GOLDEN WHEEL

No. 000006

CS-6120	1-NEEDLE, TOP & BOTTOM FEED, LOCKSTITCH, MACHINE
CS-6120-BT	1-NEEDLE, TOP & BOTTOM FEED, LOCKSTITCH, MACHINE WITH AUTOMATIC THREAD TRIMMER

Please read this Instruction Manual carefully before using the unit in order to get the most out of it and to enjoy using it for a long time.
Please keep this Instruction Manual at hand taking care not to lose it.

INSTRUCTION MANUAL

BEFORE OPERATION

1. Do not operate the machine even for trial before lubrication it.
2. Confirm that the voltage and phase (single or 3-phase) are correct by checking them against the ratings showen on the motor nameplate.
3. When running your machine for the first time after the set-up, check the rotational direction of the handwheel. ★Turn on the power switch. Run the machine at a low speed while checking the rotational direction of the handwheel. (The handwheel should turn counterclockwise as observed from the handwheel side.)
4. For the first month, run the machine at speed of 1600 s. p. m. or less.

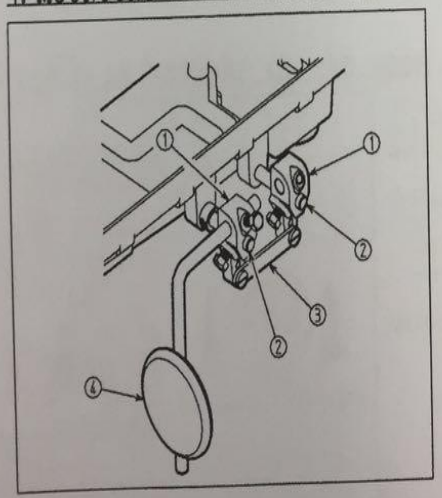
CAUTIONS IN OPERATION

1. Keep your hands away from the needle when you turn on the power switch or while the mac-hine is operating.
2. During operation, be careful not to allow your or any other person's head or fingers to come close the handwheel, V-belt, bobbin winder or motor. Also, do not place anything close to them.
3. Do not turn the machine with the finger guard, belt cover or any other protectors removed.
4. Be sure to turn off the power switch and confirm that the motor is completely stopped before removing the V-belt.

SPECIFICATIONS

Usage	Bags, Shoes, Medium-weight materials.
Sewing speed	Max. 7000s. p. m
Stitch length	Forward stitch:8mm, Reverse stitch:8mm
Needle	DPx17 #22 (DBx1 #22)
Lift of presser foot	Hand lifter:6 mm, Knee lifter:16 mm
Lubricating oil	Machine oil (white spindle oil)

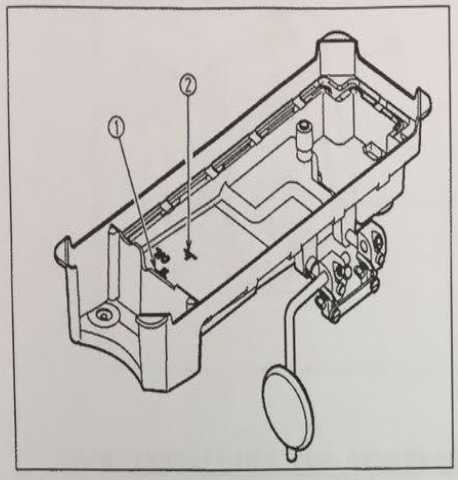
1. MOUNTING POSITION OF THE KNEE LIFTER



1) Insert knee lifter crank ① in the knee lifter shaft ②.
2) Attach a knee lifter link ③ to knee lifter cr-ank ①.
3) Attach knee lifter plate rod asm. ④ to the left side knee lifter crank ①.

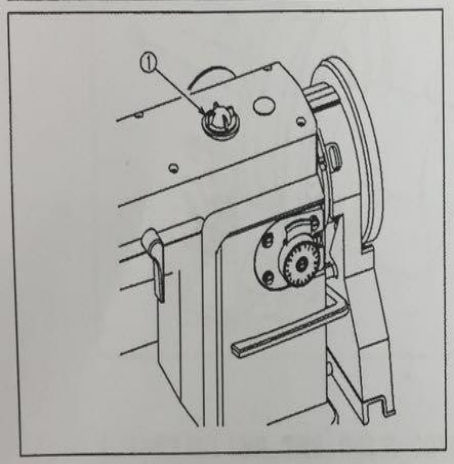
2. LUBRICATION

⚠CAUTION	TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE -XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.



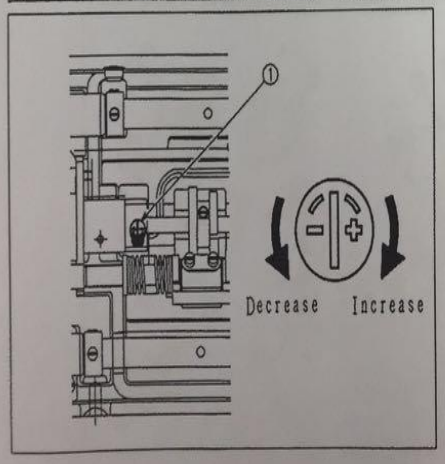
1) Fill oil up to marker line 'H' ①.
2) When the oil level dpops under marker line 'L' ②, refill it.
(Using oil is white spindle oil.)

3. LUBRICATION CONDITION



1) Operate the sewing machine, and confirm the scattering oil at an oily window ①.

4. REFUELING ADJUSTMENT OF THE HOOK

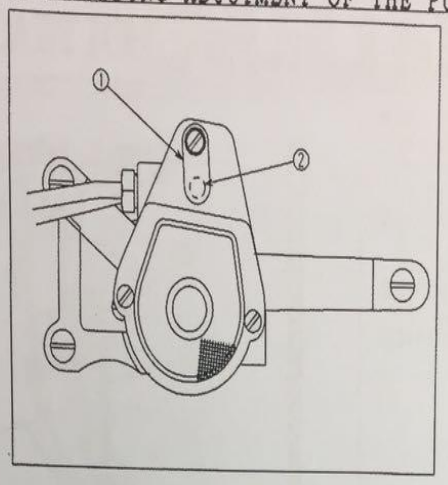


If it is necessary to change the amount of oil supplied to the hook, adjust it using knob ①.

1) Turn the knob clockwise (in direction '+') to increase the oil supplied, or turn it co -unterclockwise (in direction '-') to decr -ease it.

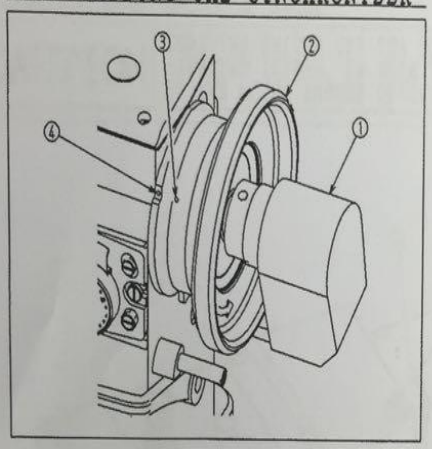
Attension : After adjusting the knob and no -load running more than 30 secon -ds, confirm oil which scatters from the hook.

5. REFUELING ADJUTMENT OF THE PUMP



1) The standard position of the oil adjusting plate ① is close the by-pass hole ②.
2) According as open the by-pass hole ② a ref -ueling amount decreases.

6. INSTALLING THE SYNCHRONIZER



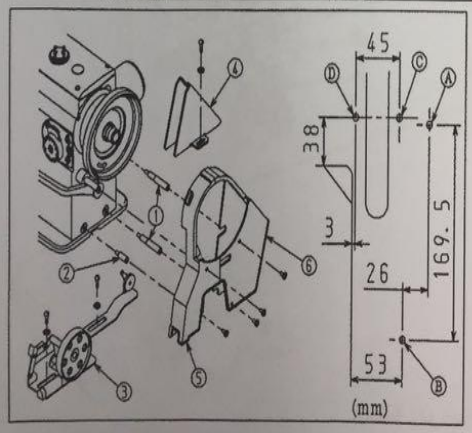
1) Attach the synchronizer ① to the handwheel ②.
2) To determine the stopping position, adjust the setting angle of the synchronizer senc -er. (Follow the instruction of motor to be used.)

O Upper needle position
Align the white marker dot ③ of the handw -heel with black marker dot ④ of the mach -ine arm.

O Lower needle position
Align the black marker dot ③ of the handw -heel with black marker dot ④ of the mach -ine arm.

7. INSTALLING THE BELT COVER AND BOBBIN WINDER

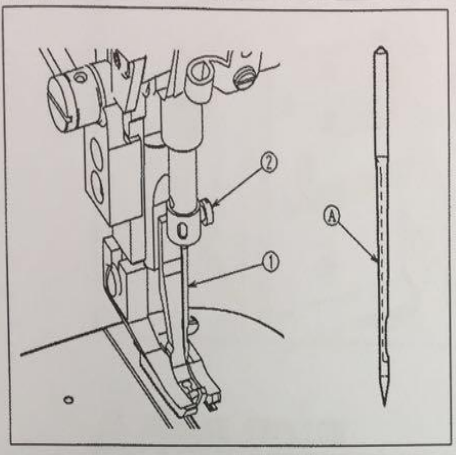
⚠CAUTION TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE -XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.



(Installing procedure)
1) Perforate the woodscrew's guide hole Ⓐ,Ⓑ,Ⓒ,Ⓓ on the table.
2) Insert belt cover support ①,② in the tapped hole in the machine arm.
3) Adjust position of the bobbin winder ③ and fix it to guide hole Ⓐ, Ⓑ with woodscrews.
4) Temporary tight belt cover C ④ in the guide hole Ⓒ,Ⓓ.
5) Fit belt cover A ⑤ and belt cover B ⑥ onto the support ①,②.
6) Adjust position of the belt cover C ④, fixing it with woodscrews.

8. ATTACHING THE NEEDLE

⚠CAUTION TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE-XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.



★ The standard needle is DPx17, however, a DBx1 may also be used.

1) Turn the handwheel to move the needle bar up to its highest position.
2) Loosen needle setscrew ②, and hold needle ① so that long groove Ⓐ faces exactly to the left.
3) Insert the needle into the needle bar until it will go no further.
4) Securely tighten the needle setscrew.

9. THREADING THE MACHINE HEAD

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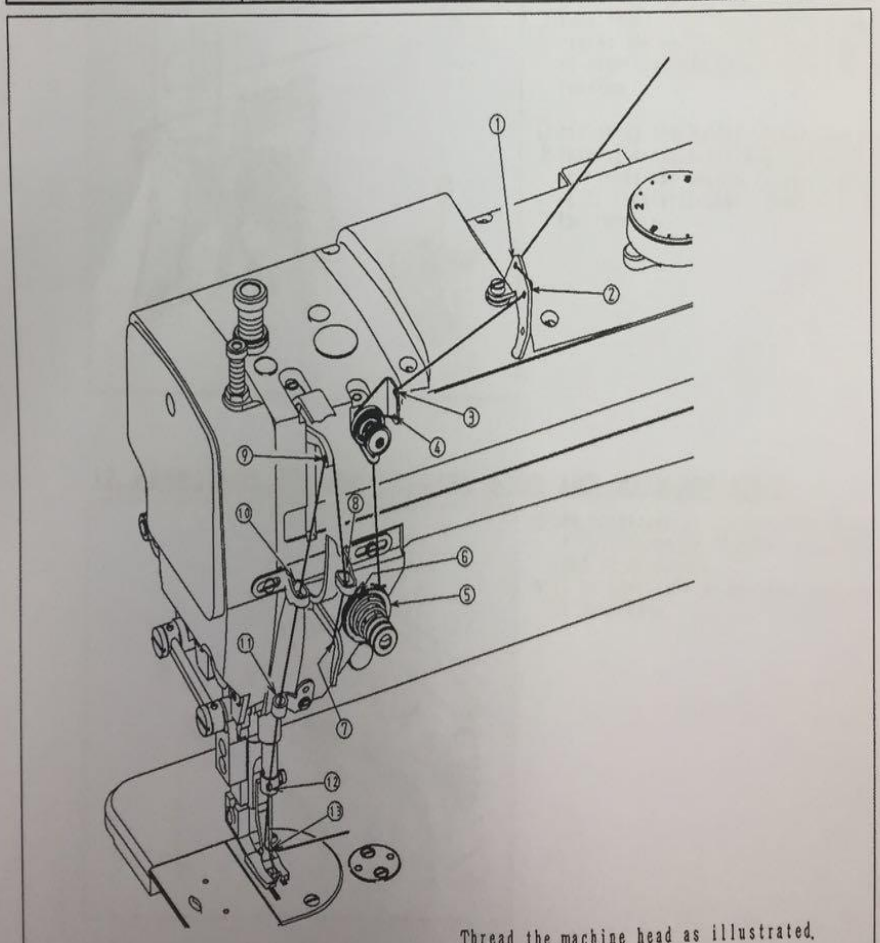
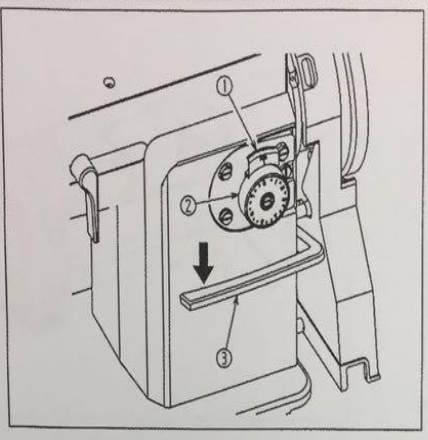


Thread the machine head as illustrated.

10. ADJUSTING THE STITCH LENGTH



1) Push the stopper plate ①, and turn the di
-al ②.

○ How to engage the reverse feed stitching.

1) Push feed lever ③ down.
2) The machine performs reverse feed stitchin
-g as long as the lever is held depressed.
3) The moment you release to lever, the machin
-e resumes the normal stitching mode.

11. THREAD TENSION

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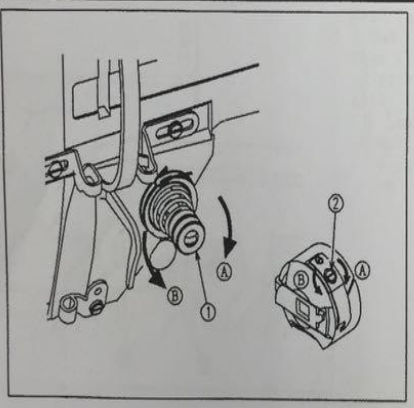


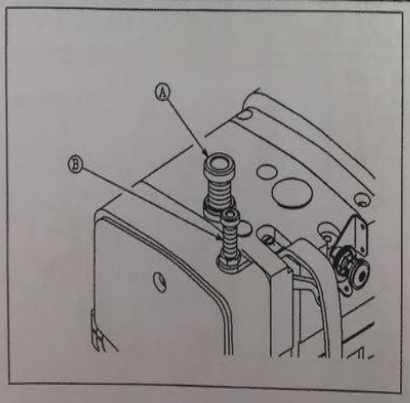
○ Adjusting the needle thread tension.

1) Turn tension nut ① clockwise (toward A) incr
-eases the needle thread tension. Turning
it counterclockwise (toward B) dereases the
tension.

○ Adjusting the bobbin thread tension.

1) Turning tension screw ② clockwise (toward A)
increases the bobbin thread tension. Turnin
-g it counterclockwise (toward B) decreases
the tension.

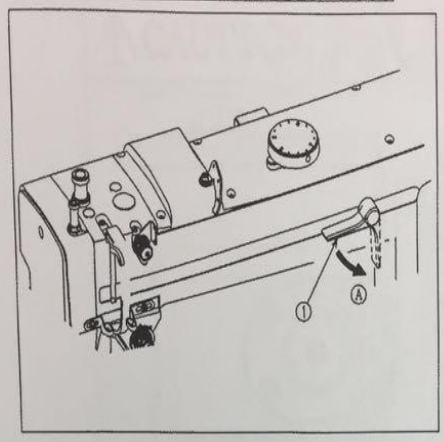
12. PRESSURES OF THE PRESSER FOOT AND WALKING FOOT



1) The pressures of presser foot Ⓐ and walkin
-g foot Ⓑ can be adjusted according to the
type of materials.

※ It is advisable to minimize the pressures
of both feet.

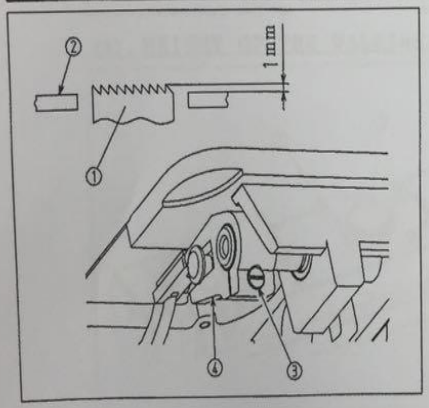
13. LIFTING THE PRESSER FOOT



1) Turn the hand lifter lever ① counterclockw
-ise (toward Ⓐ), the presser foot up.

14. HEIGHT OF THE FEED DOG

⚠CAUTION TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE -XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.



Feed dog ① is factory-adjusted to jut out 1.0mm from the surface of throat plate ②. When the feed dog height needs to be adjuste -d according to the sewing specifications or after the feed dog is replaced, do as follows:

1) Loosen the screw ③.
2) Move the feed bar ④ up or down to perform adjustment, then securely tighten the scre -w.

15. SLOPE ADJUSTMENT OF THE FEED DOG

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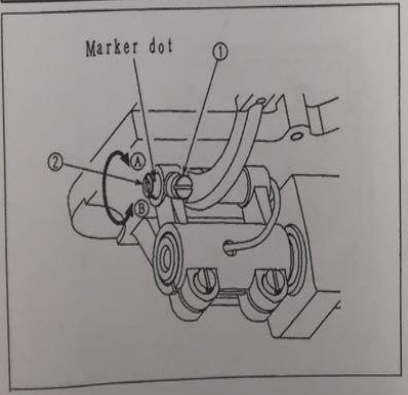


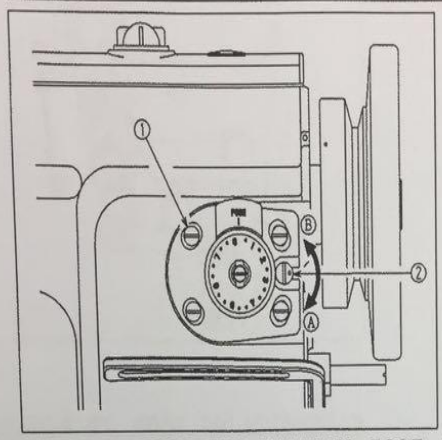
When the feed dog slope needs to be adjusted according to the sewing specifications do as follows:

1) Loosen screw ①.
2) Turn the feed bar shaft ② clockwise (towar -d Ⓐ) or counterclockwise (toward Ⓑ).
3) Then securely tighten the screw.

marker dot position of feed bar shaft	feed dog
standard	standard
upside	
underside	

16. FORWARD/REVERSE SEAM RATIO

⚠CAUTION TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE -XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.

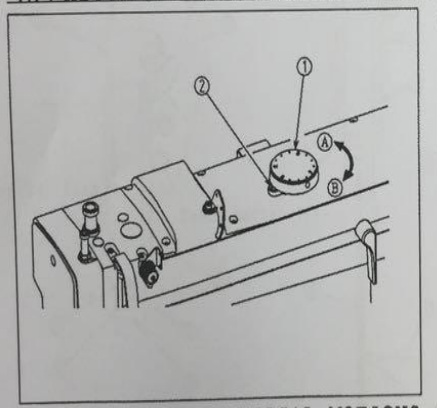


1) Loosen four screws ①.
2) When increasing the forward stitch length, turn the eccentric pin ② clockwise (toward Ⓐ) using a screwdriver.
3) When decreasing the forward stitch length, turn the eccentric pin ② counterclockwise (toward Ⓑ) using a screwdriver.
4) Then securely tighten the screws.

17. ADJUSTING THE WALKING FOOT AND THE PRESSER FOOT

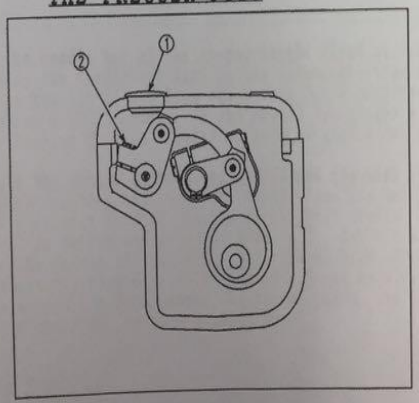
⚠CAUTION TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE -XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.

(1). HEIGHT OF THE WALKING FOOT AND PRESSER FOOT



1) Turn the dial ①, toward Ⓐ or toward Ⓑ to bring the desired value at the marker dot ② of the top cover.
The value of dial shows the height of the walking foot and presser foot by milmeter.

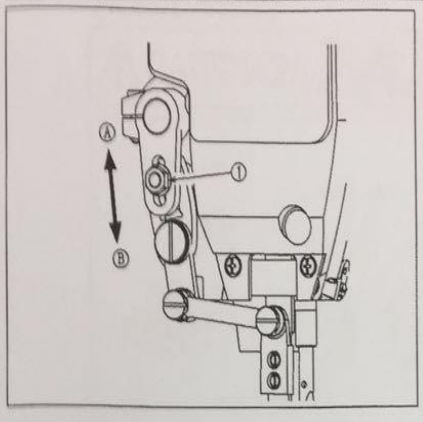
(2). ALTERNATE VERTICAL MOTIONS OF THE WALKING FOOT AND THE PRESSER FOOT



The alternate vertical strokes of walking fo -ot and presser foot are normally equal. Dpen -ding on the type of materials, however the v -ertical stroke of the presser foot may be s -et smaller than of walking foot. Do as follo -ws:

1) Remove the rabber plub ①.
2) Turn the handwheel, raise the presser foot from throat plate a little.
3) Loosen screw ②.
4) The presser foot falls to the throat plate by power of the spring. Then tighten screw ② in its position.

(3). FEED PITCH OF THE WALKING FOOT

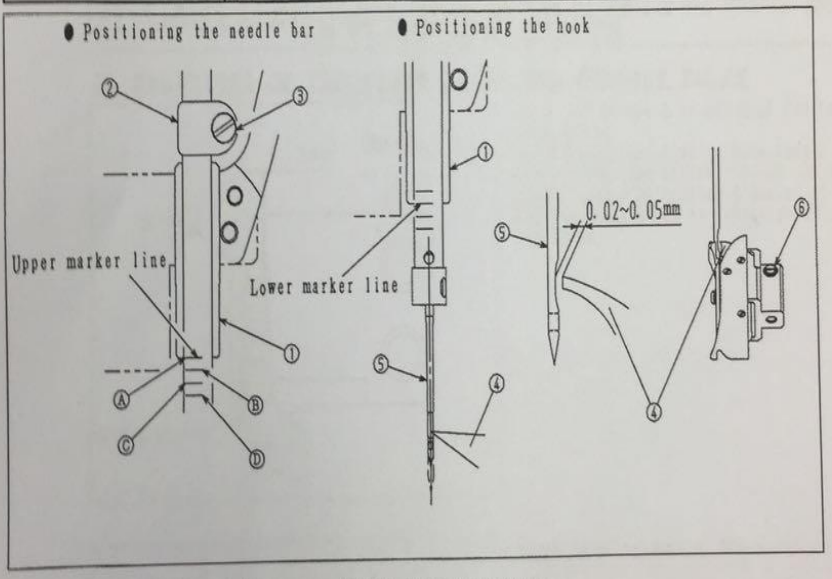


The ratio of the bottom feed to the top feed is factory-adjusted to 1:1. If necessary, the top feed amount may be changed as follows:

1) Loosen nut ①, and move the slide block up (toward Ⓐ) to decrease the feed pitch, or m -ove it down (toward Ⓑ) to increase the fee -d pitch.

18. NEEDLE-TO-HOOK RELATIONSHIP

⚠CAUTION TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE -XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.



○ Set the needle bar at the proper height first as follows:

1) Bring the needle bar down to its lowest position, and adjust so that specified marker line (the 4th line Ⓐ from the bottom for a DBx1 needle, or the 2nd line Ⓒ from the botto -m for a DPx17 needle) on the needle bar aligns with the bottom end of needle bar lowe -r bushing ①, then tighten screw ③ of needle bar clamp ②.

○ Adjust the timing between the needle and the hook as follows:

2) Adjust so that the specified marker line (the 3rd line Ⓑ from the bottom for a DBx1 nee -dle, or line Ⓓ at the bottom for a DPx17 needle) on the ascending needle bar aligns wi -th the bottom end of lower bushing ①. Further adjust to make hook point ④ nearly nee -t the center of needle ⑤, then tighten hook setscrews ⑥.
3) Adjust the clearance between needle ⑤ and hook point ④ to 0.02 to 0.05mm.
4) To adjust the hook, remove the throat plate, and loosen hook setscrews ⑥ from the throa -t plate side, using a screwdriver.

19. FEED TIMING

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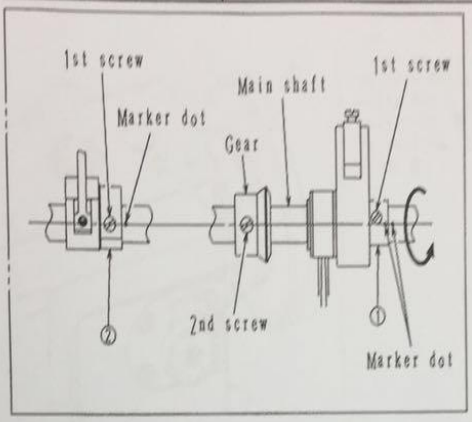

It is the standard position of feed ca-m and driving cam as illustrated.
1) Remove a top cover, and change the po-sition of feed cam ①, driving cam ②.

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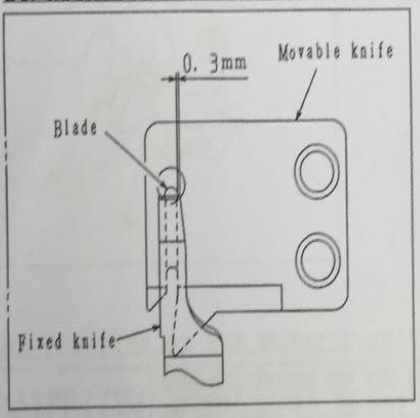
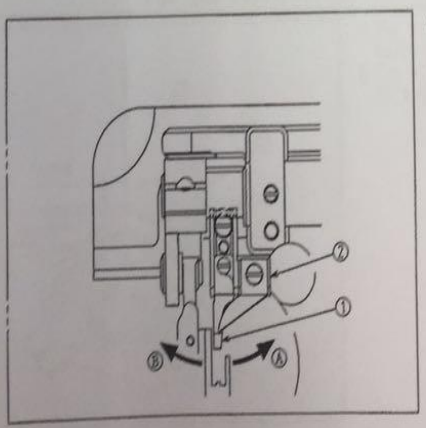
20. RELATIONS OF THE FIXED KNIFE AND MOVABLE KNIFE



It is the standard position of the knife as illustrated.
If the knife position is more than 0.3mm as illustrated, the thread through out from the needle caused by cutting 3 pieces of thread.
And less than 0.3mm as illustrated, missing thread out.



○ How to adjustment of the fixed knife position
1) Adjust the fixed knife ① or the knife sad-dle ② to move in direction Ⓐ or Ⓑ.

21. ADJUSTING THE THREAD TRIMMING CAM

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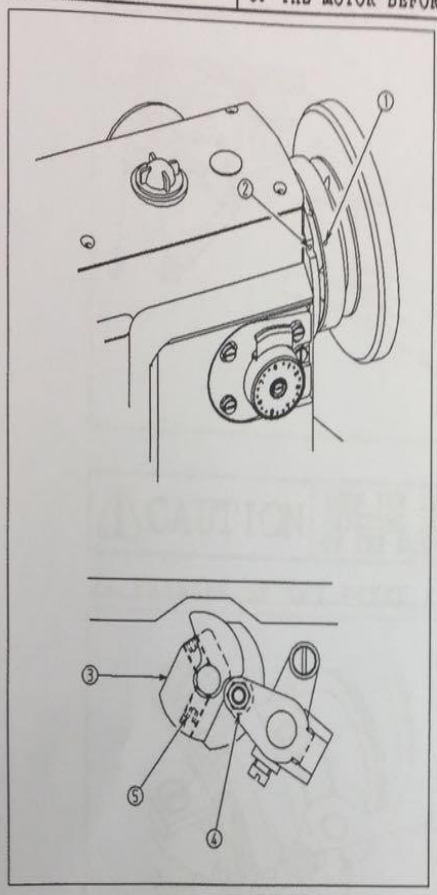

The standard position of the thread trimming cam is such that when thread trimming cam ③ comes in contact with cam roller ④ with the movable knife in its home position, green ma -rker dot ① on the machine arm aligns with marker dot ② on the handwheel.
To perform the adjustment above, loosen setsc -rews ⑤.

22. HOME POSITION OF THE MOVABLE KNIFE AND THE FIXED KNIFE

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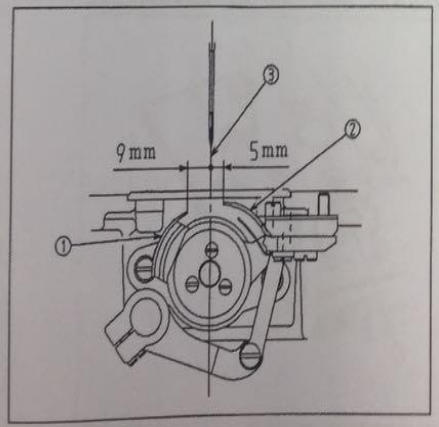

1) The standard home position of the movable knife ① is 9mm from the needle center ③.
2) The standard home position of the fixed kn -ife ② is 5mm from the needle center ③.

23. ADJUSTING OVERLAP AMOUNT OF THE KNIFE

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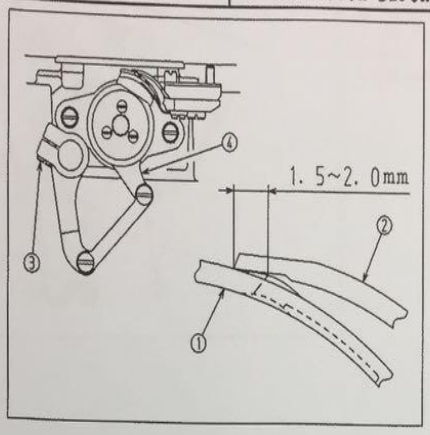
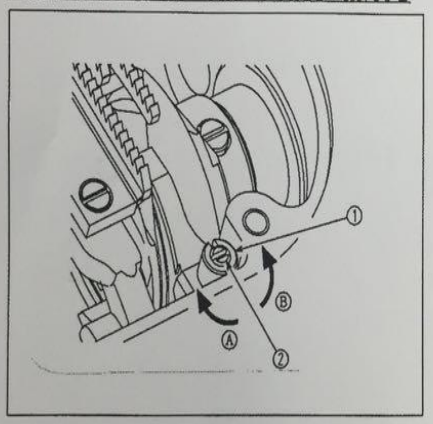


The standard home position of knife is such that the maximum overlap between the movable knife blade ① and the fixed knife blade ② sh-ould be 1. 5 to 2. 0 mm.

1) Turn the handwheel by hand to move the mov-able knife upward.
2) Loosen screws ③ and adjust to turn the mov-able knife base ④ by hand.
3) Then securely tighten the screw ③.

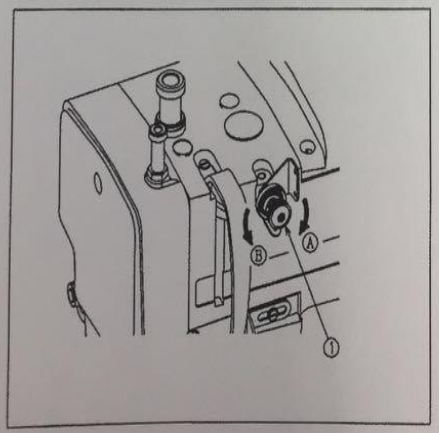
⚠CAUTION TURN THE SWITCH OFF THE POWER SUPPLY TO PREVENT FROM UNE-XPECTED INJURY. BE SURE TO CONFIRM THE STOP OF ROTATION OF THE MOTOR BEFORE OPERATIONS.

24. PRESSER OF THE FIXED KNIFE



1) Loosen the locknut ① of knife pressure adj-ust screw ②. As you turn screw ② clockwis-e (direction Ⓐ), blade point lowers, resu-lting in a higher knife puressure, after adjustment, tighten the locknut.
2) The knife pressure should be increased for a thicker thread. However, it is advisable to minimize (by turning the adjust screw in direction Ⓑ) the knife pressure as long as knife can trim threads.

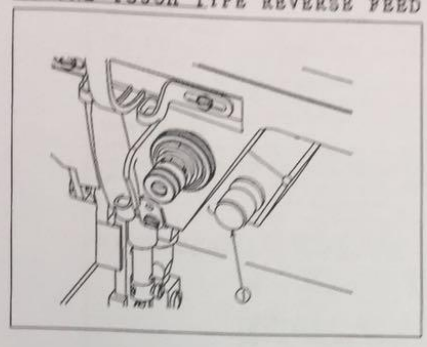
25. AUXILIARY THREAD TENSION CONTROLLER



Adjust the auxiliary thread tension using nu-t ①.

○ Turn the nut in direction Ⓐ→ Tension incr-eases and the needle thread shortens.
○ Turn the nut in direction Ⓑ→ Tension dicr-eases and the needle thread lengthens.

26. ONE-TOUCH TYPE REVERSE FEED STITCHING MECHANISM



○ How to operate

1) The moment you press switch ⑥, the sewing machine performs reverse feed stitching.
2) The machine continues reverse feed stitching as long as the switch is held pressed.
3) When you release the switch, the machine resumes normal stitching.

27. TROUBLE AND CORRECTIVE MEASURES

Trouble	Cause	Corrective measures
1. Thread breakage (Thread frays or wears out.)	① The thread path, needle point, hook point or bobbin case positioning finger has scra-tches.	○ Remove the scratches on the hook point using a fine sand paper. Buff the bobbin case positioning finger.
	② The needle thread tension is too high.	○ Properly adjust the needle thread tension.
	③ The needle hits the hook point.	○ See'18. NEEDLE-TO-HOOK RELATIONSHIP'.
	④ Lubrication to hook is inadequate.	○ Properly adjust the lubrication. See'4. REFUELING ADJUSTMENT OF THE HOOK'.
(Needle thread remains 2 to 3 cm on the wrong side of the cloth.)	⑤ The needle thread tension is too low.	○ Properly adjust the needle thread tension.
	⑥ The thread take-up spring has an excessiv-ely high tension while it has an excessi-vely small stroke.	○ Decrease the tension, and increase the stroke.
	⑦ The timing between the needle and hook is too early or late.	○ See'18. NEEDLE-TO-HOOK RELATIONSHIP'.
2. Stitch skipping	① The clearance between the needle and the hook point is too large.	○ See'18. NEEDLE-TO-HOOK RELATIONSHIP'.
	② The timing between the needle and hook is too early or late.	○ See'18. NEEDLE-TO-HOOK RELATIONSHIP'.
	③ The presser foot pressure is too low.	○ Increase the presser foot pressure.
	④ The clearance between the top edge of the needle eyelet and the hook point is not correct.	○ See'18. NEEDLE-TO-HOOK RELATIONSHIP'.
	⑤ The size of the needle is wrong.	○ Replace the needle by one which one grade thicker.
	⑥ A synthetic fiber thread or thin thread is used.	○ Wind the thread round the needle as illustrated. 
3. Loose stitches	① The thread has not been the passed the through notch of the bobbin case tension spring.	○ Properly thread the bobbin case.
	② The thread path is poorly finished.	○ Grind it using a fine sand paper of a buff.
	③ The bobbin dose not rotate smoothly.	○ Replace the bobbin or hook.
	④ The bobbin thread tension is too low.	○ Properly adjust the tension.
	⑤ The bobbin thead has been wound too tight.	○ Decrease the bobbin thread winding tension.
4. The thread slips off the needle up-on being trimmed	① The tension of the auxiliary thread tensi-on controller is too high.	○ Decrease the tension.
	②The thread trimming timing is too early.	○ See'20. RELATIONS OF THE FIXED KNIFE AND MOVABLE KNIFE'. See'21. ADJUSTING THE THREAD TRIMMING CAM'.
	③ The returning force of the thread take-up spring is too high.	○ See'9. THREADING THE MACHINE HEAD'.
5. The needle thread cannot be trimmed, while the bobbin thread can be trimmed	① The last stitch has been skipped. (The cle-arance between the needle and the hook is too large.)	○ See'18. NEEDLE-TO-HOOK RELATIONSHIP'.
6. Both needle and bobbin threads cannot be trimmed	① The thread trimming timing is wrong.	○ See'21. ADJUSTING THE THREAD TRIMMING CAM'.
	② The knife has been damaged.	○ Replace the knife.
	③ The knife pressure is inadequate.	○ Increase the knife pressure.
	④ The home position of the movable knife is inaccurate.	○ See'21. ADJUSTING THE THREAD TRIMMING CAM'.
	⑤ The movable knife fails to work.	○ Check it by actuating it by hand.
	⑥ The thread trimming solenoid fails to work.	○ Check the motor solenoid for proper operat-ion.
7. Thread cannot be trimmed sharply	① The thread trimming timing is wrong.	○ See'21. ADJUSTING THE THREAD TRIMMING CAM'.
	② The knife pressure is inadequate.	○ Increase the knife pressure.
	③ The knife bladeisblunt.	○ Replace the knife.

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