

ENGLISH

**LH-3500 Series
INSTRUCTION MANUAL**



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1. SPECIFICATIONS

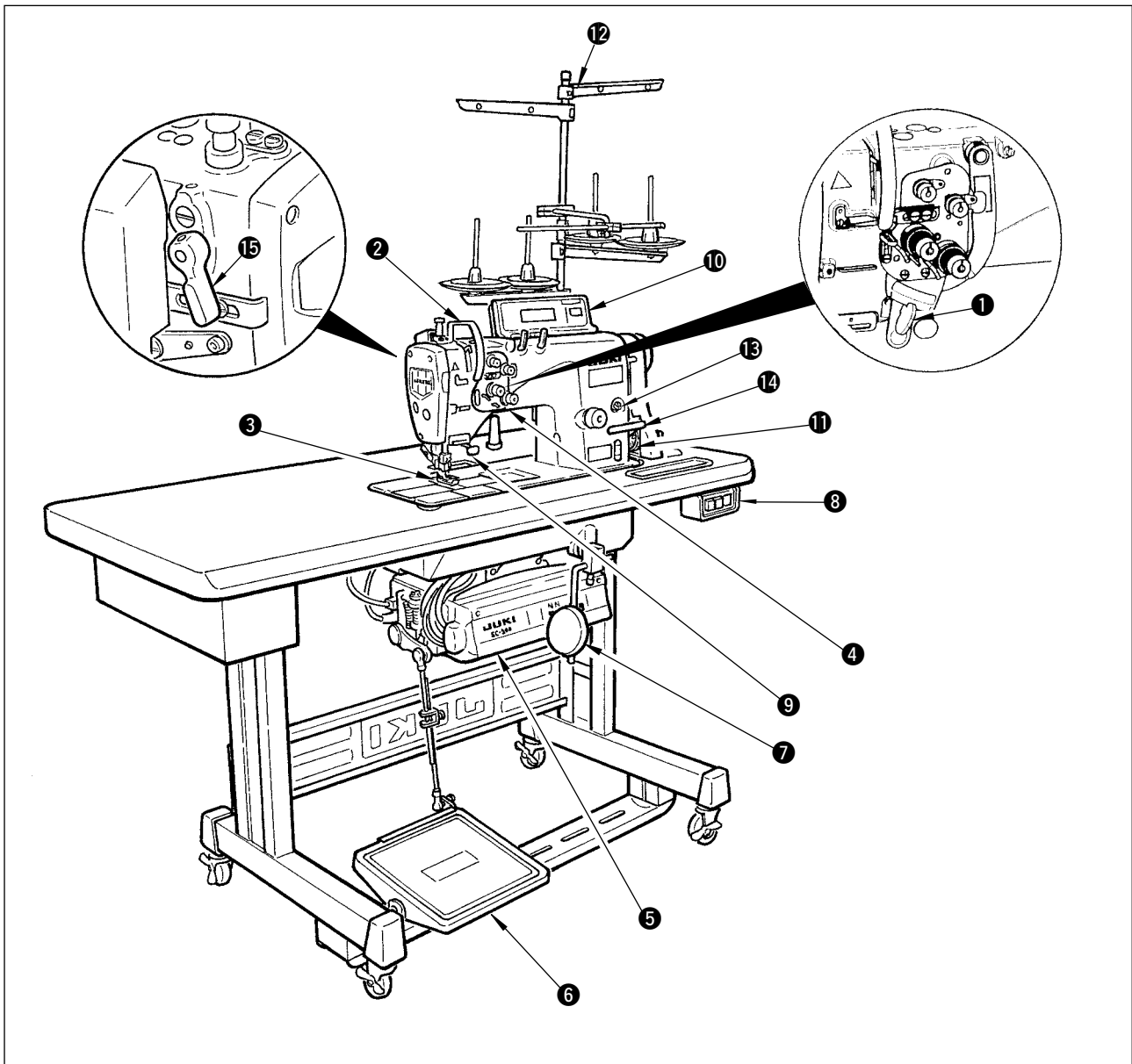
Model name	LH-3528	LH-3528-7 (with automatic thread trimmer)
Application	For light - and medium - weight materials	
	S type : standard, F type : foundation, A type : light-weight materials, G type : jeans	
Hook	Small hook	Small hook
Thread trimmer	Not provided	Provided
Separately driven needle bar mechanism	Not provided	Not provided
Max. sewing speed	3,000 sti/min	
Needle	DP x 5 #9 to #16 (For F,A and S types), DP x 5 #16 to #22 (G type)	
Gauge size	3/32" to 1-1/2"	1/8" to 1-1/4"
	2.4 to 38.1 mm	3.2 to 31.8 mm
Lift of presser foot	13 mm by knee lifter, 7 mm by hand lifter lever	
Lubrication	JUKI NEW DEFRIX OIL No. 1 or JUKI MACHINE OIL #7	
Noise	Workplace-related noise at sewing speed $n = 2,750 \text{ min}^{-1} : L_{pA} \leq 84 \text{ dB(A)}$ Noise measurement according to DIN 45635-48-A-1.	

Model name	LH-3568 (with incorporating corner stitching)	LH-3568-7 (with automatic thread trimmer incorporating corner stitching)
Application	For light- and medium-weight materials	
	S type : standard, G type : jeans	
Hook	Small hook	Small hook
Thread trimmer	Not provided	Provided
Separately driven needle bar mechanism	Provided	Provided
Max. sewing speed	3,000 sti/min	
Needle	DP x 5 #9 to #16 (S type), DP x 5 #16 to #22 (G type)	
Gauge size	1/8" to 3/4"	
	3.2 to 19.1 mm	
Lift of presser foot	13 mm by knee lifter, 7 mm by hand lifter lever	
Lubrication	JUKI NEW DEFRIX OIL No. 1 or JUKI MACHINE OIL #7	
Noise	Workplace-related noise at sewing speed $n = 3,000 \text{ min}^{-1} : L_{pA} \leq 83.5 \text{ dB(A)}$ Noise measurement according to DIN 45635-48-A-1.	

Model name	LH-3578	LH-3578-7 (with automatic thread trimmer)
Application	For medium - weight materials	
	G type : jeans	
Hook	Large hook	Large hook
Thread trimmer	Not provided	Provided
Separately driven needle bar mechanism	Not provided	Not provided
Max. sewing speed	3,000 sti/min	
Needle	DP x 5 #16 to #22 (G type)	
Gauge size	3/16" to 1-1/12"	3/16" to 3/8"
	4.8 to 38.1 mm	4.8 to 9.5 mm
Lift of presser foot	13 mm by knee lifter, 7 mm by hand lifter lever	
Lubrication	JUKI NEW DEFRIX OIL No. 1 or JUKI MACHINE OIL #7	
Noise	Declaration - Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 86.5 dB ; (Includes $K_{pA} = 2.5$ dB) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 3,000 sti/min. - Sound power level (L_{WA}) : A-weighted value of 91.5 dB ; (Includes $K_{pA} = 2.5$ dB) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 3,000 sti/min.	

Model name	LH-3588 (with incorporating corner stitching)	LH-3588-7 (with automatic thread trimmer incorporating corner stitching)
Application	For medium - weight materials	
	G type : jeans	
Hook	Large hook	Large hook
Thread trimmer	Not provided	Provided
Separately driven needle bar mechanism	Provided	Provided
Max. sewing speed	3,000 sti/min	
Needle	DP x 5 #16 to #22 (G type)	
Gauge size	3/16" to 3/8"	
	4.8 to 9.5 mm	
Lift of presser foot	13 mm by knee lifter, 7 mm by hand lifter lever	
Lubrication	JUKI NEW DEFRIX OIL No. 1 or JUKI MACHINE OIL #7	
Noise	Declaration - Equivalent continuous emission sound pressure level (L_{pA}) at the workstation : A-weighted value of 85 dB ; (Includes $K_{pA} = 2.5$ dBA) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 3,000 sti/min. - Sound power level (L_{WA}) : A-weighted value of 89.5 dB ; (Includes $K_{pA} = 2.5$ dBA) ; according to ISO 10821- C.6.2 -ISO 11204 GR2 at 3,000 sti/min.	

2. NAME OF EACH COMPONENT



① Separately driven needle changeover lever
(LH-3568, 3568-7, 3588, 3588-7)

② Thread take-up cover

③ Finger guard

④ Thread tension controller

⑤ Control box

⑥ Pedal

⑦ Knee pad

⑧ Power switch

⑨ Reverse feed switch

⑩ Operation panel

⑪ Bobbin winder

⑫ Thread stand

⑬ Oil supply opening

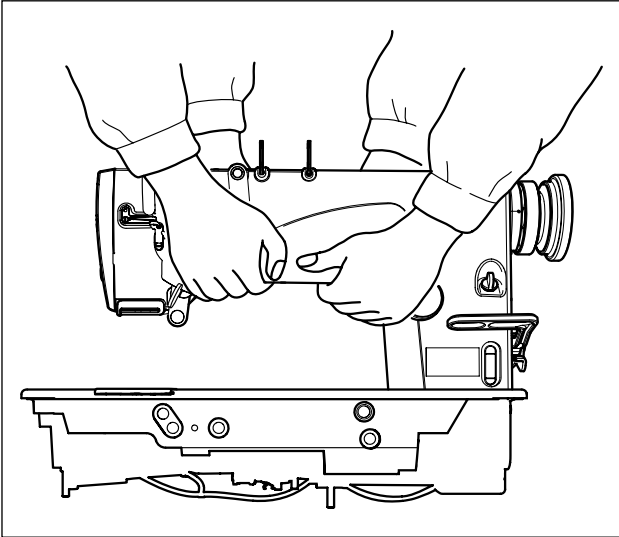
⑭ Reverse feed control lever

⑮ Hand lifter lever

3. INSTALLATION

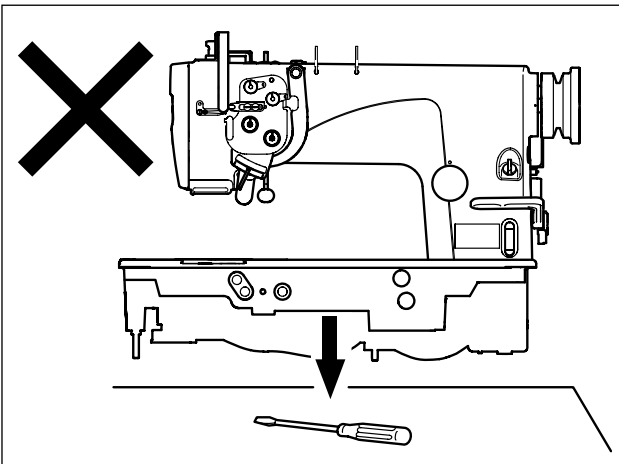
3-1. Caution at the time of set-up

1) Transporting procedure of the sewing machine



Hold and transport the sewing machine with two persons as shown in the illustration.

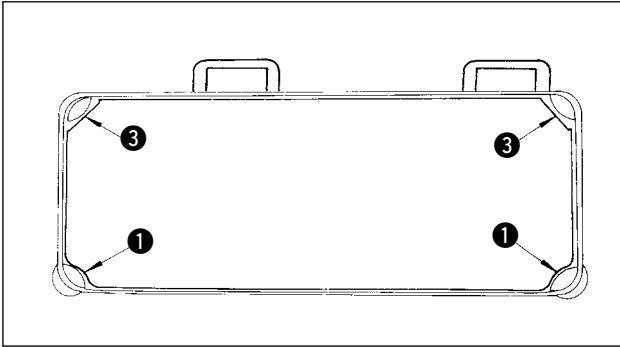
2) Caution when placing the sewing machine



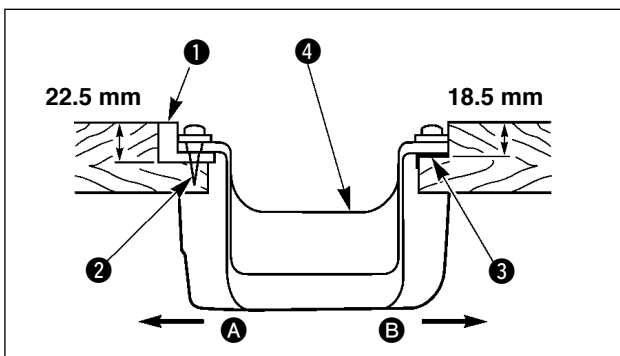
Do not put protruding articles such as the screwdriver and the like at the location where the sewing machine is placed.

3-2. Installation of the sewing machine

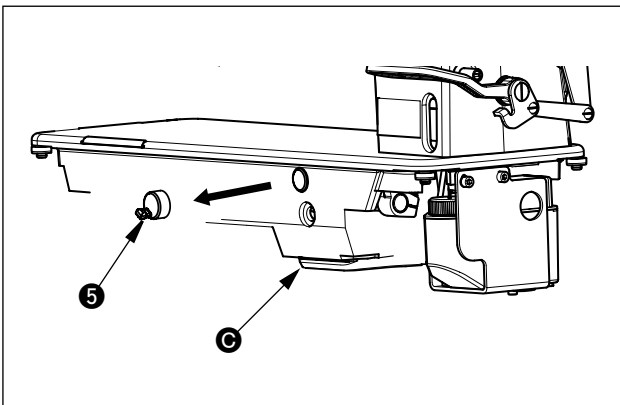
(1) Installing the under cover



- 1) The under cover should rest on the four corners of the machine table groove.



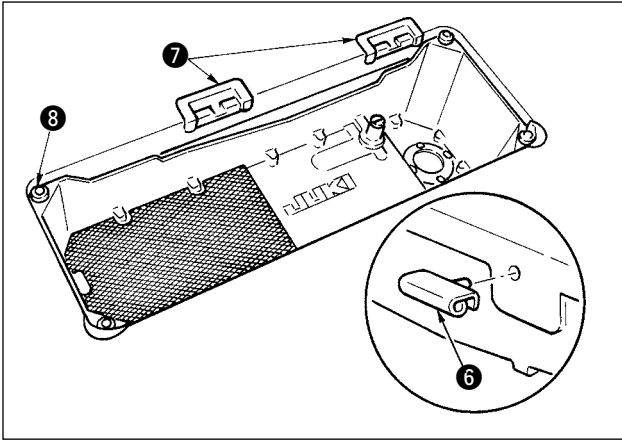
- 2) Fix two rubber seats 1 on side A (operator's side) using nails 2 as illustrated above. Fix two cushion seats 3 on side B (hinged side) using a rubber-based adhesive. Then place under cover 4 on the fixed seats.



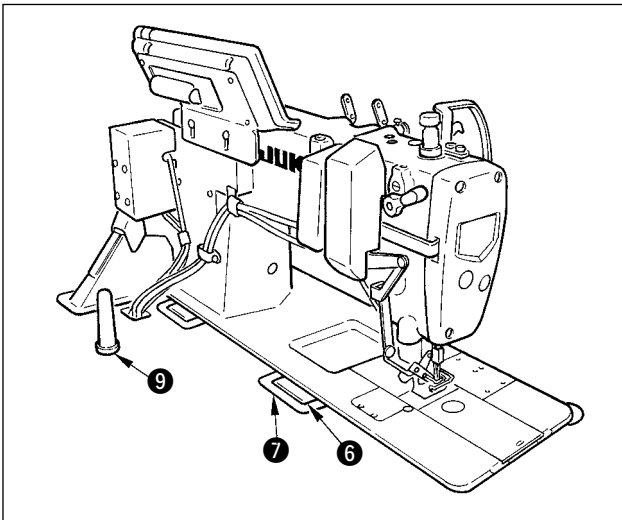
- 3) Remove air vent cap 5 attached to the machine bed. (Be sure to attach cap 5 when transporting the machine head in the state that the machine head is removed from the machine table.)



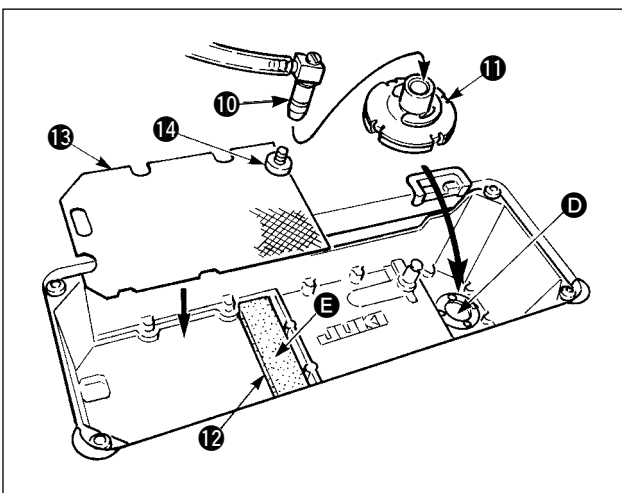
If the sewing machine is operated without removing air vent cap 5, oil leakage from gear box portion C may occur.



- 4) Insert hinge 6 into the machine main body. Fit the machine head to table rubber hinges 7 and place it on head cushions 8 on the four corners.



- 5) Attach head support rod 9 to the table.



- 6) Remove inlet port 10 for circulation which is fixed to the oil tank installing plate, and securely insert it into filter 11 until it goes no further after removing cap 14 which is attached to the end of the inlet port. Then set the inlet port to D.
Place urethan filter 12 on E, and place filter 13 of thin plate type (small mesh plate) on it.



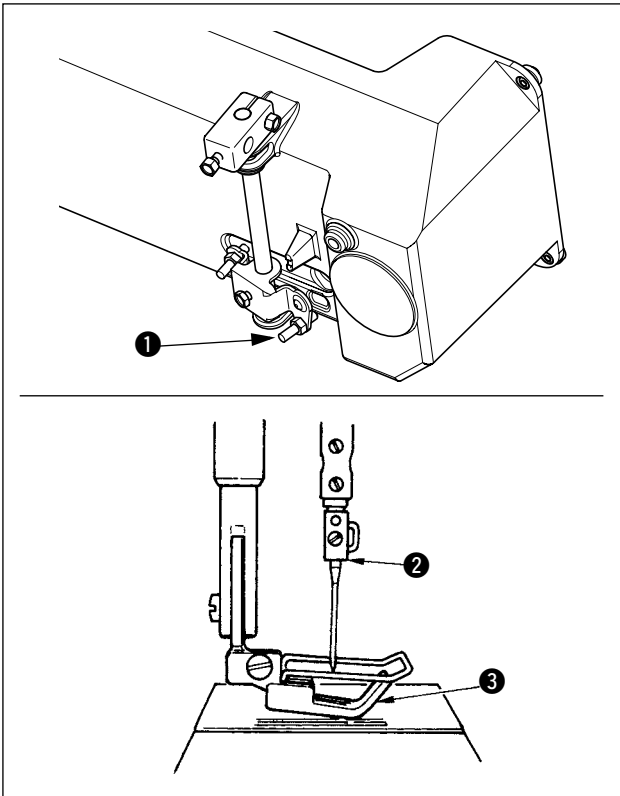
Caution Circulation trouble may occur unless inlet port 10 for circulation is securely inserted into filter 11 until it goes no further.

3-3. Adjusting the height of the knee lifter



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

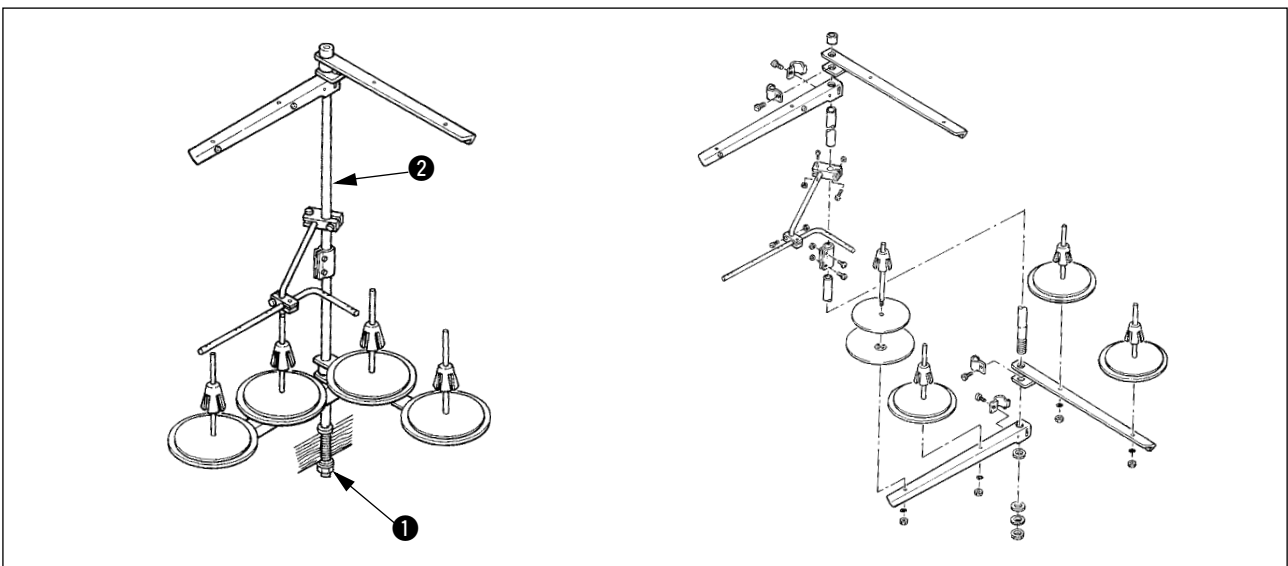


- 1) The standard height of the presser foot lifted using the knee lifter is 12 mm.
- 2) You can adjust the presser foot lift up to 13 mm using knee lifter adjust screw ①.



Do not operate the sewing machine in the state that the presser foot ③ is lifted by 12 mm or more since the needle bar ② comes in contact with the presser foot ③.

3-4. Installation of thread stand



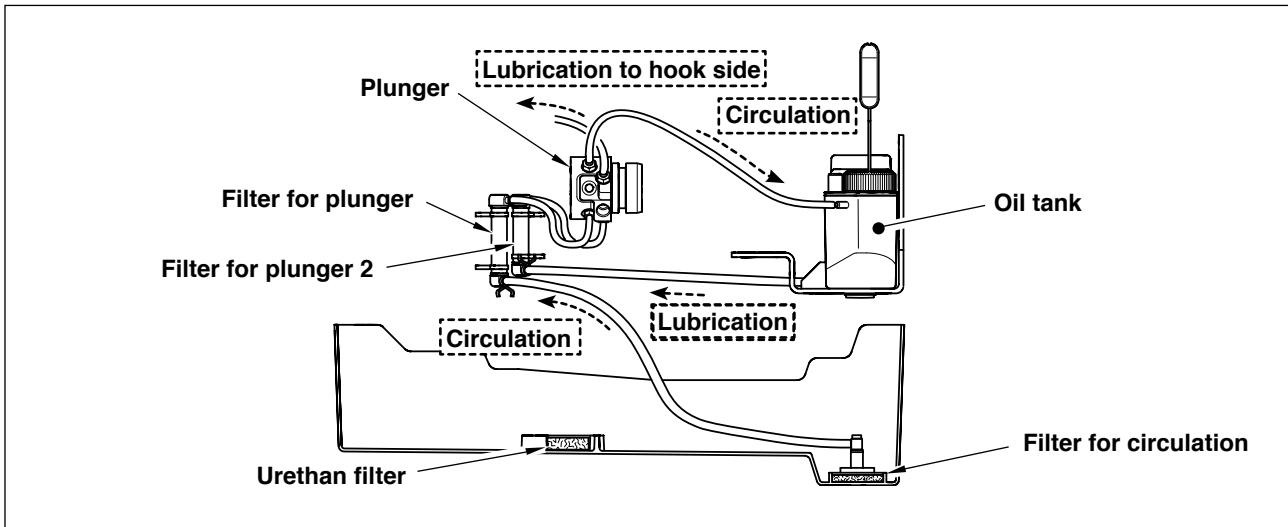
Assemble the thread stand, set it up on the machine table using the installation hole in the table and tighten nut ① gently.

When you use power supplied by the overhead power line, pass the power supply cord through hollow spool rest rod ②.

4. PREPARATION OF THE SEWING MACHINE

4-1. Method of lubrication

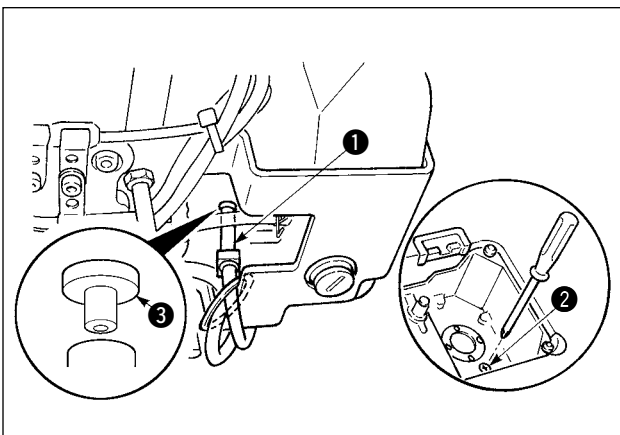
(1) Method of circulating lubrication (when the oil collected in the under cover is reused)



Periodically (approximately once in three months) clean the aforementioned filter sections (four places) in order to use the machine for a long time. When the filter is clogged, lubrication trouble will occur and break-down will be caused.

In addition, when the oil becomes dirty, replace the oil gathered in the oil tank and the under cover.

(2) Method of non-circulation type lubrication (when only the clean oil is always used)



Put cap ③ to inlet port for circulation ① in the same state as that at the time of delivery, and securely fix it to the position where it does not come in contact with the moving section.

* Remove drain screw ② and dump the oil which has dropped to the under cover.



When inlet port for circulation ① comes in contact with the oil surface, oil is absorbed without passing the filter. As a result, break-down will be caused.

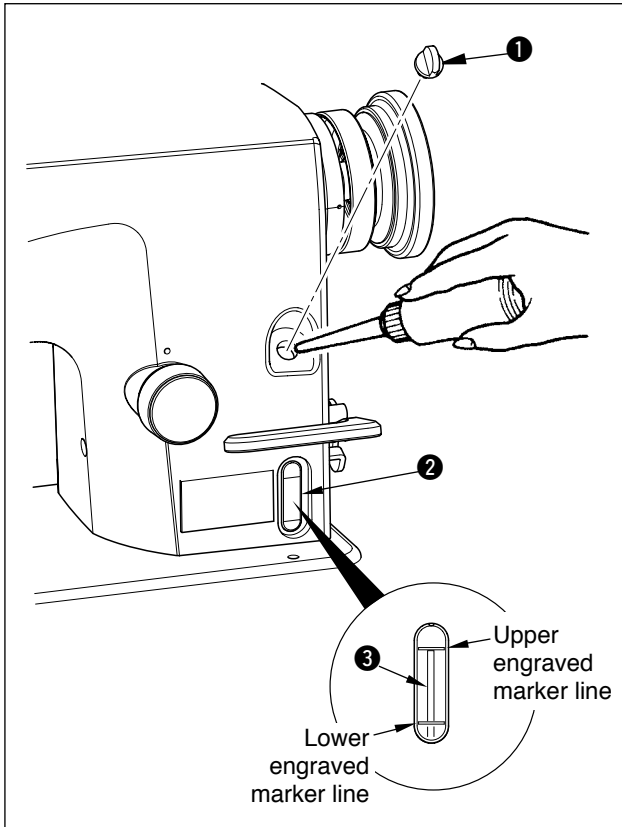
In addition, when cap ③ is not inserted, oil leakage from inlet port for circulation ① or unstableness of oil amount in the hook may occur.

4-2. Lubrication to the oil tank



WARNING :

1. Do not connect the power plug until the lubrication has been completed so as to prevent accidents due to abrupt start of the sewing machine,
2. To prevent the occurrence of an inflammation or rash, immediately wash the related portions if oil adheres to your eyes or other parts of your body.
3. If oil is mistakenly swallowed, diarrhea or vomiting may occur. Put oil in a place where children cannot reach.



Fill the oil tank with oil for hook lubrication before operating the sewing machine.

- 1) Remove oil hole cap ① and fill the oil tank with JUKI NEW DEFRIX OIL No.1 (Part No. : MDFRX1600C0) or JUKI MACHINE OIL #7 (Part No. : MML007600CA) using the oiler supplied with the machine.
- 2) Fill the oil tank with the oil until the top end of oil amount indicating rod ③ comes between the upper engraved marker line and the lower engraved marker line of oil amount indicating window ②.
If the oil is filled excessively, it will leak from the air vent hole in the oil tank or proper lubrication will be not performed. So, be careful.
- 3) When you operate the sewing machine, refill oil if the top end of oil amount indicating rod ③ comes down to the lower engraved marker line of oil amount indicating window ②.



- When filling the oil tank with the oil initially, make sure that the oil amount indicating rod works. When it does not work at this time, make it work by tilting the sewing machine once.
- When you use a new sewing machine or a sewing machine after an extended period of disuse, use the sewing machine after performing break-in at 2,000 sti/min or less.
- For the oil for hook lubrication, purchase JUKI NEW DEFRIX OIL No. 1 (Part No. : MDFRX1600C0) or JUKI MACHINE OIL #7 (Part No. : MML007600CA).
- Be sure to lubricate clean oil.



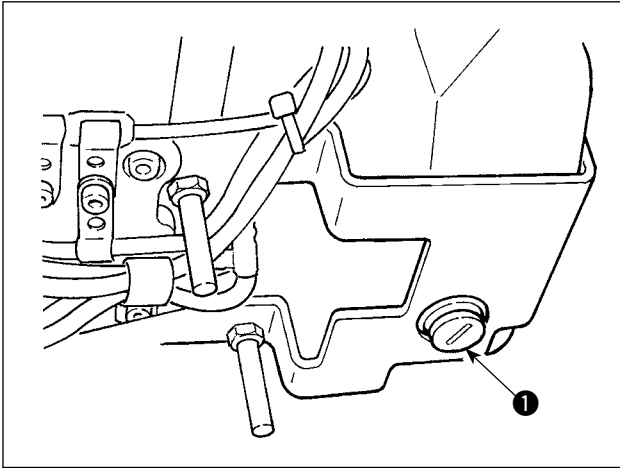
In case of the circulation type lubrication method, when using the sewing machine for the first time, the oil amount in the oil tank decreases until the oil has collected in the filer for circulation. When the top end of oil amount indicating rod is lower than the lower engraved marker line, add the oil to the oil tank again so that the top end enters between the upper and lower engraved marker lines.

4-3. Draining of oil from the oil tank



WARNING :

1. To prevent accidents caused by abrupt start of the sewing machine, do not connect the power plug until draining of oil has been completed.
2. To prevent the occurrence of an inflammation or rash, immediately wash the related portions if oil adheres to your eyes or other parts of your body.
3. If oil is mistakenly swallowed, diarrhea or vomiting may occur. Put oil in a place where children cannot reach.



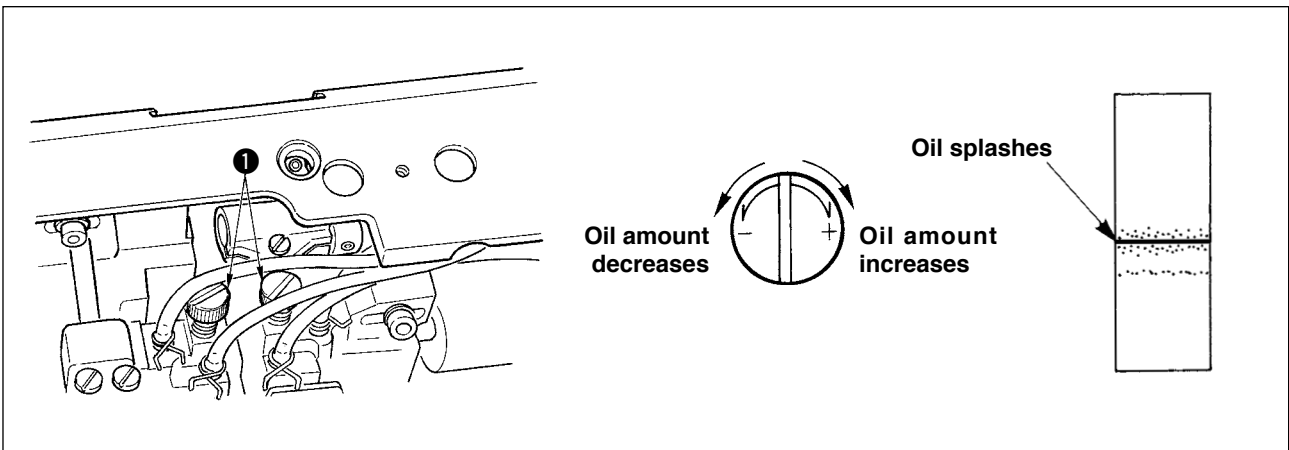
When draining oil from the oil tank, loosen drain screw ❶ with the L-shaped screwdriver (Part No. : B9101490000) supplied as accessories and remove it.

4-4. Adjusting the amount of oil in the hook



WARNING :

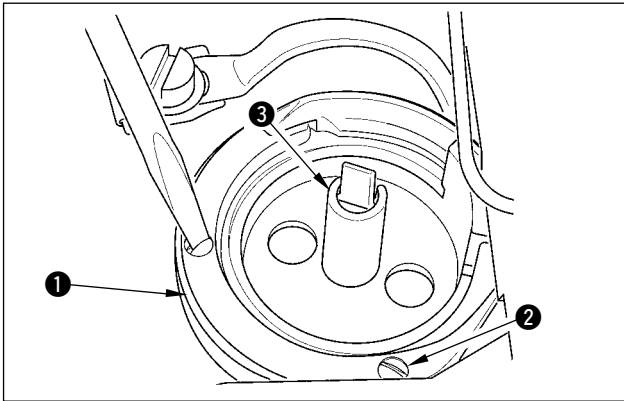
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



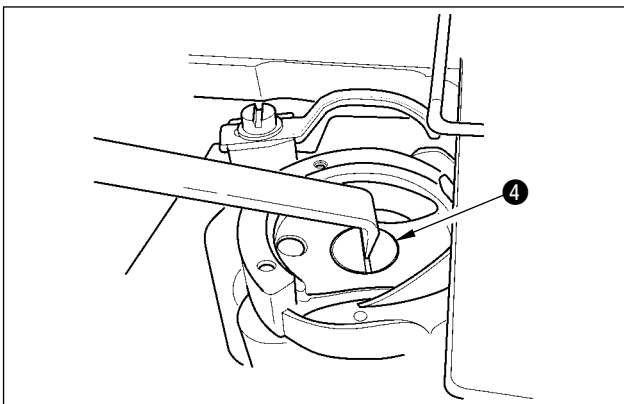
Adjust the amount oil using adjusting screw ❶. Turn screw ❶ clockwise to increase the amount of oil in the hook or counterclockwise to decrease it. Measure the amount of oil in five seconds. When the amount of oil is excessively decreased, break-down will be caused. So, be careful.



To use in safety, replace the oil wick of hook section with a new one approximately once a year with the procedure below.



- 1) Loosen setscrews ② (small hook : 2 places, large hook : 3 places) and remove hook gib ①.
- 2) Remove inner hook ③.
- 3) Loosen oil plug ④ with the L-shaped screwdriver (Part No. : B9101490000) and remove it.



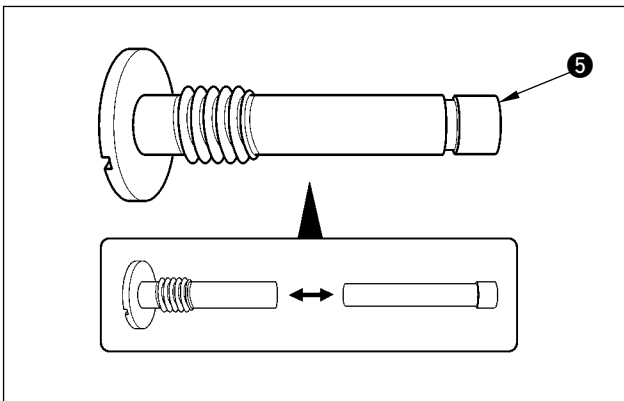
- 4) Draw out oil wick ⑤ inserted into oil plug ④, and replace it with a new one.

[Part No. of oil wick ⑤]

Small hook	11015906
Large hook	11404704



When strongly pressing oil wick ⑤, it may be broken. Lightly insert it to such an extent that it is not drawn out.

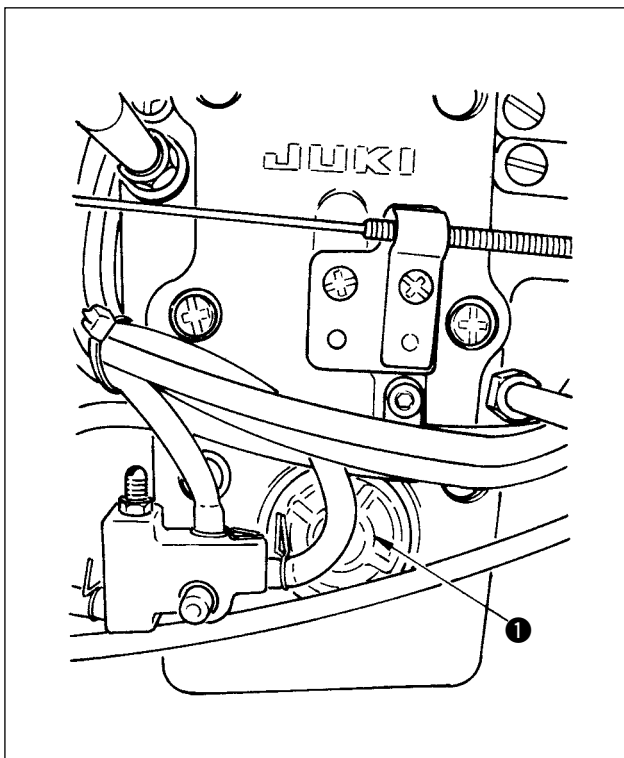


After the replacement, assemble oil plug ④, inner hook ③ and hook gib ① to the hook by reversing the above procedure.
Perform confirming of oil splash.



When loosening/assembling, do not allow the slit section of oil plug ④ to be burred.

4-5. Oil in the feed box



When using the sewing machine, make sure that the oil is put in the feed box from oil confirming window ①.



Do not add oil to the feed box since the adequate amount of oil which is different from the hook oil has been put in the feed box.

4-6. Applying grease



WARNING :

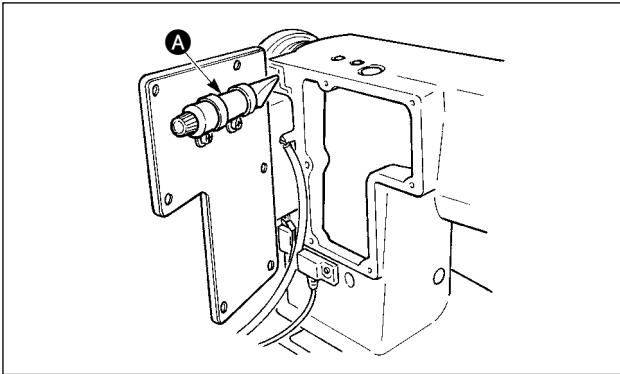
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

To use the sewing machine in safety, periodically perform grease-up (standard is once in 2 to 3 years) to the grease applying sections of the respective models with the cotton bar or the like. When using SC-500, when the time of grease-up comes, the warning alarm sounds. When the alarm sounds, perform grease-up.



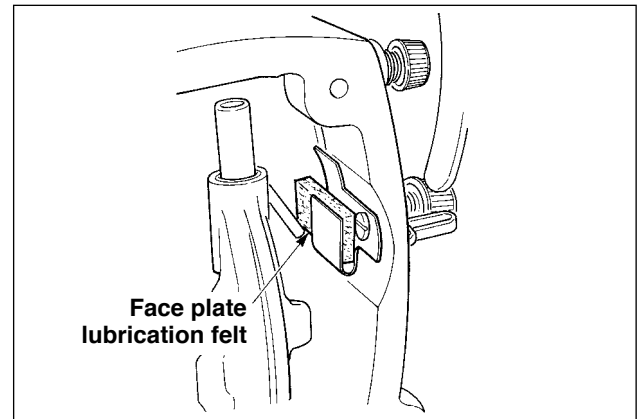
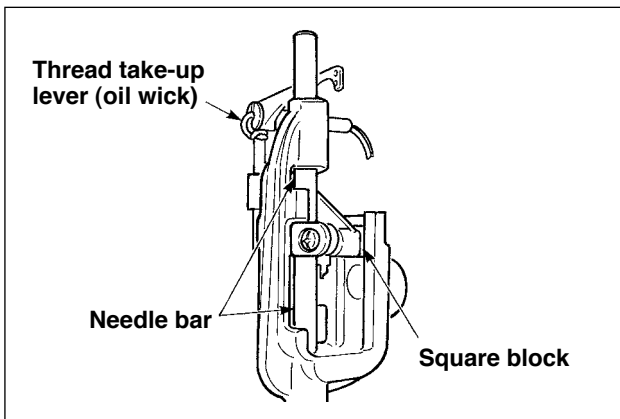
- Never lubricate oil to the grease applying places.
- When grease is applied more than is necessary, there is a fear that grease leaks from the thread take-up lever cover section or the needle bar. So, be careful.
- Be sure to use the grease contained in JUKI GREASE A TUBE (Part No. : 40006323) supplied with the machine head as accessories.

[Grease keeping place]

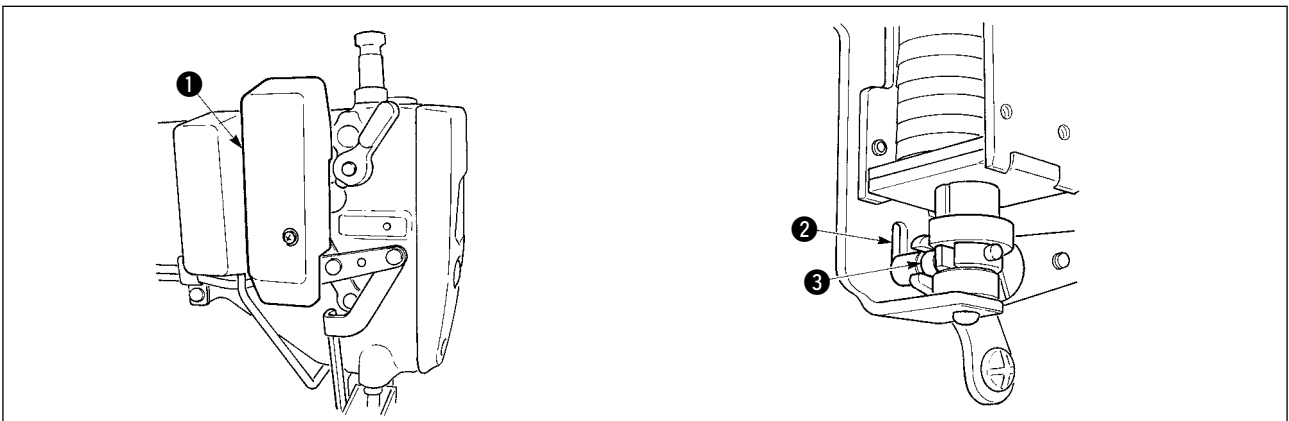


The grease tube is installed on the inside of window plate **A**.

[LH-3528, 3528-7, 3578, 3578-7]

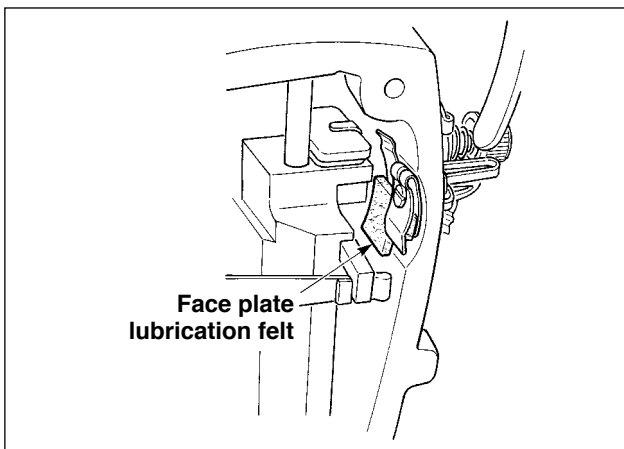
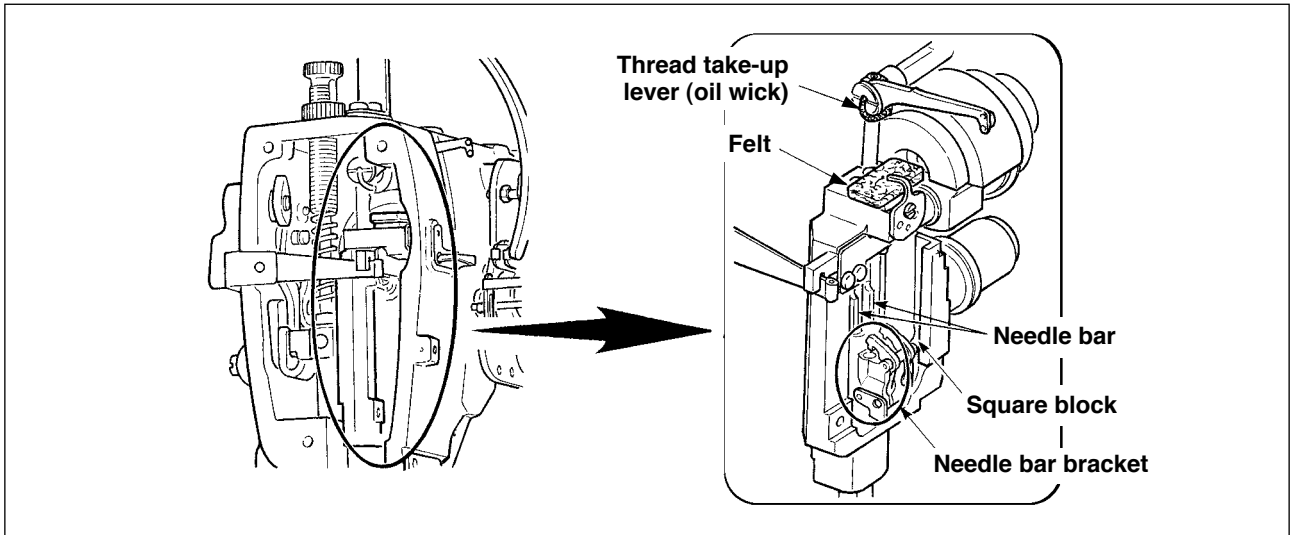


[LH-3528-7, 3568-7, 3578-7, 3588-7]

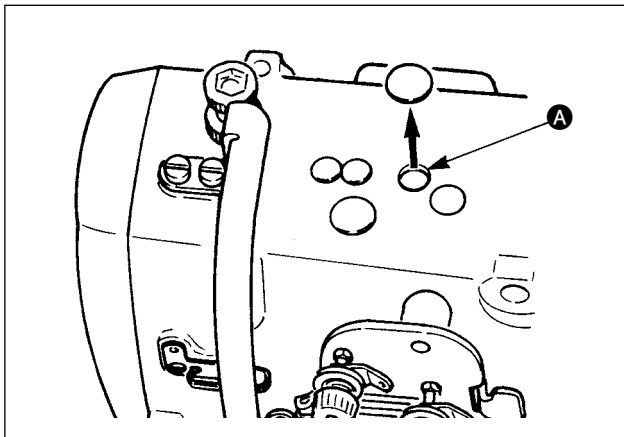


Remove wiper cover **1**, and apply grease to slot section **2** of wiper solenoid base and wiper link collar **3**.

[LH-3568, 3568-7, 3588, 3588-7]



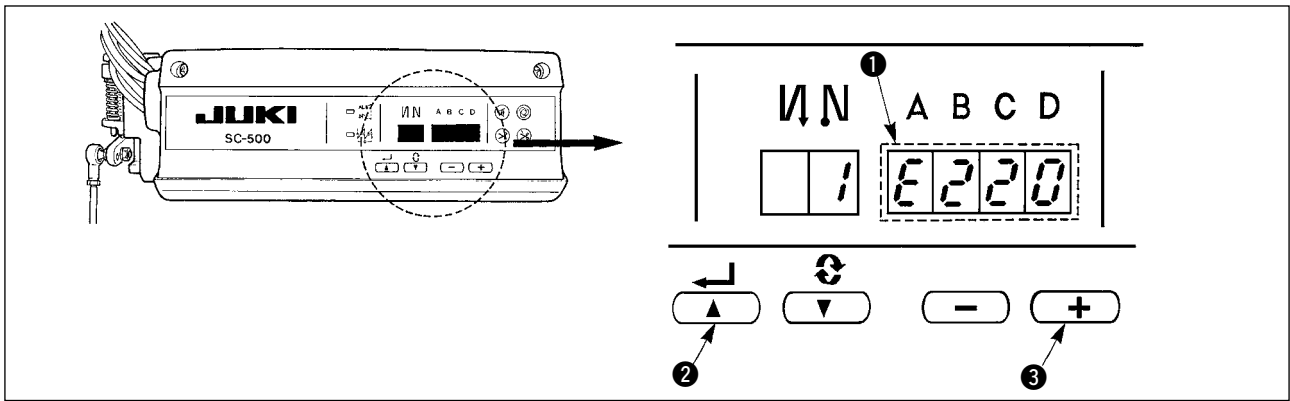
[Common]



Remove the rubber cap, take out the felt in **A**, pour new grease in the hole, and put the felt to which grease has been soaked after removing old grease adhered to the inside of the hole and the felt.

Further, pour grease above the felt and cover it with the rubber cap.

[Releasing procedure of the grease-up warning] For SC-500



When a certain number of times of sewing has been performed, error code No. 220 ① is displayed in the control box at the time of turning ON the power, and warning buzzer sound five times intermittently. This warning informs of the grease replenishment time of the specified place. Be sure to perform grease replenishment to the specified place. For the grease applying place, refer to ["4-6. Applying grease", p.13 and 14](#). For the releasing procedure of the warning after grease replenishment, simultaneously pressing ② and ③, turn ON the power.

[Releasing procedure of the grease-up “error”] For SC-500

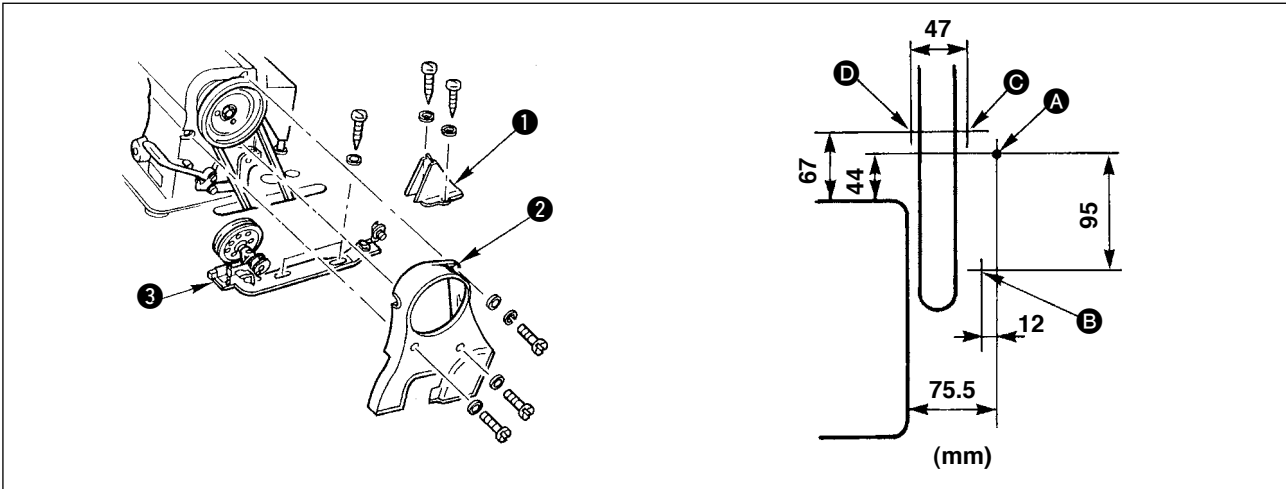
When the machine has been used for a certain period of time without performing grease-up after the display of error code No. 220, error code No. 221 is displayed and the machine stops running. At this time, be sure to execute grease replenishment to the specified place and perform releasing the error in accordance with the aforementioned description.

4-7. Installing the belt cover and the bobbin thread winder



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Drill guide holes **A**, **B**, **C** and **D** of wood screws in the table.
- 2) Adjust the position of bobbin thread winder **3**, and fix it to the place of guide holes **A** and **B** with wood screws.
- 3) Temporarily fix belt cover B **1** to the place of guide holes **C** and **D**.
- 4) Install belt cover A **2** to the arm installing section.
- 5) Adjust the position of belt cover B **1** and fix it with wood screw.

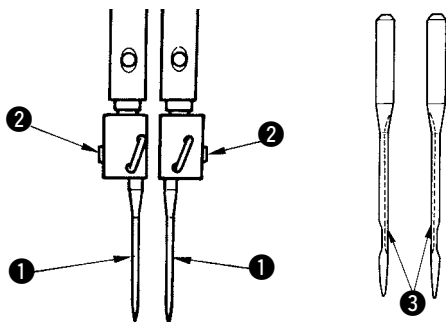
4-8. Attaching the needles



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

[LH-3568, 3568-7, 3588, 3588-7]

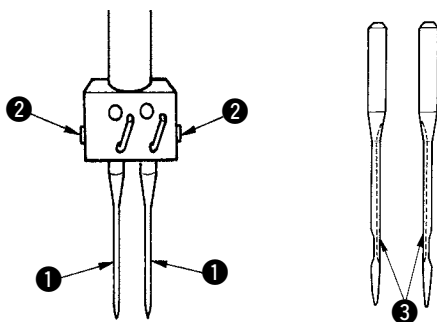


Switch "off" the motor.

Use DPx5 needles.

- 1) Turn the handwheel until the needle bar has come up to the highest point of its stroke.
- 2) Loosen needle clamp screws **2** and pick up two needles **1** in the way that their grooves **3** are facing outwards.
- 3) Insert the needles into the needle clamp as far as they will go.
- 4) Tighten needle clamp screws **2** firmly.

[LH-3528, 3528-7, 3578, 3578-7]

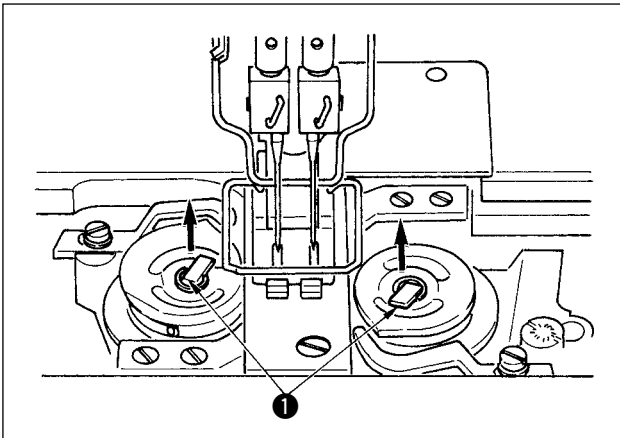


4-9. How to take out the bobbin case



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Lift latch ① and take out the bobbin case and the bobbin together.
- 2) Hold the bobbin case by latch raised, put it into the shaft in the hook correctly and release the latch.

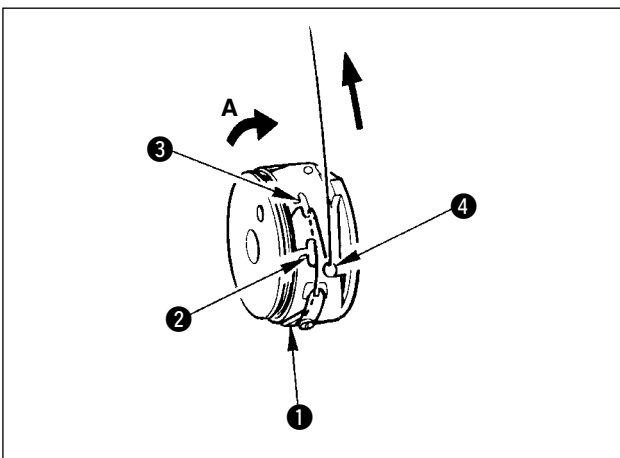
4-10. Inserting a bobbin in a bobbin case



WARNING :

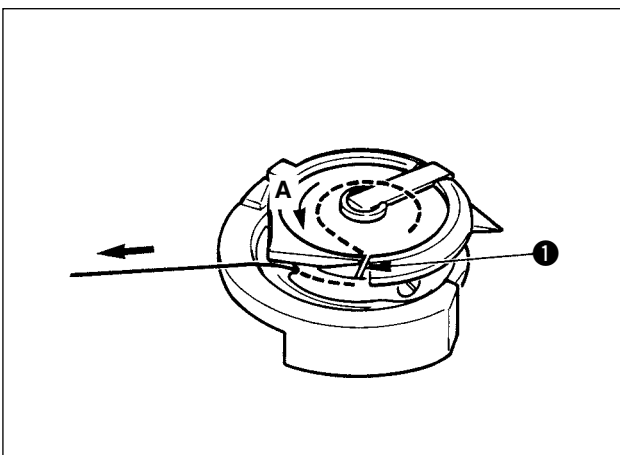
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

[LH-3568, 3568-7, 3588, 3588-7]



- 1) Set a bobbin to the bobbin case so that the bobbin turns in the direction of arrow mark **A**.
- 2) Pass the thread through thread slit ① in the bobbin case and draw the thread and pull the thread so that it passes under the tension spring.
- 3) Pass thread through another thread slit ② then, pass it through thread slit ③ on the bobbin case from the inside.
- 4) Put the thread on bobbin threads slack preventer spring ④.

[LH-3528, 3528-7, 3578, 3578-7]



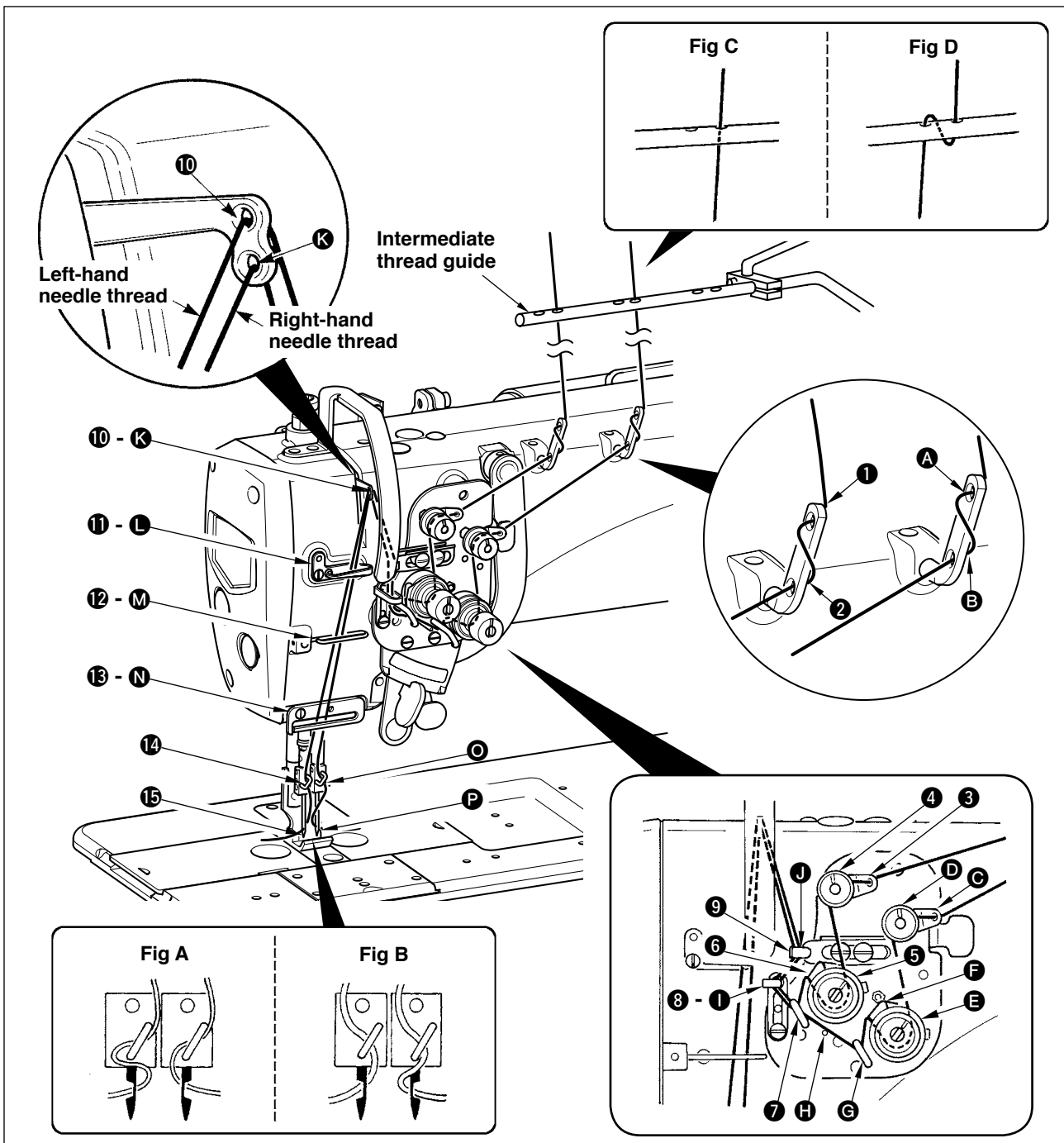
- 1) Set a bobbin to the bobbin case so that the bobbin turns in the direction of arrow mark **A**.
- 2) Pass the thread through thread slit ① in the hook and draw the thread and pull it so that it passes under the tension spring.

4-11. Threading the machine head



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



Thread the machine head following the order as illustrated in the figure.

Pass the left-hand needle thread, toward the machine head, in the order of ① to ⑮. Pass the right-hand needle thread in the order of A to P.



1. Be careful of threading of needle clamp thread guides (⑭, ⑮).

- Figure A for thin filament thread of #60 or less
- Figure B for thick filament thread and polyester spun thread of #50 or more

2. Pass right-side needle thread through the upper side of thread guide pin H.

3. Pass the thread through the intermediate thread guide of LH-3528-7 and 3568-7, 3578-7, 3588-7 as follows.

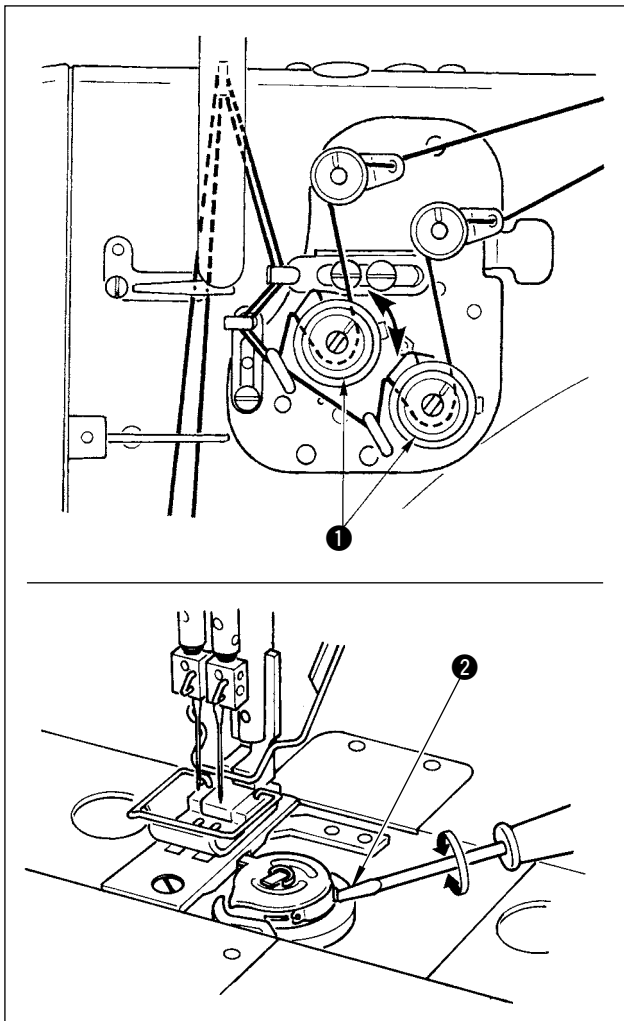
- Fig. C for polyester spun thread
- Fig. D for filament thread

4-12. Thread tension



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Needle thread tension
Turn thread tension nut No. 2 **1** clockwise to increase or counterclockwise to reduce the needle thread tension.
- 2) Bobbin thread tension
Turn tension adjusting screw **2** clockwise to increase or counterclockwise to reduce the bobbin thread tension.

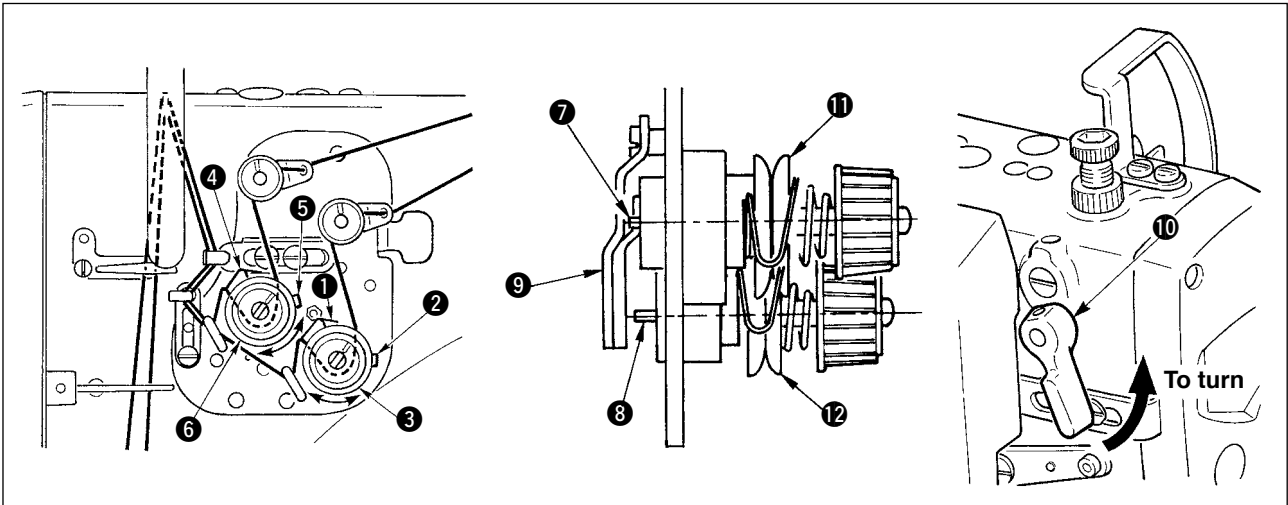
4-13. Thread take-up spring



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

(1) When you want to change the stroke of the thread take-up spring



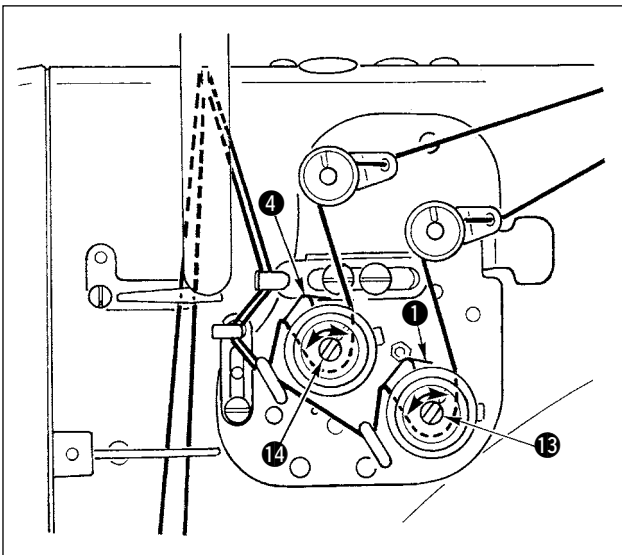
- 1) Stroke of thread take-up spring **1** on the right is adjustable by moving thread tension No. 2 asm. **3** to the left or right after loosening thread tension No. 2 setscrew **2**.
- 2) Stroke of thread take-up spring **4** on the left is adjustable by moving thread tension No. 2 asm. **6** to the left or right after loosening thread tension No. 2 setscrew **5**.
- 3) Move thread tension No. 2 asm. **3** and **6** to the right to increase or to the left to decrease the stroke of the thread take-up spring.



When adjusting the stroke of thread take-up springs **1** and **4**, thread release pins **7** and **8** should not come in contact with disk release plate **9**.

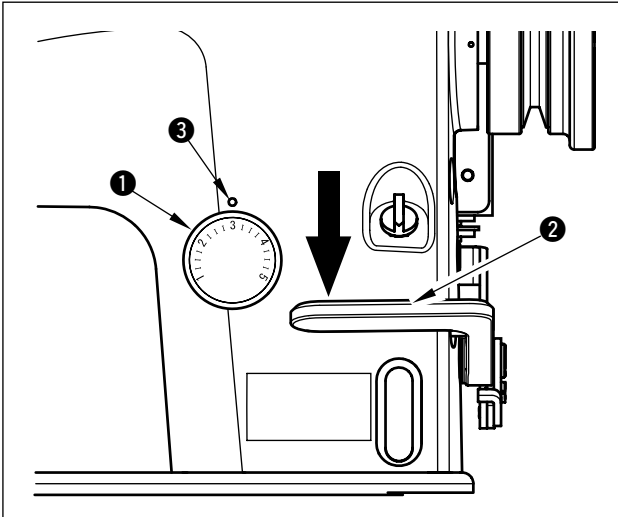
In addition, for LH-3528, 3528-7, 3578 and 3578-7, make sure that thread tension disks **11** and **12** securely rise when hand lifter lever **10** is turned in the direction of the arrow.

(2) When you want to change the tension of the thread take-up spring



- 1) Tension of thread take-up spring **1** on the right is adjustable by turning spring stud **13** to the right to increase or to the left to reduce.
- 2) Tension of thread take-up spring **4** on the left is adjustable by turning spring stud **14** to the right to increase or to the left to reduce.

4-14. Adjusting the stitch length



Turn stitch dial ❶ counterclockwise (clockwise) to set the value on the dial corresponding to a desired stitch length to the marker dot ❸ engraved on the machine arm.

When it is hard to turn stitch dial ❶, turn it while slightly depressing reverse feed control lever ❷.

• Reverse feed operation

- 1) Depress reverse feed control lever ❷.
- 2) Reverse stitches are made as long as you keep depressing the lever.
- 3) Release lever, and the machine will run forward.

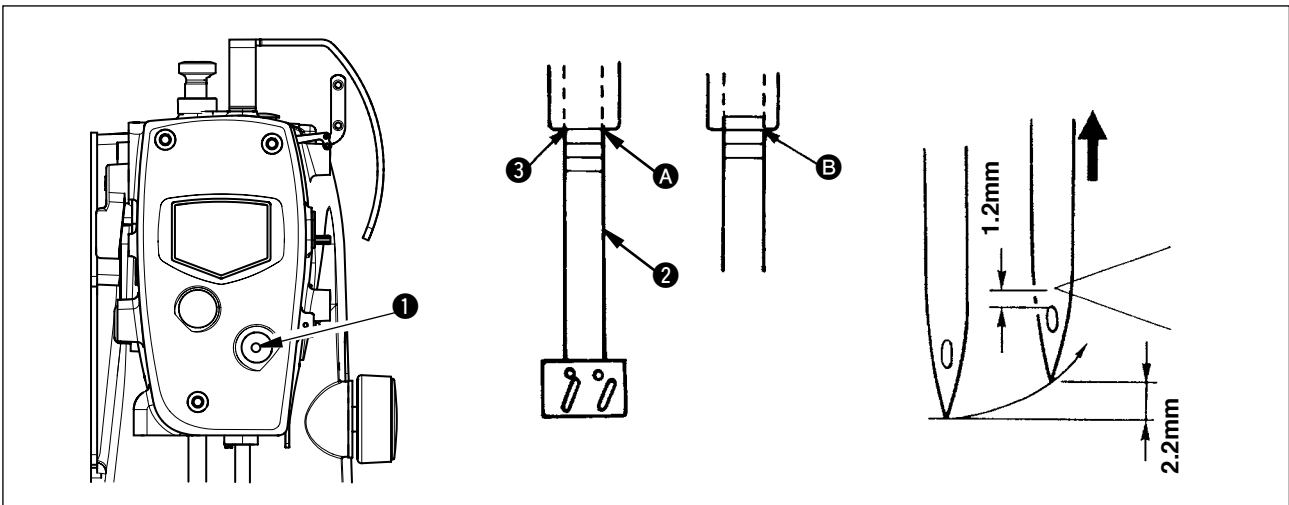
4-15. Needle-to-hook relation



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

[LH-3528, 3528-7, 3578, 3578-7]



• Adjust the needle and the hook as follows.

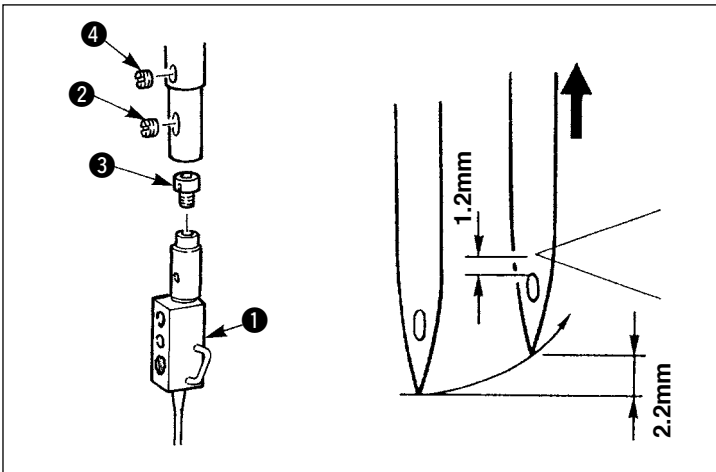
- 1) Adjust the stitch dial to the scale (type A or F : 2, type S : 2.5, type G : 3).
- 2) Turn the handwheel to bring the needle bar to the lowest position and loosen needle bar connecting stud clamping screw ❶.
- 3) Determine the height of needle bar. The upper two of engraved marker lines are for DP X 5 needle, and the lower two of them are for DP X 17 needle.

[Adjusting procedure for DP X 5 needle]

Adjust top engraved marker line A of needle bar ❷ to the bottom end of needle bar rocking base ❸, and tighten the needle bar connecting stud clamping screw ❶. At this time, the needle bar goes up by 2.2 mm from the lowest position (adjust the second engraved marker line B to the bottom end of needle bar rocking base ❸) and the blade point of hook aligns with the center of needle. Then the distance between the top end of needle eyelet and the blade point of hook becomes 1.2 mm.

[Adjusting procedure for DP X 17 needle]

Use the lower two of the engraved marker lines, and perform the adjustment by the same procedure as that of [Adjusting procedure for DP X 5 needle].



• Adjust the needle and the hook as follows.
[Adjusting procedure for DP X 5 needle]

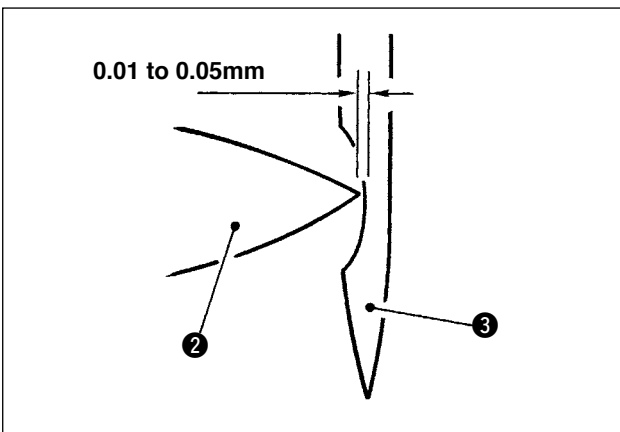
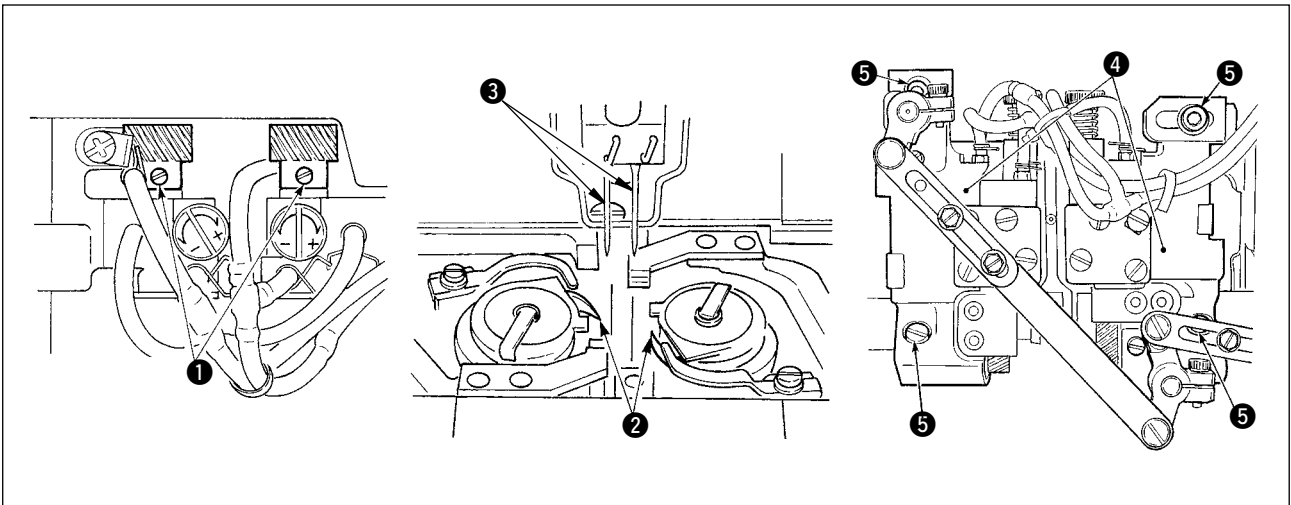
- 1) Adjust the stitch dial to the scale (type S : 2.5, type G : 3).
- 2) Turn the handwheel to align the blade point of hook with the center of needle when the needle bar goes up by 2.2 mm from the lowest position (lower engraved marker line of the needle bar aligns with the bottom end of the needle bar rocking base). At this time, it is the standard that the distance between the top end of needle eyelet and the blade point of hook becomes 1.2 mm.

- 3) If the needle-to-hook relation is different from the afore-mentioned standard adjustment, remove needle clamp screw ② and turn needle clamp ① by one revolution (the extent of adjustment : 0.6mm). The needle-to-hook relation can also be adjusted by removing screw ④ from the spring shoe and turning spring shoe ③ by a half revolution (the extent of adjustment : 0.3mm).

[Adjusting procedure for DP X 17 needle]

When replacing the needle with DP X 17, replace needle clamp ①. (Needle clamp for DP X 17 is an optional part.) Use the same engraved marker line of the needle bar for DP X 5. Adjusting procedure is the same as that of DP X 5.

[Common]



• Determine the position of the hook.

- 1) Loosen three setscrews ① in the screw gear (small), and turn the handwheel to lift the needle bar from its lowest position by 2.2 mm.
- 2) In this state, loosen four setscrews ⑤ in hook driving shaft saddle ④, and move hook driving shaft saddle ④ to the right or left to adjust so that a clearance of 0.01 to 0.05 mm is provided between blade point ② of the hook and needle ③. Then tighten setscrews ⑤.
- 3) Next, in the state described in step 1), align the blade point of hook with the center of needle and tighten setscrews ① in the screw gear (small).

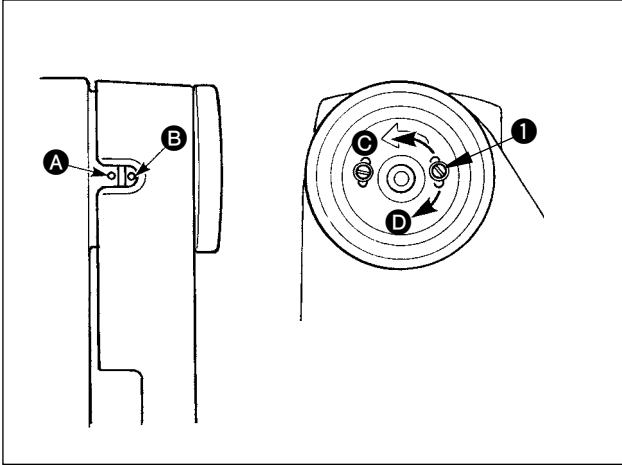
4-16. Adjusting the needle stop position



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

[LH-3528-7, 3568-7, 3578-7, 3588-7]

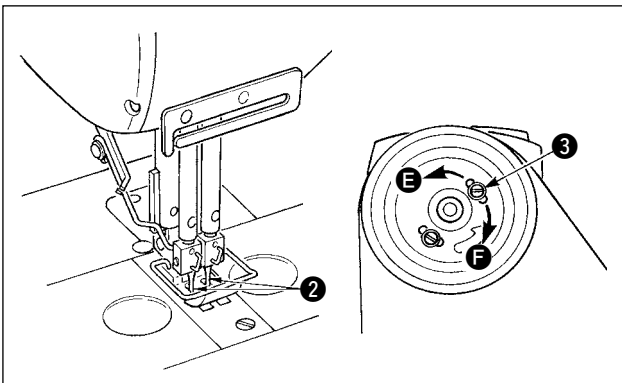


(1) Stop position after thread trimming

- 1) The standard needle stop position is obtained by aligning marker dot **A** on the machine arm with white marker dot **B** on the handwheel.
- 2) Stop the needle in UP position, turn OFF the power, and loosen screw **1** to perform adjustment within the slot of the screw. The needle stop timing is advanced if you move the screw in the direction of **C**. The needle stop timing is delayed if you move the screw in the direction of **D**.



Do not operate the machine with screw **1** loosened. Just loosen the screw, and do not remove it.



(2) Lower stop position

- 1) The DOWN needle stop position when the pedal is returned to the neutral position after the front part of the pedal is depressed can be adjusted the same as UP stop. Stop needle **2** in DOWN position, turn OFF the power, and loosen screw **3** to perform adjustment within the slot of the screw. The needle stop timing is advanced if you move the screw in the direction of **E**, and the timing is delayed if you move the screw in the direction of **F**.



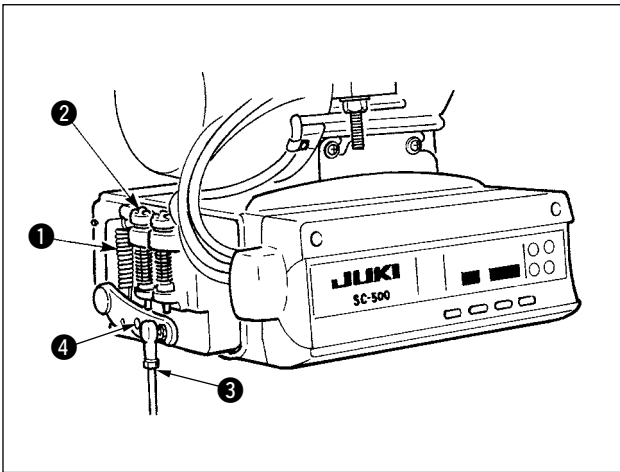
Do not operate the machine with screw **3** loosened. Just loosen the screw, and do not remove it.

4-17. Pedal pressure and pedal stroke



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(1) Adjusting the pressure required to depress the front part of the pedal

- 1) This pressure can be adjusted by altering the position of pedal pressure adjusting spring ①. The pressure decreases when you hook the spring on the left side. On the contrary, the pressure increases when you hook it on the right side.

(2) Adjusting the pressure required to depress the back part of the pedal

- 1) This pressure can be adjusted using regulate screw ②. The pressure increases as you turn the regulator screw in and decreases as you turn the screw out.

(3) Adjusting the pedal stroke

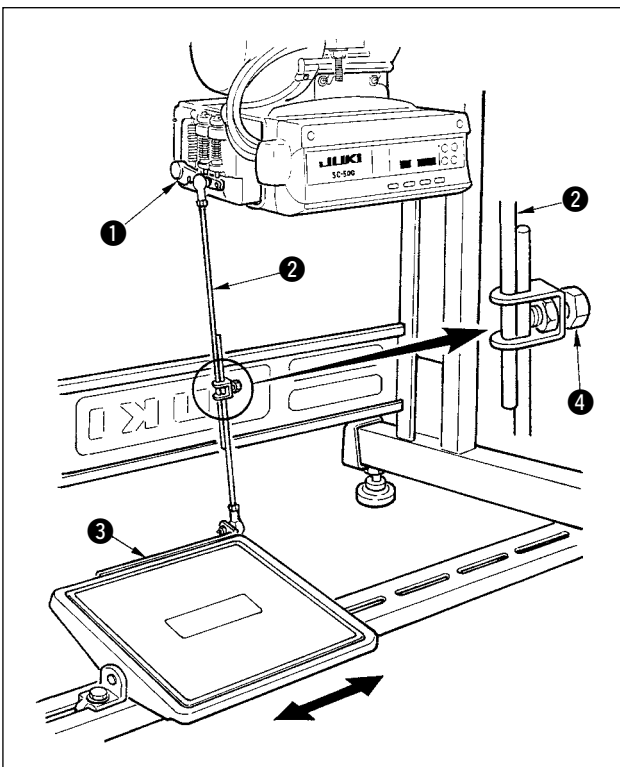
- 1) The pedal stroke decreases when you insert connecting rod ③ into the hole ④ on the left side.

4-18. Adjustment of the pedal



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



(1) Installing the connecting rod

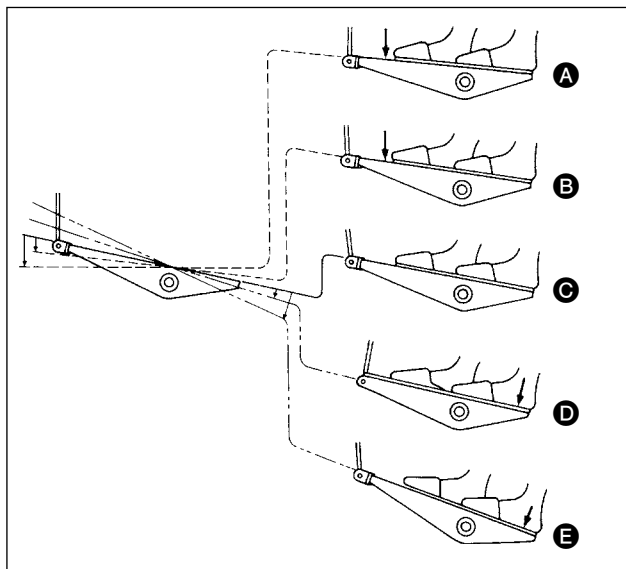
- 1) Move pedal ③ to the right or left as illustrated by the arrows so that motor control lever ① and connecting rod ② are straightened.

(2) Adjusting the pedal angle

- 1) The pedal tilt can be freely adjusted by changing the length of the connecting rod.
- 2) Loosen adjust screw ④, and adjust the length of connecting rod ②.

5. OPERATION OF THE SEWING MACHINE

5-1. Pedal Operation

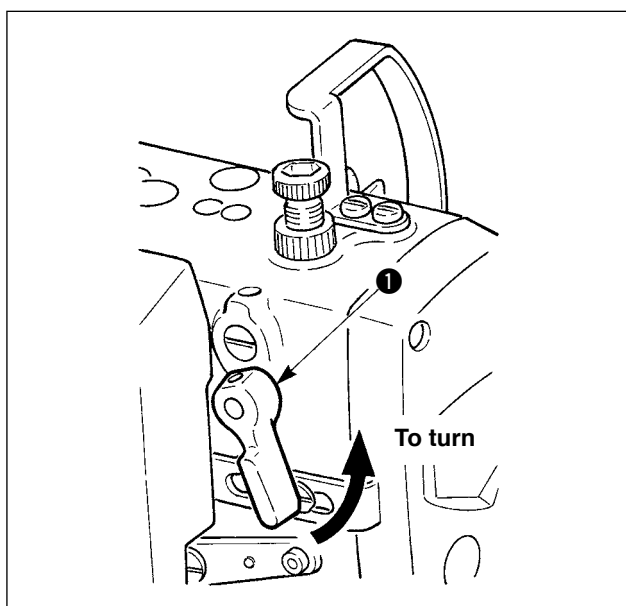


(1) The pedal is operated in the following four steps:

- 1) The machine runs at low sewing speed when you lightly depress the front part of the pedal. **B**
- 2) The machine runs at high sewing speed when you further depress the front part of the pedal. **A**
(If the automatic reverse feed stitching has been preset, the machine runs at high speed after it completes reverse feed stitching.)
- 3) The machine stops (with its needle up or down) when you reset the pedal to its original position. **C**

- 4) The machine trims threads when you fully depress the back part of the pedal. **E**
- * When auto-lifter (AK135) is used, 1-step switch is increased between stop and thread trimming. The presser foot goes up when the back part of the pedal is lightly depressed **D**, and the presser foot comes down once when the back part of the pedal is further strongly depressed. Then the thread trimmer is actuated and the presser foot goes up again.
- If you reset the pedal to its neutral position during the automatic reverse feed stitching at seam start, the machine stops after it completes the reverse feed stitching.
 - The machine will perform normal thread trimming even if you depress the back part of the pedal immediately following high or low speed sewing.
 - The machine will completely perform thread trimming even if you reset the pedal to its neutral position immediately after the machine started thread trimming action.

5-2. Hand lifter

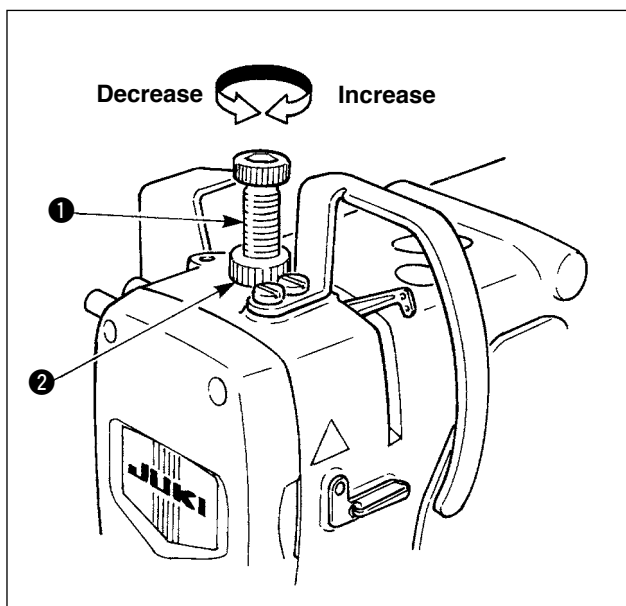


- 1) When you want to keep the presser foot in the lifted position, turn hand lifter **1** in the direction of the arrow. By so doing, the presser foot rise 7 mm.
- 2) When you want to lower the presser foot, lower the hand lifter. This will return the presser foot to its predetermined lower position.
- 3) Operate the knee lifter, and the presser will rise by approximately 12 mm.



Never perform thread trimming operation with the presser foot lifted since there is a case where the wiper comes in contact with the presser foot and the needle may be broken when the sewing machine is operated with the presser foot lifted.

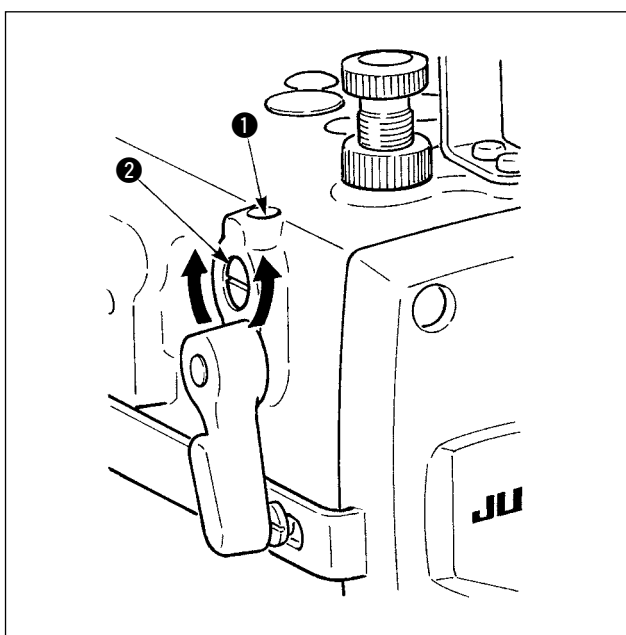
5-3. Adjusting the pressure of the presser foot



Loosen nut ② by turning counterclockwise, and turn presser spring regulator ① to adjust the pressure. Turn the regulator clockwise to increase the pressure and turn it counterclockwise to decrease the pressure.

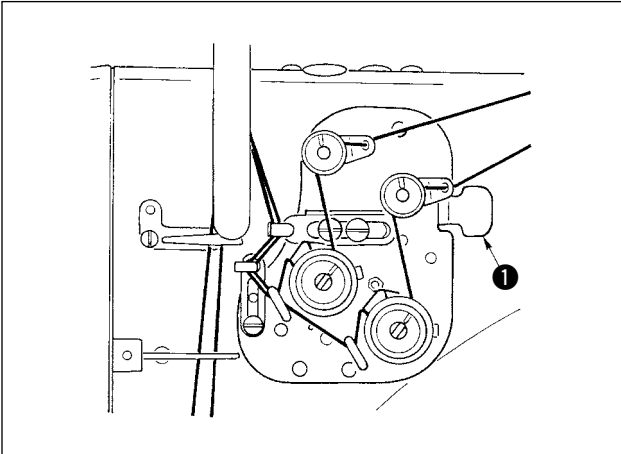
After the adjustment, tighten nut ②.

5-4. Micro-lifter

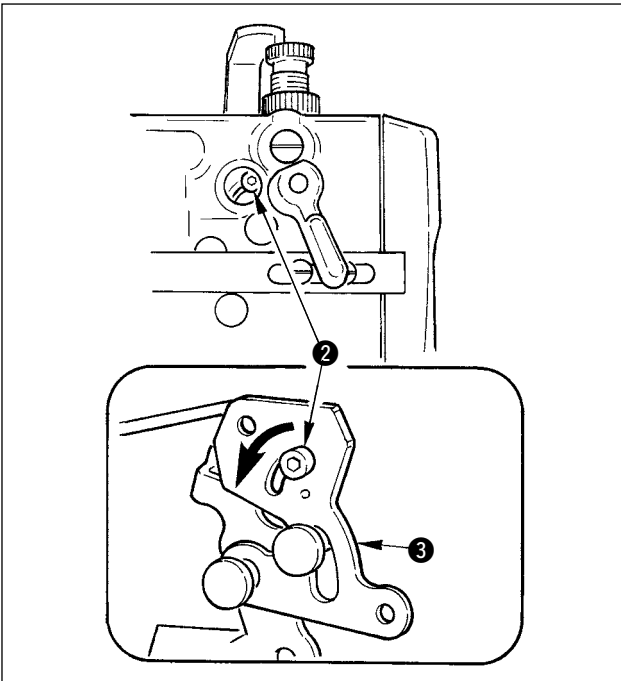


Loosen screw ①, turn micro-lifter pin ②, and the height of the presser foot can be adjusted to 0 to 0.5 mm.

5-5. Thread tension release changeover when using the knee lifter



At the time of delivery of LH-3568 and 3568-7, 3588, 3588-7 the knee lifter or AK device is not interlocked with the thread tension release of thread tension controller. When releasing the thread tension, press lever ❶ to rise the disks.



• **When interlocking the thread tension release**
Remove the wiper solenoid in case of the machine with wiper. Remove the cap at the back, loosen screw ❷, move screw ❷ in the direction of arrow up to the end of slot of lifting link ❸, and fix it.

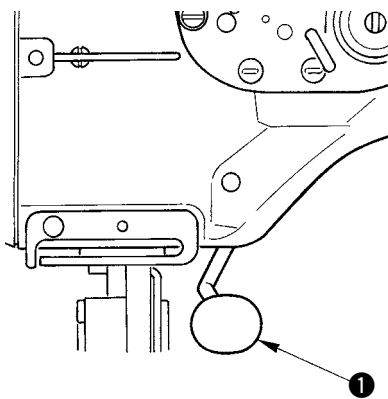
When interlocking the thread tension release :

1. Thread slacks when turning cloth at the corner stitching, and sewing trouble of thread tension release may occur .
2. When the wiper is not used at the time of thread trimming, needle thread may be drawn out when removing cloth.
3. Just loosen screw ❷, and do not remove it.

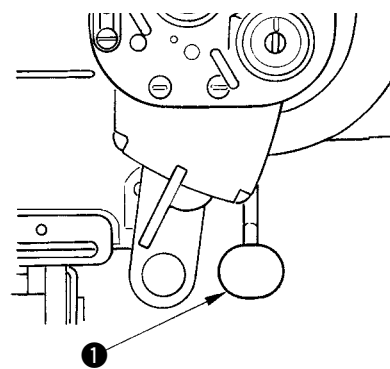


5-6. One-touch manual reverse feed (One-touch reverse feed type)

[LH-3528, 3528-7, 3578-7]



[LH-3568, 3588-7]



• How to use

- 1) Press switch ❶, and the sewing machine will immediately run in the reverse direction to perform the reverse feed stitching.
- 2) Reverse stitching is made as long as you keep pressing the switch.
- 3) Release the switch, and the sewing machine will run in the normal direction.

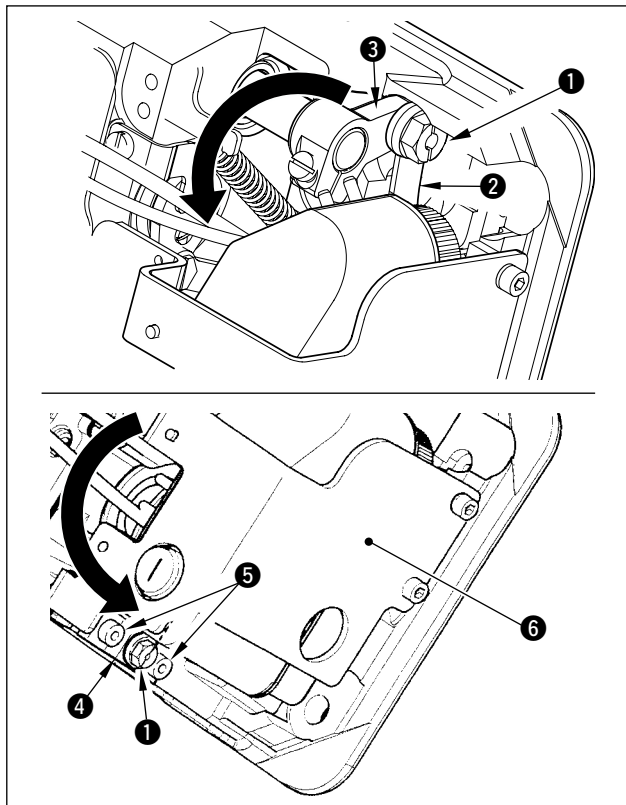
6. MAINTENANCE

6-1. Changing procedure to bottom feed and the adjustment (for LH-3528 only)



WARNING :

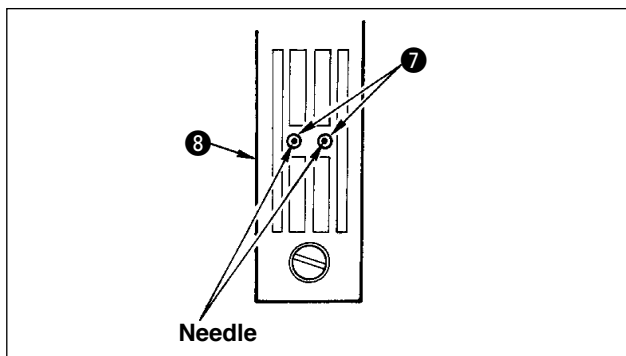
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



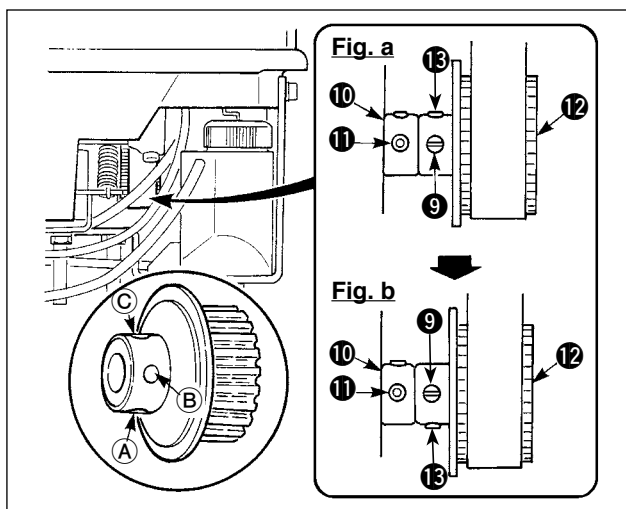
- 1) Loosen hinge screw ① after adjusting the feed dial to the minimum, move needle bar rocking rod ② from needle bar rocking rod arm ③ to needle rocking rod fixing base ④, and fix it with hinge screw ①.



When hinge screw ① is difficult to turn, perform the work after removing oil tank ⑥.



- 2) After replacing the feed dog and the throat plate with the components for bottom feed, adjust the position of needle rocking rod fixing base ④ so that the needle center aligns with needle holes ⑦ in throat plate ⑧, and fix setscrews ⑤. Then replace the presser foot with that for bottom feed as well.



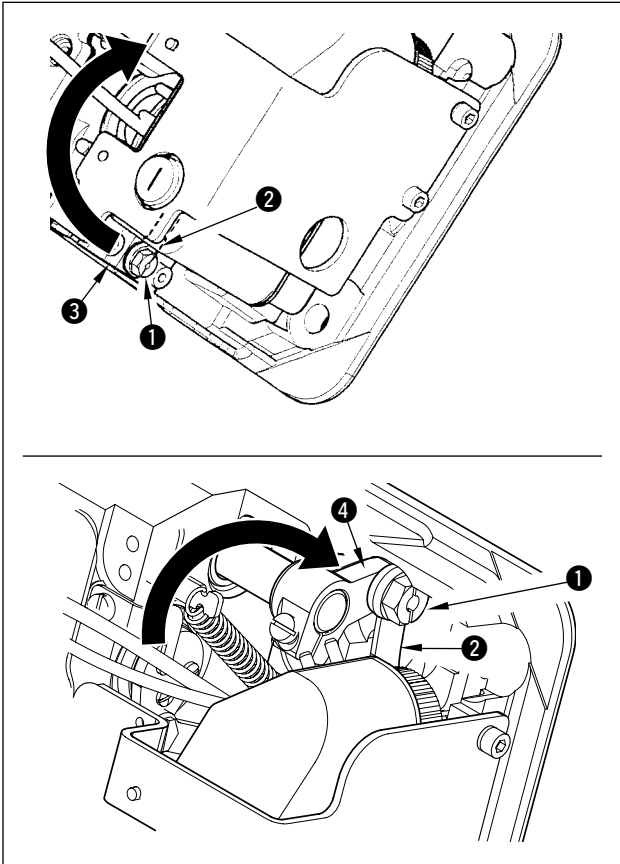
- 3) Loosen setscrews ⑨ and ⑬ (2 places) in sprocket ⑫. Loosen the setscrews in the order of ⑬ and ⑨. At this time, remove screw No. 1 ⑨ which is put in screw hole (A) in sprocket ⑫, and put it in screw hole (C) which is located on the opposite side at 180°. (Fig. a) Turn the pulley by 180° without turning the hook driving shaft, align the flat section of the hook driving shaft with screw hole (C) in sprocket ⑫, and fix with setscrews ⑨. Screw No. 1 ⑪ in the hook driving shaft rear bearing ⑩ aligns with the flat section of the hook driving shaft. Make the state as the standard. (Fig. b) Then fix screw No. 2 ⑬ which is put in screw hole (B) in sprocket ⑫ as well.

6-2. Changing procedure to needle feed and the adjustment (for LH-3528 only)



WARNING :

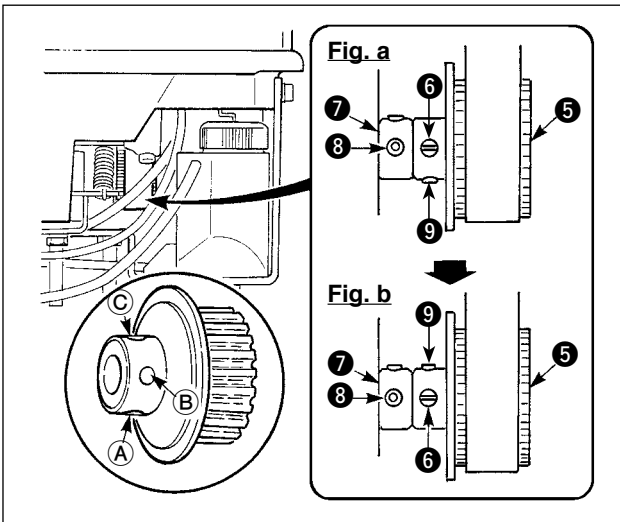
To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



The procedure is the reverse of "6-1. Changing procedure to bottom feed and the adjustment".

Loosen hinge screw ①, move needle bar rocking rod ② from needle rocking rod fixing base ③ to needle bar rocking rod arm ④, and fix it with hinge screw ①.

Replace the feed dog, the throat plate and, the presser with the components for needle feed.



Loosen setscrews ⑥ and ⑨ (2 places) in sprocket ⑤. Loosen the setscrews in the order of ⑨ and ⑥. At this time, remove the setscrew ⑥ which is put in screw hole ③, and put it in screw hole ① which is located on the opposite side at 180°. (Fig. a) Turn the pulley by 180° without turning the hook driving shaft, align the flat section of the hook driving shaft with screw hole ① in sprocket ⑤, and fix with setscrews ⑥. It is the standard that screw No. 1 ⑧ in hook driving shaft rear bearing ⑦ aligns with the flat section of the hook driving shaft. (Fig. b)

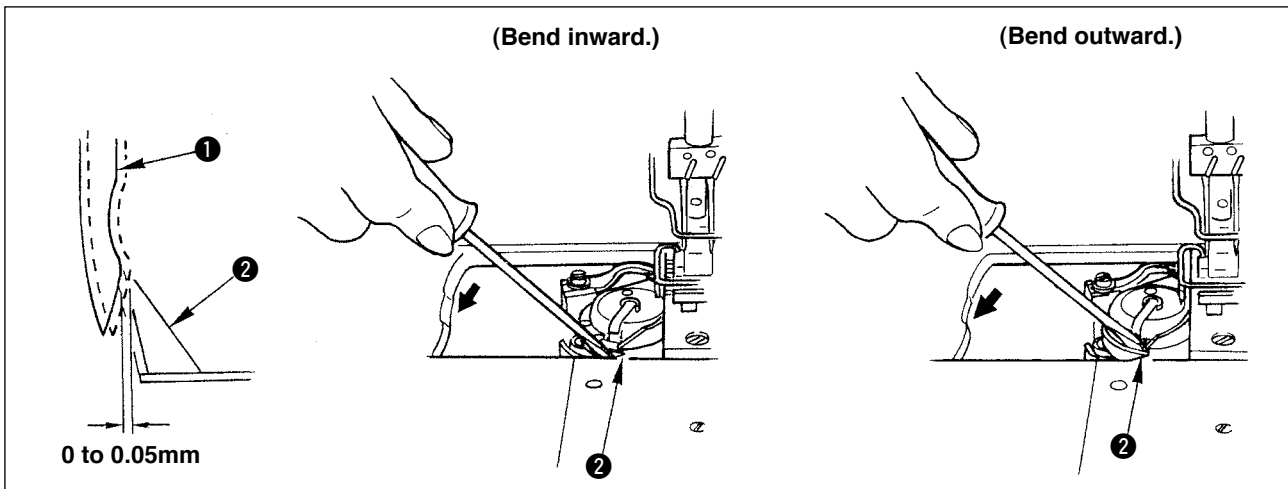
Then fix screw No. 2 ⑨ which is put in screw hole ② in sprocket ⑤ as well.

6-3. Adjusting the hook needle guard



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



When replacing the hook, confirm the position of the needle guard.

The standard position is the state that hook needle guard ② comes in contact with the side of needle ① and the needle is along the hook needle guard by 0 to 0.05mm. If not, adjust by bending the hook needle guard.

- 1) When bending the hook needle guard inward, perform by entering a screwdriver to the outside of the hook needle guard.
- 2) When bending the hook needle guard outward, perform by entering a screwdriver to the inside of the hook needle guard.

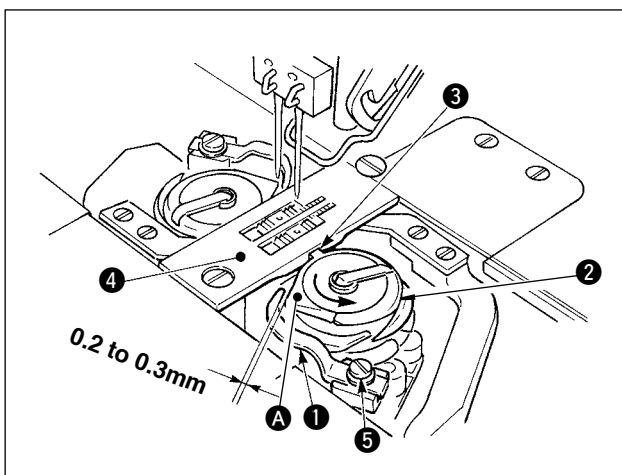
At this time, confirm that the clearance between the needle and the blade point of hook is 0.01 to 0.05 mm. (Refer to "4-15. Needle-to-hook relation [common]", p. 22.)

6-4. Adjusting the inner hook guide



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



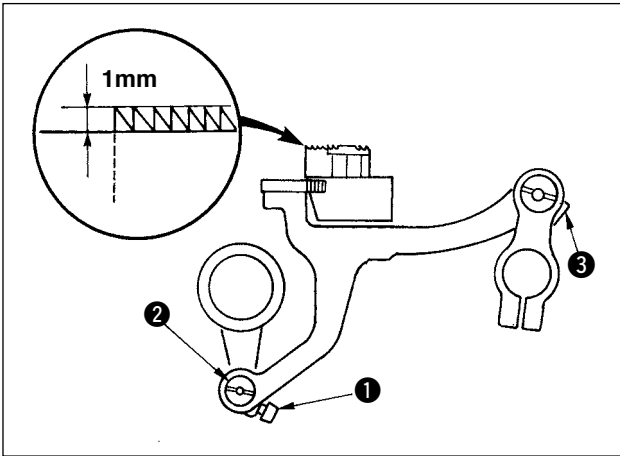
- 1) Turn the handwheel in the normal direction to bring inner hook guide ① to the extreme rear position.
- 2) Turn bobbin case ② in the direction of the arrow, and make inner hook stopper ③ come in contact with the groove of throat plate ④.
- 3) Loosen inner hook guide setscrew ⑤, set the clearance between the inner hook guide and protrusion ① of the bobbin case to 0.2 to 0.3 mm, and securely tighten inner hook guide setscrew ⑤.

6-5. Adjusting the height and the inclination of the feed dog



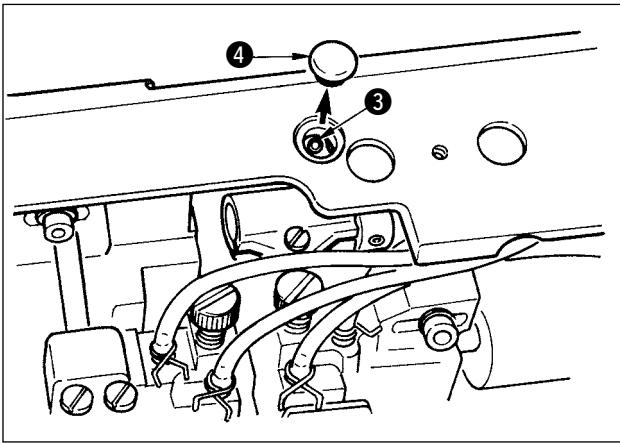
WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



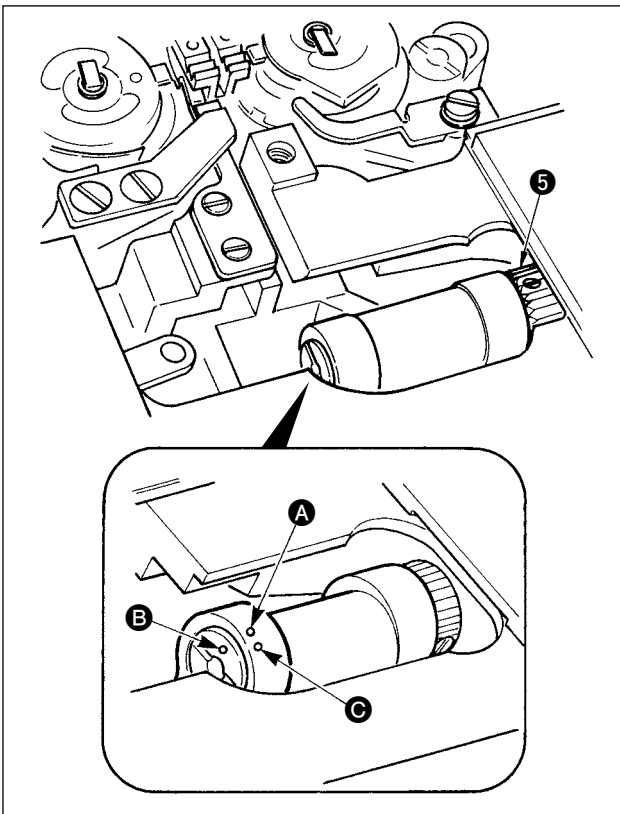
(1) Adjusting the height

- 1) Loosen bottom feed link setscrew **1**, and turn feed driving link shaft **2** to adjust the height. Standard height is 1 mm from the throat plate in the highest position.



(2) Inclination

- 1) Remove cap **4** on the side of machine bed, loosen feed bar shaft setscrew **3**, and turn knurled section **5** to adjust the inclination. Standard inclination is the position where engraved marker dot **A** of feed bar arm aligns with engraved marker dot **B** of feed bar shaft. (Engraved marker dot **C** is for LH-4100.)

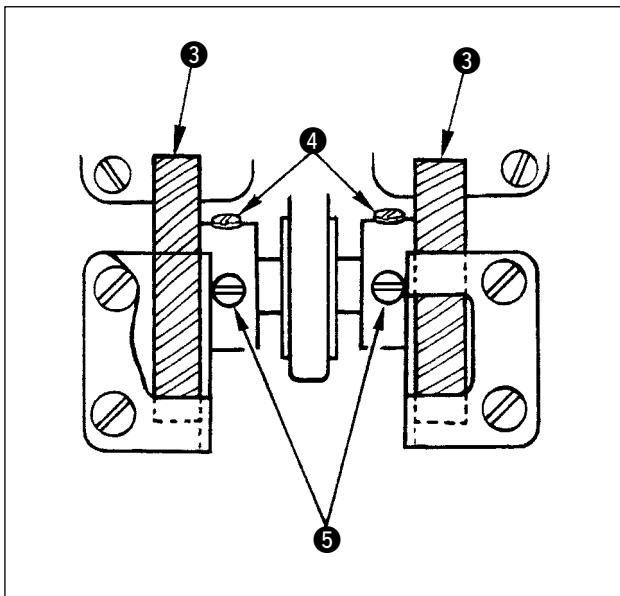
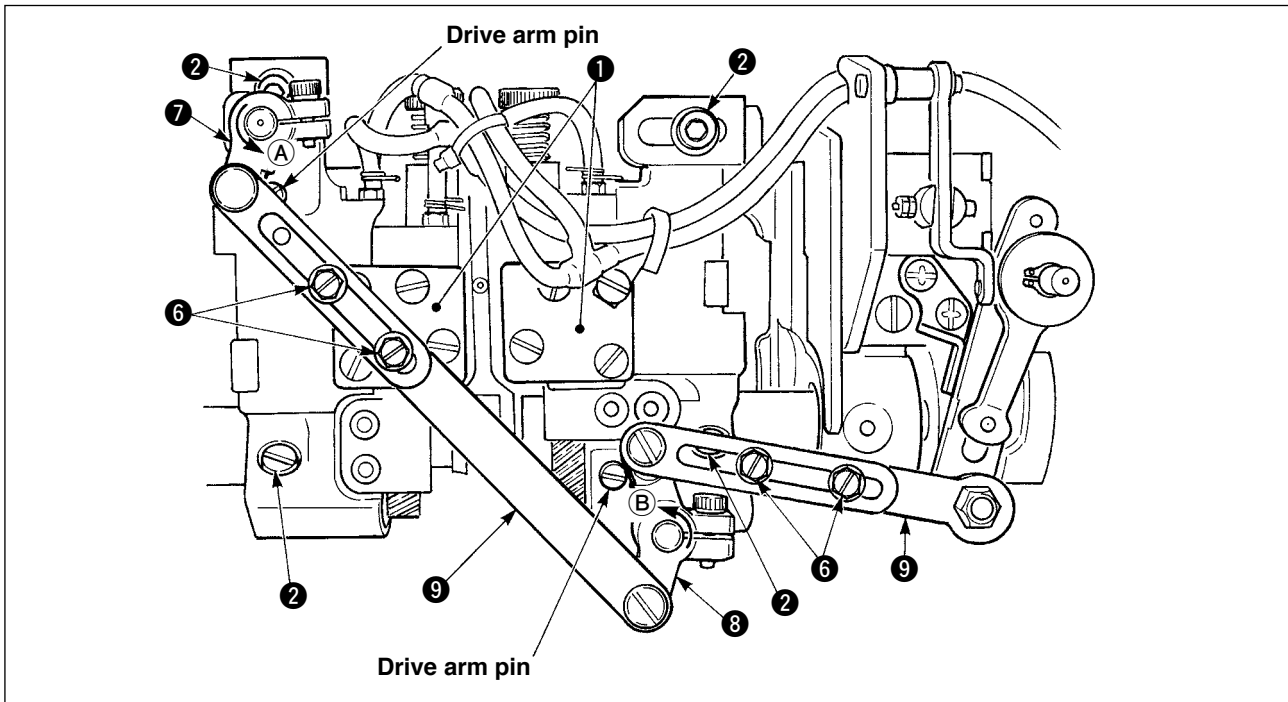


6-6. Replacing the gauge



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



• Move of the hook shaft saddle when replacing the gauge

- 1) Loosen screws No. 2 (4) of hook driving shaft gears (3).
- 2) Align the needle with the blade point of hook.
- 3) Slightly loosen screws No. 1 (5) of hook driving shaft gears (3) so that the screws does not come off the flat section of the hook driving shaft.

[Sewing machine with thread trimmer

- Loosen four setscrews (6) of connecting link (asm.) (9).

- 4) Loosen two setscrews (2) of hook shaft saddle (1), and move the hook shaft saddle.
(At this time, the hook driving shaft gears move as well.)
- 5) Set the clearance between the needle and the blade point of hook to 0.01 to 0.05 mm.
- 6) Tighten two setscrews (2) of the hook shaft saddle.
- 7) Tighten from screws No. 1 (5) at the position where the clearance between hook driving shaft gears (3) and hook shaft saddles (1) is 0.5 mm. Then tighten screws No. 2 (4).

[Sewing machine with thread trimmer

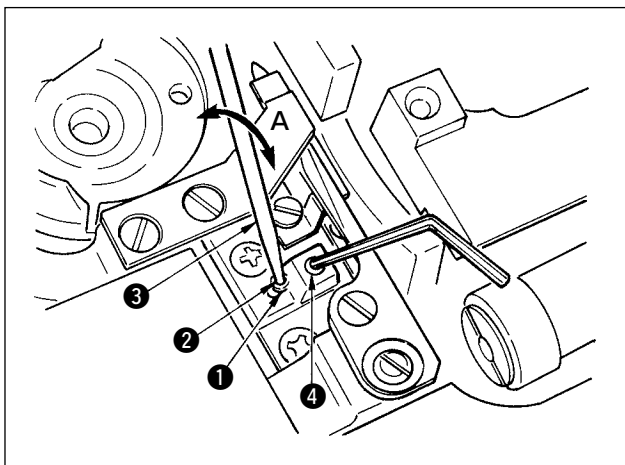
- Make driving arms (7) and (8) come in contact with the driving arm pin in the directions of (A) and (B) respectively and tighten four setscrews (6) in connecting link (asm.) (9).

6-7. Adjusting the thread presser spring



WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



Insert a rod (thin rod, wrench, etc.) into adjusting hole ② in thread presser spring base ①, and loosen setscrew ④ with a hexagonal wrench key of 1.5 mm.

Adjust the thread presser spring by moving rod ③ in the direction of arrow mark **A**, and fix it with setscrew ④.



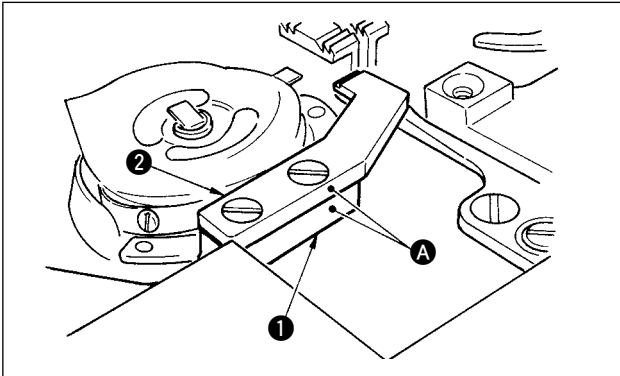
Clamp trouble occurs even when the thread presser spring pressure is excessive or insufficient. So, be careful.

6-8. Adjusting the position of the moving knife

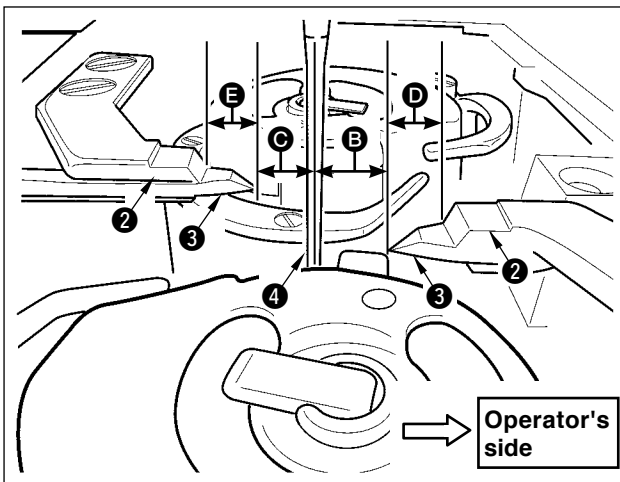


WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.

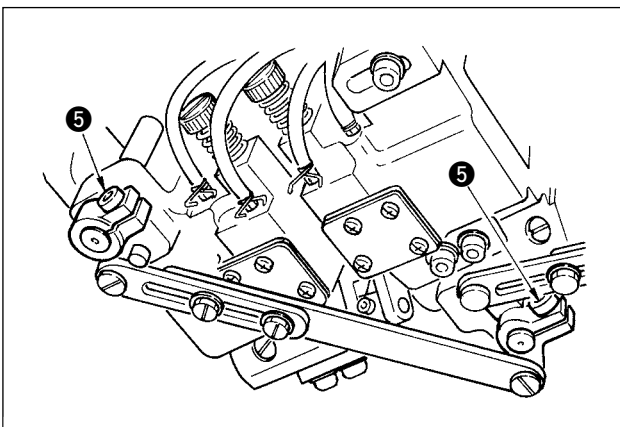


- 1) Align counter knife base **1** with plane **A** of counter knife **2**.

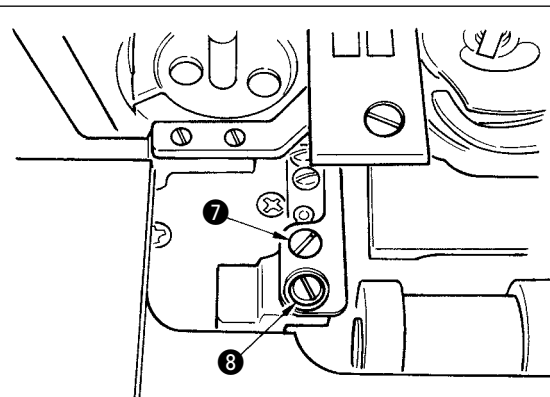
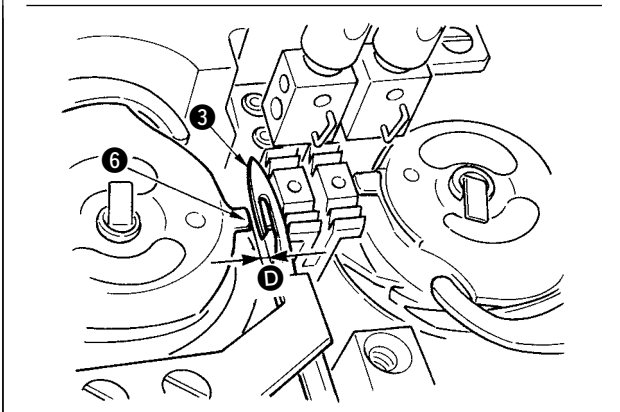


- 2) Loosen clamp screw **5** in the rear of machine bed and adjust so that the distances **B** and **C** between the top end of moving knife **3** and the center of needle **4** at the time of waiting become the dimensions as shown in the list below when the feed pitch is minimum and needle **4** is in the lower dead point.

	Left knife		Right knife	
	B	(D Reference value)	C	(E Reference value)
LH-3528-7	6.2	(3.5)	7.5	(2.7)
LH-3568-7				
LH-3578-7	7.5	(3.6)	8.9	(3.1)
LH-3588-7				



- 3) Set clearance **D** between moving knife **3** and protrusion **6** of the inner hook to 0.3 ± 0.1 mm. Loosen moving knife setscrews **7** and **8**, and adjust the clearance.

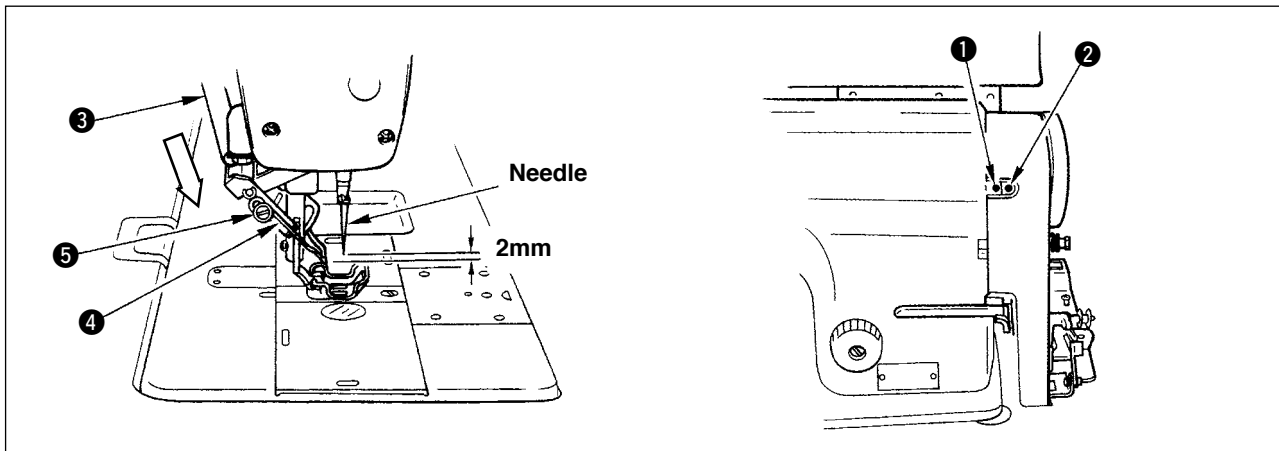


6-9. Position of the wiper



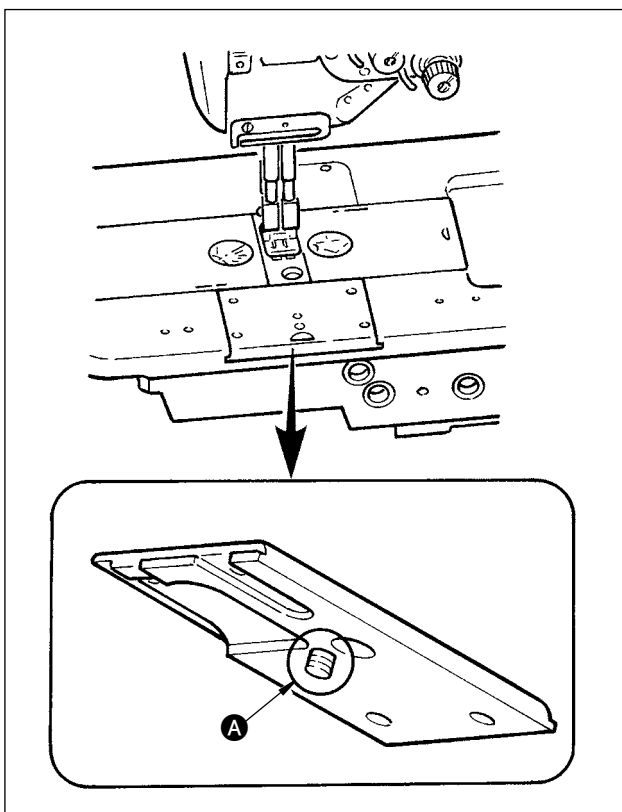
WARNING :

To protect against possible personal injury due to abrupt start of the machine, be sure to start the following work after turning the power off and ascertaining that the motor is at rest.



- 1) Adjust engraved marker dot ① on the machine arm to white marker dot ② on the handwheel.
- 2) Move rod ③ in the direction of the arrow, and adjust with two clamping screws ⑤ so that the clearance between the top end of needle and wiper ④ is approximately 2 mm.

6-10. Caution when installing the attachments

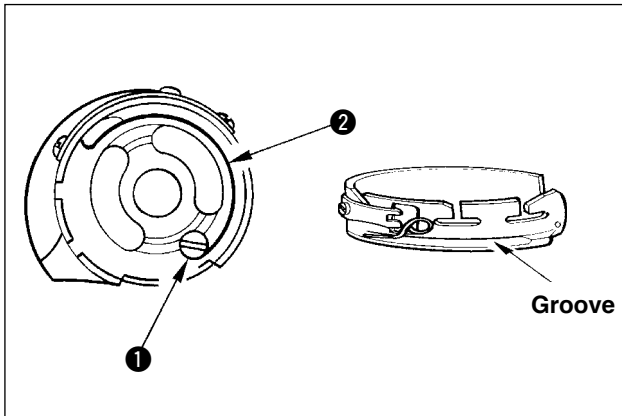


Be careful that screw ① does not protrude in the rear of the bed slide when fixing the attachment to the bed slide with the screw.



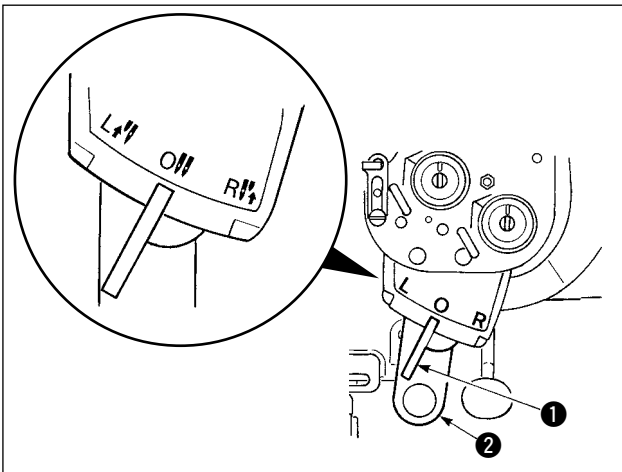
When it protrudes as shown in the figure, the screw interferes with other components and break-down will be caused.

6-11. Replacing the bobbin thread slack preventer spring (For LH-3568, 3568-7, 3588, 3588-7)



- 1) Loosen screw ❶ and remove bobbin thread slack preventer spring ❷ from the groove on the bobbin case.
- 2) Fit bobbin thread slack preventer spring ❷ which replaces the removed spring in the bobbin case through the groove.
- 3) Fix bobbin thread slack preventer spring ❷ in the bobbin case by tighten screw ❶. At this time, carefully check the operating range and tension of the spring.

6-12. Stop of the needle bars and angle of corners for corners stitching (For LH-3568, 3568-7, 3588, 3588-7)



• Stop of the needle bar

When change lever ❶ is moved to position L, the left-hand needle bar stops, and when it is moved to position R, the right-hand needle bar stops.

• When returning to 2-needle operation

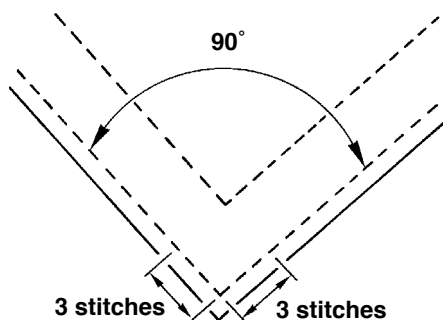
Press change fixing lever ❷. Change lever ❶ returns to the position "0", and the machine returns to 2-needle sewing.

• Relation between the angle of corners and stitch length

To perform corner stitching with accuracy, the stitch length can be determined referring to the table of the number of stitches by gauges.

However, check whether the stitch length determined really matches the corner by actually sewing it.

(3/16" gauge)



(Example)

To sew a corner of 90° of angle using a 3/16" gauge with the stitch length specified to 1.6mm, the number of stitches can be obtained in the following way. Observe the "90°" columns on the table of the number of stitches by stitch length gauges to search for the column in which "1.6" is indicated. Then, you can find "3" on the top of the "1.6" lines. This means the number of stitches is 3.



- If sewing a corner of which angle is 40° or less, the thread take-up amount of the bobbin thread slack preventer spring will be insufficient. In this case, the thread will remain on the wrong side of the material.
- When performing the operation of changeover of separately driven needle bar, perform the work after stopping the sewing machine once.
When the operation of changeover is performed at 1,000 sti/min or more, break-down will be caused.)
- When the sewing machine is used as the substitute for 1-needle sewing machine in the state of separately driven needle bar, break-down of the sewing machine will be caused. When performing sewing with 1-needle sewing machine, remove one of two needles and use the sewing machine in the state that two needle bars operate.

7. STITCH-TO-ANGLE TABLE BY GAUGE (PITCH AND mm CONVERSION TABLE)

1/8"(3.17mm)

Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40		4.4	2.9	2.2	1.7	1.5			
50		3.4	2.3	1.7					
60		2.7	1.8						
70	4.5	2.3	1.5						
80	3.8	1.9							
90	3.2	1.6							
100	2.6								

5/32"(3.96mm)

Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40			3.6	2.7	2.2	1.8	1.6		
50		4.2	2.8	2.1	1.7				
60		3.4	2.3	1.7					
70		2.8	1.9						
80	4.7	2.4	1.6						
90	4.0	2.0							
100	3.3	1.7							

3/16"(4.76mm)

Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40				3.3	2.6	2.2	1.9	1.6	1.5
50			3.4	2.6	2.0	1.7	1.5		
60			2.7	2.1	1.6	1.4			
70		3.4	2.3	1.7	1.4				
80		2.8	1.9	1.4					
90	4.8	2.4	1.6						
100	4.0	2.0							

7/32"(5.56mm)

Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40			5.1	3.8	3.1	2.5	2.2	1.9	1.7
50			4.0	3.0	2.4	2.0	1.7	1.5	
60		4.8	3.2	2.4	1.9	1.6			
70		4.6	2.6	2.0	1.6				
80		3.3	2.2	1.7					
90	5.6	2.8	1.9	1.4					
100	4.7	2.3	1.6						

1/4"(6.35mm)

Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40				4.4	3.5	2.9	2.5	2.2	2.0
50			4.6	3.4	2.8	2.3	2.0	1.7	1.6
60			3.7	2.8	2.2	1.9	1.6		
70		4.6	3.1	2.3	1.9	1.6			
80		3.8	2.6	1.9	1.6				
90		3.2	2.2	1.6					
100		2.7	1.8						

9/32"(7.14mm)

Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40				4.9	3.9	3.3	2.8	2.5	2.2
50			5.1	3.8	3.1	2.6	2.2	1.9	1.7
60			4.1	3.1	2.5	2.1	1.8	1.5	
70		5.1	3.4	2.5	2.0	1.7	1.5		
80		4.3	2.8	2.1	1.7	1.4			
90		3.6	2.4	1.8	1.4				
100		3.0	2.0	1.5					

5/16"(7.93mm)

Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40					4.4	3.7	3.2	2.8	2.5
50				4.3	3.4	2.9	2.5	2.2	1.9
60			4.6	3.5	2.8	2.3	2.0	1.8	1.6
70			3.8	2.9	2.3	1.9	1.7	1.5	
80		4.8	3.2	2.4	1.9	1.6			
90		4.0	2.7	2.0	1.6				
100		3.4	2.3	1.7					

3/8"(9.52mm)

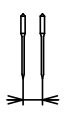
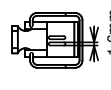
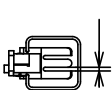
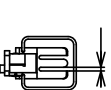

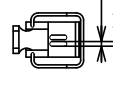
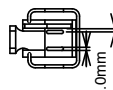
Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40						4.4	3.7	3.3	2.9
50					4.1	3.4	2.9	2.6	2.3
60				4.1	3.3	2.7	2.4	2.1	1.8
70			4.5	3.4	2.7	2.3	1.9	1.7	
80			3.8	2.8	2.3	1.9	1.6		
90		4.8	3.2	2.4	1.9	1.6			
100		4.0	2.7	2.0	1.6				

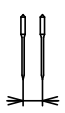
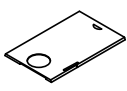

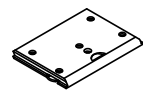
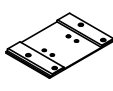
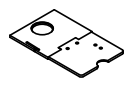
1/2"(12.7mm)



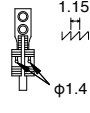


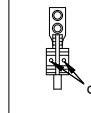

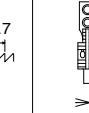
Turning angle \ Number of stitches	1	2	3	4	5	6	7	8	9
40						5.8	5.0	4.4	3.9
50					5.5	4.5	3.9	3.4	3.0
60				5.5	4.4	3.7	3.1	2.8	2.4
70				4.5	3.6	3.0	2.6	2.3	2.0
80			5.1	3.8	3.1	2.5	2.2	1.9	1.7
90			4.2	3.2	2.5	2.1	1.8	1.6	1.4
100		5.3	3.6	2.7	2.1	1.8	1.5	1.3	










8. GAUGE SETS

(1) LH-3528

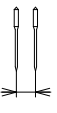



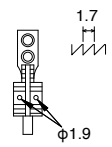
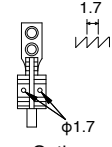
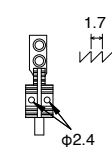
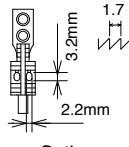
Needle gauge size			Presser foot asm.					Swivel guide Presser foot asm.
Code			 1.6mm	Tip-divided  2.0mm	Tip-divided  2.4mm	Lower feed 	 1.4mm	 0.9mm
	inch	mm	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
A	3/32	2.4	226-37557	—	—	—	—	—
B	1/8	3.2	226-37656	400-35896	400-35896	103-91852	226-27152	226-47051
C	5/32	4.0	226-37755	400-35897	400-71909	—	—	—
D	3/16	4.8	226-37854	226-40353	228-16557	103-92058	226-27350	226-47150
E	7/32	5.6	—	226-40452	228-16656	—	226-27459	226-47259
F	1/4	6.4	226-38050	226-40551	228-16755	103-92256	226-27558	226-47358
G	9/32	7.1	226-38258	226-40759	228-16854	—	226-27657	226-47457
H	5/16	7.9	226-38357	226-40858	228-16953	—	226-27756	226-47556
K	3/8	9.5	226-38456	226-40957	228-17050	—	—	—
W	7/16	11.1	—	226-41054	400-33941	—	—	—
L	1/2	12.7	226-38753	226-41252	228-17159	103-92751	—	—
M	5/8	15.9	—	226-41351	400-33945	—	—	—
N	3/4	19.1	226-38951	226-41450	400-33947	103-93056	—	—
P	7/8	22.2	226-39157	226-41658	400-33949	228-44450	—	—
Q	1	25.4	226-39256	226-41757	400-33951	228-44559	—	—
R	1- 1/8	28.6	226-39355	226-41856	400-33953	—	—	—
S	1- 1/4	31.8	226-39454	226-41955	400-33955	—	—	—
T	1- 3/8	34.9	—	226-42052	400-33957	—	—	—
U	1- 1/2	38.1	—	226-42151	400-33959	—	—	—
Stitch spec.	A		★					
	F						★	★ (Tape attaching)
	S			★				
	G				★			
Lower feed						★		


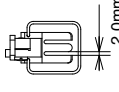
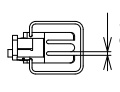
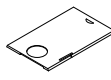

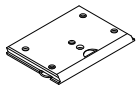
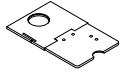
Needle gauge size			Sliding plate asm. (Left)	Sliding plate asm. (Right)	Sliding plate asm. (Front)		Sliding plate asm. (Left)					
Code												
	inch	mm	Part No.	Part No.	Part No.	Part No.	Option Part No.					
A	3/32	2.4	226-01058	226-00555	400-42874	232-06709	400-51633					
B	1/8	3.2										
C	5/32	4.0										
D	3/16	4.8										
E	7/32	5.6										
F	1/4	6.4										
G	9/32	7.1										
H	5/16	7.9										
K	3/8	9.5										
W	7/16	11.1										
L	1/2	12.7	226-01157	226-00654			400-45729					
M	5/8	15.9										
N	3/4	19.1										
P	7/8	22.2										
Q	1	25.4										
R	1- 1/8	28.6	226-01256	226-00753			400-45730					
S	1- 1/4	31.8										
T	1- 3/8	34.9						226-01355	226-00852			400-45731
U	1- 1/2	38.1										
Stitch spec.	A		Spec. common	Spec. common	Spec. common		Spec. common					
	F											
	S											
	G											
Lower feed												

Needle gauge size		Feed dog							
Code									
	inch	mm	Part No.	Option Part No.	Part No.	Part No.	Option Part No.	Part No.	Option Part No.
A	3/32	2.4	400-33714	—	—	—	—	—	—
B	1/8	3.2	400-33715	400-35883	400-33563	—	400-33563	B1613-512-BOH	—
C	5/32	4.0	400-33716	—	—	226-30206	400-25784	B1613-512-COH	—
D	3/16	4.8	400-33718	400-35884	400-33564	226-30404	400-25785	B1613-512-DOH	400-25801
E	7/32	5.6	—	400-35885	400-33565	226-30503	400-25786	B1613-512-EOH	400-25802
F	1/4	6.4	400-33720	400-35886	400-33566	226-30602	400-25787	B1613-512-FOH	400-25803
G	9/32	7.1	400-33722	400-35887	400-33567	226-30800	400-25788	B1613-512-GOH	400-25804
H	5/16	7.9	400-33723	400-35888	400-33568	226-30909	400-25789	B1613-512-HOH	400-25805
K	3/8	9.5	400-33724	—	—	226-31006	400-25790	B1613-512-KOH	400-25806
W	7/16	11.1	—	—	—	226-31105	400-25791	400-75311	400-25807
L	1/2	12.7	400-33727	—	—	226-31303	400-25792	B1613-512-LOH	400-25808
M	5/8	15.9	—	—	—	226-31402	400-25793	B1613-512-MOH	400-25809
N	3/4	19.1	400-33729	—	—	226-31501	400-25794	B1613-512-NOH	400-25810
P	7/8	22.2	400-33731	—	—	226-31709	400-25795	B1613-512-POH	400-25811
Q	1	25.4	400-33732	—	—	226-31808	400-25796	B1613-512-QOH	400-25812
R	1-1/8	28.6	400-33733	—	—	226-31907	400-25797	B1613-512-ROH	400-25813
S	1-1/4	31.8	400-33734	—	—	226-32004	400-25798	B1613-512-SOH	400-25814
T	1-3/8	34.9	—	—	—	226-32103	400-25799	B1613-512-TOH	400-25815
U	1-1/2	38.1	—	—	—	226-32202	400-25800	B1613-512-UOH	400-25816
Stitch spec.	A		★						
	F			★		★			
	S						★	★	
	G								★






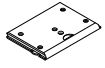

Needle gauge size		Feed dog (Lower feed)		Needle clamp asm.		Throat Plate	Throat Plate (with taping)	Throat Plate (Lower feed)		
Code										
	inch	mm	Part No.	Part No.	Wire type Part No.	Hole type Part No.	Part No.	Part No.	Part No.	Part No.
A	3/32	2.4	—	—	400-35875	101-47551	226-25008	—	—	—
B	1/8	3.2	232-05107	—	400-26027	101-47650	226-25107 * 400-72337	226-28002	228-45200	—
C	5/32	4.0	—	—	400-26029	101-47759	226-25206 * 400-72338	226-28101	—	—
D	3/16	4.8	232-05305	—	400-26031	101-47858	226-25305	226-28200	228-45408	—
E	7/32	5.6	—	—	400-26033	101-47957	226-25404	226-28309	—	—
F	1/4	6.4	232-05503	—	400-26035	101-48054	226-25503	226-28408	228-45606	—
G	9/32	7.1	—	—	400-26037	101-48153	226-25602	226-28507	—	—
H	5/16	7.9	—	—	400-26039	101-48252	226-25701	226-28606	—	—
K	3/8	9.5	—	—	400-26041	101-48351	226-25800	—	—	—
W	7/16	11.1	—	—	400-26043	101-48450	226-25909	—	—	—
L	1/2	12.7	400-62249	228-48105	400-26045	101-48559	226-26006	—	—	400-62254
M	5/8	15.9	—	—	400-26047	101-48658	226-26105	—	—	—
N	3/4	19.1	400-62251	228-48303	400-26049	101-48757	226-26204	—	—	400-62256
P	7/8	22.2	400-62252	228-48402	400-26051	101-48856	226-26303	—	—	400-62257
Q	1	25.4	400-62253	228-48501	400-26053	101-48955	226-26402	—	—	400-62258
R	1-1/8	28.6	—	—	400-26055	101-49052	226-26501	—	—	—
S	1-1/4	31.8	—	—	400-26057	101-49151	226-26600	—	—	—
T	1-3/8	34.9	—	—	400-26059	101-49250	226-26709	—	—	—
U	1-1/2	38.1	—	—	400-26061	101-49359	226-26808	—	—	—
Stitch spec.	A						★	Spec. common		
	F				★					
	S									
	G					★	* only ★			
Lower feed			★	★					★	★






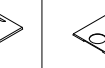


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





Needle gauze size		Throat Plate	Needle clamp asm.		Feed dog				
Code									
	inch	mm	Part No.	Part No.	Part No.	Part No.	Option	Part No.	Option
A	3/32	2.4	—	400-35875	101-47551	—	—	—	—
B	1/8	3.2	400-35881	400-26027	101-47650	400-61270	400-35890	400-53705	400-53705
C	5/32	4.0	400-25485	400-26029	101-47759	400-61271	400-25817	400-71911	—
D	3/16	4.8	400-25490	400-26031	101-47858	400-61272	400-25818	400-35891	400-25831
E	7/32	5.6	400-25491	400-26033	101-47957	400-61273	400-25819	400-50009	400-25832
F	1/4	6.4	400-25492	400-26035	101-48054	400-61274	400-26715	400-35892	400-25833
G	9/32	7.1	400-25493	400-26037	101-48153	400-61275	400-25820	400-50010	400-25834
H	5/16	7.9	400-25494	400-26039	101-48252	400-61276	400-25821	400-50011	400-25835
K	3/8	9.5	400-25495	400-26041	101-48351	400-61277	400-25822	400-35893	400-25836
W	7/16	11.1	400-25496	400-26043	101-48450	—	400-25823	—	400-25837
L	1/2	12.7	400-25498	400-26045	101-48559	400-61278	400-25824	400-35894	400-25838
M	5/8	15.9	400-25499	400-26047	101-48658	400-61279	400-25825	400-71912	400-25839
N	3/4	19.1	400-25500	400-26049	101-48757	400-61280	400-25826	400-35895	400-25840
P	7/8	22.2	400-25502	400-26051	101-48856	400-61281	400-25827	400-71913	400-25841
Q	1	25.4	400-25503	400-26053	101-48955	400-61282	400-25828	400-71914	400-25842
R	1-1/8	28.6	400-25504	400-26055	101-49052	400-61283	400-25829	400-71915	400-25843
S	1-1/4	31.8	400-25505	400-26057	101-49151	400-61284	400-25830	400-71916	400-25844
T	1-3/8	34.9	—	400-26059	101-49250	—	—	—	—
U	1-1/2	38.1	—	400-26061	101-49359	—	—	—	—
Stitch spec.	A			★					
	F			★					
	S		★	★		★	★		
	G		★		★			★	★

Needle gauze size		Presser foot asm.		Sliding plate asm. (Left)	Sliding plate asm. (Right)	Sliding plate asm. (Front)	Sliding plate asm. (Left)	
Code			Tip-divided 	Tip-divided 				
	inch	mm	Part No.	Part No.	Part No.	Part No.	Part No.	Option
B	1/8	3.2	400-35896	400-35896	400-25247	400-25235	400-42880	400-51633
C	5/32	4.0	400-35897	400-71909				
D	3/16	4.8	226-40353	228-16557				
E	7/32	5.6	226-40452	228-16656				
F	1/4	6.4	226-40551	228-16755				
G	9/32	7.1	226-40759	228-16854				
H	5/16	7.9	226-40858	228-16953				
K	3/8	9.5	226-40957	228-17050				
W	7/16	11.1	226-41054	400-33941				
L	1/2	12.7	226-41252	228-17159				
M	5/8	15.9	226-41351	400-33945	400-25248	400-25236	400-45729	
N	3/4	19.1	226-41450	400-33947				
P	7/8	22.2	226-41658	400-33949	400-25249	400-25239	400-45730	
Q	1	25.4	226-41757	400-33951				
R	1-1/8	28.6	226-41856	400-33953				
S	1-1/4	31.8	226-41955	400-33955	400-25250	400-25240	400-45731	
Stitch spec.	S		★		Spec. common	Spec. common	Spec. common	Spec. common
	G			★				









(3) LH-3568








Needle gauze size			Needle clamp asm. (DP5)				Sliding plate asm. (Front)	Sliding plate asm. (Left)		
Code			Needle clamp asm. (Left) 	Needle clamp asm. (Right) 	Needle clamp asm. (Left) 	Needle clamp asm. (Right) 				
	inch	mm	Wire type Part No.	Wire type Part No.	Hole type Part No.	Hole type Part No.	Part No.	Option Part No.		
B	1/8	3.2	400-35761	400-35771	B1402-528-BA0-A	B1402-528-BA0-A	400-42874	400-51633		
C	5/32	4.0	400-35762	400-35772	B1402-528-CA0-A	B1402-528-CA0-A				
D	3/16	4.8	400-35763	400-35773	B1402-528-DAL-A	B1402-528-DAR-A				
E	7/32	5.6	400-35764	400-35774	B1402-528-EAL	B1402-528-EAR				
F	1/4	6.4	400-29561	400-29562	B1402-528-FAL-A	B1402-528-FAR-A				
G	9/32	7.1	400-35765	400-35775	B1402-528-GAL	B1402-528-GAR				
H	5/16	7.9	400-35766	400-35776	B1402-528-HAL-A	B1402-528-HAR-A				
K	3/8	9.5	400-35767	400-35777	B1402-528-KAL-A	B1402-528-KAR-A				
L	1/2	12.7	400-35768	400-35778	B1402-528-LAL	B1402-528-LAR				
M	5/8	15.9	400-35769	400-35779	B1402-528-MAL	B1402-528-MAR				
N	3/4	19.1	400-35770	400-35780	B1402-528-NAL	B1402-528-NAR				
P	7/8	22.2	400-71917	400-71919	B1402-528-PAL	B1402-528-PAR				
Q	1	25.4	400-71921	400-71923	B1402-528-QAL	B1402-528-QAR				
Stitch spec.	S		★	★					★	★
	G				★	★				








Needle gauze size			Needle clamp asm. (DP17)				Sliding plate asm. (Left)	Sliding plate asm. (Right)	Throat Plate	
Code			Needle clamp asm. (Left) 	Needle clamp asm. (Right) 	Needle clamp asm. (Left) 	Needle clamp asm. (Right) 				
	inch	mm	Option Part No.	Option Part No.	Option Part No.	Option Part No.	Part No.	Part No.	Part No.	
B	1/8	3.2	400-35877	400-35878	B1402-526-BA0-A	B1402-526-BA0-A	226-01058	226-00555	226-25107	
C	5/32	4.0	400-26063	400-26084	B1402-526-CA0-A	B1402-526-CA0-A			226-25206	
D	3/16	4.8	400-26065	400-26086	B1402-526-DAL-A	B1402-526-DAR-A			* 400-72338	
E	7/32	5.6	400-26067	400-26088	102-28559	102-28567			226-25305	
F	1/4	6.4	400-26069	400-26090	B1402-526-FAL-A	B1402-526-FAR-A			226-25404	
G	9/32	7.1	400-26070	400-26091	B1402-526-GAL-A	B1402-526-GAR-A			226-25503	
H	5/16	7.9	400-26072	400-26093	B1402-526-HAL-A	B1402-526-HAR-A			226-25602	
K	3/8	9.5	400-26074	400-26095	B1402-526-KAL-A	B1402-526-KAR-A			226-25701	
L	1/2	12.7	400-26076	400-26097	B1402-526-LAL-A	B1402-526-LAR-A			226-25800	
M	5/8	15.9	400-26078	400-26099	102-28856	102-28864			226-26006	
N	3/4	19.1	400-26080	400-26101	102-28955	102-28963			226-26105	
P	7/8	22.2	—	—	—	—			226-26204	
Q	1	25.4	400-26082	400-26103	102-29151	102-29169			226-26303	
Stitch spec.	S		★	★					★	★
	G				★	★				* only ★

Needle gauze size			Feed dog				Presser foot asm.	
Code				Option 		Option 	Tip-divided 	Tip-divided 
	inch	mm	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	—	400-33563	—	—	400-35896	400-35896
C	5/32	4.0	226-30206	400-25784	B1613-512-C0H	—	400-35897	400-71909
D	3/16	4.8	226-30404	400-25785	B1613-512-D0H	400-25801	226-40353	228-16557
E	7/32	5.6	226-30503	400-25786	B1613-512-E0H	400-25802	226-40452	228-16656
F	1/4	6.4	226-30602	400-25787	B1613-512-F0H	400-25803	226-40551	228-16755
G	9/32	7.1	226-30800	400-25788	B1613-512-G0H	400-25804	226-40759	228-16854
H	5/16	7.9	226-30909	400-25789	B1613-512-H0H	400-25805	226-40858	228-16953
K	3/8	9.5	226-31006	400-25790	B1613-512-K0H	400-25806	226-40957	228-17050
L	1/2	12.7	226-31303	400-25792	B1613-512-L0H	400-25808	226-41252	228-17159
M	5/8	15.9	226-31402	400-25793	B1613-512-M0H	400-25809	226-41351	400-33945
N	3/4	19.1	226-31501	400-25794	B1613-512-N0H	400-25810	226-41450	400-33947
P	7/8	22.2	226-31709	400-25795	B1613-512-P0H	400-25811	226-41658	400-33949
Q	1	25.4	226-31808	400-25796	B1613-512-Q0H	400-25812	226-41757	400-33951
Stitch spec.	S		★	★			★	★
	G				★	★		★


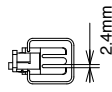
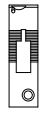
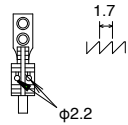
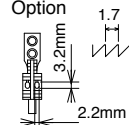

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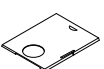


Needle gauge size		Feed dog				Presser foot asm.		Throat Plate	
Code				Option 		Option 	Tip-divided 	Tip-divided 	
	inch	mm	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	400-61270	400-35890	400-53705	400-53705	400-35896	400-35896	400-35881
C	5/32	4.0	400-61271	400-25817	400-71911	—	400-35897	400-71909	400-25485
D	3/16	4.8	400-61272	400-25818	400-35891	400-25831	226-40353	228-16557	400-25490
E	7/32	5.6	400-61273	400-25819	400-50009	400-25832	226-40452	228-16656	400-25491
F	1/4	6.4	400-61274	400-26715	400-35892	400-25833	226-40551	228-16755	400-25492
G	9/32	7.1	400-61275	400-25820	400-50010	400-25834	226-40759	228-16854	400-25493
H	5/16	7.9	400-61276	400-25821	400-50011	400-25835	226-40858	228-16953	400-25494
K	3/8	9.5	400-61277	400-25822	400-35893	400-25836	226-40957	228-17050	400-25495
L	1/2	12.7	400-61278	400-25824	400-35894	400-25838	226-41252	228-17159	400-25498
M	5/8	15.9	400-61279	400-25825	400-71912	400-25839	226-41351	400-33945	400-25499
N	3/4	19.1	400-61280	400-25826	400-35895	400-25840	226-41450	400-33947	400-25500
P	7/8	22.2	400-61281	400-25827	400-71913	400-25841	226-41658	400-33949	400-25502
Q	1	25.4	400-61282	400-25828	400-71914	400-25842	226-41757	400-33951	400-25503
Stitch spec.	S		★	★			★		Spec. common
	G				★	★		★	

Needle gauge size		Needle clamp asm. (DP5)				Sliding plate asm. (Front)	Sliding plate asm. (Right)	
Code			Needle clamp asm. (Left) 	Needle clamp asm. (Right) 	Needle clamp asm. (Left) 	Needle clamp asm. (Right) 		
	inch	mm	Wire type Part No.	Wire type Part No.	Hole type Part No.	Hole type Part No.	Part No.	Option Part No.
B	1/8	3.2	400-35761	400-35771	B1402-528-BA0-A	B1402-528-BA0-A	400-42880	400-51633
C	5/32	4.0	400-35762	400-35772	B1402-528-CA0-A	B1402-528-CA0-A		
D	3/16	4.8	400-35763	400-35773	B1402-528-DAL-A	B1402-528-DAR-A		
E	7/32	5.6	400-35764	400-35774	B1402-528-EAL-A	B1402-528-EAR-A		
F	1/4	6.4	400-29561	400-29562	B1402-528-FAL-A	B1402-528-FAR-A		
G	9/32	7.1	400-35765	400-35775	B1402-528-GAL-A	B1402-528-GAR-A		
H	5/16	7.9	400-35766	400-35776	B1402-528-HAL-A	B1402-528-HAR-A		
K	3/8	9.5	400-35767	400-35777	B1402-528-KAL-A	B1402-528-KAR-A		
L	1/2	12.7	400-35768	400-35778	B1402-528-LAL-A	B1402-528-LAR-A		
M	5/8	15.9	400-35769	400-35779	B1402-528-MAL	B1402-528-MAR		
N	3/4	19.1	400-35770	400-35780	B1402-528-NAL	B1402-528-NAR		
P	7/8	22.2	400-71917	400-71919	B1402-528-PAL	B1402-528-PAR		
Q	1	25.4	400-71921	400-71923	B1402-528-QAL	B1402-528-QAR		
Stitch spec.	S		Spec. common	Spec. common	Spec. common	Spec. common	Spec. common	Spec. common
	G							

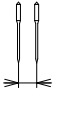
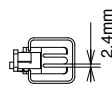
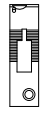
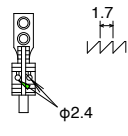
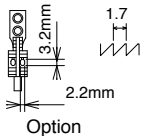

Needle gauge size		Needle clamp asm. (DP17)				Sliding plate asm. (Left)	Sliding plate asm. (Right)	
Code			Needle clamp asm. (Left) 	Needle clamp asm. (Right) 	Needle clamp asm. (Left) 	Needle clamp asm. (Right) 		
	inch	mm	Option Part No.	Option Part No.	Option Part No.	Option Part No.	Part No.	Part No.
B	1/8	3.2	400-35877	400-35878	B1402-526-BA0-A	B1402-526-BA0-A	400-25247	400-25235
C	5/32	4.0	400-26063	400-26084	B1402-526-CA0-A	B1402-526-CA0-A		
D	3/16	4.8	400-26065	400-26086	B1402-526-DAL-A	B1402-526-DAR-A		
E	7/32	5.6	400-26067	400-26088	102-28559	102-28567		
F	1/4	6.4	400-26069	400-26090	B1402-526-FAL-A	B1402-526-FAR-A		
G	9/32	7.1	400-26070	400-26091	B1402-526-GAL-A	B1402-526-GAR-A		
H	5/16	7.9	400-26072	400-26093	B1402-526-HAL-A	B1402-526-HAR-A		
K	3/8	9.5	400-26074	400-26095	B1402-526-KAL-A	B1402-526-KAR-A		
L	1/2	12.7	400-26076	400-26097	B1402-526-LAL-A	B1402-526-LAR-A		
M	5/8	15.9	400-26078	400-26099	102-28856	102-28864		
N	3/4	19.1	400-26080	400-26101	102-28955	102-28963		
P	7/8	22.2	—	—	—	—		
Q	1	25.4	—	400-26103	102-29151	102-29169		
Stitch spec.	S		Spec. common	Spec. common	★	★	Spec. common	Spec. common
	G							


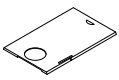

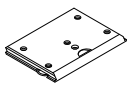
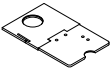
(5) LH-3578

Needle gauze size			Presser foot asm.	Throat Plate	Feed dog		Needle clamp asm.
Code			Tip-divided  2.4mm		 1.7 φ2.2	Option  1.7 3.2mm 2.2mm	
	inch	mm	Part No.	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	400-35896	400-72337	B1613-512-B0H	—	101-47650
C	5/32	4.0	400-71909	400-72338	B1613-512-C0H	—	101-47759
D	3/16	4.8	228-16557	226-25305	B1613-512-D0H	400-25801	101-47858
E	7/32	5.6	228-16656	226-25404	B1613-512-E0H	400-25802	101-47957
F	1/4	6.4	228-16755	226-25503	B1613-512-F0H	400-25803	101-48054
G	9/32	7.1	228-16854	226-25602	B1613-512-G0H	400-25804	101-48153
H	5/16	7.9	228-16953	226-25701	B1613-512-H0H	400-25805	101-48252
K	3/8	9.5	228-17050	226-25800	B1613-512-K0H	400-25806	101-48351
W	7/16	11.1	400-33941	226-25909	400-75311	400-25807	101-48450
L	1/2	12.7	228-17159	226-26006	B1613-512-L0H	400-25808	101-48559
M	5/8	15.9	400-33945	226-26105	B1613-512-M0H	400-25809	101-48658
N	3/4	19.1	400-33947	226-26204	B1613-512-N0H	400-25810	101-48757
P	7/8	22.2	400-33949	226-26303	B1613-512-P0H	400-25811	101-48856
Q	1	25.4	400-33951	226-26402	B1613-512-Q0H	400-25812	101-48955
R	1- 1/8	28.6	400-33953	226-26501	B1613-512-R0H	400-25813	101-49052
S	1- 1/4	31.8	400-33955	226-26600	B1613-512-S0H	400-25814	101-49151
T	1- 3/8	34.9	400-33957	226-26709	B1613-512-T0H	400-25815	101-49250
U	1- 1/2	38.1	400-33959	226-26808	B1613-512-U0H	400-25816	101-49359
Stitch spec.			Type G				






Needle gauze size			Sliding plate asm. (Left)	Sliding plate asm. (Right)	Sliding plate asm. (Front)	Sliding plate asm. (Left)
Code						 Option
	inch	mm	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	226-01058	226-00555	400-42874	400-51633
C	5/32	4.0				
D	3/16	4.8				
E	7/32	5.6				
F	1/4	6.4				
G	9/32	7.1				
H	5/16	7.9				
L	1/2	12.7	226-01157	226-00654	400-45729	
M	5/8	15.9	226-01256	226-00753	400-45730	
N	3/4	19.1				
P	7/8	22.2				
Q	1	25.4	226-01355	226-00852	400-45731	
R	1- 1/8	28.6				
S	1- 1/4	31.8				
T	1- 3/8	34.9				
U	1- 1/2	38.1				
Stitch spec.			Type G			






(6) LH-3578-7






Needle gauze size		Presser foot asm.	Throat Plate	Feed dog		Needle clamp asm.	
Code		Tip-divided  2.4mm		 1.7 φ2.4	 1.7 3.2mm 2.2mm Option		
	inch	mm	Part No.	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	400-35896	400-35881	400-53705	400-53705	101-47650
C	5/32	4.0	400-71909	400-25485	400-71911	—	101-47759
D	3/16	4.8	228-16557	400-25490	400-35891	400-25831	101-47858
E	7/32	5.6	228-16656	400-25491	400-50009	400-25832	101-47957
F	1/4	6.4	228-16755	400-25492	400-35892	400-25833	101-48054
G	9/32	7.1	228-16854	400-25493	400-50010	400-25834	101-48153
H	5/16	7.9	228-16953	400-25494	400-50011	400-25835	101-48252
K	3/8	9.5	228-17050	400-25495	400-35893	400-25836	101-48351
W	7/16	11.1	400-33941	400-25496	—	400-25837	101-48450
L	1/2	12.7	228-17159	400-25498	400-35894	400-25838	101-48559
M	5/8	15.9	400-33945	400-25499	400-71912	400-25839	101-48658
N	3/4	19.1	400-33947	400-25500	400-35895	400-25840	101-48757
P	7/8	22.2	400-33949	400-25502	400-71913	400-25841	101-48856
Q	1	25.4	400-33951	400-25503	400-71914	400-25842	101-48955
Stitch spec.		Type G					

Needle gauze size		Sliding plate asm. (Left)	Sliding plate asm. (Right)	Sliding plate asm. (Front)	Sliding plate asm. (Left)
Code					 Option
	inch	mm	Part No.	Part No.	Part No.
B	1/8	3.2	400-25247	400-25235	400-51633
C	5/32	4.0			
D	3/16	4.8			
E	7/32	5.6			
F	1/4	6.4			
G	9/32	7.1			
H	5/16	7.9			
K	3/8	9.5	400-42880	400-45729	
W	7/16	11.1			
L	1/2	12.7			
M	5/8	15.9	400-25248	400-25236	400-45730
N	3/4	19.1	400-25249	400-25239	
P	7/8	22.2			
Q	1	25.4			
Stitch spec.		Type G			






(7) LH-3588






Needle gauge size			Needle clamp asm. (DP5)		Needle clamp asm. (DP17)	
Code			Needle clamp asm. (Left) 	Needle clamp asm. (Right) 	Needle clamp asm. (Left) Option 	Needle clamp asm. (Right) Option 
	inch	mm	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	B1402-528-BA0-A	B1402-528-BA0-A	B1402-526-BA0-A	B1402-526-BA0-A
C	5/32	4.0	B1402-528-CA0-A	B1402-528-CA0-A	B1402-526-CA0-A	B1402-526-CA0-A
D	3/16	4.8	B1402-528-DAL-A	B1402-528-DAR-A	B1402-526-DAL-A	B1402-526-DAR-A
E	7/32	5.6	B1402-528-EAL	B1402-528-EAR	102-28559	102-28567
F	1/4	6.4	B1402-528-FAL-A	B1402-528-FAR-A	B1402-526-FAL-A	B1402-526-FAR-A
G	9/32	7.1	B1402-528-GAL	B1402-528-GAR	B1402-526-GAL-A	B1402-526-GAR-A
H	5/16	7.9	B1402-528-HAL-A	B1402-528-HAR-A	B1402-526-HAL-A	B1402-526-HAR-A
K	3/8	9.5	B1402-528-KAL-A	B1402-528-KAR-A	B1402-526-KAL-A	B1402-526-KAR-A
L	1/2	12.7	B1402-528-LAL	B1402-528-LAR	B1402-526-LAL-A	B1402-526-LAR-A
M	5/8	15.9	B1402-528-MAL	B1402-528-MAR	102-28856	102-28864
N	3/4	19.1	B1402-528-NAL	B1402-528-NAR	102-28955	102-28963
P	7/8	22.2	B1402-528-PAL	B1402-528-PAR	—	—
Q	1	25.4	B1402-528-QAL	B1402-528-QAR	102-29151	102-29169
Stitch spec.			Type G			




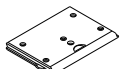

Needle gauge size			Throat Plate	Feed dog		Presser foot asm.
Code				 1.7 φ2.2	Option  3.2mm 1.7 2.2mm	Tip-divided  2.4mm
	inch	mm	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	400-72337	B1613-512-B0H	—	400-35896
C	5/32	4.0	400-72338	B1613-512-C0H	—	400-71909
D	3/16	4.8	226-25305	B1613-512-D0H	400-25801	228-16557
E	7/32	5.6	226-25404	B1613-512-E0H	400-25802	228-16656
F	1/4	6.4	226-25503	B1613-512-F0H	400-25803	228-16755
G	9/32	7.1	226-25602	B1613-512-G0H	400-25804	228-16854
H	5/16	7.9	226-25701	B1613-512-H0H	400-25805	228-16953
K	3/8	9.5	226-25800	B1613-512-K0H	400-25806	228-17050
W	7/16	11.1	226-25909	400-75311	400-25807	400-33941
L	1/2	12.7	226-26006	B1613-512-L0H	400-25808	228-17159
M	5/8	15.9	226-26105	B1613-512-M0H	400-25809	400-33945
N	3/4	19.1	226-26204	B1613-512-N0H	400-25810	400-33947
P	7/8	22.2	226-26303	B1613-512-P0H	400-25811	400-33949
Q	1	25.4	226-26402	B1613-512-Q0H	400-25812	400-33951
Stitch spec.			Type G			

Needle gauge size			Sliding plate asm. (Left)	Sliding plate asm. (Right)	Sliding plate asm. (Front)	Sliding plate asm. (Left)
Code						Option 
	inch	mm	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	226-01058	226-00555	400-42874	400-51633
C	5/32	4.0				
D	3/16	4.8				
E	7/32	5.6				
F	1/4	6.4				
G	9/32	7.1				
H	5/16	7.9	226-01157	226-00654		400-45729
K	3/8	9.5				
L	1/2	12.7				
M	5/8	15.9	226-01256	226-00753		400-45730
N	3/4	19.1				
P	7/8	22.2				
Q	1	25.4				
Stitch spec.			Type G			

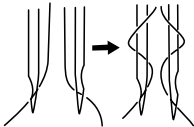
(8) LH-3588-7

Needle gauge size			Needle clamp asm. (DP5)		Needle clamp asm. (DP17)	
Code			Needle clamp asm. (Left) 	Needle clamp asm. (Right) 	Needle clamp asm. (Left) 	Needle clamp asm. (Right) 
	inch	mm	Part No.	Part No.	Option Part No.	Option Part No.
B	1/8	3.2	B1402-528-BA0-A	B1402-528-BA0-A	B1402-526-BA0-A	B1402-526-BA0-A
C	5/32	4.0	B1402-528-CA0-A	B1402-528-CA0-A	B1402-526-CA0-A	B1402-526-CA0-A
D	3/16	4.8	B1402-528-DAL-A	B1402-528-DAR-A	B1402-526-DAL-A	B1402-526-DAR-A
E	7/32	5.6	B1402-528-EAL	B1402-528-EAR	102-28559	102-28567
F	1/4	6.4	B1402-528-FAL-A	B1402-528-FAR-A	B1402-526-FAL-A	B1402-526-FAR-A
G	9/32	7.1	B1402-528-GAL	B1402-528-GAR	B1402-526-GAL-A	B1402-526-GAR-A
H	5/16	7.9	B1402-528-HAL-A	B1402-528-HAR-A	B1402-526-HAL-A	B1402-526-HAR-A
K	3/8	9.5	B1402-528-KAL-A	B1402-528-KAR-A	B1402-526-KAL-A	B1402-526-KAR-A
L	1/2	12.7	B1402-528-LAL	B1402-528-LAR	B1402-526-LAL-A	B1402-526-LAR-A
M	5/8	15.9	B1402-528-MAL	B1402-528-MAR	102-28856	102-28864
N	3/4	19.1	B1402-528-NAL	B1402-528-NAR	102-28955	102-28963
P	7/8	22.2	B1402-528-PAL	B1402-528-PAR	—	—
Q	1	25.4	B1402-528-QAL	B1402-528-QAR	102-29151	102-29169
Stitch spec.			Type G			

Needle gauge size			Throat Plate	Feed dog		Presser foot asm.
Code					Option 	Tip-divided 
	inch	mm	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	400-35881	400-53705	400-53705	400-35896
C	5/32	4.0	400-25485	400-71911	—	400-71909
D	3/16	4.8	400-25490	400-35891	400-25831	228-16557
E	7/32	5.6	400-25491	400-50009	400-25832	228-16656
F	1/4	6.4	400-25492	400-35892	400-25833	228-16755
G	9/32	7.1	400-25493	400-50010	400-25834	228-16854
H	5/16	7.9	400-25494	400-50011	400-25835	228-16953
K	3/8	9.5	400-25495	400-35893	400-25836	228-17050
W	7/16	11.1	400-95796	—	400-25837	400-33941
L	1/2	12.7	400-25498	400-35894	400-25838	228-17159
M	5/8	15.9	400-25499	400-71912	400-25839	400-33945
N	3/4	19.1	400-25500	400-35895	400-25840	400-33947
P	7/8	22.2	400-25502	400-71913	400-25841	400-33949
Q	1	25.4	400-25503	400-71914	400-25842	400-33951
Stitch spec.			Type G			

Needle gauge size			Sliding plate asm. (Left)	Sliding plate asm. (Right)	Sliding plate asm. (Front)	Sliding plate asm. (Left)
Code						Option 
	inch	mm	Part No.	Part No.	Part No.	Part No.
B	1/8	3.2	400-25247	400-25235	400-42880	400-51633
C	5/32	4.0				
D	3/16	4.8				
E	7/32	5.6				
F	1/4	6.4				
G	9/32	7.1				
H	5/16	7.9				
K	3/8	9.5	400-25248	400-25236	400-45729	
W	7/16	11.1				
L	1/2	12.7				
M	5/8	15.9	400-25249	400-25239	400-45730	
N	3/4	19.1				
P	7/8	22.2				
Q	1	25.4				
Stitch spec.			Type G			

9. TROUBLES AND CORRECTIVE MEASURES

TROUBLES	CAUSES	CORRECTIVE MEASURES
<p>1. Thread breakage (Thread is untwisted or scraped.)</p> <p style="text-align: center; margin-top: 20px;">(Needle thread 2 to 3 cm is left on the wrong side of the fabric.)</p>	<ol style="list-style-type: none"> ① There is a sharp edge or burr on the thread path, needle point, hook blade point or bobbin case resting groove on the throat plate. ② Needle thread tension is too high. ③ Bobbin case opening lever provides an excessive clearance at the bobbin case. ④ Hook blade point hits the needle. ⑤ Hook is not lubricated properly. ⑥ Needle thread tension is too low. ⑦ Thread take-up spring is too tight and its stroke is too small. ⑧ Needle-to-hook timing is wrong. ⑨ Thread untwists. ⑩ Uniform thread loops cannot be formed when making chain-off thread. 	<ul style="list-style-type: none"> ○ Remove sharp edge or burr using a fine sandpaper. Polish the surface of the bobbin case resting groove on the throat plate using a buffing wheel. ○ Adjust the needle thread tension. ○ Reduce the clearance. (Refer to "6-4. Adjusting the inner hook guide", P. 30.) ○ Refer to "4-15. Needle-to-hook relation", P. 21. ○ Increase the amount of oil supplied to the hook according to "4-4. Adjusting the amount of oil in the hook", P. 10. ○ Adjust the needle thread tension. ○ Reduce the tension of the spring and increase the stroke. ○ Refer to "4-15. Needle-to-hook relation", P. 21. ○ Wind the thread on the needle. <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> ○ Use the thread guide equipped with felt pad.
<p>2. Stitch skipping</p>	<ol style="list-style-type: none"> ① Clearance between the needle and the hook blade point is too great. ② Needle-to-hook relation is wrong. ③ Pressing force of the presser foot is not enough. ④ Needle bar height is wrong. ⑤ Needles are a little too thin. ⑥ Synthetic thread or thin thread is used. 	<ul style="list-style-type: none"> ○ Refer to "4-15. Needle-to-hook relation", P. 21. ○ Refer to "4-15. Needle-to-hook relation", P. 21. ○ Tighten the presser spring regulator. ○ Refer to "4-15. Needle-to-hook relation", P. 21. ○ Replace the needle by thicker ones. ○ Wind the thread on the needle.
<p>3. Loose stitch</p>	<ol style="list-style-type: none"> ① Bobbin thread does not pass through the forked end of the tension spring on the bobbin case. ② Thread path has rough surface. ③ Bobbin does not spin smoothly. ④ Bobbin case opening lever provides too much clearance at the bobbin. ⑤ Bobbin thread tension is too low. ⑥ Bobbin is wound too tightly. 	<ul style="list-style-type: none"> ○ Thread the bobbin case correctly. ○ Remove rough surface using a fine sandpaper or polish the surface using a buffing wheel. ○ Replace the bobbin or the hook. ○ Refer to "6-4. Adjusting the inner hook guide", P. 30. ○ Adjust the bobbin thread tension. ○ Adjust the tension components on the bobbin winder.

10. MOTOR PULLEY AND BELT

(1) Motor pulley and belt for the machine without thread trimmer are as described below.

- 1) Use a clutch motor with an output 400 W (2P).
- 2) Use M type V belt.
- 3) The relation between the motor pulley, belt length and number of revolutions of sewing machine is as shown in the list below.

LH-3528, 3568, 3578, 3588					
Motor pulley		Sewing speed (sti/min)		Belt	
Outer diameter(mm)	Part No.	50Hz	60Hz	Length	Part No.
75	MTKP0070000	3000	-	43 inches	MTJVM00430A
70	MTKP0065000	2790	-		
65	MTKP0060000	2580	3000	42 inches	MTJVM00420A
60	MTKP0055000	2370	2740		

* The effective motor pulley diameter is obtained by subtracting 5 mm from the outer diameter.

* The motor should rotate counterclockwise when viewed from the pulley side. Be careful not to rotate it in the counter direction.

(2) Motor pulley and belt for the machine with thread trimmer are as described below.

LH-3528-7, 3568-7, 3578-7, 3588-7					
Motor		Motor pulley		V Belt	
Model	Part No.	Outer diameter	Part No.	Length	Part No.
SC-500 M50	40018481	φ110	40018577	43 inches	MTJVM00430A
EC-10B	MTSE3438803 (Part No. of complete set)	φ80	MTSE8110608	43 inches	MTSE8160343