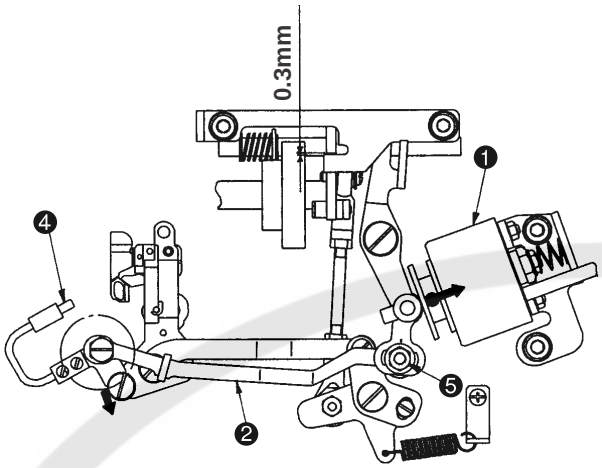
Adjustment Procedure	Results of Improper Adjustment
[Method of replacement] 1. Remove gauges of the needle, throat plate, feed dog, etc. 2. Loosen the knife thread guide setscrew small ❶ and the knife thread guide setscrew large A ❷. **(Cautions) Do not adjust the knife thread guide setscrew large B ❸.** [9000B-SS, B-DS, B-M □] 1. The clearance is 0.5mm between the knife thread guide ❹ and the blade tip of the counter knife ❺. In this case, the distance is 4mm between the needle center and the blade tip of the counter knife ❺. (Rectangular mounting) [9000B-SH] 1. The distance is 6mm between the needle center and the blade tip of the counter knife ❺. (Rectangular mounting)	o If there is no coincidence of the knife thread guide ❹ and the center the needle, this can be a cause of balloon stitches.

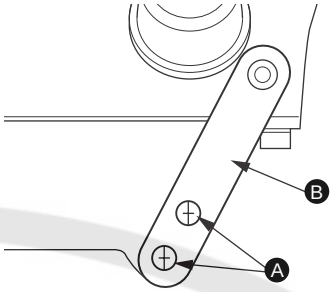
(11) Thread trimming unit

Standard Adjustment

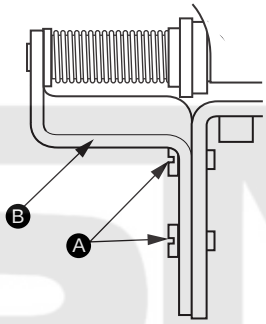
10) Adjustment of the picker

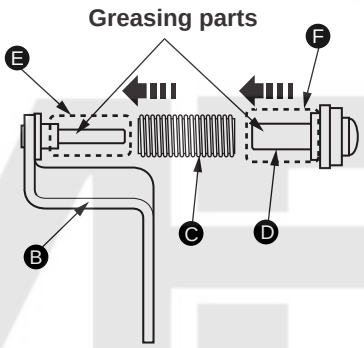
[Type I]

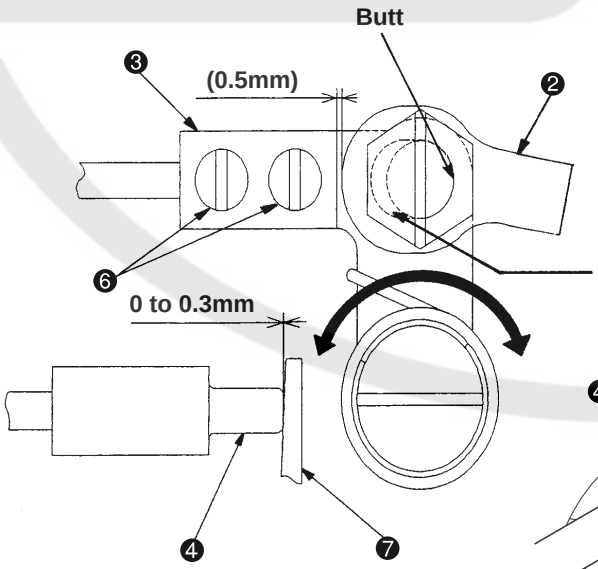




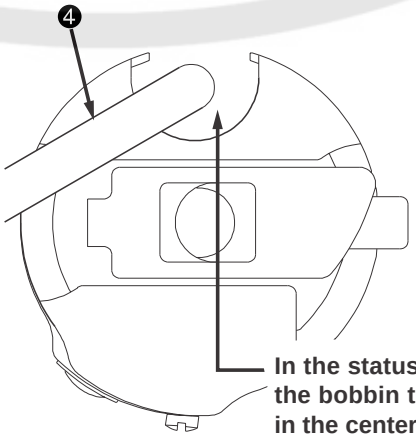
[Type II]







When standard adjustments are completed, an oblong clearance is secured in the picker link ❷ and indispensable return motions (damper function) can be performed.



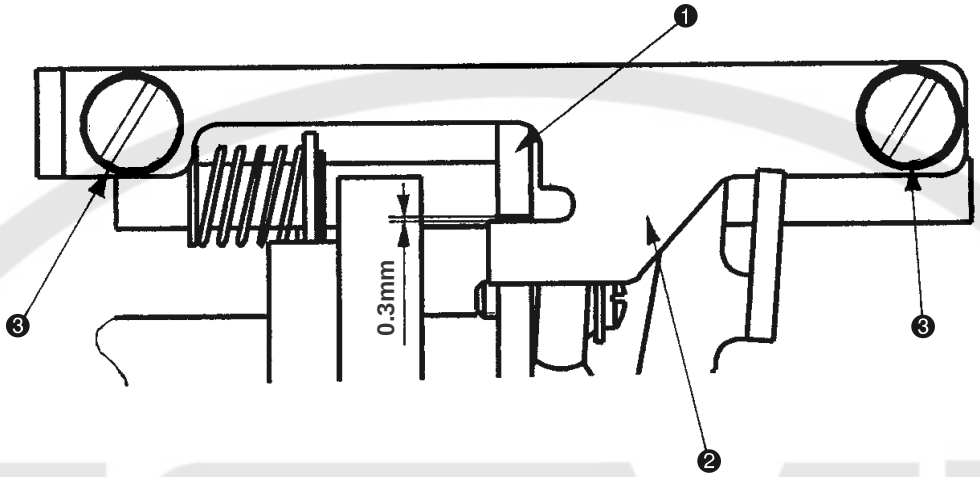
In the status after standard adjustments, the bobbin thread presser settles almost in the center of Character U of the bobbin case.

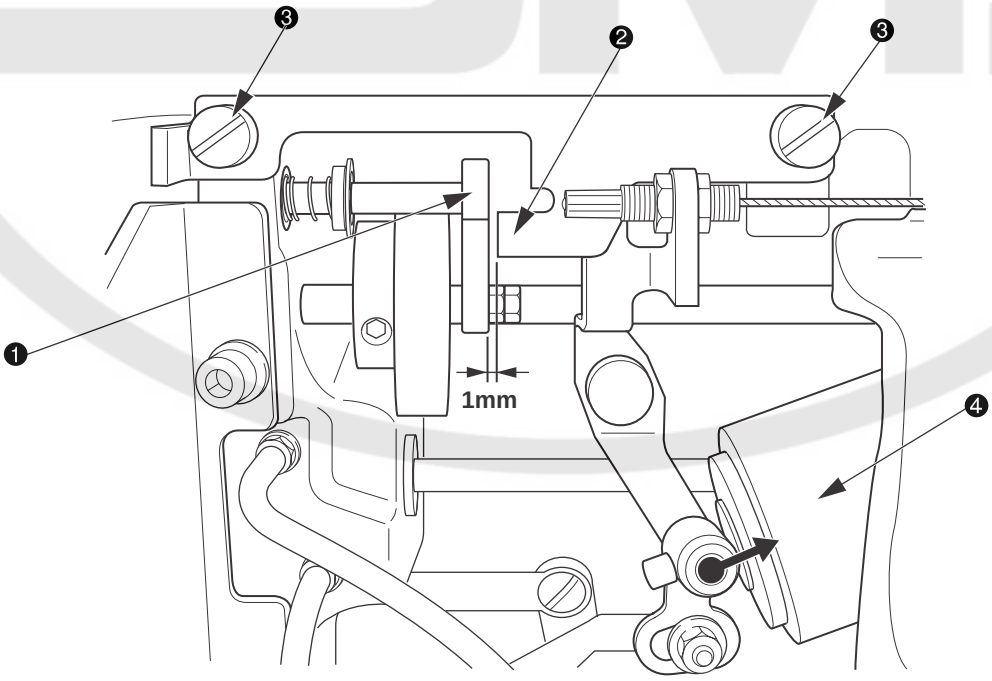
Adjustment Procedure	Results of Improper Adjustment
1. Method of confirmation **(Cautions) Confirmation should be carried out under the conditions that the hook and bobbin case plus bobbin ❼ are installed.** (1) Let the sewing machine fall down and loosen two stopper plate setscrew Ⓐ to remove the stopper plate Ⓑ. (2) Assume a condition that the thread trimmer solenoid ❶ is attracted by hand. (3) In this state, the standard clearance is 0.5mm at the stepped part between the picker link ❷ and the picker arm ❸. At that time, the clearance between the bobbin ❼ and the picker ❹ is 0 to 0.3mm. **(Important) When standard adjustments are completed, an oblong clearance is secured in the picker link ❷ and indispensable return motions (damper function) can be performed.** (4) The position where the picker ❹ enters should stay almost in the center of Character U of the bobbin case. [Type I] (5) Fix the stopper plate Ⓑ with the two stopper plate setscrew Ⓐ. [Type II] (5) Apply a slightly increased amount of appropriate grease (JUKI Grease A) to Part Ⓔ of the stopper plate Ⓑ and Part Ⓕ of the stopper guide Ⓓ. (6) Insert the stopper spring Ⓒ and the stopper guide Ⓓ in this order in Part Ⓔ of the stopper plate Ⓑ. (7) Fix the stopper plate Ⓑ with two stopper plate setscrews Ⓐ.	When there is no clearance of the picker ❹: o Since the bobbin ❼ is pressed too much, the bobbin ❼ cannot make a required turn at the time of thread trimming and the bobbin thread is cut short as a result. Therefore, needle thread castoff tends to occur at the beginning of sewing. When there is a large clearance of the picker ❹: o The needle thread is disengaged from tip of the picker ❹ at the time of thread trimming. Thus, the needle thread remaining at the needle tip becomes short after thread trimming. o A bobbin ❼ idling phenomenon occurs frequently and this can be a possible cause of problems at the beginning of sewing.
2. Method of standard adjustments (Adjustment of clearance) (1) Let the sewing machine fall down. (2) Assume a condition that the thread trimmer solenoid ❶ is attracted by hand. (3) Loosen the picker link pin nut ❺ (9mm) and move the picker link ❷ to the right and left for adjustment. (4) After the completion of adjustments, fasten the parts assuredly.	
3. Method of standard adjustments (Adjustment of tip position) (1) Let the sewing machine fall down. (2) Assume a condition that the thread trimmer solenoid ❶ is attracted by hand. (3) Loosen two picker setscrews ❻ to adjust positioning. (4) After the completion of adjustments, fasten the parts assuredly.	

(11) Thread trimming unit

Standard Adjustment

11) Adjustment of the driven part stopper



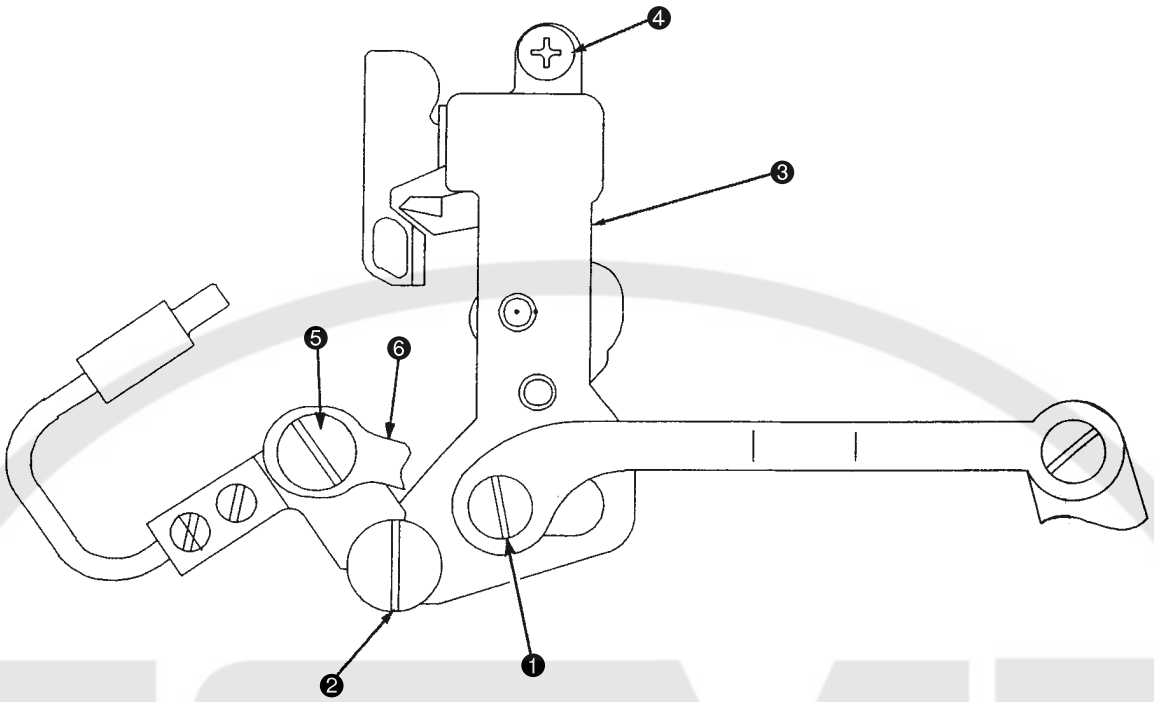


Adjustment Procedure	Results of Improper Adjustment
The driven part stopper ❷ is a safety device so that interference is prevented between the needle and the moving knife even though the roller comes off the thread trimming cam when any unexpected problem (such as a service interruption) occurs. 1. In the state that the thread trimming device is not in action, adjust two driven part stopper setscrews ❸ so that the gap length becomes 0.3mm between the notch ❶ of the camís driven part and the camís driven part stopper ❷. 2. Adjust two driven part stopper setscrews ❸ so that the gap length becomes 1mm between the notch ❶ of the camís driven part and the camís driven part stopper ❷ when the thread trimming solenoid ❹ is moved in the direction of the arrow.	

(11) Thread trimming unit

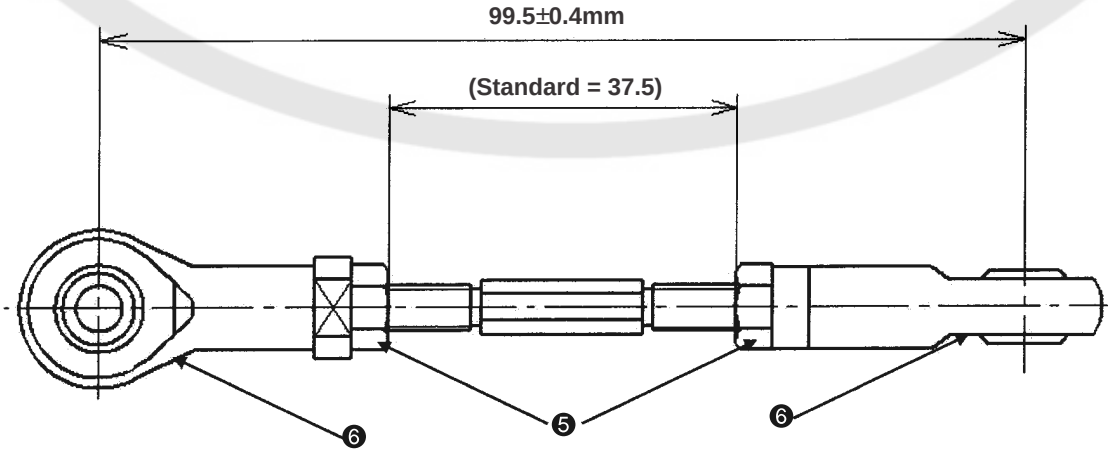
Standard Adjustment

12) Replacement of the knife unit



Knife unit ❻	Part No.	Remarks
9000B-SS, B-MS, B-MA	40050585	
9000B-DS	40050586	40050585 with special surface treatment
9000B-SH	40050587	

13) Installed length of the thread trimmer connector bar (asm.)



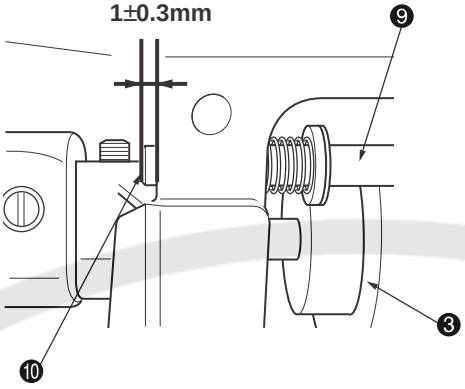
Adjustment Procedure	Results of Improper Adjustment
12) Replacement of the knife unit [Method of replacement] 1. Let the sewing machine fall down. 2. Remove the needle, hook, and the inner hook presser. 3. Remove the moving knife link stepped screw B ❶. * If removal is difficult to carry out, try to loosen the stepped screw ❺ and move the picker link ❻ before work. 4. Remove the knife unit fixing screw ❹ and the picker arm hinge screw ❺, and take out the knife unit ❻.	
13) Installed length of the thread trimmer connector bar (asm.) 1. Install two rod ends ❻ so that they cross each other at right angles. Then, fix then with the nuts ❺. 2. In order to avoid loosening by mistake at the time of shipment, ìwhite paintî is applied to the nuts ❺. 3. Loosen the nuts ❺ when removing the thread trimmer connector bar (asm.) (40086708) without drawing out the lower shaft. When the nuts are loosened, the respective subsidiary parts are disassembled and the thread trimmer connector bar can be taken out. 4. After disassembly, reassemble the parts so that the standard adjusting values can be secured.	o If the two rod ends ❻ are not crossed at right angles, the obtained torque is the value for thread trimming. o If the center-to-center distance (99.5±0.4mm) deviates from the standard value, the initial position of the moving knife is changed and this can be a cause of thread trimming failure.

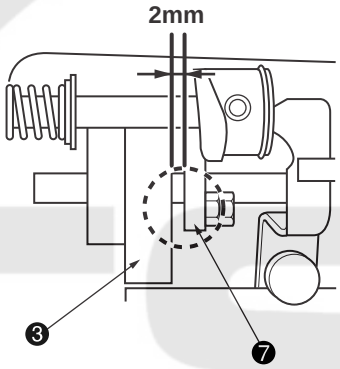
(11) Thread trimming unit

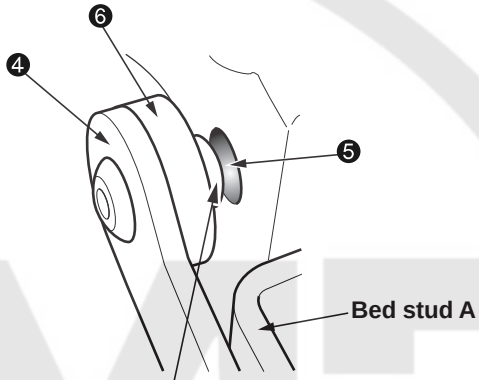
Standard Adjustment

14) Protrusion of the thread trimming shaft and stopper position

[Type I]

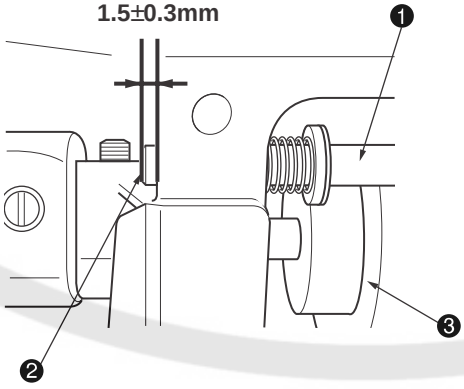


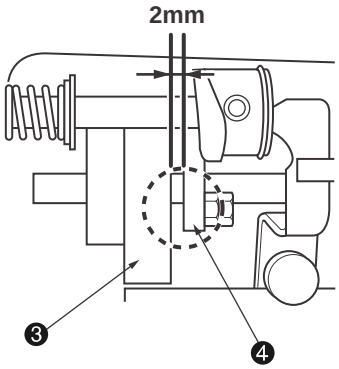


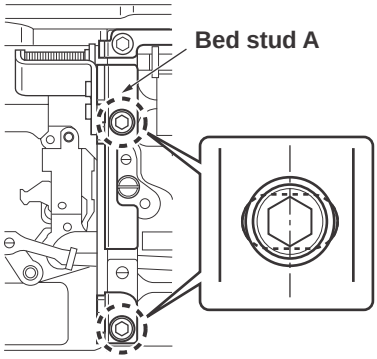


Apply it so that it lightly touches the hole section of the bed.

[Type II]



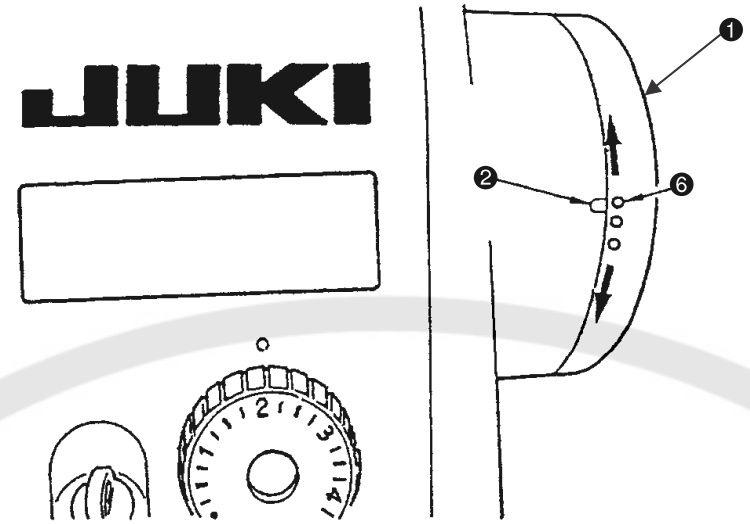


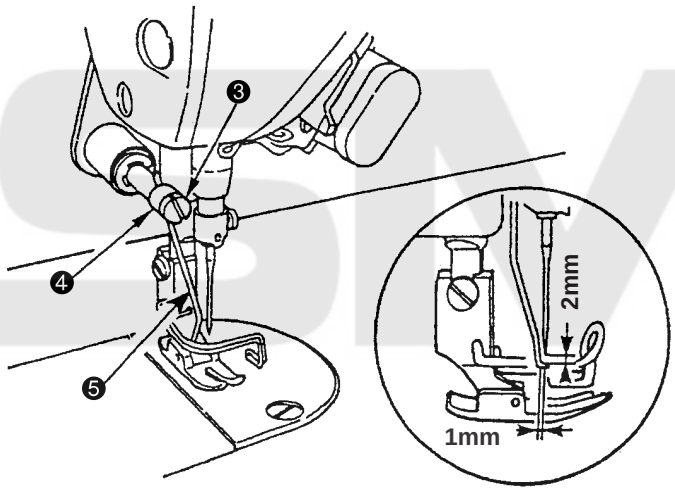


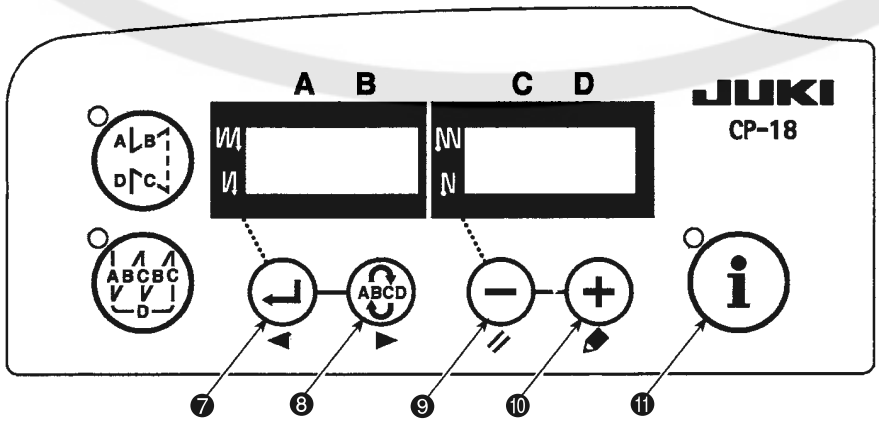
Adjustment Procedure	Results of Improper Adjustment
[Type I] 1. When the thread trimmer solenoid is pulled, the amount of protrusion is 0.7mm to 1.3mm between the tip ❿ of the thread trimming shaft ❾ and the end plane of the bed. **(Caution) Confirm that a clearance is secured between the cam follower piece ❼ and the end plane of the thread trimming cam ❸ to 2mm. (Refer to 3.-(11)-1).)** 2. The support rubber ❻ of the stopper plate ❹ should be made to contact so that it clogs the thread trimming shaft hole ❺ of the bed. (Move the bed stud A to secure a light contact.)	o If the amount of protrusion is too small, the action sound of the thread trimmer becomes large. o If the amount of protrusion is too large, the amount of picker action becomes small and the lost motion of bobbin may occur. (If the amount of protrusion is too excessive, short cutting of the needle thread may arise. This is because the needle thread is disengaged from the picker.)
[Type II] 1. When the thread trimmer solenoid is pulled, the amount of protrusion is 1.2mm to 1.8mm between the tip ❷ of the thread trimming shaft ❶ and the end plane of the bed. **(Caution) Confirm that a clearance is secured between the cam follower piece ❹ and the end plane of the thread trimming cam ❸ to 2mm. (Refer to 3.-(11)-1).)** * At the time of thread trimming stopper assembly, this work should be carried out in the center of the oblong hole in the bed stud A.	o If the amount of protrusion is too small, the action sound of the thread trimmer becomes large. o If the amount of protrusion is too large, the amount of picker action becomes small and the lost motion of bobbin may occur. (If the amount of protrusion is too excessive, short cutting of the needle thread may arise. This is because the needle thread is disengaged from the picker.)

(12) Adjustment of the wiper (DDL-9000B-□□-WB)

Standard Adjustment



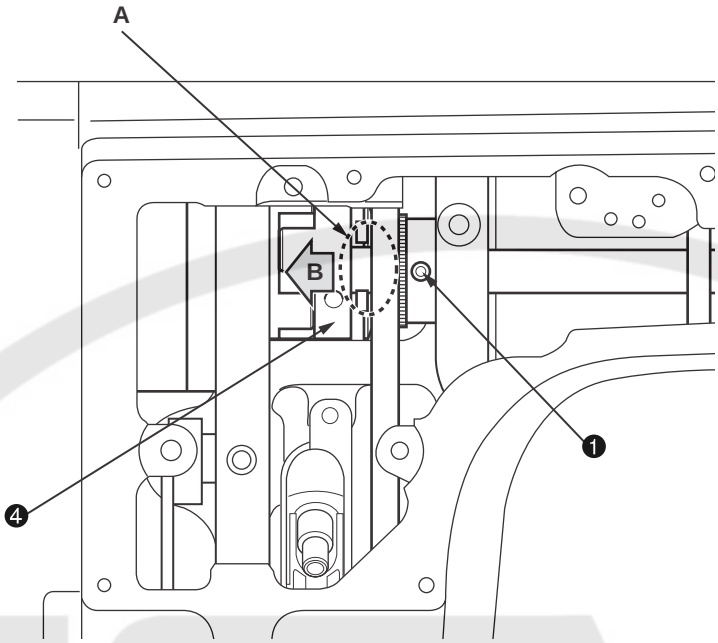


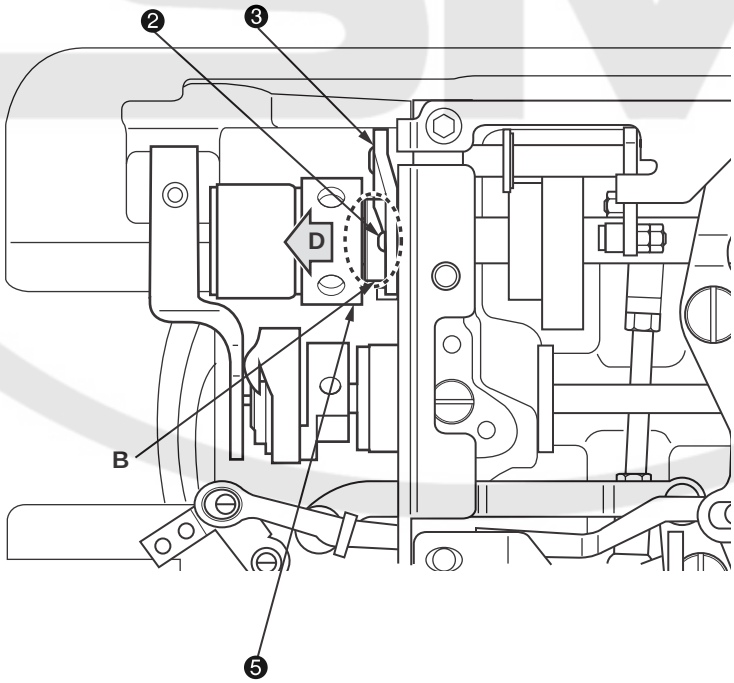


Adjustment Procedure	Results of Improper Adjustment
[Method of replacement] 1. Turn the hand wheel ❶ in the normal revolving direction and adjust the white marker dot ❻ of the hand wheel ❶ to arm's engraved marker dot ❷. 2. Using the wiper collar ❹, tighten and fix the wiper adjust screw ❸ in a fashion to press the wiper ❺. At that time, a distance of 1mm should be secured between the flat section of the wiper ❻ and the needle center. 3. When no wiper ❺ is needed: (1) Continuously press (i) switch ⓫ for one second. (2) Actuate ↵ switch ❼ or ▲ switch ❽ to display UP (wiper function). (3) Make ON•OFF changeover by means of ⊖ switch ❾ or ⊕ switch ❿.	

(13) Adjustment of the thrust values for the upper shaft and the upper/lower feed shafts

Standard Adjustment



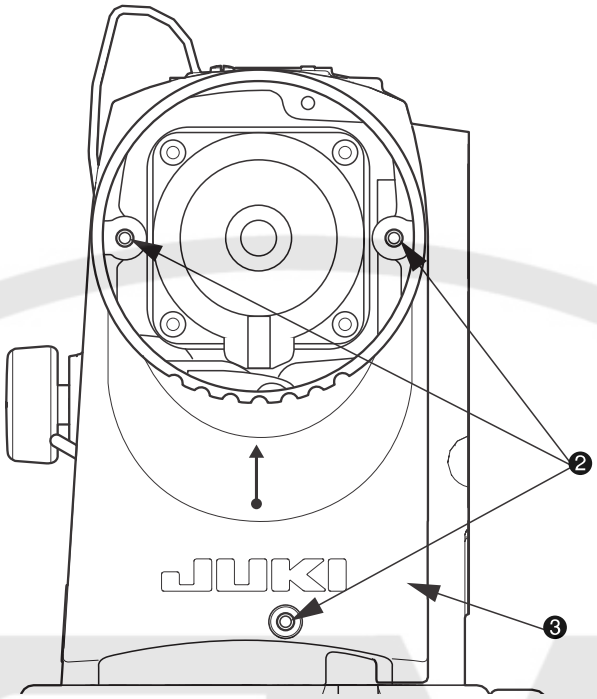


Adjustment Procedure	Results of Improper Adjustment
1. After everything has been installed for the upper shaft, remove rattles from bearings (pressurizing). (1) Assemble all parts for the upper shaft. (2) Loosen two setscrews ❶ of the upper sprocket. (3) Enter the tip of a tapered minus screwdriver into the coupling ❹ slot until it stops. (Part A) * If the screwdriver tip is not inserted fully in the slot, the flange part of the upper sprocket is deformed or destroyed. (4) Lightly turn the screwdriver to move the coupling ❹ toward B in the direction of the arrow. * The torque to turn the screwdriver is 7kgf•cm. (Light turning is sufficient.) If it is turned too strong, the flange part of the upper sprocket is deformed or destroyed. (5) Tighten the setscrew ❶ of the upper sprocket. (6) Turn the upper shaft by 90°C In regard to the second screw, follow the same procedures as (3) to (5) above. 2. After everything has been installed for the upper and lower feed shafts, remove rattles from bearings (pressurizing). * Work is required when the upper/lower feed shaft is pulled out, or when the setscrew ❷ of the upper/lower feed shaft front bearing holder is loosened, or when the C ring of the upper/lower feed shaft, right (pulley side), is removed. (1) Install all the parts concerned with the upper and lower feed shafts. (2) Loosen two setscrews ❷ of the upper and lower feed shaft front bearing holders. * Temporarily remove the thread trimmer stopper ❸ if it disturbs the flow of work. (3) Enter the tip of a tapered minus screwdriver into the slot of the upper/lower feed cam ❺. (Part B) (4) Lightly turn the screwdriver to move the upper/lower feed cam ❺ toward D in the direction of the arrow. * The torque to turn the screwdriver is 5kgf•cm. (Light turning is sufficient.) (5) Tighten the setscrew ❶ of the upper/lower feed shaft front bearing holder. (6) Turn the upper/lower feed shaft by 90°C. In regard to the second screw, follow the same procedures as (3) to (5) above.	

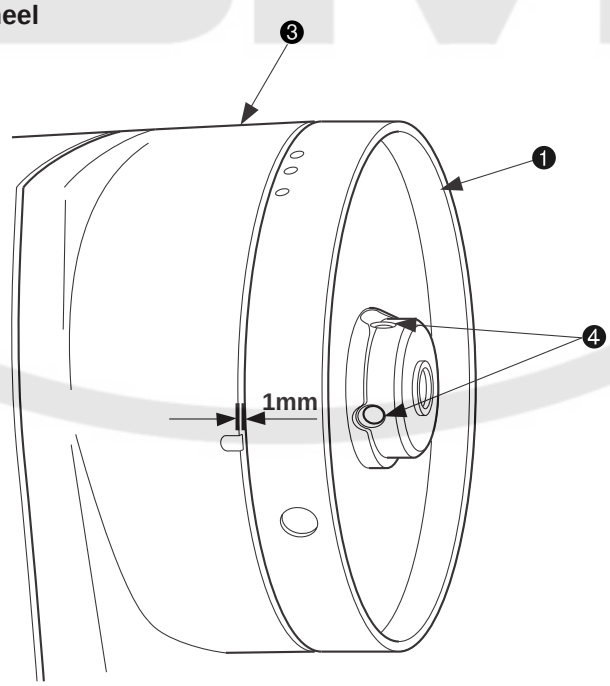
(14) Adjustment of external parts

Standard Adjustment

1) Adjustment of the pulley cover



2) Clearance of the hand wheel



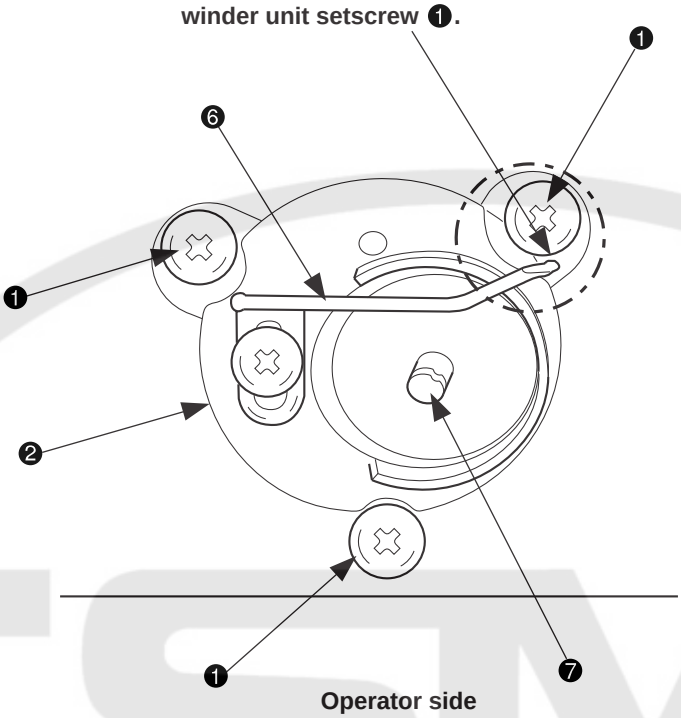
Adjustment Procedure	Results of Improper Adjustment
1) Adjustment of the pulley cover [Method of replacement] 1. Remove the hand wheel ❶. 2. Remove three pulley cover setscrews ❷. **(Cautions) 1. At the time of re-assembly, the pulley cover ❸ should be kept raised.** **2. At the time of re-assembly, handle the pulley cover ❸ carefully not to pinch cables and others.**	o This can be a cause of marker dot displacement from the hand wheel ❶. o This can be a cause of maloperation.
2) Clearance of the hand wheel 1. The clearance is 1mm between the hand wheel ❶ and the pulley cover ❸. For adjustments, loosen the hand wheel setscrews ❹ (2 pcs.)	o If a clearance is too much, this can be a possible cause of entanglement of the thread from the thread stand.

(14) Adjustment of external parts

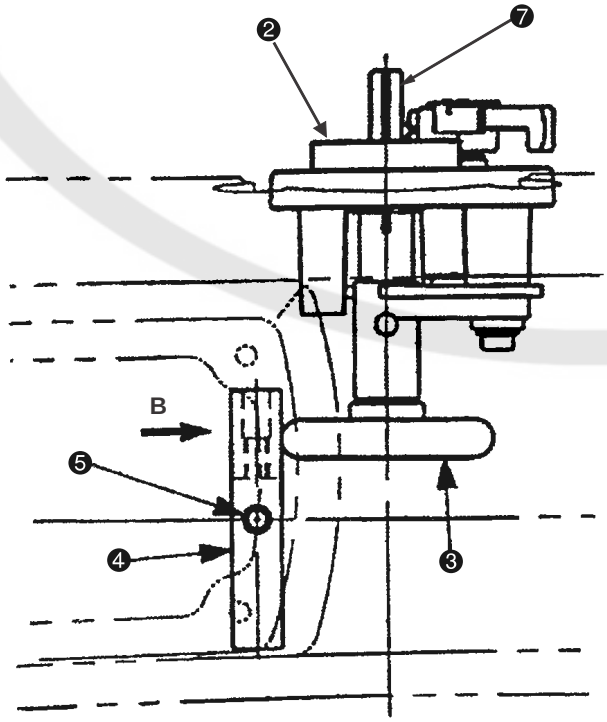
Standard Adjustment

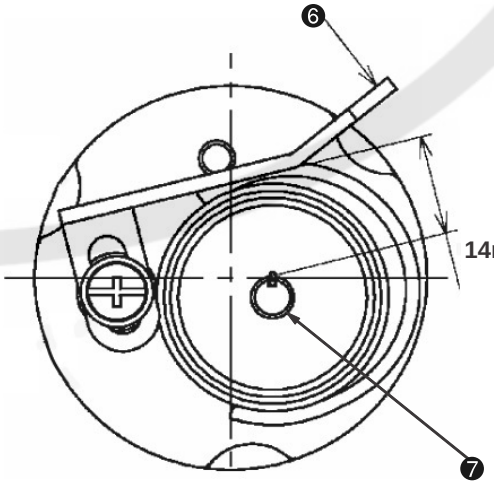
3) Adjustment of the bobbin winder unit

Let the bobbin winder lever ❻ coincide with the head of bobbin winder unit setscrew ❶.



Operator side





In the state of OFF, the standard distance of the bobbin winder lever ❻ is 14mm from the bobbin winder shaft ❼.

Adjustment Procedure	Results of Improper Adjustment
In regard to adjustments of the bobbin winder amount and winder imbalance, refer to the relevant instruction manual. In this manual, descriptions are provided in regard to problems of winder shaft revolution errors. 1. Replacement of the bobbin friction wheel (1) Remove three bobbin winder unit setscrews ❶. (2) Take out the bobbin winder unit ❷. (3) Confirm if there is extreme wearing out in the rubber section of the bobbin winder friction wheel ❸. If the amount of wearing out seems to be too much, replace the worn-out section with a new one.	

Bobbin winder friction wheel ❸	
Part No.	26261503

2. Adjustment of the bobbin winder driver wheel position
(1) Remove the window plate (including the AK unit) from the rear side of the arm.
(2) Loosen the bobbin winder driver wheel setscrews ❺ (2 pcs.) of the bobbin winder driver wheel ❹.
(3) Mount the bobbin winder unit ❷ on the arm.
(4) Turn ON the bobbin winder lever ❻ and let the head ❶ coincide with the bobbin winder lever ❻.
At that time, the head ❶ of the bobbin winder unit setscrew shall be made to coincide with the bobbin winder lever ❻.
(5) Lightly make the bobbin winder driver wheel ❹ lightly contact with the bobbin winder friction wheel ❸ and tighten two bobbin winder driver wheel setscrews ❺.

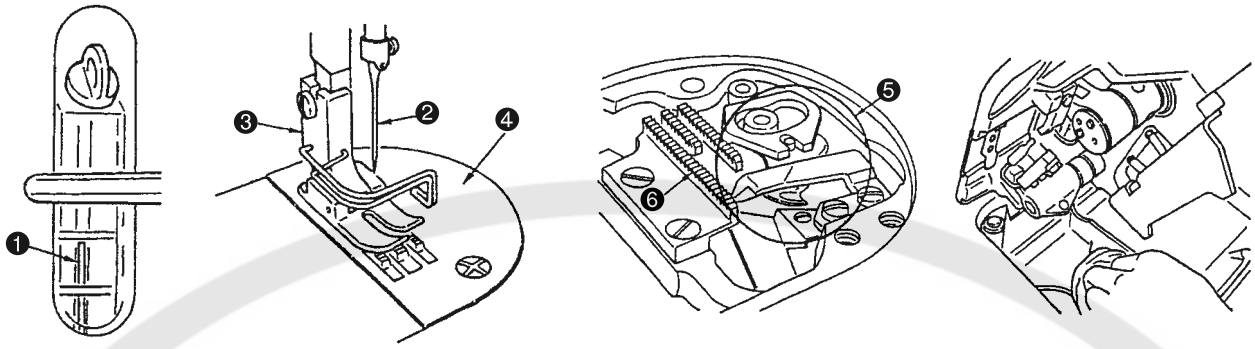
(Cautions) 1. When the bobbin winder lever ❻ is turned OFF, turn the hand wheel by hand and confirm that the bobbin winder shaft ❼ does not turn.
2. Never apply grease or such an oily component to the rubber section of the bobbin winder friction wheel ❸. Otherwise, this can be a cause of friction.

o If the hand wheel is turned in the state of OFF, this can be a cause of abnormal abrasion.

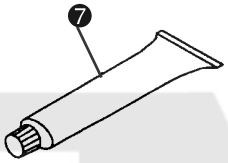
4. Maintenance

Standard Adjustment

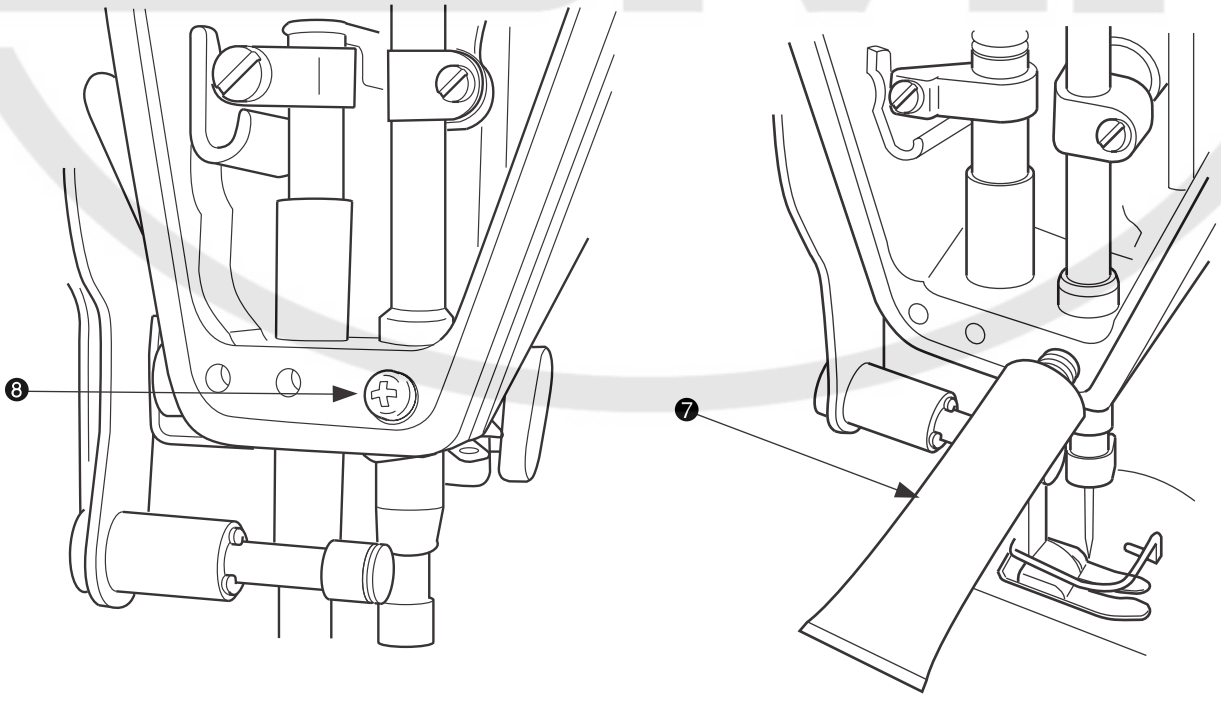
(1) Oil quantity check
(2) Cleaning



(3) Application of appropriate grease



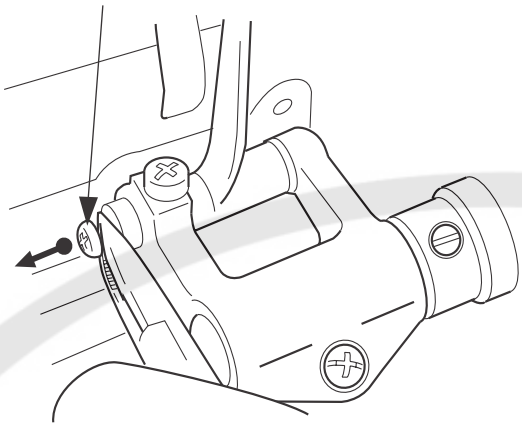
1) Needle bar lower bushing (DDL-9000B-M□, B-DS Specification)

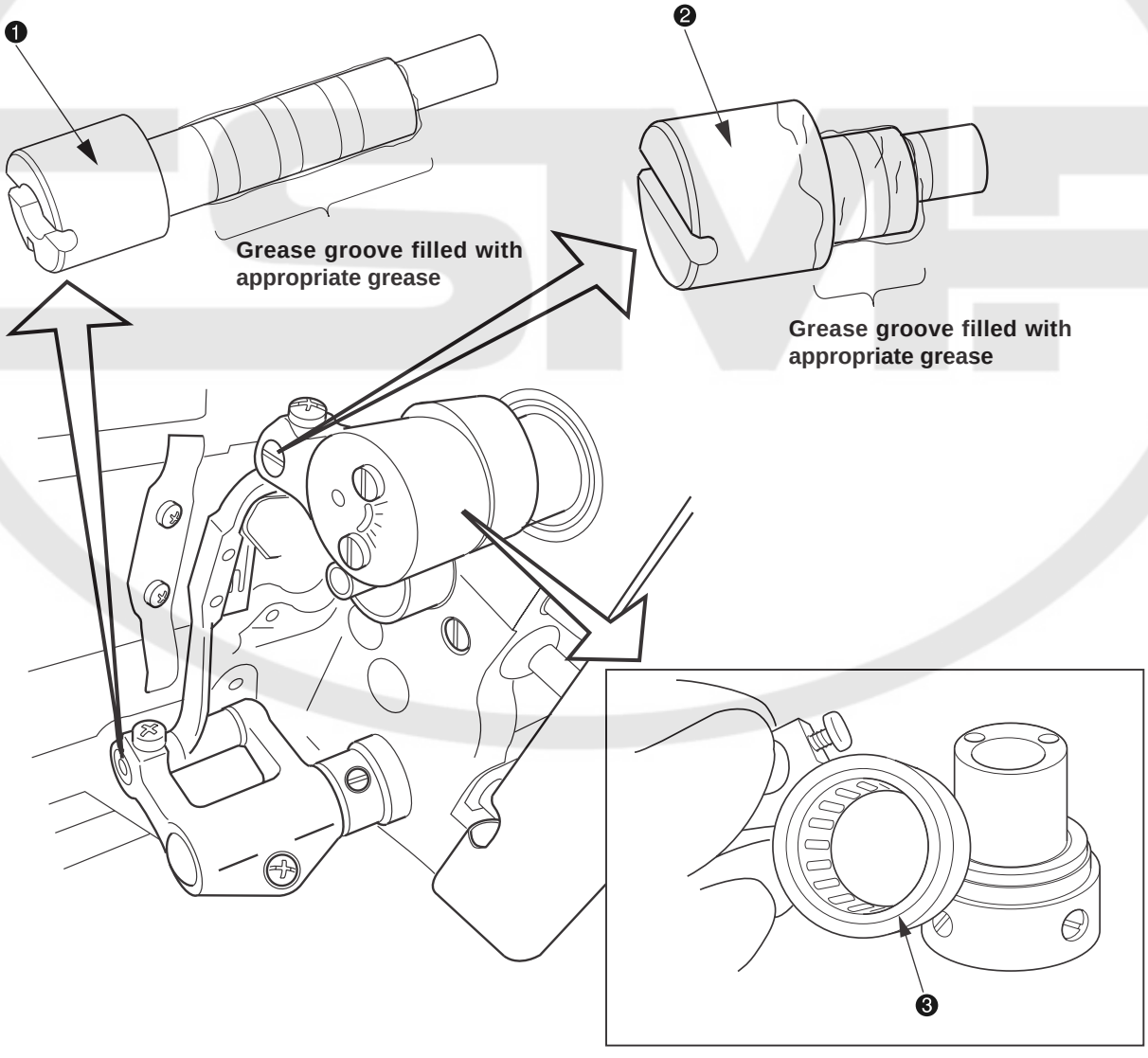


Adjustment Procedure	Results of Improper Adjustment
For your long usage, the following routines (checks and maintenance) are recommended: **(1) Oil amount check** 1. Confirmation of the oil amount in the hook oil tank (other than DDL-9000B-DS) Confirm that the tip of the oil amount indicator ❶ remains between the upper and lower engraved marker lines of the oil gauge window. **(2) Cleaning** (1) Remove the needle ❷, presser ❸, and the throat plate ❹. (2) Using a soft brush or a piece of cloth, remove dust that is clinging to the feed dog ❻ or around the thread trimmer unit ❺. (3) Let the head section fall down and wipe off contaminants from the bobbin case and others, using a piece of soft cloth. Also confirm that there are no flaws. In addition, wipe off dust and hook oil exhausted to the under-cover interior around the hook section, using a piece of cloth. **(3) Application of appropriate grease** In ordinary usage, it is unnecessary to replenish the appropriate grease ❼ (JUKI Grease A). Under particularly rigorous operating conditions, however, periodic replenishment of the appropriate grease ❼ is effective (approximately once every one to two years). Info about the appropriate grease Part name: JUKI Grease A; Part No.: 40006323 **1) Needle bar lower bushing (DDL-9000B-M □, B-DS Specification)** **(Cautions) This work should be done in the state that the needle bar and others are installed.** 1. Remove the face plate. 2. Remove the greasing screw ❽. 3. Remove the cap of the appropriate grease ❼ and enter the feeder tip in the lubricating hole. Then, replenish the appropriate grease ❼. At that time, the grease should be fed until it flows out of the lubricating hole. 4. Push in the overflowing appropriate grease ❼ by means of the greasing screw. 5. Wipe off the excessive appropriate grease ❼ (staying around the greasing screw). **(Cautions) When a lubricant is newly replenished, operate the sewing machine for about 10 seconds of idling. A surplus amount of appropriate grease ❼ may be discharged at that time. Wipe it off then. Repeat this operation several times and use the sewing machine regularly after the generation of the excessive appropriate grease ❼ has disappeared.**	

2) Feed bar mechanisms

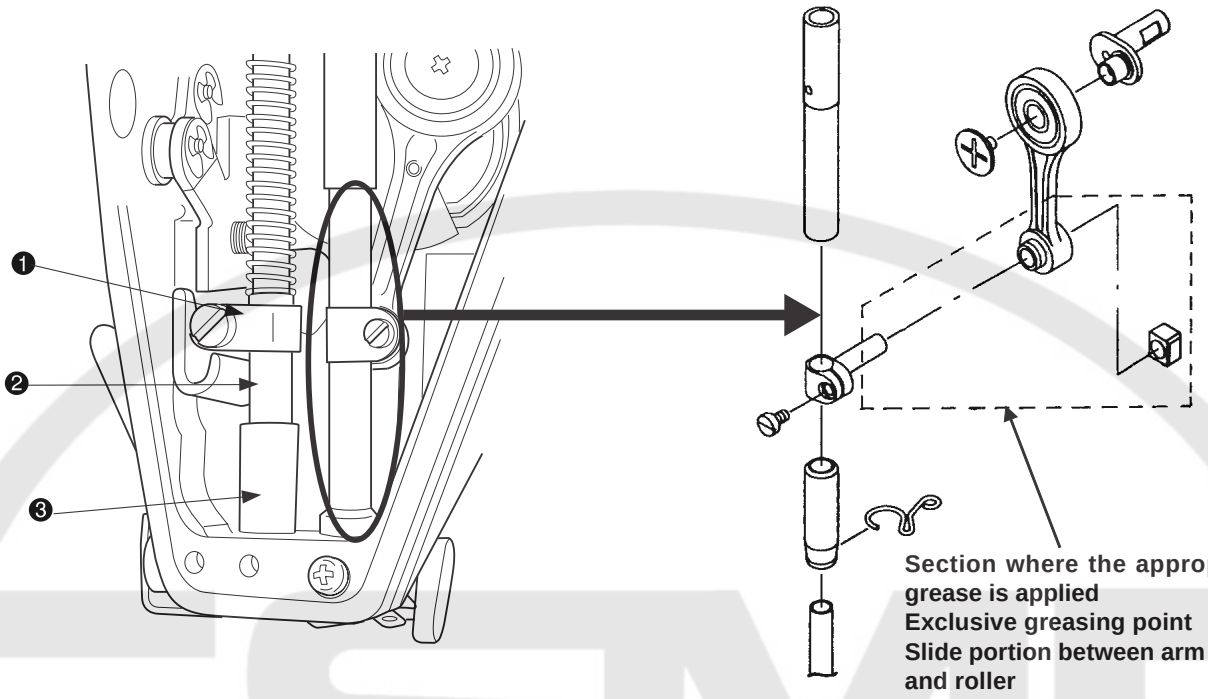
Loosen the setscrew and screw in and pull the M4 screw.



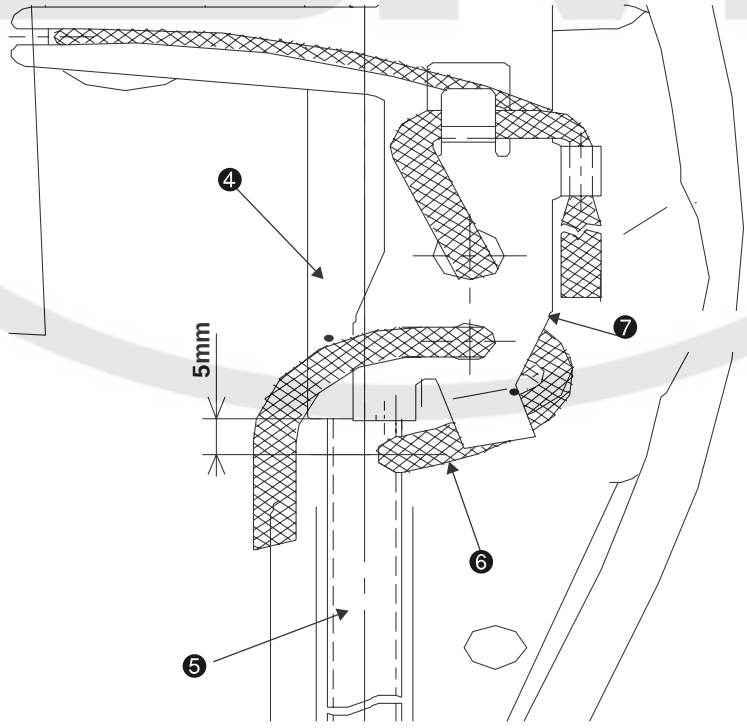


Adjustment Procedure	Results of Improper Adjustment
1. Take out the horizontal feed bar shaft ❶ feed the appropriate grease to the grease groove. * The horizontal feed bar shaft ❶ is processed to have a sacrifice M4 screw. Use an M4 screw and pull it out easily by means of small cutting pliers. 2. Remove the vertical feed bar shaft ❷ and replenish the appropriate grease to the grease groove. 3. Also feed the appropriate grease to the bearing ❸ of the vertical feed cam interior conforming to the 9000B-DS Specification. 4. At the time of reassembly after the disassembly of various parts, apply the appropriate grease to the sliding surfaces of the feed bar mechanism. Info about the appropriate grease Part name: JUKI Grease A; Part No.: 40006323	For the specification of lubrication hook (9000B-S □, 9000B-M □) o Lubrication is continued while hook oil is scattered around the vertical feed cam. o When the reduced amount of hook oil is used, a small amount of application is acceptable. o If too much oil is applied, dark contamination is caused by the hook oil and the material cloth may be stained.

3) Face plate mechanism



DDL-9000B-SS, SH only

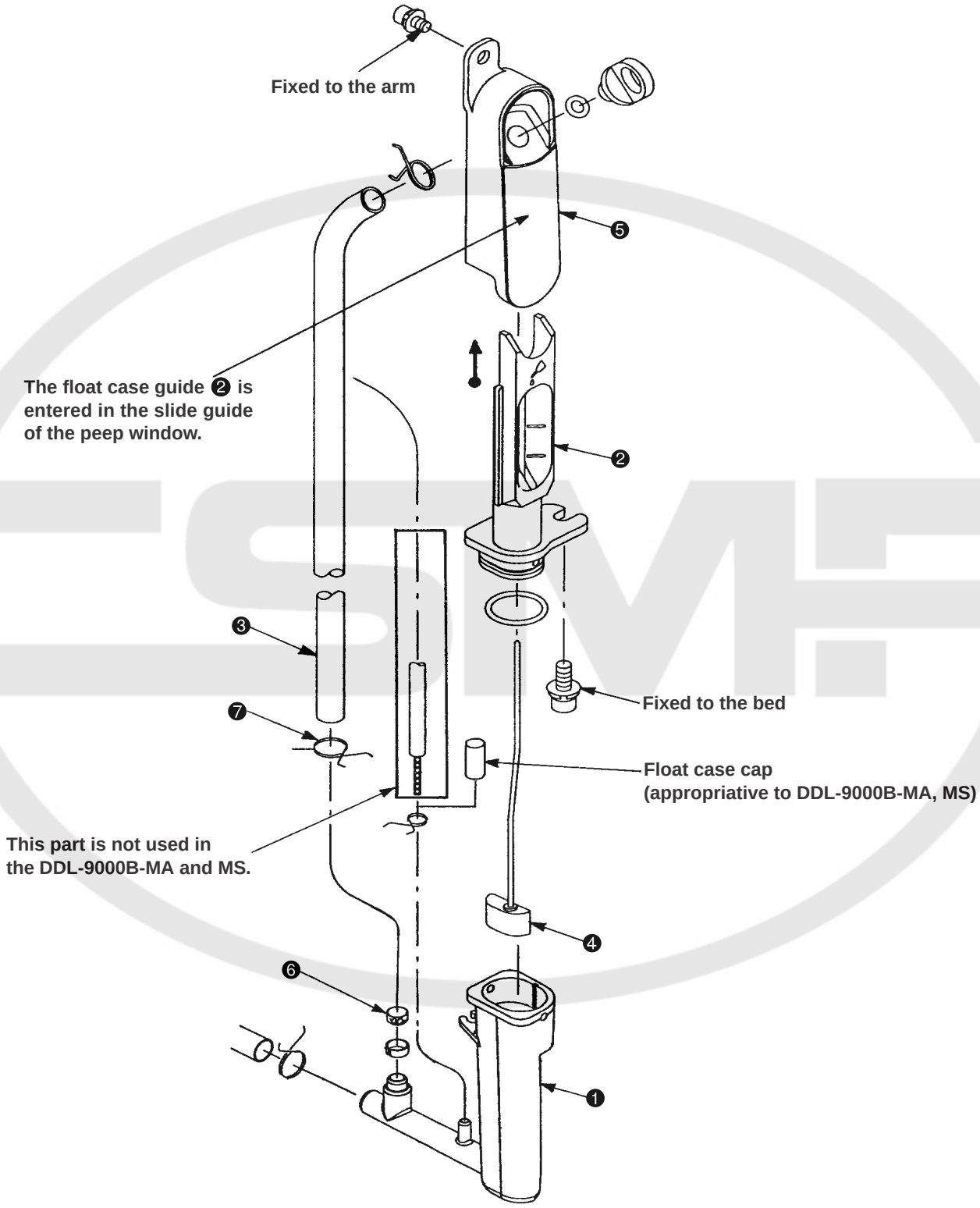


Adjustment Procedure	Results of Improper Adjustment
1. Apply appropriate grease to the roller (arm's vertical sliding section) of the needle bar connecting section. 2. Apply appropriate grease to the intermediate presser bar connection ❶ and arm's sliding groove section.	o Grease is not required for the presser bar ❷. If grease is applied, contamination like black ink is caused by the presser bar bushing ❸ and the material cloth may be stained.
[DDL-9000B-SS, SH only] 3. Confirm that the needle bar ❺ keeps an exact contact with the oil wick ❻ in the position 5mm below the needle bar upper bushing ❹. If there is no contact, correct it by means of the oil wick support plate ❼. **(Cautions) Apply a piece of paper to the oil wick ❻ and confirm whether it is wet with oil.**	o This can be a cause of seizure between the needle bar ❺ and the needle bar upper bushing ❹.

(4) Lubrication mechanism configuration and adjustments (DDL-9000B-SS, SH, MA, MS)

Standard Adjustment

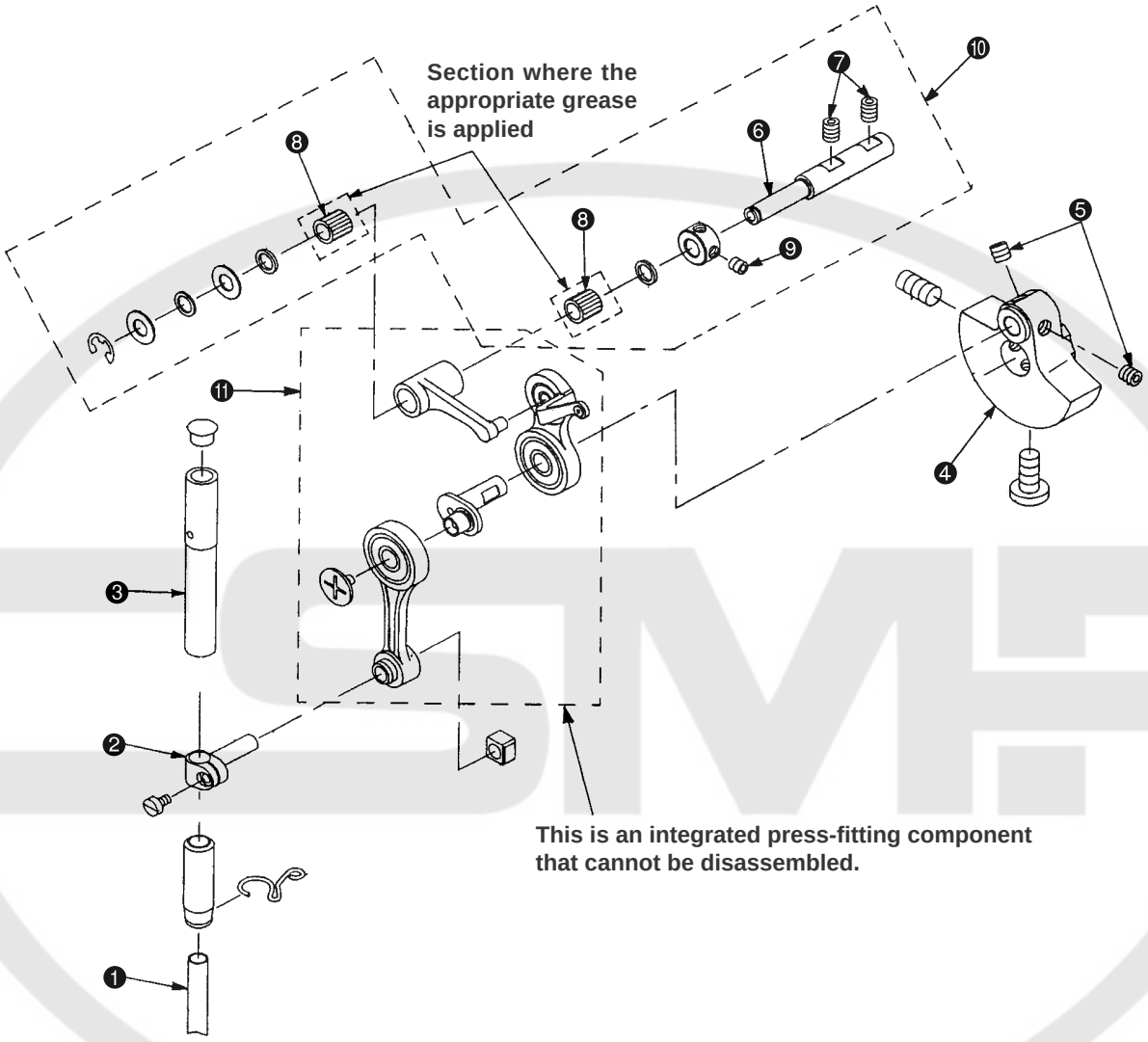
Lubrication mechanism configuration of the DDL-9000B-SS, SH, MA, MS



Adjustment Procedure	Results of Improper Adjustment
Configuration of lubrication mechanism parts is as shown in the drawing. 1. Float case Pull up the float case ❶ straight from the float case guide ❷ to take it out. Remove and adjust the lubrication pipe ❸ and others within the permissible range where they can be stretched. The float case guide ❷ has a notch groove with orientation. Push it straight along the groove to make a joint. (Push it until there is a feeling of coupling with a click sound.) 2. Float The float ❹ has an **orientation**. Insert it in the float case ❶ with its flat plane positioned on the right as seen from worker side. Be careful not to bend the bar of the float ❹. Part name: Float ❹ — Part No.: 40086648 3. Float case guide Put the float case guide ❷ in the guide groove section of the peep window ❺ and fix it to the bed. 4. Peep window Remove the window plate located behind the arm. It is fixed to the arm. 5. Oil filter The oil filter ❻ can be cleaned after removing the lubrication pipe fixing ring ❼ and pulling out the lubrication pipe ❸.	

(5) Thread take-up lever mechanism

Standard Adjustment



Info about the appropriate grease

Part name	Part No.
JUKI Grease A	40006323

Adjustment Procedure	Results of Improper Adjustment
(Important) No lubrication is needed for the thread take-up lever. (Maintenance-free mechanism) When adjusting the thread take-up lever mechanism, the following items shall be observed: Replacement of the thread take-up lever 1. Remove the needle bar ❶ and the needle bar connector ❷. 2. Draw out the needle bar upper bushing ❸. **(Cautions) Be careful not to hurt the needle bar upper bushing ❸.**	o If this section is hurt, this will be a cause of seizure.

Needle bar upper bushing ❸		Remarks
Part No.	23608003	Position: 0.5mm hollow above the

3. Loosen two needle bar crank setscrews ❺ of the main shaft counterbalance ❹.
4. Loosen two thread take-up lever crank shaft setscrews ❼. (The thread take-up lever support shaft ❻ is processed flat.)
5. Loosen the thrust collar setscrew ❾ of the thread take-up lever crank.
6. Pull out the crank shaft set ❿ toward you, except the thrust collar.
7. Remove the thread take-up lever (coupling) ⓫

Thread take-up lever	Part No.	Thread take-up lever stroke
Standard specification	40037370	110mm
Specification for light-weight materials	40037439	110mm
Specification for heavy-weight materials	40055604	108mm

8. Replenish the appropriate grease to the needle bearing ❽ of the thread take-up lever crank shaft.
9. Reassembly can be carried out in the reverse order for disassembly. At that time, however, the items specified below shall be strictly observed.
10. Insert the thread take-up lever unit to the position where it comes in contact with the main shaft counterbalance ❹. Install the crank shaft set ❿ in the order of the thread take-up lever crank, the thrust collar, and the arm.
11. Fix the needle bar crank setscrew ❺.

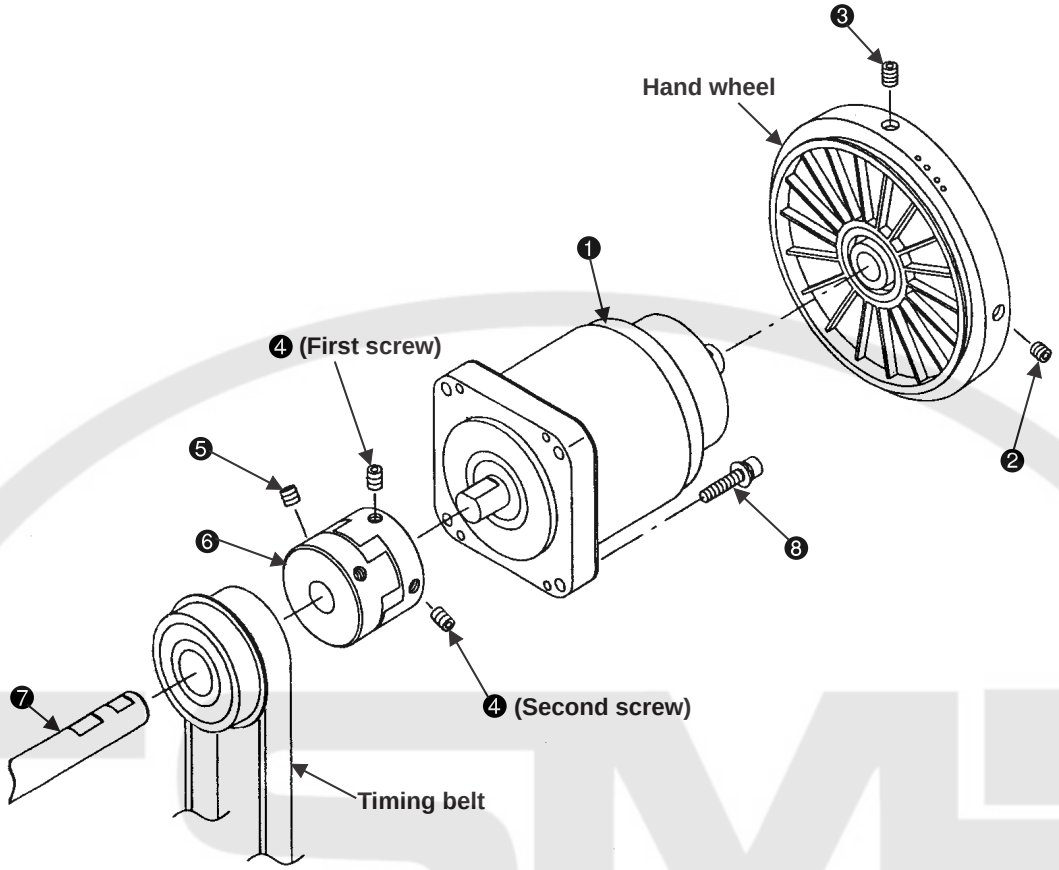
(Cautions) The first screw in the revolving direction shall be made to coincide with the flat section of the shaft.

12. Remove thrust rattles from the thread take-up lever crank shaft ❻ and fix it being pinched by the thrust collar and the E ring. (Make thrust adjustments so that there are no thrust rattles and the thread take-up lever crank can slide smoothly.)
13. Drive the needle bar upper bushing ❸ to install the parts of needle bar ❶ and needle bar connector ❷.
14. Turn the hand wheel by hand several turns in forward direction and fix the thread take-up lever crank shaft ❻ by means of the thread take-up lever crank shaft setscrew ❼, keeping adequate needle bar centering.

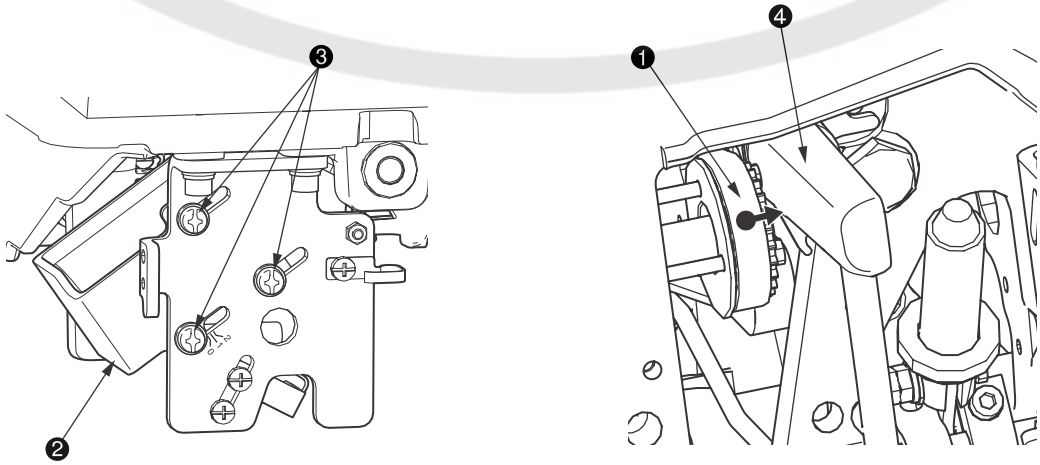
(Cautions) 1. Improper centering of the needle bar ❶ causes the thread take-up lever mechanism to be loaded inadequately, thus greatly affecting the durability.
2. Coincidence is absolutely needed between the flat section of the thread take-up lever crank shaft ❻ and the screw.
3. After confirming that there is no thrust backlash, assemble the take-up lever thrust collar.

o If there is thrust backlash, this will be a cause of breakage of the thread take-up lever.

(6) Replacement of the motor

Standard Adjustment


(7) Replacement of the timing belt

Standard Adjustment


Adjustment Procedure	Results of Improper Adjustment
The following is the method of replacement when the motor ❶ is out of order. 1. Remove the second setscrew ❷ of the hand wheel. (4mm hexagonal) 2. Remove the first setscrew ❸ (flat section) of the hand wheel. (4mm hexagonal) 3. Remove the pulley cover. Refer to [(14) Adjustment of external parts –1] Adjustment of pulley cover]. 4. Remove the window plate (AK Specification included) located behind the arm. 5. Loosen two coupling setscrews B ❹ (motor side) from the rear side, in the order of the second screw and first screw (flat section). (3mm hexagonal) **(Cautions) 1. No adjustments are required for the two coupling setscrews A ❺.** **2. For the removal of the coupling asm ❻, loosen two coupling setscrews A ❺ used to fasten the main shaft ❼. A clearance of 0.5mm shall be secured between the motor ❶ and the coupling asm ❻.** **3. Do not disassemble the coupling asm ❻.** 6. Remove four motor setscrews ❽. (Examine motor installations and the revolving direction.) 7. Pull out the motor ❶ gently from the coupling asm ❻. 8. Carefully install a new motor ❶ in the mounting position in correct revolving direction. 9. In the procedures below, reassembly can be carried out in the reverse order for disassembly.	o If no clearance is secured, this can be a cause of motor bearing destruction. o After disassembly, reproducibility will be lost.

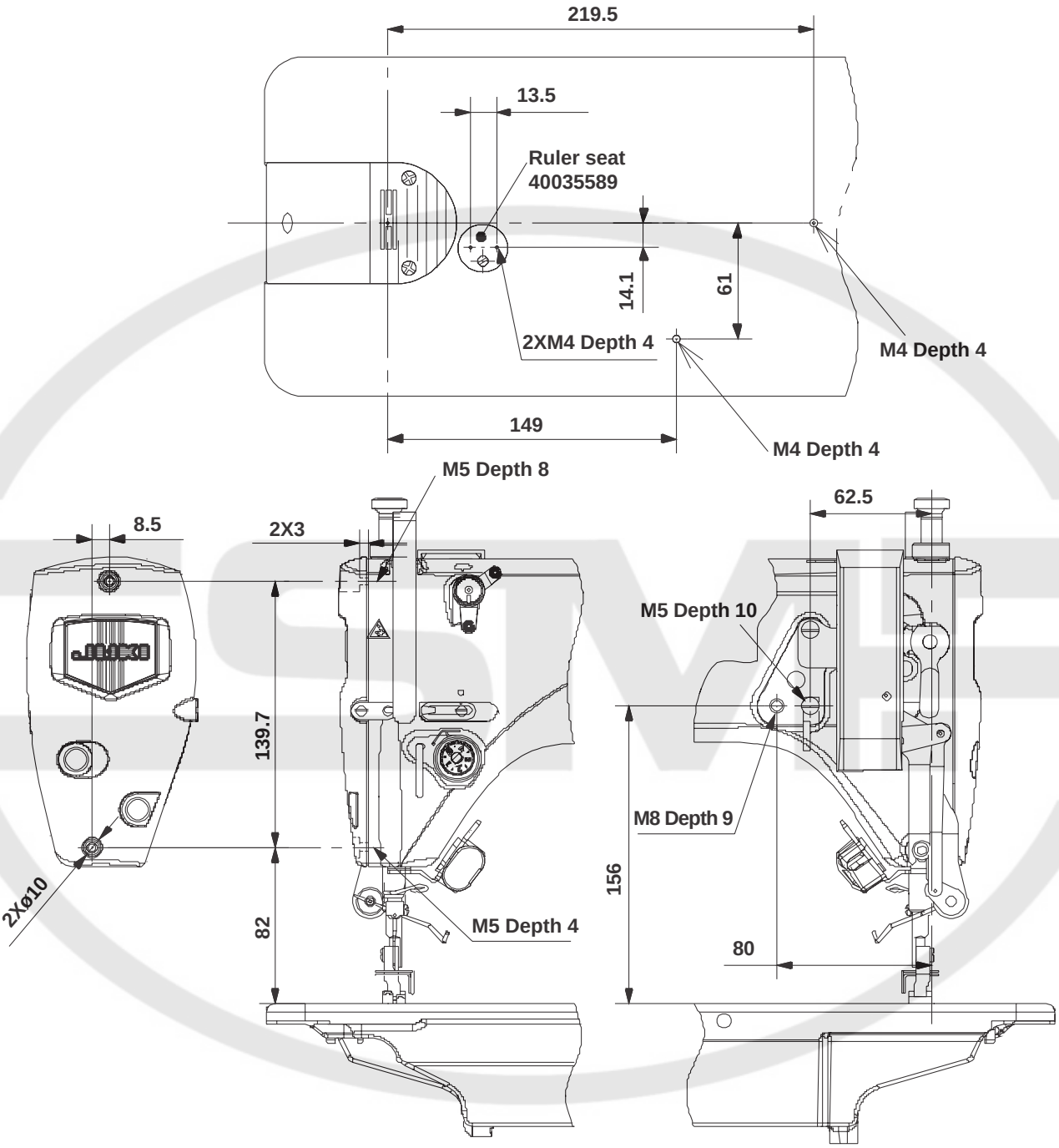
Part name	Part No.
Motor ❶	40089196
Coupling asm ❻	40051473

Adjustment Procedure	Results of Improper Adjustment
The timing belt ❶ used is a product of the highest quality. Therefore, no maintenance is required. To make ready for responding to extra occasions, the method of replacement is explained below. 1. Refer to [4. Maintenance –(6) Replacement of the motor] and dismantle the motor. **(Cautions) It is unnecessary to dismantle the coupling.** 2. Let the sewing machine fall down and remove three setscrews ❸ of the reverse feed solenoid ❷. When the reverse feed solenoid ❷ is dislodged, pull and take out the floater case ❹. **(Cautions) It is unnecessary to dismantle the lubrication pipes, etc.** 3. Turn the motor by shifting the timing belt ❶ by hand in the direction of the arrow. 4. Further reassembly work can be done in the reverse procedures for disassembly.	o When removing the timing belt ❶, be careful not to hurt it with a sharp tool like a screwdriver. Otherwise, this will be a cause of breakage.

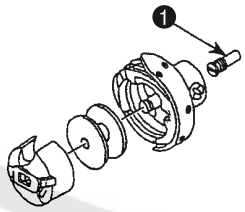
Part name	Part No.
Timing belt ❶	40086731

5. Screws for attachment and positions of external parts

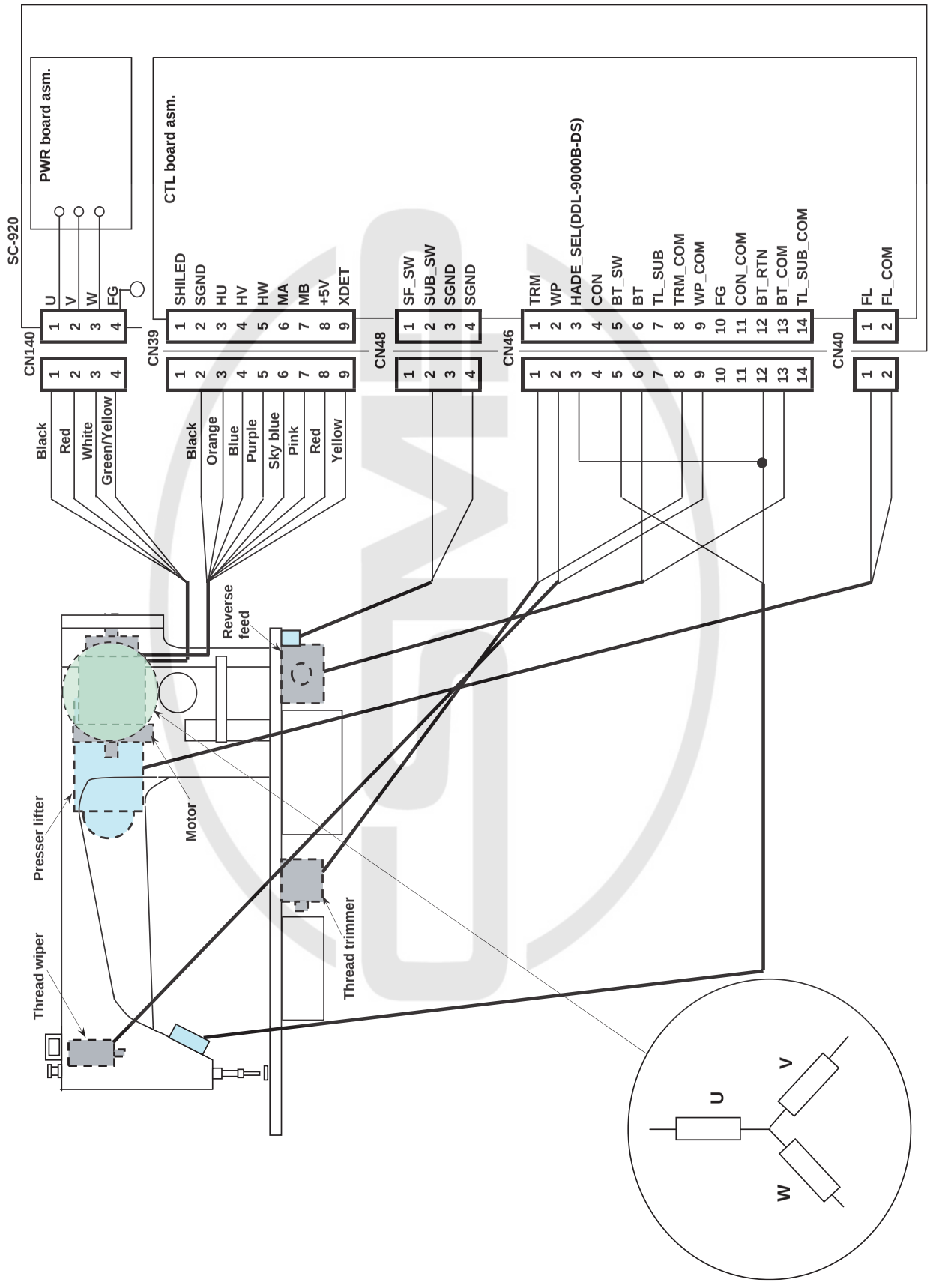
Standard Adjustment



6. Dry hook

Adjustment Procedure	Results of Improper Adjustment
(1) Cautions when a dry hook is used For the dry hook (RP hook), lubrication is given to the hook race with the use of a specific material. In the case of continuous high-speed operation, it must be noted that wear on the race is accelerated. Lubricant shall not be applied to the race. If any abrasion is perceived, change the old part with a new one. (**Cautions) The RP hook (dry hook) tends to collect thread chips and cloth dust, and this can be a case of malfunction and defective stitches. For this reason, it should be cleaned periodically.**	o Hook rattling occurs and there are problems like heat generation and defective stitches. o Contamination like black ink is caused and this becomes a cause of thread to be stained.
Dry hook (RP hook) Part No. / Remarks 22890206 — Standard type 22890305 — Surface treatment type 22890404 — Type with a needle guard Bobbin case part No. for dry hook : 22896252	
(2) Replacement of the dry hook If a dry hook is installed according to the specifications of DDL-9000B-S□ and B-M□, the hook section can be treated as a device conforming to the dry specifications and sewing can be carried out without lubrication. * According to (7) Lubrication, set up the hook so that a very small amount of oil is fed. 1. Take out the lubrication hook. 2. Remove the hook shaft filter asm ❶ that is mounted on the hook shaft tip.  3. Install a lower shaft stop plug screw and O ring which is available separately. Part No. / Part name 11079506 — Lower shaft stop plug screw RO036080200 — O Ring 4. Adjust the amount of hook oil so that lubrication is maintained to a degree wet with a small amount of hook oil. **(Cautions) 1. Do not drain oil from the oil tank.** **2. Be careful not to allow the oil tank to be vacant. This oil is used also to lubricate the lower shaft front metal.**	o This is a cause of metal section seizure.

7. Head section and control circuit connection diagram



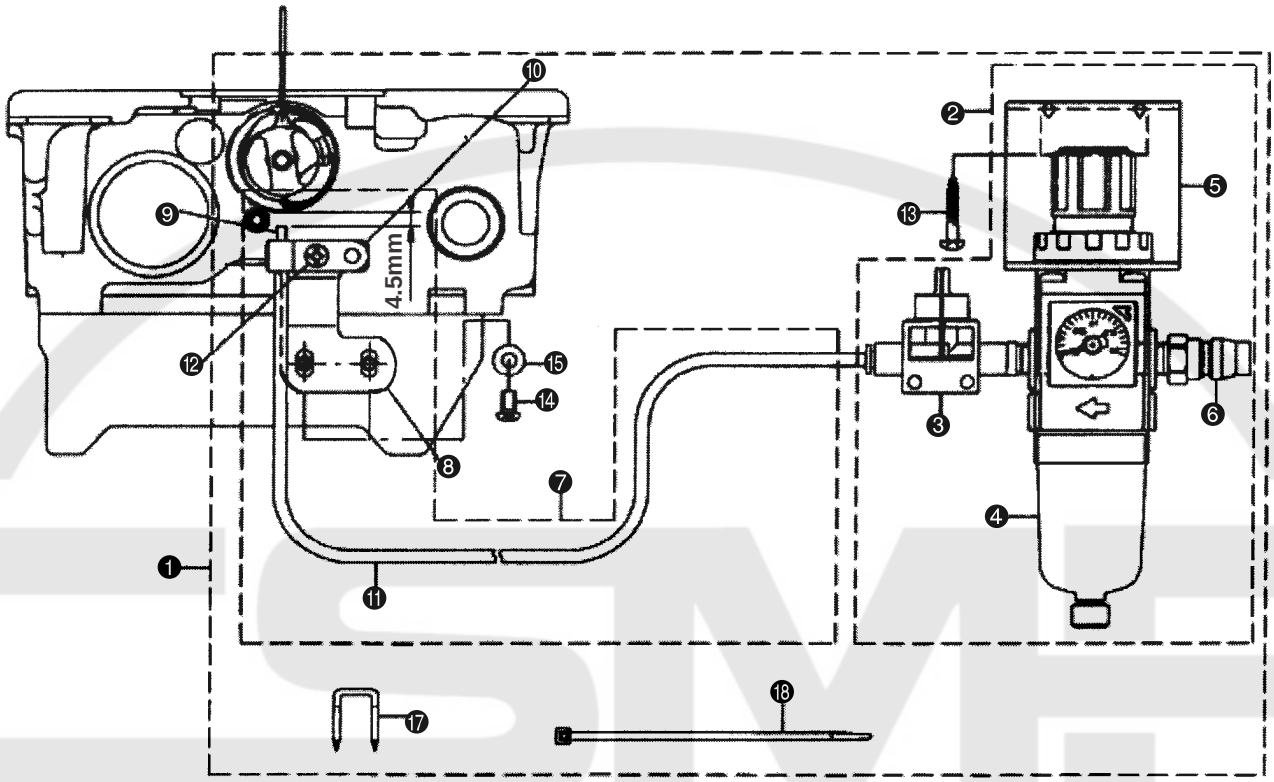
Connections between DDL-9000B and SC-920

8. Air blow type hook cooling unit (available separately)

When a separately sold "air blow type hook cooling unit" is installed, it is possible to cool the hook that has been heated in overheating processes, etc.

(Cautions) Use an air source available in the factory.

No.	Part name	Part No.
❶	Air blow type hook cooling unit	40023431



No.	Part name	Part No.	Quantity
❶	Hook cooling unit	400-23431	1
❷	Filter regulator asm	400-23432	(1)
❸	Finger valve	PV-0151220-00	(1)
❹	Filter regulator	PF-0551060-A0	(1)
❺	Regulator bracket	PF-9020050-00	(1)
❻	Plug	PJ-0251000-03	(1)
❼	Pipe bracket asm	400-23433	(1)
❽	Pipe bracket	400-23434	(1)
❾	Blowing pipe	400-23435	(1)
❿	Wire holder A	110-45408	(1)
⓫	Urethane hose black	BT-0400251-EB	(1)
⓬	Pan head screw 11/64-40 L=7	SS-4110715-SP	(1)
⓭	Mounting screws	SK-3412001-SE	(2)
＊⓮	Pan head screw 11/64-40 L=12	SS-4111215-SP	(2)
⓮	Screw M4 L=6	SM6040600SP	(2)
⓯	Flat washer 4.5X10X0.8	WP-0450801-SD	(2)
⓱	Staples	MA-0115320-00	(2)
⓲	Cable clip bands	EA-9500B01-00	(2)

＊ Item ⓮ of the asterisk (＊) is used in cases other than DDL-9000B.

9. Troubles and corrective measures

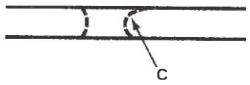
(1) Mechanical parts

Trouble	Case (1)	Case (2)	Check and Corrective measures
1. Skipping of one or more stitches occurs at the start of sewing.	1-1) The needle thread passing through the needle is too short after thread trimming.	1-A) Something is wrong with the needle threat route and the needle thread tension is too high at thread trimming.	Check needle thread routing, thread entangled on thread guide rod the direction, and position of thread stand or thread entangled on it.
		1-B) The tension of the 1st thread tension disk is too high.	Turn the thread tension nut of the 1st thread tension disk counterclockwise to decrease the tension.
		1-C) The floating amount of the 2nd thread tension disk is insufficient at thread trimming.	Check whether the floating amount of the 2nd thread tension disk reads between 0.5 and 1 mm when the hook thread presser is pushed into until the tip of the presser reaches the bobbin. The floating amount is adjustable by moving the tension release wire on the underside of the bed. Check whether the disk is horizontally loosened. If not, turn the thread tension spring 180 degrees or correct the spring inclination.
		1-D) The timing of the tread trimming cam is too early.	Inspect and adjust the standard timing of the thread trimming cam with reference to 3. - (11) -3). Adjust the timing to red or colorless type.
		1-E) The needle thread is detached at thread trimming due to wrong position of the hook thread presser.	If there is a clearance at the tip of the hook thread presser when the plunger is pushed by a finger toput the thread trimming solenoid into the suction state and the hook thread presser is pushed into until the tip of the presser reaches the bobbin, conduct readjustment with reference to 3.-(11) -9).
		1-F) The counter knife is too close to the needle, or the knife tip is too sharp.	Check whether the position of the counter knife is correct and the moving knife has a flaw after removing the throat plate. [3.-(11) -4), -5), -7) and -8)]
		1-G) The knife thread guide, moving knife, or hook has a flaw.	Check whether the hole portion of the hook (especially the blade top) or knife thread guide has a flaw. If there is a flaw there, buff the flaw portion sufficiently. If the flaw portion is large, replace the part.
		1-H) The lifting amount of the auto-lifter device (AK-141) is too large.	Excessive rise of the auto-lifter device causes the thread guide with presser bar guide to rise rapidly and the needle thread to be pulled by the thread take-up spring resulting in shortened needle thread. Readjust the rise amount of the AK device to approx. 8.5 mm. Alternatively, set the remaining amount of the needle thread relatively longer for use of the AK device.

To the next page

Trouble	Case (1)	Case (2)	Check and Corrective measures

From the previous page

	1-2) An inappropriate needle, throat plate, or presser is used. Alternatively, the pressure of the presser is too low.	2-A) The dimension A of the foot is too large. Too much clearance on the underside of B interferes with pressing the needle thread when a sewing pitch is short. 	Check whether the shapes of the A and B portions of the presser and the C portion of the throat plate are appropriate. * For sewing tricot with chemical fiber thread: A < 0.8 mm Rs of B and C portions < 0.3 mm * For using chemical fiber thread: A < 1.2 mm, B and C portions without clearance recommended * For using cotton thread: smaller clearance at A, B and C portions recommended unless there is no defective thread tension
		2-B) The clearance at the C portion of the throat plate is too much. 	
	1-3) The sewing material is likely to hold sewing traces or loose.	3-A) The thread is not held and is likely to be released because the needle traces on the material do not recover. Alternatively, the thread is likely to be released from a loose material.	Use a thinner needle or the T-type needle bar thread guide (B1418227T00).
		3-B) The needle is too thick.	The thinner the needle is, the better the situation becomes unless no defective needle thread tension is found.
		3-C) The needle hole of the throat plate is too large	Replace the current throat plate with a throat plate with smaller needle hole.
		3-D) The pressure is too low.	Use the presser stroke adjusting screw to increase the pressure without decreasing the feeding force (or without causing clogging).
	1-4) The blade top of the hook does not scoop the needle. (stitch skipping)	4-A) The timing between the needle and hook is inappropriate.	Check the needle bar height, and align it with the ruled line on the needle bar. For sewing knitted cloth, lower the needle bar slightly to delay the timing.
		4-B) The tension and momentum of the thread take-up spring are too high.	Decrease the tension and momentum.
		4-C) The blade top of the hook is worn out.	Reshape the blade top or replace the hook.
		4-D) The needle is inappropriately mounted.	Adjust the needle inclination, or replace the needle if the current needle is bent.

To the next page

Trouble	Case (1)	Case (2)	Check and Corrective measures
From the previous page			
	1-5) The bobbin thread is too short at sewing start.	5-A) Bobbin idling pulls the edge of the bobbin thread into the bobbin case.	Increase the pressure of the bobbin presser.
			Increase the bobbin thread tension.
		5-B) The pressure of the bobbin presser is too high.	Reduce the pressure of the bobbin presser. However, be careful not to idle the bobbin.
		5-C) A flaw on the hook causes the bobbin thread to be cut too short.	Repair the flaw on the hook, or replace the hook.
	1-6) Knot tying between the needle and bobbin threads is not easy at sewing start.	6-A) The sewing speed at sewing start is too fast to knot the needle and bobbin threads together.	Conduct 1 or 2 stitches of soft-start at the sewing start.
2. The edge of the needle thread comes out on the material at the sewing start.	2-1) The needle thread passing through the needle is too long after thread trimming.	1-A) The 1st thread tension is too low.	Increase the 1st thread tension.
		1-B) The timing of the tread trimming is too late.	Inspect and adjust the standard timing of the thread trimming cam with reference to 3. - (11) -3).
		1-C) The counter knife is set too back.	Adjust the counter knife with reference to 3. - (11) -5).
3. The underside of the material is not neat at sewing start. (The needle thread remains long under the material.)	3-1) The needle thread passing through the needle is too long after thread trimming.	1-A) Refer to the previous item, [The needle thread passing through the needle is too long after thread trimming].	Refer to the previous item, [The needle thread passing through the needle is too long after thread trimming].
	3-2) Adjustment of the throat plate, needle, or foot is inappropriate, and the needle thread passing through the needle cannot be shortened after thread trimming.	2-A) Refer to the previous item, [An inappropriate needle, throat plate, or presser is used. Alternatively, the pressure of the presser is too low].	Refer to the previous item, [An inappropriate needle, throat plate, or presser is used. Alternatively, the pressure of the presser is too low].

Trouble	Case (1)	Case (2)	Check and Corrective measures
4. The needle thread slips off the needle at the sewing start.	4-1) The length of the needle thread passing through the needle varies after thread trimming.	1-A) Too high 1st thread tension due to delayed thread trimming timing causes the thread to be cut before engagement between the moving and counter knives. (midway cut)	Turn off the power, push the hook thread presser into the bobbin case by hand when the needle reaches the lowest point, trim the needle while turning the hand wheel, and stop the hand wheel when the thread take-up lever comes to the upper dead point. If the length of the needle thread passing through the needle at this moment is 10 mm or more shorter than that of the pedal operation, hasten the timing of thread trimming or decrease the 1st thread tension because this is a midway cut.
	4-2) The cause and measures are the same as those for the item, "1. Skipping of one or more stitches occurs at the start of sewing".	2-A) Shallow entry of the hook thread presser into the bobbin case occasionally causes the needle thread to be unfastened from the hook thread presser.	Adjust the hook thread presser with reference to 3. -(11)-10).
		2-B) Sharpening the counter knife is inappropriate. (too sharpened)	Resharpen or replace the counter knife with reference to 3.-11)-7).
		2-C) The knife thread guide, moving knife, or hook has a flaw	Buff the flaw portion or replace the damaged component.
		2-D) The needle is too thick.	Replace the needle with a thinner one.
	4-3) The needle thread slips off the needle immediately after thread trimming.	3-A) Too early cam timing or too late hook timing causes the moving knife to cut the needle thread to hold 3 threads before thread separation.	Slipping of the needle thread from the needle immediately after thread trimming results from cutting the needle thread passing though the needle due to defective thread spread-ing by the moving knife. In such a case, Thread chips of 40mm level exist under the throat plate or on the under cover. In this case, delay the timing of the thread trimming cam.
	4-4) Knot tying between the needle and bobbin threads is not easy at sewing start.	4-A) The sewing speed at sewing start is too fast to knot the needle and bobbin threads together.	Conduct 1 or 2 stitches of soft-start at the sewing start.
	4-5) Improper clearance of picker	5-A) The picker is too strongly functioning and it disturbs idling that is needed for the bobbin.	Adjust the picker alignment to a weaker level.
5. The thread tension is inappropriate at sewing start.	5-1) The tension of the needle thread is too low at sewing start.	1-A) The hook thread presser is inappropriately mounted.	Adjust the hook thread presser with reference to 3.-(11) -10).
		1-B) Bobbin idling causes the bobbin thread tension at sewing start to decrease.	Adjust the hook thread presser with reference to 3.-(11) -10). Adjust the tension of the idling prevention spring of the bobbin case.
		1-C) The tensions of the bobbin thread and needle thread are too low.	Increase the tensions of the bobbin thread and needle thread.
		1-D) The presser or throat plate is inappropriate.	Refer to the previous item, [An inappropriate needle, throat plate, or presser is used. Alternatively, he pressure of the presser is too low].

Trouble	Case (1)	Case (2)	Check and Corrective measures
6. The needle thread is untrimmed. (But the bobbin thread is trimmed.)	6-1) Stitch skipping at the final stitch occurs.	1-A) The needle is inappropriately mounted.	Mount a needle appropriately and make sure that the needle is not bent.
		1-B) The stroke of the thread take-up spring is too long.	Shorten the stroke of the thread take-up spring.
		1-C) The hook is inappropriately adjusted.	Check whether no stitch skipping occurs at low sewing speed and adjust the hook appropriately. (Hasten the timing of the hook.)
	6-2) The blade portion of the knife is blunt.	2-A) The blade portions of the moving and counter knives are not perfectly aligned at thread trimming. (The mounting angle, position, and blade inclination of the counter knife are not matched with those of the moving knife.)	Remove the throat plate and move the knife by hand to cut 3 pieces of cotton thread #50. If all of the 3 cotton threads are uniformly cut, there is no problem. If they are not uniformly cut, sharpen the blade portion of the counter knife, readjust the blade inclination, and readjust the mounting position of the counter knife.
7. The bobbin thread is untrimmed. (But the needle thread is trimmed.)	7-1) The backward movement of the moving knife is insufficient.	1-A) The backward movement of the moving knife is inappropriately adjusted. (The position of the knife operation axis or the thread trimming cam in the right-left direction is inappropriately adjusted.)	Measure the backward movement length of the moving knife. Adjust the position of the thread trimming cam in the right-left direction to set the backward movement length of the knife to within 2.5 to 3 mm (3 to 3.5 mm for SH) if the measurement result is out of the range.
	7-2) The position of the bobbin thread at thread trimming is unstable.	2-A) A hook other than the specified hook is used.	Check whether the current hook has a guide slit for the bobbin thread. If the hook has no such a slit, replace the hook with a hook for threat trimming.
8. The wiper interferes with the needle.	8-1) The height of the position where the wiper is mounted is inappropriate.		Mount the wiper appropriately.

Trouble	Case (1)	Case (2)	Check and Corrective measures
9. The moving knife breaks.	9-1) The timings of the parts are inappropriate.	1-A) The timing of thread trimming is inappropriate.	Make an adjustment with reference to 3. -(11)-3).
		1-B) The up stop position is inappropriate.	Make an adjustment with reference to 3.-(10)-1).
	9-2) The thread is tense at thread trimming.	2-A) The thread tension disk does not float at thread trimming.	Adjust the timing of the disk floating with use of the setscrew of the thread tension unit.
			Loosen the tension release wire presser (bottom) and readjust the wire position.
		2-B) Hangnail of the thread is found	Replace the needle with new one or a ballpoint needle if necessary after checking the needle tip.
			Check whether the timing and clearance of the hook are appropriately adjusted.
			Buff the blade top of the hook or other thread paths if necessary after checking them.
			Use an appropriate gauge and needle for the thread thickness.
	9-3) The thread trimming drive unit does not function.	3-A) The mounting position of the thread trimming drive unit is inappropriate.	Make an adjustment with reference to 3.- (11)-11.
	9-4) The timing belt slips.	4-A) The tension of the timing belt is too low.	Replace the timing belt.
		4-B) The knife pressure is excessive.	Adjust the engagement between the moving and counter knives. Consider the correction of the counter knife, too.
	9-5) The home position of the moving knife is inappropriate.	5-A) The thread is not trimmed.	Make an adjustment with reference to 3. -11)-4). (for backward movement length of the moving knife)
			Make an adjustment with reference to 3.-(11)-5). (for engagement with the counter knife)
	9-6) Thread trimming operates at sewing start right after thread trimming.	6-A) The cam roller is not disengaged from the thread trimming cam groove in a dwell section.	Adjust the position relation between the cam groove and roller.

(2) Sewing conditions

Trouble	Case (1)	Case (2)	Check and Corrective measures
1. Puckering	1-1) The needle is too thick.		Use a thread as thin as possible. For example, KN and SF needles are effective.
	1-2) Thread tension (top or bottom) is too high.	2-A) The thread path is not smooth.	Finish the thread path appropriately.
		2-B) The timing of the hook is too late.	Hasten the timing of the hook without occurrence of stitch skipping to obtain smooth unthreading.
		2-C) The feed timing is too fast.	Delay the feed timing compared to the needle timing to reduce feeding.
		2-D) The stroke of the thread take-up lever is too long.	Move the arm thread guide rightward to reduce the thread feeding with the thread take-up lever.
		2-E) The stroke of the thread take-up spring is too short.	Increase the stroke.
		2-F) The thread is made of Nonsmooth material.	Use silicon.
	1-3) Pressing is inappropriate.	3-A) The pressure is too high.	Minimize the pressure. For some materials, sewing with the presser slightly floated with the adjustable screw of the minute presser lifter is effective.
		3-B) The finish of the backside of the presser is rough.	Use a buff or the like to smooth the presser.
		3-C) The presser is made from Nonsmooth material.	Use a fluorine resin presser or a special processed presser.
	1-4) The material is inappropriately stretched.	4-A) The needle hole of the throat plate is too large.	Replace the current gauge with a new one having a smaller diameter hole.
		4-B) The thread relief on the backside of the presser is too large.	Use a presser with a smaller thread relief on the backside or without thread relief.
		4-C) The parallel level of the presser is inappropriate.	Replace the presser, or loosen the presser bar holding screw and correct the needle entry and presser bend if there is no needle entry.
		4-D) The needle tip is blunt.	Replace the needle.

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Trouble	Case (1)	Case (2)	Check and Corrective measures
	From the previous page		
	1-5) Feeding is inappropriate.	5-A) Too high feed dog causes jumping at high speeds.	Lower the height of the feed dog (0.8 mm for standard size, 1.2 mm for B-SH) or increase the pressure to prevent the material from jumping.
		5-B) The tip of the feed dog is worn.	Sharpen the tip of the feed dog with a diamond file or the like, or replace the current feed dog with new one.
		5-C) The pitch of the feed dog is too large.	Replace the current feed dog with a new one having a smaller pitch.
		5-D) The inclination of the feed dog is inappropriate.	Change the positions of the top and bottom feeder bar pins nd make the tip side of the feed dog higher to perform the material pulling function effectively.
		5-E) The parallel level of the feed dog is inappropriate.	Replace the current feed tooth with new one.
		5-F) The feeding speed is too high.	Reduce the feeding speed.
		5-G) Others	Use a small gauge for a gap between the throat plate groove and feed dog in the moving direction without interference with the movement of the feed dog when a feeding pitch is small.
2. Uneven material feed	2-1) Feeding is inappropriate.	1-A) The height of the feed dog is too high.	Lower the height of the feed dog (0.8 mm for standard size, 1.2 mm for B-SH) or increase the pressure to prevent the material from jumping.
		1-B) The feed trace is inappropriate.	Adjust the timing of the vertical feed cam with reference to 3.-4) Feed trace and phase.
		1-C) The tip of the feed dog is worn.	Sharpen the tip of the feed dog.
		1-D) The pitch of the feed dog is too large.	Use a feed dog with a smaller pitch.
		1-E) The inclination of the feed dog is inappropriate.	Make the tip of the feed dog lower.
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Trouble	Case (1)	Case (2)	Check and Corrective measures
	From the previous page		
	2-2) Pressing is inappropriate.	2-A) The pressure is too high.	Minimize the pressure. For some materials, sewing with the presser slightly floated with the adjustable screw of the minute presser lifter is effective.
		2-B) The finish of the backside of the presser is rough.	Use of a buff or the like to smooth the presser.
		2-C) The presser is made from Nonsmooth material.	Use a fluorine resin presser or a special processed presser.
	2-3) The feeding speed is too high.		Reduce the feeding speed.
3. Balloon stitches	3-1) The thread tension is too low.		Increase the 2nd thread tension.
	3-2) The thread take-up spring is inappropriately adjusted.	2-A) The stroke of the thread take-up spring is too short.	The thread take-up spring with too short stroke cannot sufficiently take up the loosened thread resulting in a higher possibility of balloon stitches or thread breakage. The thread take-up spring with too low tension cannot function well at high speeds or sufficiently take up the thread resulting in a higher possibility of balloon stitches or thread breakage.
		2-B) The tension is too low.	The thread take-up spring with too low tension cannot function well at high speeds or sufficiently take up the thread resulting in a higher possibility of balloon stitches or thread breakage.
		2-C) The shape of the thread take-up spring is inappropriate.	Thread slack may cause catching thread when the tip of the thread take-up spring is open. If the open level is too wide, use your finger to close the tip.
		2-D) The thread take-up spring tension is insufficient. The following capability is insufficient at high speeds.	When #60 or thicker thread is used, the thread take-up spring used in the A type is too weak to exert its effect due to insufficient tension of the spring at the end of the operation. In such a case, use a standard type thread take-up spring (or thread tension).
	3-3) The stroke of the thread take-up lever is too long.		Move the arm thread guide rightward to reduce the thread feeding with the thread take-up lever.
	3-4) Knife thread guide position is improper.		Align the knife thread guide to the needle entry position.
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Trouble	Case (1)	Case (2)	Check and Corrective measures

From the previous page

3-5) The matters related to the hook are inappropriate.	5-A) The timing of the hook is too early.	Set the timing of the hook to the standard or slightly late level for cotton or spun thread.
	5-B) the timing of the hook is too late.	Set the timing of the hook to the slightly early level for filament thread.
	5-C) The clearance between the hook and inner hook presser is too small.	Increase the clearance to smooth the thread passing.
	5-D) Hook oil is insufficient.	Adjust the oil volume to the appropriate level.
	5-E) The hook is defective. (thread catch)	Replace the hook.
3-6) The thread path is defective.	6-A) The thread path is not smooth.	Finish the thread path appropriately.
	6-B) The thread path has a flaw.	Finish the thread path appropriately.
	6-C) The thread path has an obstacle.	Finish the thread path appropriately to correct threading.
3-7) The bobbin or bobbin case is defective.	7-A) Inappropriate engagement between the bobbin and bobbin case causes the bobbin thread to be caught	Replace the bobbin or bobbin case.
	7-B) Defective thread winding around the bobbin winder causes the bobbin thread to be caught.	Adjust the tension and position of the bobbin thread. Also be aware of uneven winding.
	7-C) The tension adjusting spring of the bobbin case is defective.	Replace the bobbin case.
	7-D) The bobbin thread idles in the bobbin case.	Adjust the tension of the idling prevention spring with reference to 3.-(5).
	7-E) The bobbin has a flaw.	Remove a burr at the flaw portion, or replace the bobbin.
3-8) Feeding is inappropriate.	8-A) The timing of feeding is inappropriate, or the height of the feed dog is too low.	Set the feed timing to a level slightly later than standard (for cotton or spun thread). Set the feed timing to a level earlier than standard (for filament thread). Lift the feed dog height.

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Trouble	Case (1)	Case (2)	Check and Corrective measures
	From the previous page		
	3-9) Pressing is inappropriate.	9-A) The presser is floating.	Adjust the clearance between the presser bar holder and lifting plate. (The clearance shall be within 0.8 to 1.2mm when the presser is closely contacted with the throat plate.)
		9-B) The thread relief on the backside of the presser does not exist or is too small. This trouble occurs especially when the pitch is large or thick thread is used.	Use a foot with a large thread relief on the backside.
	3-10) The thread tension device is defective.	10-A) The thread tension disk is floating.	Adjust the timing of the thread tension disk floating with reference to 3.-(11)-6).
	3-11) The needle hole of the throat plate is too small.		Use a throat plate with a larger needle hole.
	3-12) The needle is too thin for the thread to be used.		Change the needle or thread to be used.
	3-13) The needle is defective.	13-A) A burr exists on the tip of the needle.	Replace the needle.
4. Stitch skipping	4-1) The needle is defective.	1-A) The needle is bent.	Replace the needle.
		1-B) The needle mounting direction is inappropriate. The needle is not mounted fully to the end.	Mount the needle appropriately. Replace the needle clamp screw. Defective sewing is likely to occur when the needle recess portion faces frontward.
		1-C) The needle tip is blunt.	Replace the needle.
		1-D) The needle is too thin or thick for the thread to be used.	Replace the needle.
		1-E) The feeding force is too weak.	Lift the feed dog height.
	4-2) The matters related to the hook are inappropriate.	2-A) The blade top of the hook is blunt or worn	Sharpen the blade top of the hook or replace the hook.
		2-B) The timing of the hook is inappr opriate.	Readjust the timing. (Set the timing to the earlier level when a needle thread loop is likely to be created and to the later level when a needle thread loop is not likely to be created depending on the conditions of the material and thread.)
		2-C) The height of the needle bar is ina ppropriate.	Perform upper or lower adjustment against the blade top.
		2-D) The clearance at the blade top of the hook is inappropriate.	Decrease the clearance at the blade top of the hook.
		2-E) The loop shape is unstable. (mesh type materials)	Wind the needle thread or use the T-type thread guide (B1418227T00).
		2-F) A needle holder does not exist.	Replace the current hook with a hook with a needle holder equipped. 11141355 for SS, 22890404 for DS
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Trouble	Case (1)	Case (2)	Check and Corrective measures
	From the previous page		
	4-3) The tension of the needle thread is too high.		Reduce the tension of the needle thread. Use silicon.
	4-4) The speed is too high.		Reduce the speed.
	4-5) The feed timing is inappropriate. (needle bent)	5-A) The needle is bent by the thick portion.	Hasten the feed timing.
	4-6) The thread take-up spring is inappropriately adjusted.	6-A) The stroke of the thread take-up spring is too long.	Shorten the stroke of the thread take-up spring.
		6-B) The tension of the thread take-up spring is too high.	Reduce the tension of the thread take-up spring.
	4-7) The material is inappropriately stretched.	7-A) The presser is floating.	Adjust the clearance between the presser bar holder and lifting plate.
		7-B) The needle hole of the throat plate is too large.	Use a throat plate with a smaller needle hole.
		7-C) The thread relief on the back side of the presser is too large.	Use a foot with a smaller thread relief on the backside or without thread relief.
		7-D) The parallel level of the presser is inappropriate.	Replace the presser, or loosen the presser bar holding screw and correct the foot bend.
5. Needle thread breakage	5-1) The thread path (including the throat plate and foot) is defective	1-A) The thread path is not smooth.	Finish the thread path appropriately.
		1-B) The thread path has a flaw.	Finish the thread path appropriately.
		1-C) The thread path has an obstacle.	Check threading again and conduct correction if necessary.
	5-2) The tension of the needle thread is inappropriate.	2-A) The tension of the needle thread is too high or too low.	Adjust the tension of the needle thread to the appropriate level.
		2-B) The 1st thread tension is too low.	Adjust the tension of the needle thread to eliminate random movement of the thread between the 1st and 2nd thread tension portions.
	5-3) The thread take-up spring is inappropriately adjusted.	3-A) The stroke of the thread take-up spring is too long or too small.	Adjust the stroke of the thread take-up spring.
		3-B) The tension of the thread take-up spring is too high or too low.	Adjust the tension of the thread take-up spring.
		3-C) Spring selection for the thread to be used is inappropriate.	For the A-type thread tension, replace the current thread take-up spring with a standard type spring. (for a #60 or thicker thread)
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Trouble	Case (1)	Case (2)	Check and Corrective measures
	From the previous page		
	5-4) The needle is defective.	4-A) The needle is bent.	Replace the needle.
		4-B) The needle has a flaw.	Replace the needle.
		4-C) The needle tip is blunt.	Replace the needle.
		4-D) The needle mounting direction is inappropriate.	Mount the needle appropriately. Defective sewing is likely to occur when the needle recess portion faces frontward.
		4-E) The needle is too thin or thick for the thread to be used.	Replace the needle.
		4-F) The needle tip is too sharp.	Use a ballpoint needle.
	5-5) The matters related to the hook are inappropriate.	5-A) The thread path of the hook has a flaw.	Replace the needle.
		5-B) The blade top of the hook is blunt or worn.	Sharpen the blade top of the hook or replace the needle.
		5-C) The clearance between the hook and inner hook presser is too small.	Increase the clearance to smooth the thread passing.
		5-D) Hook oil is insufficient.	Adjust the hook oil volume to the appropriate level.
	5-6) The matters related to the hook are inappropriate.	6-A) The thread path of the hook has a flaw.	Replace the needle.
6. Thread breakage at back or back-tuck sewing	6-1) The needle mounting direction is inappropriate.	1-A) The needle mounting direction is inappropriate.	Mount the needle so that the needle recess portion faces in the direction of slightly opposite side of the operator (approx. 10 degrees) from the exactly lateral direction.
		1-B) The thread take-up spring is inappropriately adjusted.	Adjust the thread take-up spring so that the thread is not fed from the thread tension disk before the thread take-up spring moves to the end. (The more effective this adjustment becomes, the lower the spring tension is set or the longer the stroke of the spring is set.)
			Wind the thread around the needle or use the T-type needle bar thread guide (B1418227T00).
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Trouble	Case (1)	Case (2)	Check and Corrective measures
	From the previous page		
	6-2) The timing of the hook is too late.	2-A) Late hook timing excessively enlarges and deforms the needle thread loop, and accordingly, the thread is caught twice with the blade top resulting in thread breakage.	Conduct hook adjustment 0.2 to 0.5 mm earlier than the lower marker line of the needle bar.
			Wind the thread around the needle.
	6-3) The thread take-up spring is inappropriately adjusted.	3-A) The stroke of the thread take-up spring is too long or too small.	Adjust the stroke of the thread take-up spring.
		3-B) The tension of the thread take-up spring is too high or too low.	Adjust the tension of the thread take-up spring.
		3-C) Spring selection for the thread to be used is inappropriate.	For the A-type thread tension, replace the current thread take-up spring with a standard type spring. (for a #60 or thicker thread)
7. Thread breakage at needle entry or idle stitching	7-1) Same as [6. Thread breakage at back or back-tuck sewing]	1-A) Same as [6. Thread breakage at back or back-tuck sewing]	Same as [6. Thread breakage at back or back-tuck sewing].
	7-2) The position of the knife thread guide is inappropriate.		Make an adjustment so that the needle comes to the hole center.
	7-3) The position of the needle bar is too low.		Lift the position of the needle bar.
8. Seam swinging	8-1) The tension of the needle thread is too high.		Reduce the tension of the needle thread.
	8-2) The needle is defective.	2-A) The needle is bent.	Replace the needle.
		2-B) The needle tip is blunt.	Replace the needle.
		2-C) Needle is too thin.	Use a thicker needle. For a KN needle (single needle), use a double needle.
		2-D) The needle is too long.	Use a shorter needle or a needle with longer shank (DA x 1)
	8-3) The sewing speed is too high.		Reduce the sewing speed.
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Trouble	Case (1)	Case (2)	Check and Corrective measures
	From the previous page		
9. Material breakage	8-4) Feeding is inappropriate.	4-A) The parallel level of the feed dog is inappropriate.	Replace the current feed dog with new one.
		4-B) The feed dog is aslant mounted.	Mount the feed dog appropriately.
		4-C) The feeder bar has a backlash in the right-left direction	Eliminate the backlash in the state of slightly pressing the top, bottom, and horizontal feeder bar pins.
	8-5) Pressing is inappropriate.	5-A) The presser is floating.	Readjust the position of the presser bar holder.
		5-B) The parallel level of the presser is inappropriate.	Replace the presser, or loosen the presser bar holding screw and correct the foot bend.
		5-C) The pressure is too low.	Increase the pressure of the presser.
	8-6) Threading is inappropriate.	6-A) Threading of the needle thread is improper.	Correct threading.
		6-B) The needle bar thread guide is defective.	Try using B1418227T00 or B1418552A00.
	9-1) The needle is defective.	1-A) The needle heat is too high.	Use silicon.
		1-B) The needle is too thick.	Use a needle as thin as possible.
		1-C) The needle tip is blunt.	Replace the needle.
		1-D) The shape of the needle tip is inappropriate. (different needle type)	Use a ballpoint needle. (KN, S, J, B, U, Y, etc.)
	9-2) The speed is too high.		Reduce the speed. (prevention of needle heat)
	9-3) The material is excessively tense.	3-A) The needle hole of the throat plate is too small.	Use a throat plate with a larger needle hole.
		3-B) The pressure is too high.	Reduce the pressure as low as possible.
		3-C) The height of the presser tooth is too high.	Lower the height of the presser tooth as low as possible.
	9-4) The room humidity is too low.		Keep the humidity at approx. 65% to prevent needle heat, electrification, and friction.
	9-5) The feeding pitch is too small.		Increase the feeding pitch as large as possible.

Trouble	Case (1)	Case (2)	Check and Corrective measures
10. Flaw on the bobbin	10-1) The bent needle scratches the bobbin.		Use a hook with needle holder that is compatible with #11 or equivalent needles. 11141355 for SS, 22890404 for DS
11. Irregular stitch	11-1) The matters related to the hook are inappropriate.	1-A) Hook oil is too large or too small in amount.	Adjust the oil volume to the appropriate level.
		1-B) The hook is defective. (thread catch, defective thread path, etc.)	Replace the hook or modify the thread path.
	11-2) The bobbin or bobbin case is defective.	2-A) Inappropriate engagement between the bobbin and bobbin case causes the bobbin thread to be caught.	Replace the bobbin or bobbin case.
		2-B) Defective thread winding around the bobbin winder causes the bobbin thread to be caught.	Adjust the tension and position of the bobbin thread. Also be aware of uneven winding.
		2-C) The tension adjusting spring of the bobbin case is defective.	Replace the bobbin case.
		2-D) The bobbin thread idles in the bobbin case.	Adjust the tension of the idling prevention spring with reference to 3.-(5).
		2-E) The bobbin is inserted into the bobbin case in the wrong direction.	Refer to 3.-(5). Irregular stitches are corrected by rotating the bobbin in the reverse direction.
	11-3) The needle or bobbin thread tension is too low.		Increase the tension of the needle or bobbin thread.
	11-4) The thread take-up spring is inappropriately adjusted.	4-A) The stroke of the thread take-up spring is too long or too short.	Adjust the stroke of the thread take-up spring.
		4-B) The tension of the thread take-up spring is too high or too low.	Adjust the tension of the thread take-up spring.
	11-5) The thread path is defective.	5-A) The thread path is not smooth.	Finish the thread path appropriately.
		5-B) The thread path has a flaw.	Finish the thread path appropriately.
		5-C) The thread path has an obstacle.	Finish the thread path appropriately to correct threading.

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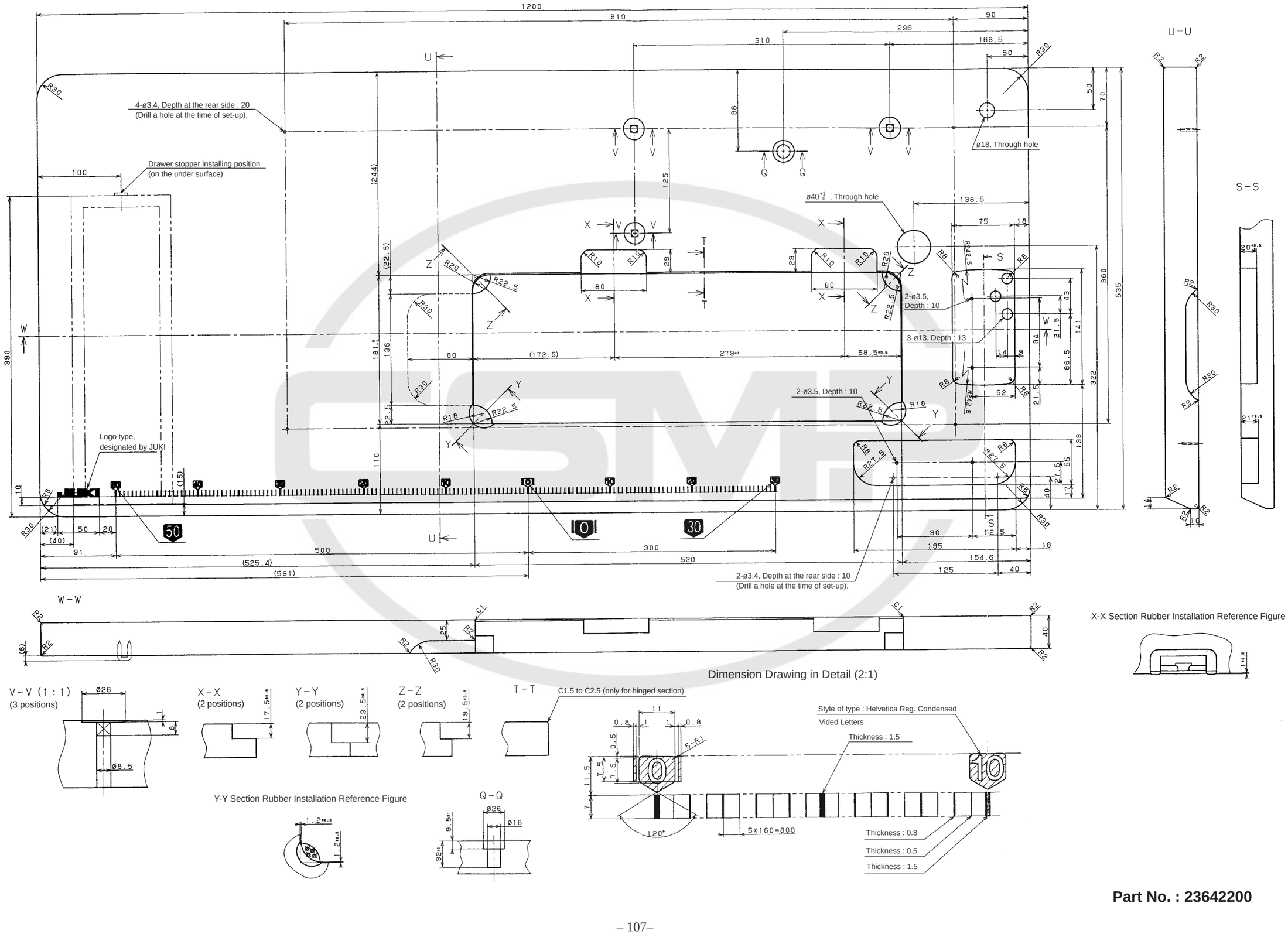
Trouble	Case (1)	Case (2)	Check and Corrective measures
From the previous page			
	11-6) The material is inappropriately stretched.	6-A) The needle hole of the throat plate is too large.	Replace the current gauge with a new one having a smaller diameter hole.
		6-B) The thread relief on the back side of the presser is too large.	Use a presser with a smaller thread relief on the backside or without thread relief.
		6-C) The parallel level of the presser is inappropriate.	Replace the presser, or loosen the presser bar holding screw and correct the needle entry and presser bend if there is no needle entry.
		6-D) The presser is floating.	Adjust the clearance between the presser bar holder and lifting plate.
	11-7) Backlash exists in the moving direction.	7-A) Irregular stitches occur due to pitch fluctuations resulting from variation in the sewing speed.	Check whether there is a backlash and eliminate the back lash if necessary.
	11-8) The stroke of the thread take-up lever is too long.		Move the arm thread guide rightward to reduce the thread feeding with the thread take-up lever.
	11-9) No reaction is observed from the thread guide bar.		Use D1113126WA0.

10. Drawing of the table



Part No. : 23642200

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ISO14001 : 2004
REG.NO.JSAE389

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JUKI CORPORATION HEAD OFFICE

Juki Corporation operates an environmental management system to promote and conduct the following as the company engages in the research, development, design, sales, distribution,and maintenance of industrial sewing machines, household sewing machines, industrial robots, etc., and in the provision of sales and maintenance services for data entry systems:

① The development of products and engineering processes that are safe to the environment
② Green procurement and green purchasing
③ Energy conservation (reduction in carbon-dioxide emissions)
④ Resource saving (reduction of papers purchased, etc.)
⑤ Reduction and recycling of waste
⑥ Improvement of logistics efficiency (modal shift and improvement of packaging, packing, etc.)

This manual uses environment-friendly soyink.

JUKI®

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* **The description covered in this engineer's manual is subject to change for improvement of the commodity without notice.**

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