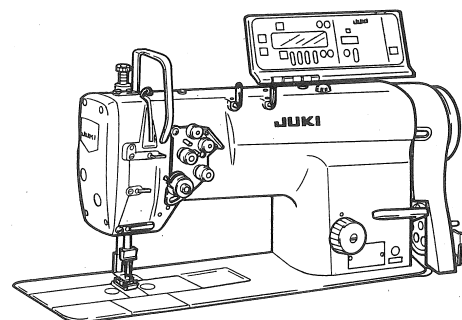


JUKI®

2-NEEDLE, NEEDLE FEED LOCKSTITCH
MACHINE WITH AN AUTOMATIC
THREAD TRIMMER

LH-3128
LH-3128-7

INSTRUCTION MANUAL



JUKI®

JUKI CORPORATION

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Please do not hesitate to contact our distributors or agents in your area for further information when necessary.
* The description covered in this instruction manual is subject to change for improvement of the commodity without notice.

02 - 01 Printed in Japan (E)

NOTE : Read safety instructions carefully and understand them before
using your LH-3128 and LH-3128-7.
Retain this Instruction Manual for future reference.



No. 04
29139201

IMPORTANT SAFETY INSTRUCTIONS

Putting sewing systems into operation is prohibited until it has been ascertained that the sewing systems in which these sewing machines will be built into, have conformed with the safety regulations in your country. Technical service for those sewing systems is also prohibited.

1. Observe the basic safety measures, including, but not limited to the following ones, whenever you use the machine.
2. Read all the instructions, including, but not limited to this Instruction Manual before you use the machine. In addition, keep this Instruction Manual so that you may read it at anytime when necessary.
3. Use the machine after it has been ascertained that it conforms with safety rules/standards valid in your country.
4. All safety devices must be in position when the machine is ready for work or in operation. The operation without the specified safety devices is not allowed.
5. This machine shall be operated by appropriately-trained operators.
6. For your personal protection, we recommend that you wear safety glasses.
7. For the following, turn off the power switch or disconnect the power plug of the machine from the receptacle.
 - 7-1 For threading needle(s), looper, spreader etc. and replacing bobbin.
 - 7-2 For replacing part(s) of needle, presser foot, throat plate, looper, spreader, feed dog, needle guard, folder, cloth guide etc.
 - 7-3 For repair work.
 - 7-4 When leaving the working place or when the working place is unattended.
 - 7-5 When using clutch motors without applying brake, it has to be waited until the motor stopped totally.
8. If you should allow oil, grease, etc. used with the machine and devices to come in contact with your eyes or skin or swallow any of such liquid by mistake, immediately wash the contacted areas and consult a medical doctor.

9. Tampering with the live parts and devices, regardless of whether the machine is powered, is prohibited.
10. Repair, remodeling and adjustment works must only be done by appropriately trained technicians or specially skilled personnel. Only spare parts designated by JUKI can be used for repairs.
11. General maintenance and inspection works have to be done by appropriately trained personnel.
12. Repair and maintenance works of electrical components shall be conducted by qualified electric technicians or under the audit and guidance of specially skilled personnel. Whenever you find a failure of any of electrical components, immediately stop the machine.
13. Before making repair and maintenance works on the machine equipped with pneumatic parts such as an air cylinder, the air compressor has to be detached from the machine and the compressed air supply has to be cut off. Existing residual air pressure after disconnecting the air compressor from the machine has to be expelled. Exceptions to this are only adjustments and performance checks done by appropriately trained technicians or specially skilled personnel.
14. Periodically clean the machine throughout the period of use.

15. Grounding the machine is always necessary for the normal operation of the machine. The machine has to be operated in an environment that is free from strong noise sources such as high-frequency welder.
16. An appropriate power plug has to be attached to the machine by electric technicians. Power plug has to be connected to a grounded receptacle.

17. The machine is only allowed to be used for the purpose intended. Other used are not allowed.
18. Remodel or modify the machine in accordance with the safety rules/standards while taking all the effective safety measures. JUKI assumes no responsibility for damage caused by remodeling or modification of the machine.

19. Warning hints are marked with the two shown symbols.




Danger of injury to operator or service staff







Items requiring special attention

26. TROUBLES AND CORRECTIVE MEASURES

TROUBLES	CAUSES	CORRECTIVE MEASURES
1. Thread breakage (Thread is untwisted or scraped) (Needle thread 2 to 3 cm is left on the wrong side of the fabric.)	① There is a sharp edges or burrs 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 relation is wrong. ⑨ Thread untwists. ⑩ Uniform thread loops cannot be formed when making chain-off thread.	○ Remove sharp edges or burrs 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 "15. Bobbin case opening lever.") ○ Refer to "16. Needle-to-hook relation." Increase the amount of oil supplied to the hook according to "3. Lubrication." ○ Adjust the needle thread tension. ○ Reduce the tension of the spring and increase the stroke. ○ Refer to "16. Needle-to-hook relation." ○ Wind the thread on the needle. 
2. Stitch skipping	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 Hook needle guard is not functional. ⑥ Needles are a little too thin. ⑦ Synthetic thread or thin thread.	○ Refer to "16. Needle-to-hook relation." ○ Refer to "16. Needle-to-hook relation." ○ Tighten the presser spring regulator. ○ Refer to "16. Needle-to-hook relation." ○ Refer to "17. Hook needle guard." ○ Replace the needles by thicker ones. ○ Wind the thread on the needle.
3. Loose stitch.	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.	○ 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 "15. Bobbin case opening lever." ○ Adjust the bobbin thread tension. ○ Adjust the tension components on the thread winder.
4. Thread escapes from the needle eye after thread trimming action.	① Thread tension given by the tension post No. 1 is too high. ② The needle thread is caught by the bobbin thread clamping groove in the moving knife.	○ Loosen tension post No. 1 slightly. ○ Refer to "20. Initial position of the moving knife."
5. Thread escapes from the needle eye at the start of stitching.	① Thread tension given by the tension post No. 1 is too high. ② Pressure of the thread presser spring is insufficient. ③ Pressure of the clamp spring is wrong. ④ Needle hole in the presser foot is too large compared to the stitch length. ⑤ Bobbin thread tension is too low. ⑥ The needle thread is caught by the bobbin thread clamping groove in the moving knife. ⑦ When using a thick thread, the needle thread enters the bobbin thread cutting section of the moving knife when the thread trimmer has been actuated while finishing sewing with chain-off thread outside the material edge.	○ Loosen the tension post No. 1 slightly. ○ Adjust the clamp spring pressure or replace it. ○ Refer to "19. Adjusting the pressure of the thread presser spring." ○ Replace the presser foot having a smaller needle hole. ○ Increase the bobbin thread tension. ○ Refer to "20. Initial position of the moving knife." ○ Use the thread guide E (asm.) and the needle thread presser.
6. Thread is not cut sharply.	① Position of the moving knife to the fixed knife is wrong. ② Thread trimmer knife is chipped or worn.	○ Refer to "19. Adjusting the pressure of the thread presser spring" and "20. Initial position of the moving knife." ○ Resharpen or replace the knife blade.
7. Thread is not cut at all. (The thread remains outside the material edge.)	① Initial position of the moving knife is wrong. ② Special-purpose thread, coated thread or monofilament thread is used.	○ Refer to "20. Initial position of the moving knife." ○ Actuate the thread trimmer while slightly drawing the material.

Needle gauge		Throat plate for type stitching	Throat plate	Feed dog	Presser foot	
Code						
	Inch	mm				
B	1/8	3.2	22628002	22625107	22630107	10185957
D	3/16	4.8	22628200	22625305	22635304	10186054
F	1/4	6.4	22628408	22625503	22635502	10186757
G	9/32	7.1	22628507	22625602	22635700	10186153
H	5/16	7.9		22625701	22635809	10186856

(1) Exclusive gauge for "F" specification (without thread trimmer)

Accessories for the 1500 series						
	Needle gauge		Throat plate for type stitching	Throat plate	Feed dog	Presser foot
Code						
	Inch	mm				
B	1/8	3.2	22628002	22625107	22630107	10185957
D	3/16	4.8	22628200	22625305	22635304	10186054
F	1/4	6.4	22628408	22625503	22635502	10186757
G	9/32	7.1	22628507	22625602	22635700	10186153
H	5/16	7.9		22625701	22635809	10186856

25. MOTOR PULLEY AND BELT (for the machine without a thread trimmer)

1. Use a clutch motor with an output 400 W (1/2 HP) as standard.
2. Use Type-HM V belts.
3. The relation between the motor pulley, belt length and sewing machine revolution is as follows.

Outer diameter of the motor pulley (mm)	Part No. of motor pulley	Revolution (rpm)		Belt length mm (inch)	Part No. of belt
		50Hz	60Hz		
75	MTKP0070000	3,000	—	1067 (42)	MTJVVH00420A
70	MTKP0065000	2,800	—	1041 (41)	MTJVVH00410A
65	MTKP0060000	2,500	3,000		
60	MTKP0055000	—	2,800		
55	MTKP0050000	—	2,500		

* 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.

(1)* For the machine with a thread trimmer

1. Use the motor equipped with the SC-1.

Outer diameter of the motor pulley (mm)	Part No. of motor pulley	Revolution (rpm)	Belt length mm (inch)	Part No. of belt
85	MTSP00800B0	3,000	1016 (40)	MTJVVH00400A








FOR SAFE OPERATION






	<ol style="list-style-type: none"> 1. To prevent accidents caused by electric shock, never open the control box cover or touch the components inside the control box while the power switch is ON.
	<ol style="list-style-type: none"> 1. To avoid personal injury, never operate the machine with any of the belt cover, finger guard or safety devices removed. 2. To prevent accidents caused by electric shock, never operate the machine with the ground wire for the power supply removed. 3. To avoid personal injuries, never bring your fingers, hair or clothes close to or place anything on the handwheel, V-belt, or motor while the machine is running. 4. To prevent possible accidents caused by electric shock, electric leakage and fire, in case of inserting/removing the power plug, the power switch has to be turned OFF in advance and insert/remove the power plug not having the electric cord but having the power plug itself. 5. To prevent accidents caused by abrupt start of the sewing machine, turn OFF the power switch when leaving the sewing machine. 6. To prevent accidents caused by abrupt start of the sewing machine, turn OFF the power switch in case of the electricity failure. 7. To prevent accidents caused by abrupt start of the sewing machine, in case of removing belt cover, motor pulley cover or V-belt, remove any of them after turning OFF the power switch and ascertaining that the sewing machine totally stopped. 8. To prevent accidents caused by abrupt start of the sewing machine, turn OFF the power switch when checking, adjusting, cleaning, threading and replacing the needle of the sewing machine. 9. Never bring your fingers or hands under the needle when turning ON the power switch or the machine is in operation. 10. Never put your fingers into the thread take-up cover while the machine is running.

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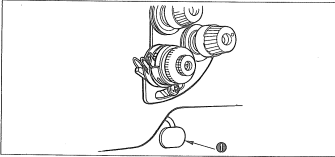
24. GAUGE SETS

Code	Needle gauge		Throat plate	Feed dog			Presser foot		
	(inch)	mm							
A	3/32	2.4	22625008	22635007			22637557		
B	1/8	3.2	22625107	22630107			22637656		
C	5/32	4.0	22625206	22635205	22630206		22637755	10152650	
D	3/16	4.8	22625305	22635304	22630404	B1613512D0H	22637854	10152759	22640353
E	7/32	5.6	22625404	22635403	22630503	B1613512E0H	22637953	10152858	22640452
F	1/4	6.4	22625503	22635502	22630602	B1613512F0H	22638050	10152957	22640551
G	9/32	7.1	22625602	22635700	22630800	B1613512G0H	22638258	10153054	22640759
H	5/16	7.9	22625701	22635809	22630909	B1613512H0H	22638357	10153153	22640858
K	3/8	9.5	22625800	22635908	22631006	B1613512K0H	22638456	10153252	22640957
W	7/16	11.1	22625909	22636005	22631105	*	22638555	10153351	22641054
L	1/2	12.7	22626006	22636203	22631303	B1613512L0H	22638753	10153450	22641252
M	5/8	15.9	22626105	22636302	22631402	B1613512M0H	22638852	10153559	22641351
N	3/4	19.1	22626204	22636401	22631501	B1613512N0H	22638951	10153658	22641450
P	7/8	22.2	22626303	22636609	22631709	B1613512P0H	22639157	10153757	22641658
Q	1	25.4	22626402	22636708	22631808	B1613512Q0H	22639256	10153856	22641757
R	1 1/8	28.6	22626501	22636807	22631907	B1613512R0H	22639355	10153955	22641856
S	1 1/4	31.8	22626600	22636906	22632004	B1613512S0H	22639454	10154052	22641955
T	1 3/8	34.9	22626709	22637003	22632103	B1613512T0H	22639553	10154151	22642052
U	1 1/2	38.1	22626808	22637102	22632202	B1613512U0H	22639652	10154250	22642151
"S" specification	Common to all specifications			★			★		☆
"A" specification							★		
"G" specification						★		☆	★

Code	Needle gauge		Throat plate (with a thread trimmer)	Feed dog (with a thread trimmer)			Needle clamp
	(inch)	mm					
A	3/32	2.4	22660104	22665004			10147551
B	1/8	3.2	22660203	22665103			10147650
C	5/32	4.0	22660302	22665202	10237907		10147759
D	3/16	4.8	22660401	22665301	10238004	10239101	10147858
E	7/32	5.6	22660500	22665400	10238103	10239200	10147957
F	1/4	6.4	22660609	22665509	10238202	10239309	10148054
G	9/32	7.1	22660708	22665707	10238301	10239408	10148153
H	5/16	7.9	22660807	22665806	10238400	10239507	10148252
K	3/8	9.5	22660906	22665905	10238509	10239606	10148351
W	7/16	11.1	22661003	22666002	10168300	10170801	10148450
L	1/2	12.7	22661102	22666200	10238707	10239804	10148559
M	5/8	15.9	22661201	22666309	10238806	10239903	10148658
N	3/4	19.1	22661300	22666408	10238905	10171106	10148757
P	7/8	22.2	22661409	22666606	10168706	10171205	10148856
Q	1	25.4	22661508	22666705	10239002	10171304	10148955
R	1 1/8	28.6	22661607	22666804	10168904	10171403	10149052
S	1 1/4	31.8	22661706	22666903	10169001	10171502	10149151
T	1 3/8	34.9					10149250
U	1 1/2	38.1					10149359
"S" specification	Common to all specifications			★			Common to all specifications
"A" specification							
"G" specification						★	

★.....Standard specifications
☆.....Non-standard specifications
*.....Specially manufactured upon request

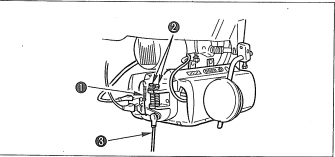
22. REVERSE FEED SWITCH LEVER



- (1) **How to use**
- 1) Depress switch lever ①, and the machine will immediately run in the reverse direction.
 - 2) Reverse stitch is made as long as you keep depressing the switch lever.
 - 3) Release the switch lever for forward sewing.

23. PEDAL PRESSURE AND STROKE

WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

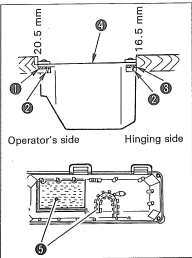


- (1) **Adjusting the forward pedaling (toe down) pressure**
The forward pedaling pressure can be adjusted by hooking adjusting spring ① on the right or left side. When the spring is hooked on the left side, the pedal resistance reduces. When it is hooked on the right side the pedal resistance increases.
- (2) **Adjusting the backward pedaling (heel down) pressure**
This can be achieved by adjusting screw ②. When the adjusting screw is tightened, the pedal resistance increases. When it is loosened, the pedal resistance reduces.
- (3) **Adjusting the forward pedaling stroke**
When connecting rod ③ is inserted into the hole on the left side, the stroke is reduced.

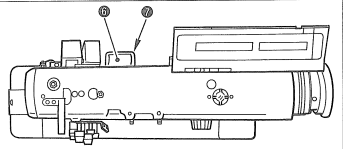
SPECIFICATIONS

Stitch specification	S	G	A	F (without a thread trimmer)
Application	Fabric in general, medium-weight materials	Jeans	Light-weight materials	Foundation
Sewing speed	Max. 3,000 rpm (Note that the max. sewing speed varies in accordance with sewing conditions given.)			
Stitch length	Normal feed: 5 mm Reverse feed: 5 mm			Normal feed: 4 mm Reverse feed: 4 mm
Needle	DPx5 #14	DPx5 #21	Without a thread trimmer DPx5 #9	With a thread trimmer DPx5 #11
Needle gauge	2.4 to 38.1 mm (3/32" to 1 1/2") (Needle gauge varies by specifications.) With thread trimmer 2.4 to 31.8 mm (3/32" to 1 1/4")			
Presser foot lift	By hand lifter: 5.5 mm By knee lifter: 12 mm (9 mm for the machine provided with a wiper)			
Lubricating oil	New Defrix Oil No. 2			

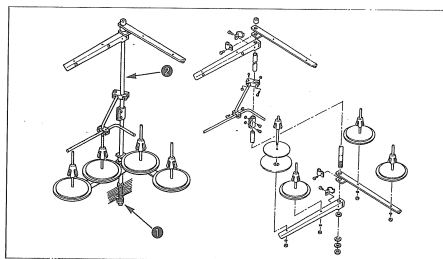
1. INSTALLATION



- (1) **Attaching the oil pan**
- 1) The oil pan should be secured at the four corners of the grooves on the table.
 - 2) At the two corners on the operator's side, attach head support rubber cushion ① to the projecting section of table by driving nail ②. At the two corners on the hinging side, attach rubber cushion ① to the table by driving nail ②. Then put oil pan ③ on the four corners of the grooves on the table.
 - 3) Place filter ④ on the bottom of the oil pan.
 - 4) Insert the shaft of hinge ⑤ into the hole in the bed to engage it with rubber hinge ⑥ of the table and place the head on the rubber cushions located at the four corners of the table.



2. INSTALLATION OF THREAD STAND

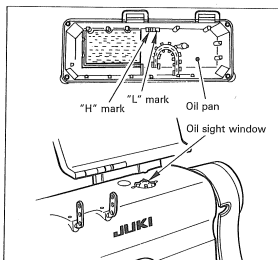


Assemble the thread stand, set it up on the machine table using the installation hole in the table and tighten nut ① gently. When you use power supplied by the overhead power line, pass the power supply cord through hollow spool rest ②.

3. LUBRICATION



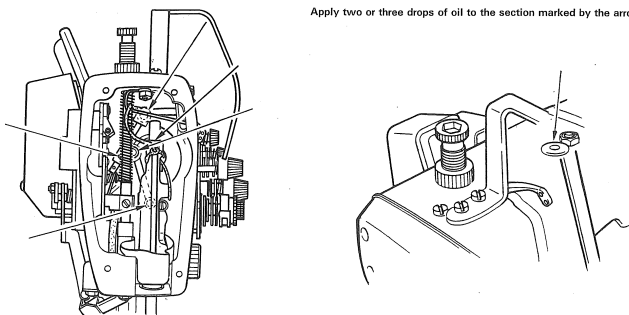
WARNING: Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



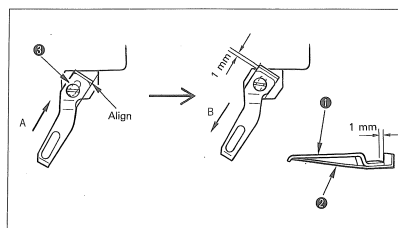
(1) Before operating machine

- 1) Pour the JUKI New Defrix Oil No. 2 into the oil pan up to "H" mark.
- 2) Add the same lubricating oil as soon as the oil level has come down to the "L" mark level.
- 3) Run the machine and make sure that the oil splash is seen in the oil sight window, (more than 1,000 rpm).
- 4) Take note that, when the ambient temperature drops down to 5°C or lower, the amount of lubricating oil supplied to the face plate components will become smaller and to the contrary, more amount of oil will be fed to the sewing hooks. So, adjust their oil regulating screws properly.
- 5) Before operating a newly installed machine or a machine which has not been used for a relatively long period of time, apply two or three drops of oil to the sections marked by the arrows in the figure and let the machine idle for about 10 minutes at 2,000 rpm for the purpose of break-in.

Apply two or three drops of oil to the section marked by the arrow.



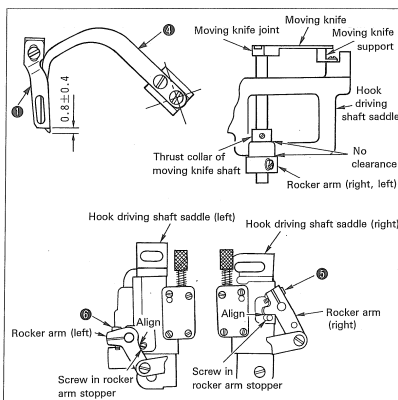
20. INITIAL POSITION OF THE MOVING KNIFE



WARNING: Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

(1) Initial position of the counter knife and thread presser

- 1) Align the rear end of counter knife ① with section L of thread presser ②. Move them back in direction A until they will go no further.
- 2) In the state where the rear end of counter knife ① is aligned with section L of thread presser ②, move only counter knife ① in direction B by 1 mm. Then, tighten screw ③ in the counter knife.



(2) Initial position of the moving knife

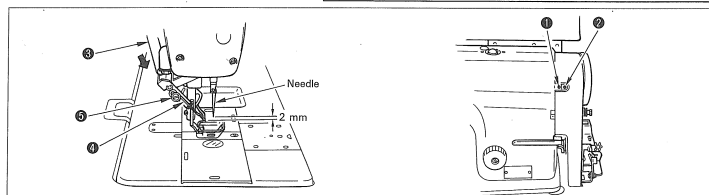
- 1) Adjust so that counter knife ① is spaced 0.8 ± 0.4 mm from moving knife ②.
- 2) Adjust so that no clearance is provided between the thrust collar of the moving knife shaft and the hook driving shaft saddle when connecting the rocker arms (left and right) to the moving knife shaft.
- 3) Tighten screws ④ and ⑤ while pressing the rocker arms (left and right) against the screw in the rocker arm stopper.

(Caution) When tightening screws ④ and ⑤ in the rocker arms, be sure to remove thrust using the thrust collar of the moving knife shaft.

21. POSITION OF THE WIPER



WARNING: Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

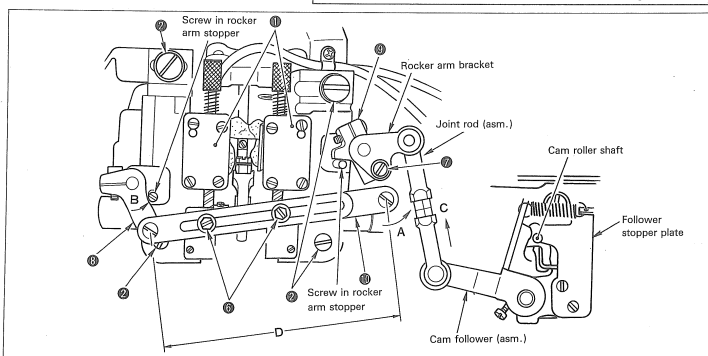


- 1) Align marker dot ① engraved on the machine arm with white marker dot ② (second white marker dot in terms of the rotational direction of the sewing machine) engraved on the handwheel.
- 2) Move rod ③ in the direction of the arrow and adjust so that an approximately 2 mm clearance is provided between the top end of the needle and wiper ④ using clamping screw ⑤.

(Caution) Actuating the wiper with the presser foot raised will make the wiper come in contact with the needle causing danger. So, never actuate the thread trimmer while the presser foot is in the highest position.

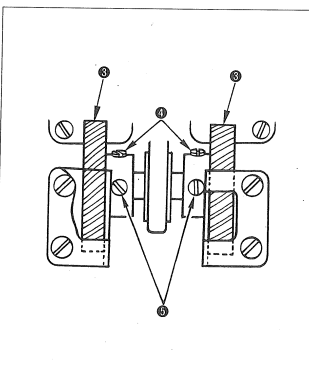
18. REPLACING THE GAUGE

WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

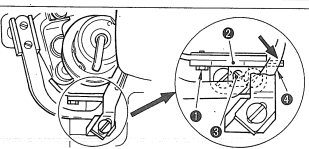


(1) Moving the hook driving shaft saddle before replacing the gauges

- 1) Loosen screw No. 2 ① in hook driving shaft gear ②.
- 2) Align the needle with the hook point.
- 3) Slightly loosen screw No. 1 ③ in hook driving shaft gear ② taking care not to allow it to get out of the flat section of the hook driving shaft.
(For the machine with a thread trimmer
• Loosen screws ③ in connecting link (asm.) ④ and screw ⑤ in the rocker arm bracket.)
- 4) Loosen two screws ⑥ in hook driving shaft saddle ⑦.
Then, move the hook driving shaft saddle away from the current position. (At this time, the hook driving gear will be moved together with the saddle. This means that the needle-to-hook relation will not become defective.)
- 5) Adjust so that a clearance of 0.01 to 0.05 mm is provided between the needle and the blade point of the hook.
- 6) Tighten two screws ⑥ in the hook driving shaft saddle.
- 7) Adjust the clearance provided between the hook driving shaft gear ② and the hook driving shaft saddle ⑦ to 0.5 mm. Then, tighten first screw No. 1 ③. Now, tighten screw No. 2 ①.
(For the machine with a thread trimmer
• Tighten screws ④ in connecting link (asm.) ④ while pressing rocker arm (left) ⑤ in direction B and rocker arm (right) ⑤ in direction A.
• Tighten screw ⑤ in the rocker arm bracket while pressing the joint rod in direction C.)



19. ADJUSTING THE PRESSURE OF THE THREAD PRESSER SPRING



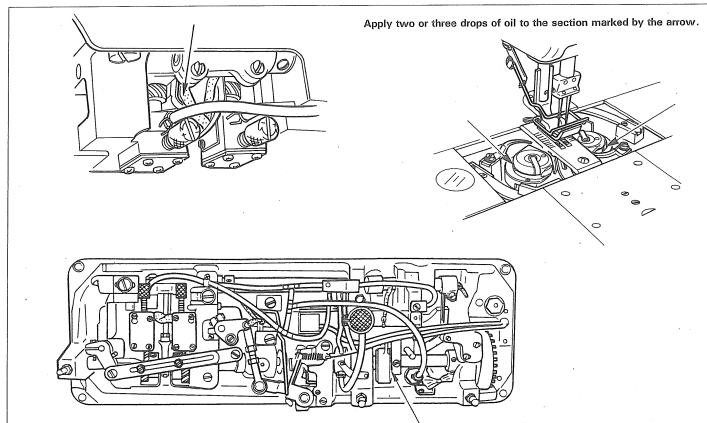
WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

- 1) Loosen screw ①.
- 2) Adjust adjusting screw ② so that thread presser regulating metal fitting ③ slightly comes in contact with thread presser ④.
- 3) After the adjustment, tighten screw ①.

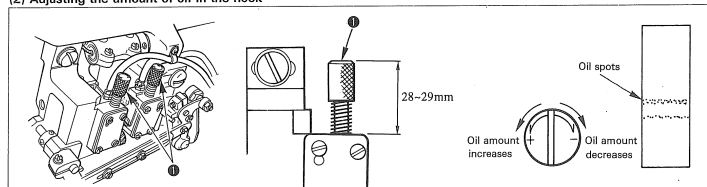
(Caution) Tightening adjusting screw ② will increase the pressure of the thread presser spring. If the pressure of the thread presser spring is too high or too low, a thread clamp failure will result. So, be careful.
For reference, the proper clamp pressure is obtained by tightening screw ① by 90° when adjusting metal fitting ③ comes in contact with thread presser ④.

- 10 -

Apply two or three drops of oil to the section marked by the arrow.



(2) Adjusting the amount of oil in the hook

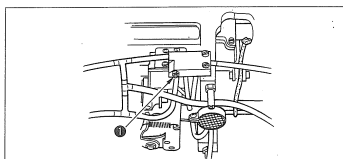


Adjust the amount of oil using adjusting screw ①. Turn screw ① clockwise to decrease the amount of oil in the hook or counterclockwise to increase it.

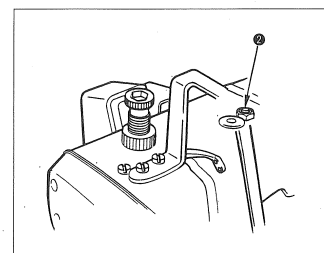
(3) Adjusting the amount of oil in the face plate components

Adjust the amount of oil to be supplied to the face plate components by turning screw ②. Turn the screw clockwise to decrease the amount of oil to be supplied to the face plate components or counterclockwise to increase it.

(Caution) If the amount of oil is excessively reduced, malfunction may result. So, carefully adjust the amount of oil.



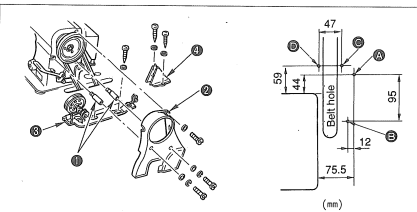
(Caution) Screw ① mounted on the oil distributor base shown in the figure given above has been factory-adjusted to the predetermined position. Do not turn it when adjusting the amount of oil.



- 3 -

4. INSTALLING THE BELT COVER AND BOBBIN WINDER

WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

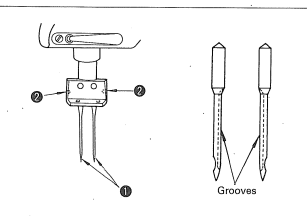


(Installing procedure)

- 1) Drill guide holes ①, ②, ③ and ④, for wooden screws, in the table.
- 2) Fit belt cover posts ① in the tapped holes in the machine arm.
- 3) Adjust the position of bobbin winder ② and fix it in guide holes ③ and ④ using wooden screws.
- 4) Temporarily fix belt cover B ⑤ in guide holes ② and ④.
- 5) Attach belt cover A ⑥ to the belt cover posts and arm attaching section.
- 6) Adjust the position of belt cover B ⑤ and fix it with wooden screws.

5. ATTACHING THE NEEDLES

WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



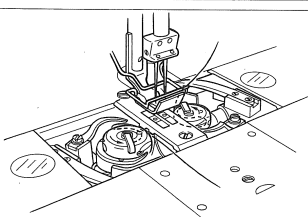
★ Switch "off" the motor.

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 are facing outwards.
- 3) Insert the needles into the needle clamp as far as they will go.
- 4) Tighten needle clamp screws ② firmly.

6. SETTING THE BOBBIN

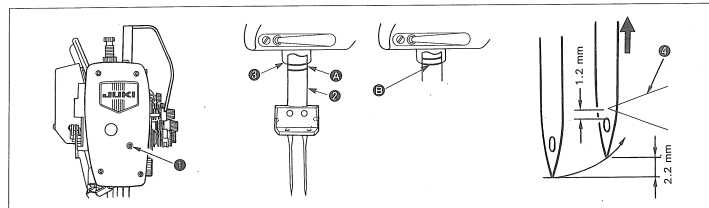
WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



Put the bobbin in position so that it faces in the direction as illustrated in the figure.

16. NEEDLE-TO-HOOK RELATION

WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

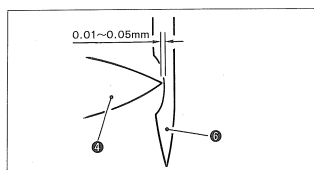
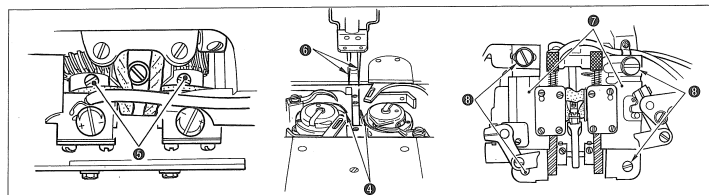


(1) Adjust the needle-to-hook relation in the following procedure.

- 1) Set the stitch dial to "2.5" on the scale.
- 2) Turn the handwheel to bring the needle bar to the lowest position. Then, loosen needle bar connecting stud clamping screw ①.

(Determine the needle bar height.)

- 3) Align upper marker line ② engraved on needle bar ③ to the bottom end of needle bar frame ④. Then, tighten the needle bar connecting stud clamping screw. After the adjustment, the blade point of the hook is aligned with the center of the needle when the needle bar goes up 2.2 mm from its lowest position (lower marker line ⑤ is aligned with the bottom end of needle bar frame ④). At this time, the top end of the needle eyelet is spaced 1.2 mm from the blade point of the hook.

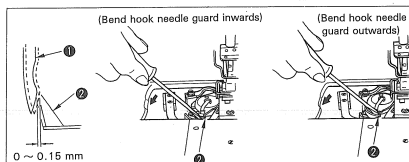


(Determine the position of the hook.)

- 4) Loosen three screws ① in the driving gear (small). Turn the handwheel until lower marker line B engraved on the needle bar is aligned with the bottom end of the needle bar frame.
- 5) Loosen four screws ② in the hook driving shaft saddle ③ 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 the blade point ⑤ of the hook and needle ⑥ in the state described in step 4).
- 6) In the state described in step 4), align the blade point of the hook with the center of the needle and tighten screws ① in the driving gear (small).

17. HOOK NEEDLE GUARD

WARNING:
Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



When a hook is replaced, you must adjust the working point of the hook needle guard.

Hook needle guard ② must push needle ① away for 0 or 0.15 mm. Adjust it by carefully bending the hook needle guard.

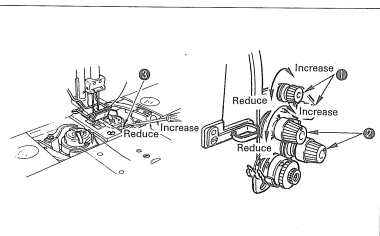
- 1) If you want to bend it inwards, do it from the outside of the hook needle guard using a screwdriver.
- 2) If you want to bend it outwards, do it from the inside of the hook needle guard using a screwdriver.

14. THREAD TENSION



WARNING:

Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



(1) Needle thread tension

- 1) Turn thread tension nut No. 1 ① clockwise to reduce or counterclockwise to increase the length of the thread left in the needle after thread trimming.
- 2) Turn thread tension nut No. 2 ② clockwise to increase or counterclockwise to reduce the needle thread tension.

(2) Bobbin thread tension

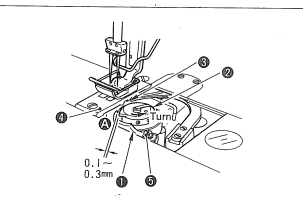
- Turn tension adjusting screw ③ clockwise to increase or counterclockwise to reduce the bobbin thread tension.

15. BOBBIN CASE OPENING LEVER



WARNING:

Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



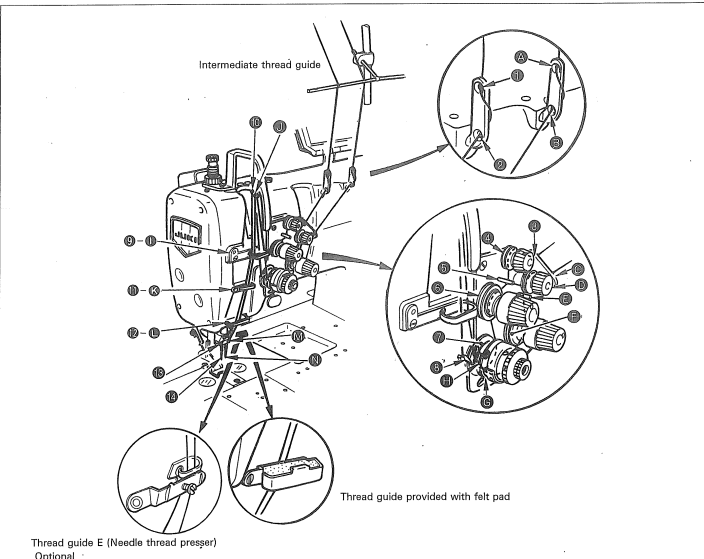
- 1) Turn the handwheel in the normal direction until bobbin case opening lever ① has entirely withdrawn from its working position.
- 2) Turn bobbin case ② in the direction of the arrow until stopper ③ rests in the groove on throat plate ④.
- 3) Loosen screw ⑤ and provide a 0.1 to 0.3 mm clearance between the bobbin case opening lever and protrusion ⑥ on the bobbin case.

7. THREADING THE MACHINE HEAD



WARNING:

Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



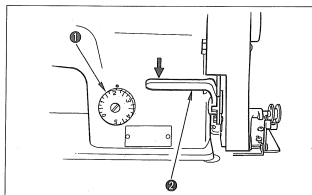
Thread the machine head following the order as illustrated in the figure.

Pass the left-hand needle thread, toward the machine head, in the order of ① to ④. Pass the right-hand needle thread in the order of ⑤ to ⑧.

When using a synthetic thin thread, wind the thread once on the intermediate thread guide, and use the thread guide that is equipped with felt pad. To actuate the thread trimmer during making chain-off thread or performing blind stitching, use the thread guide that is equipped with felt pad. To actuate the thread trimmer during making chain-off thread or performing blind stitching using a thick thread, use thread guide E (optionally available).

When winding a bobbin with a synthetic thin thread using the bobbin winder, wind the thread once on the intermediate thread guide.

8. ADJUSTING THE STITCH LENGTH

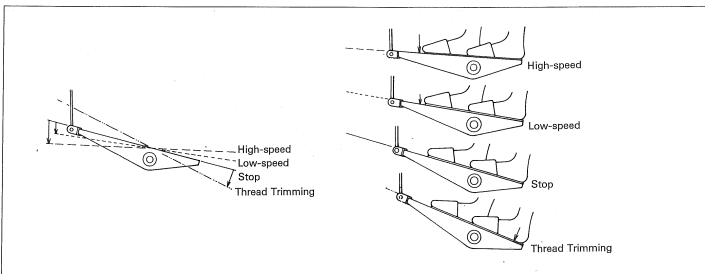


Turn stitch dial ① clockwise (counterclockwise) to set the value on the dial corresponding to a desired stitch length to the marker dot engraved on the machine arm.

★ Reverse feed operation

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

9. HOW TO OPERATE THE PEDAL



The pedal is operated in 4 stages.

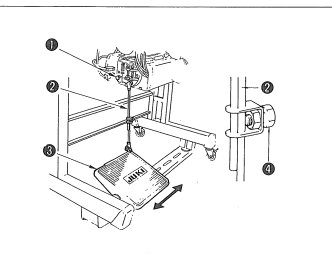
- 1) Depress the pedal lightly forward for low-speed operation.
- 2) Depress the pedal further forward for high-speed operation.
- 3) Bring the pedal back to its initial position, and the machine will stop with the needle "up" or "down".
- 4) Depress the pedal backward (toe-up) for thread trimming.

○ You can depress the pedal backward for thread trimming directly from its high-speed or low-speed position.

○ You can bring the pedal back to its initial position immediately after you have confirmed the start of a thread trimming action. The machine will stop after completing a thread trimming action.

○ If you want to rise the needle which has stopped, in "down" position, depress the pedal once backward.

10. CONNECTION OF THE PEDAL



WARNING:

Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

(1) Attach the pedal connecting rod

- 1) Move pedal adjusting plate ① to the left or the right to make motor control lever ② and pedal connecting rod ③ straight.

(2) Adjusting the slant of the pedal

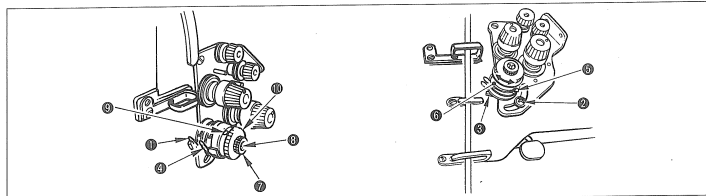
- 1) Slant of the pedal is adjustable by changing the effective length of the pedal connecting rod.
- 2) Loosen adjusting screw ④, and adjust the inclination of the foot pedal by moving connecting rod ⑤ up or down.

11. THREAD TAKE-UP SPRING



WARNING:

Turn OFF the power switch and ascertain that the motor totally stopped before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



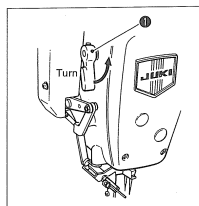
(1) When you want to change the stroke of the spring

- 1) Stroke of take-up spring ① on the left is adjustable by moving stopper ② to the left or the right after loosening stopper setscrew ③.
- 2) Stroke of take-up spring ① on the right is adjustable by moving stopper ④ to the left or the right after loosening stopper setscrew ⑤.
- 3) Move the stopper to the right to increase or to the left to reduce the stroke of the take-up spring.

(2) When you want to change the tension of the spring

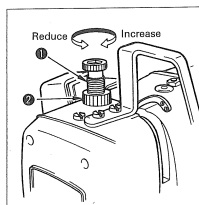
- 1) Tension of the take-up spring on the left is adjustable by turning stud ⑥ counterclockwise to increase or clockwise to reduce after loosening nut ⑦.
- 2) Tension of the take-up spring on the right is adjustable by turning spring guide ⑧ clockwise to increase or counterclockwise to reduce after loosening setscrew ⑨.

12. 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 will rise 5.5 mm.
- 2) When you want to lower the presser foot, lower the hand lifter. This will return the presser foot to its predetermined lowest position.
- 3) Operate the knee lifter, and the presser will rise by approximately 12 mm. Do not actuate the thread trimmer when the presser foot is in its highest position.

13. ADJUSTMENT OF THE PRESSURE OF THE PRESSER FOOT



Turn presser spring regulator ① clockwise to increase or counterclockwise to reduce the pressure of the presser foot. Tighten nut ② after the adjustment.