

HIGH-SPEED 1-NEEDLE OVEREDGER
MO-2504N

HIGH-SPEED 2-NEEDLE OVEREDGER
MO-2514N

HIGH-SPEED SAFETY STITCHER
MO-2516N

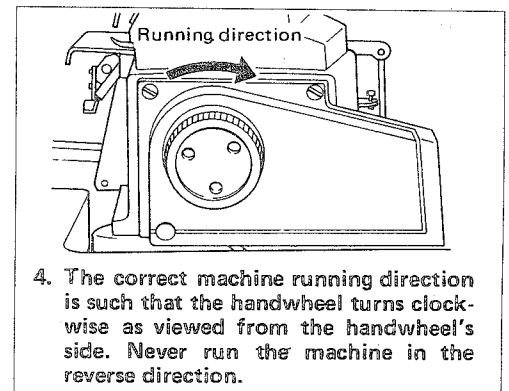
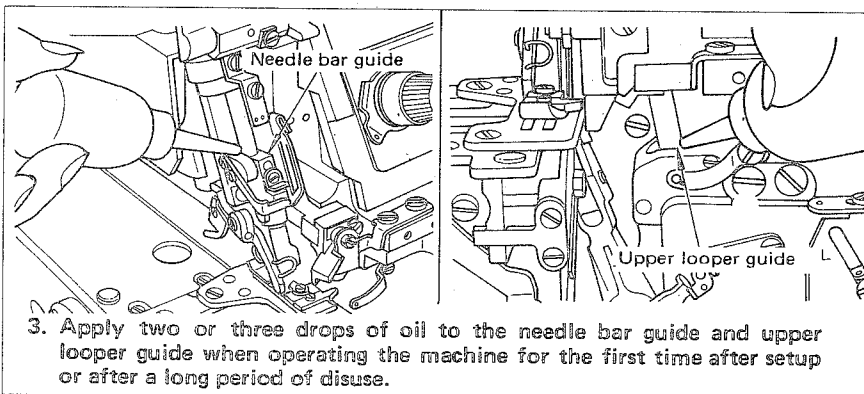
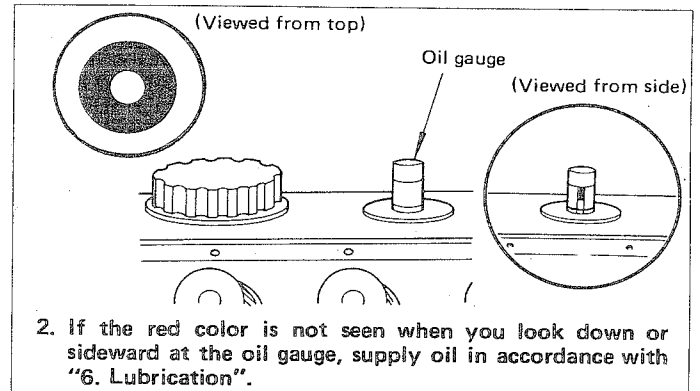
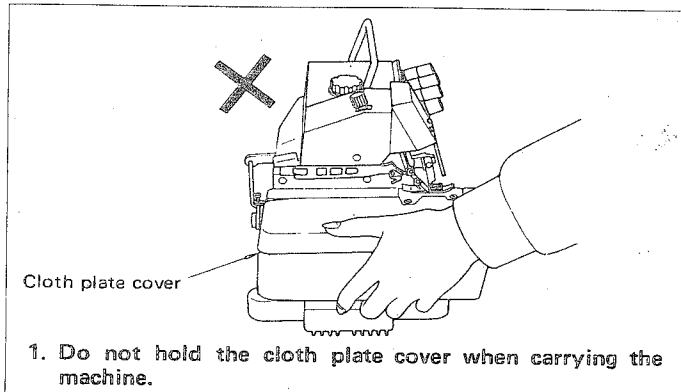
INSTRUCTION MANUAL

Congratulations on your purchase of JUKI MO-2500N Series machines.

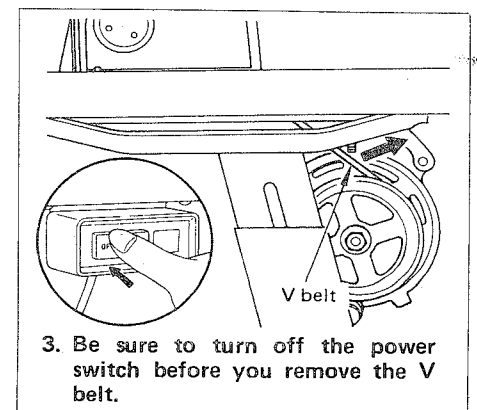
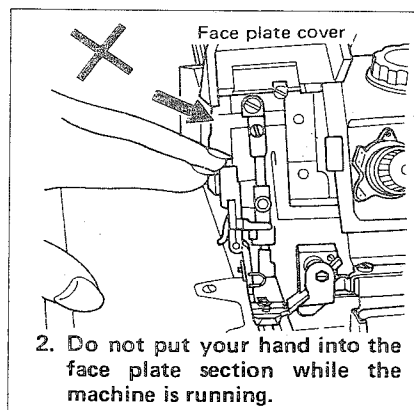
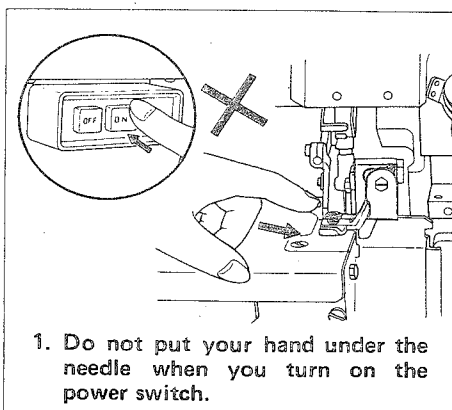
Please read this Instruction Manual carefully before using these units in order to get the most out of them and to enjoy using them for a long time.

[For the first one month or so, operate the machine at about 80% speed of its max. sewing speed.]

BEFORE OPERATION



CAUTIONS IN OPERATION



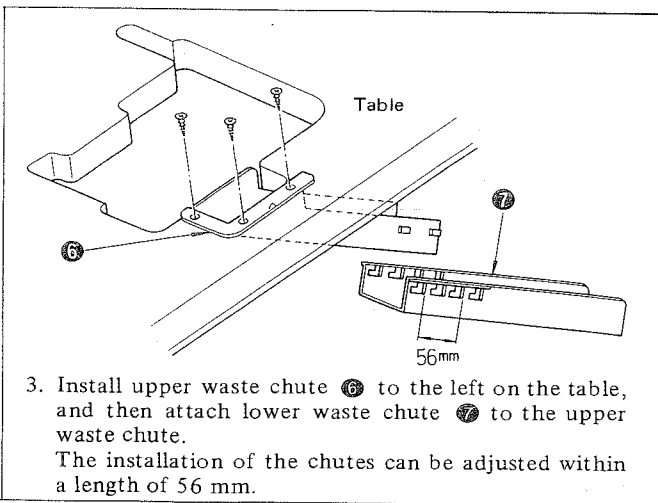
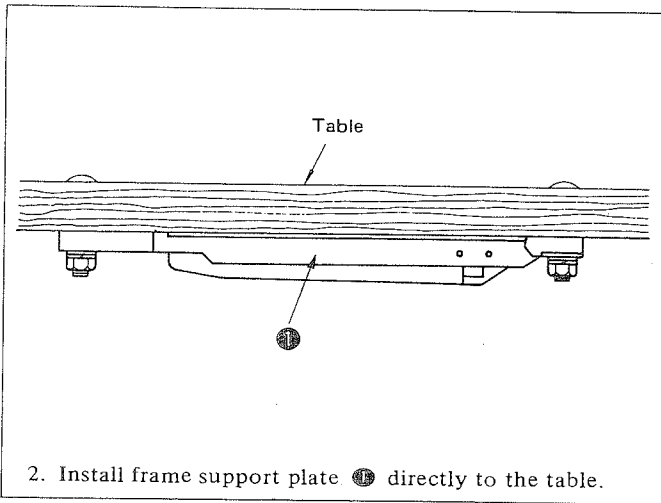
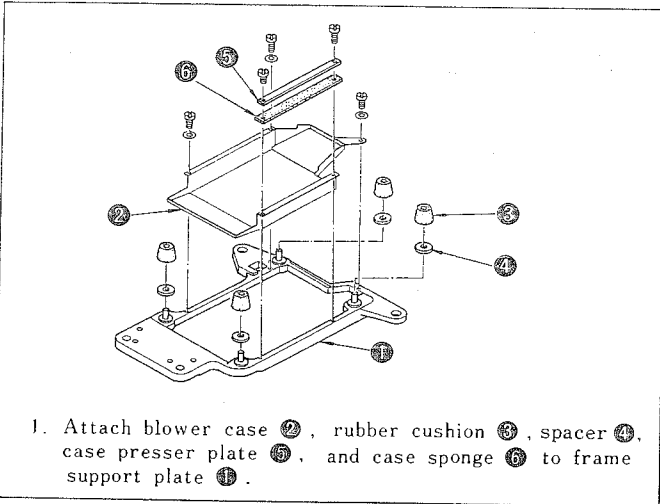
4. Never bring your fingers or hair close to, or place anything on the handwheel, V-belt, bobbin winder wheel or motor during operation. It may lead to serious personal injuries.

5. If your machine is provided with a belt cover, finger guard and eye guard, never operate your machine with any of them removed.

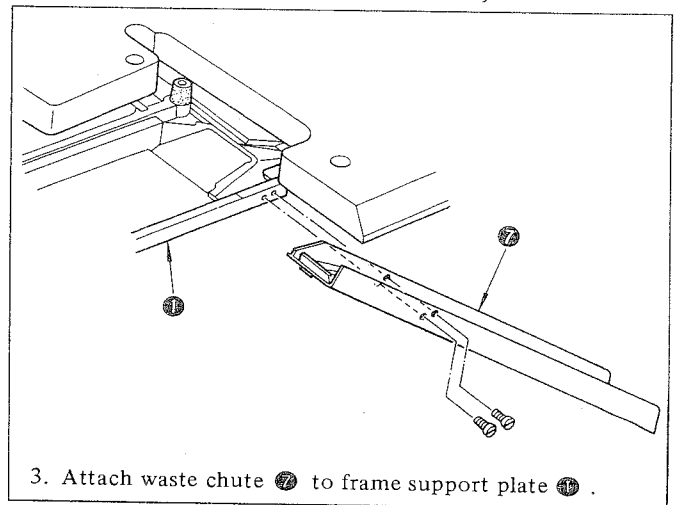
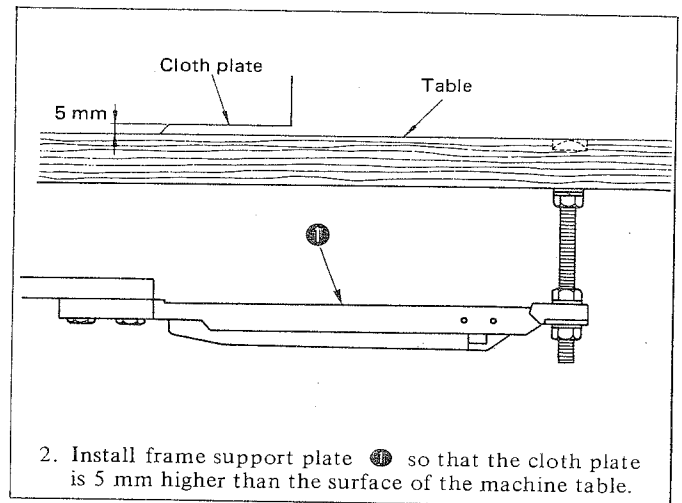
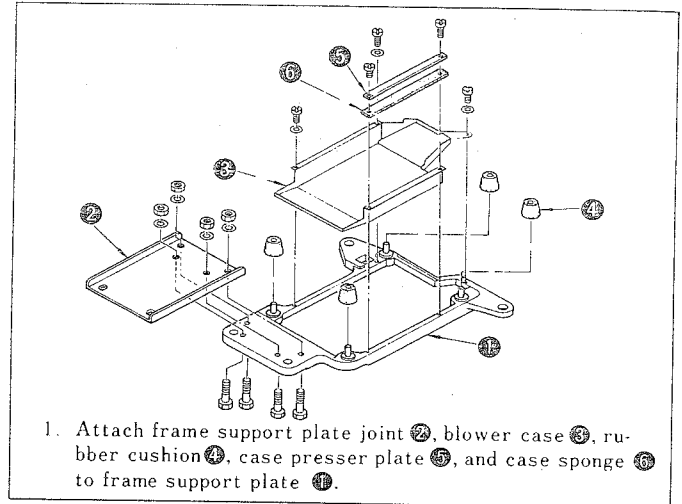
6. Do not wipe off the surface of the machine head using lacquer thinner.

1. INSTALLING THE FRAME SUPPORT PLATE

★ Semi-sunken type



★ Fully-sunken type

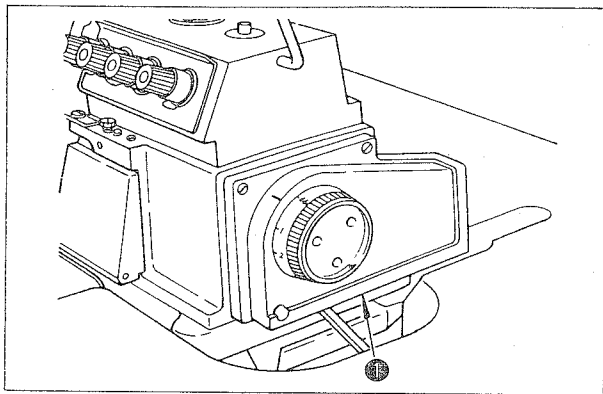


2. MOTOR PULLEY AND V BELT

Sewing speed (s.p.m.)	50 Hz			60 Hz		
	Motor pulley Outer dia. (mm)	V belt (inch)		Motor pulley Outer dia. (mm)	(V belt (inch))	
		Semi-sunken type	Fully-sunken type		Semi-sunken type	Fully-sunken type
8500	160.5	40	36	135.5	38	34
8000	150.5	40	34	125.5	38	32
7500	140.5	38	34	120.5	38	32
7000	130.5	38	34	110.5	36	32
6500	120.5	38	32	100.5	36	32
6000	110.5	36	32	95.5	35	30
5500	100.5	36	32	85.5	35	30
5000	90.5	35	30	80.5	34	30
4500	85.5	35	30	70.5	34	30

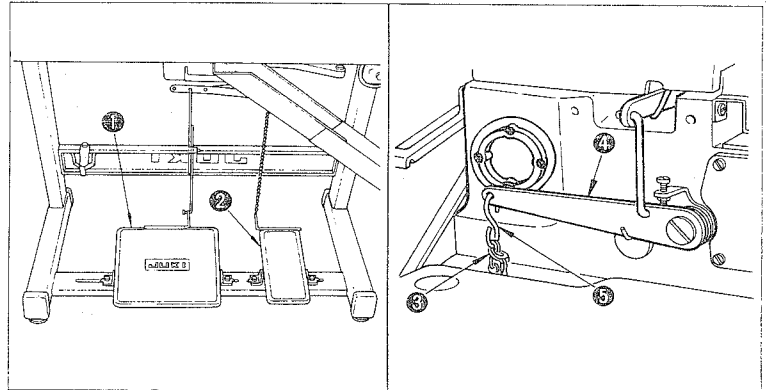
1. Use a 550W (3/4 HP) clutch motor for a sewing speed exceeding 7500 s.p.m., and a 400W (1/2 HP) clutch motor for a sewing speed below 7500 s.p.m.
2. Use a M type V belt.
3. The table on the left shows the sewing speeds obtained by the use of motor pulleys with different diameters and V belts with different lengths.
4. Note that the effective diameter of the machine head pulley has been changed to 50 mm.

3. ATTACHING THE BELT COVER



Install belt cover ④ to the machine head.

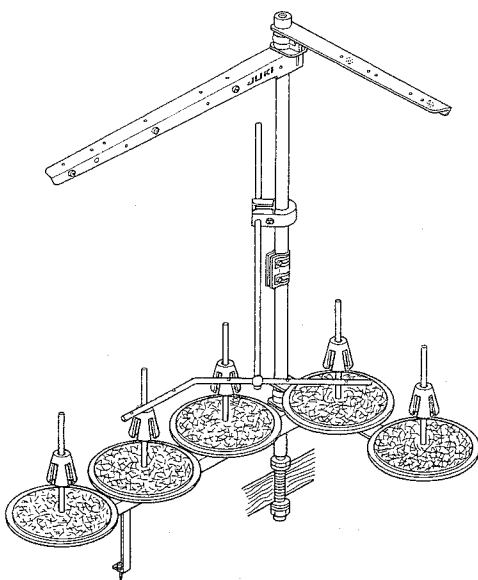
4. INSTALLING THE PEDALS



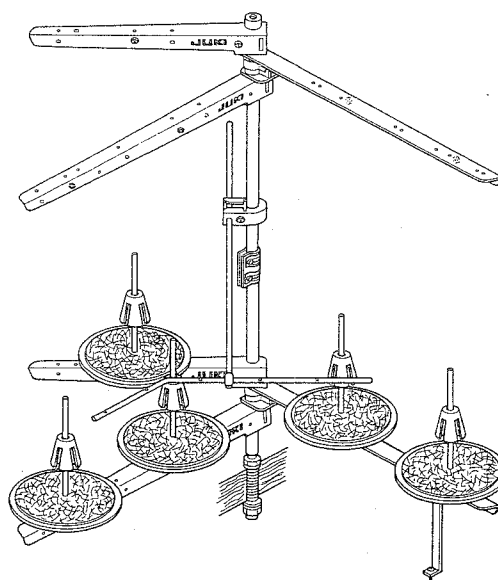
1. Install starting pedal ① on the left and presser lifter pedal ② on the right as seen from the operator.
2. Use an S-shaped hook ⑤ to connect the chain ③ of the presser lifter pedal to presser lifting lever ④.

5. SETTING UP THE THREAD STAND

Standard thread spool

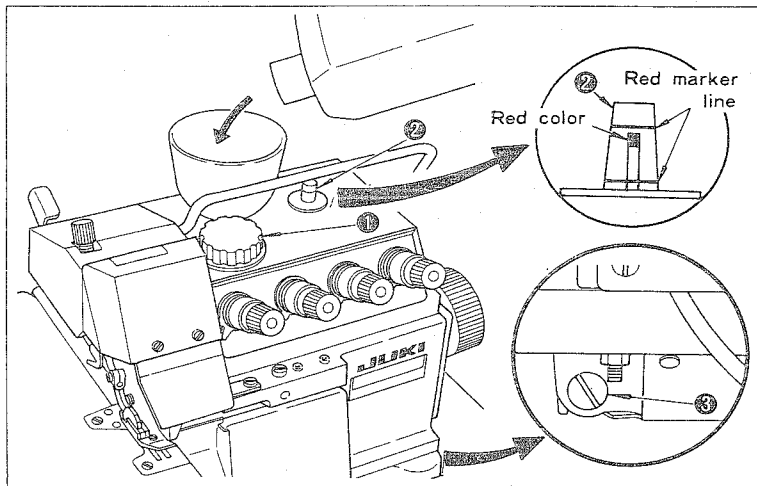


Large thread spool

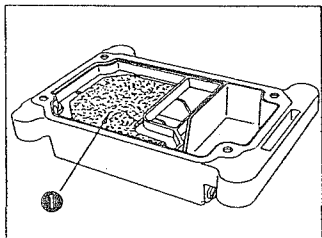


Assemble the thread stand components as illustrated and set it up on the machine table. (The figure on the left shows an assembled 5-thread stand for Model MO-2516N.)

6. LUBRICATION



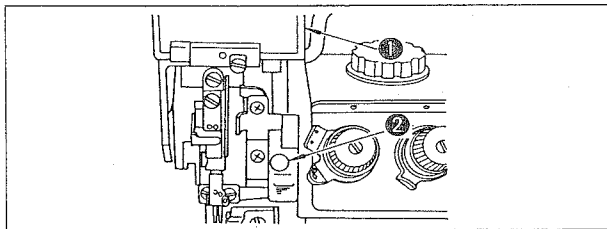
1. Remove oil cap ①.
2. Pour JUKI New Defrix Oil No.2 into the oil reservoir.
3. Supply oil until the red color (oil level) almost reaches the upper red marker line when oil gauge ② is observed from the side.
(Caution)
Be careful not to exceed the upper red marker line, or else troubles due to excessive lubrication may result.
4. Remove oil drain cap ③ when drawing the oil reservoir.



★ Checking and cleaning the oil pan

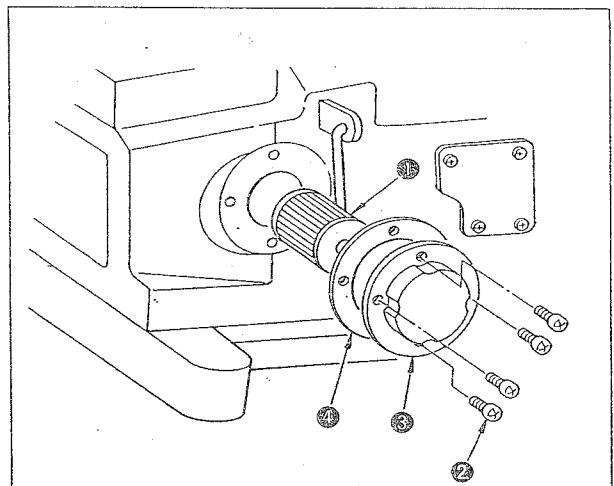
Once or twice a year, remove the oil pan and clean section ① of the cloth filter.

At the same time, replace the oil in the oil pan, if it has become dirty.



★ Lubrication to the silicon oil lubricating unit

1. Open face plate cover ①, remove plug ②, and supply silicone oil. (Not applicable to MO-2516N)
2. Infiltrate silicone oil also into the oil felt if the machine is started immediately after lubricating the needle cooler. The needle cooler is optionally available. (To be purchased separately)
 - Z170 (for overlock machines)
 - Z171 (for safety stitch machines)



★ Checking the cartridge filter and replacing it

1. After a long period of usage, cartridge filter ④ may become clogged with dust.

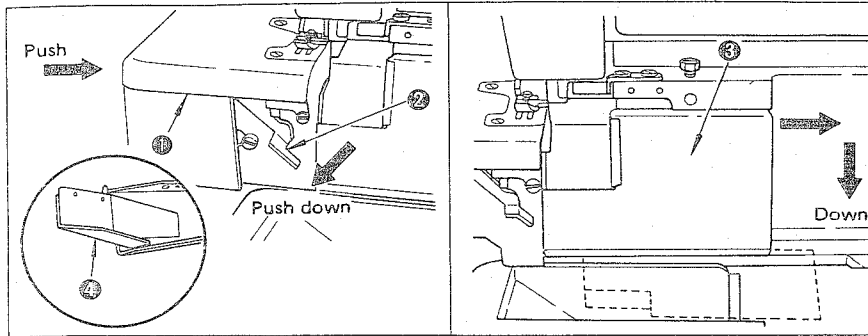
If the machine is left in this state, the dirty oil may fail to pass through cartridge filter ④, and the machine may wear out abnormally, or a seizure may result.

* Cartridge filter ④ should normally be checked once every six months, and cleaned or replaced accordingly.

2. Checking/replacement procedure

- 1) Unscrew and pull out setscrews ②. Then remove cover ③.
- 2) Remove cartridge filter ④ and check it. If the filter is found to be abnormal, clean the relevant components, or replace cartridge filter ④.
- 3) Re-insert cartridge filter ④ into its proper position and return the cover. Do not forget to put back the setscrews and tighten them up.

7. OPENING/CLOSING THE COVER



★ Cloth plate cover

To open cloth plate cover ①, push down cloth plate opening lever ②. To close the cover, push it in the arrowed direction.

★ Looper cover

To open looper cover ③, move the looper cover in the arrowed direction until it will go back no farther, then bring it down. Raise the looper cover when closing it.

(Caution)

For a fully-sunken table type, make sure to lower waste chute opening ④ before opening the looper cover.

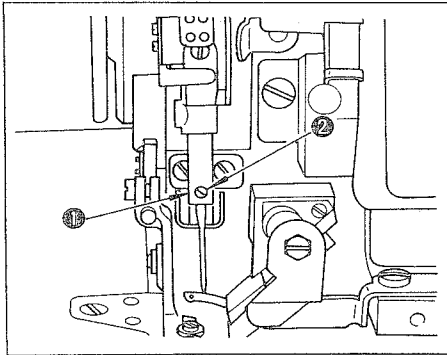
8. ATTACHING A NEEDLE

The standard needle is DC x 27 #11. A needle of DC x 1 can be also used, but it sometimes requires adjustment of the clearance between the looper and needle.

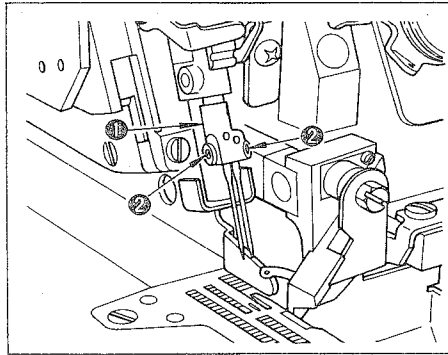
It is advisable to use a needle of DC x 27 for strict stitch performance.

1. Bring needle clamp ① to the highest position.
2. Loosen needle clamp screw ②, and fully insert the needle into the needle clamp hole with the needle recess facing backwards as viewed from the operator's side.
3. Tighten the needle clamp screw.

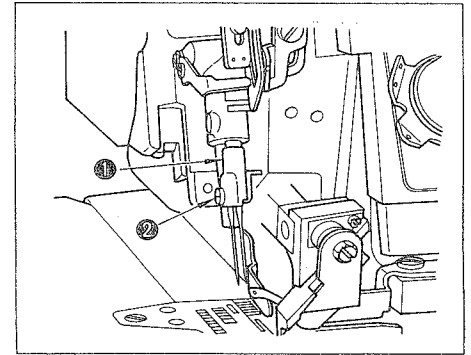
MO-2504N



MO-2514N



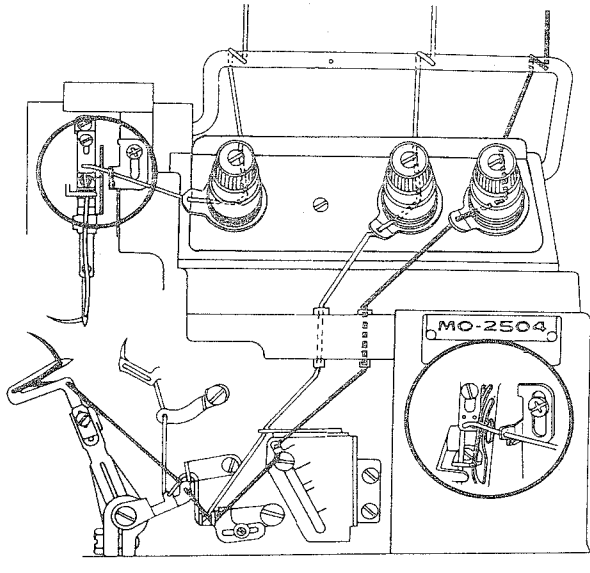
MO-2516N



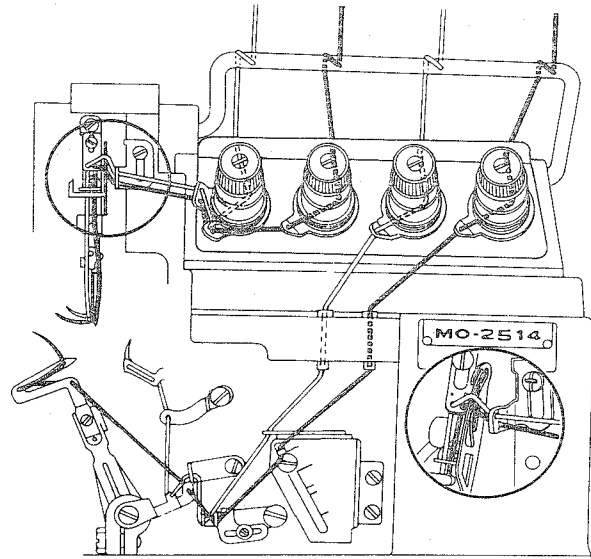
9. THREADING THE MACHINE

Thread the machine according to the threading chart given below. (The same chart is on the inside of the looper cover.)

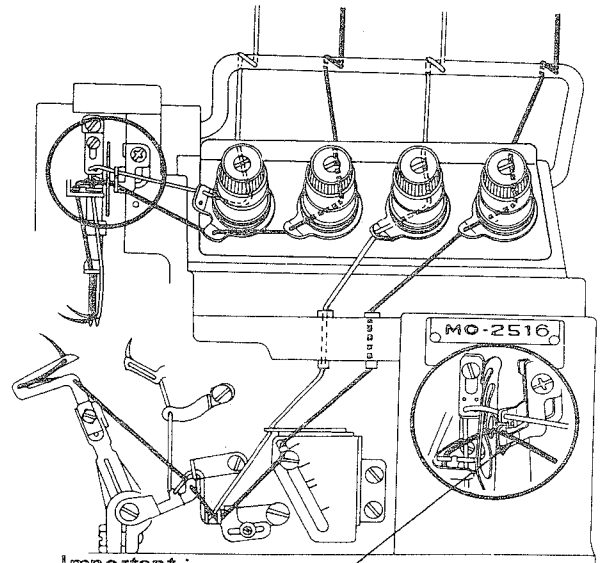
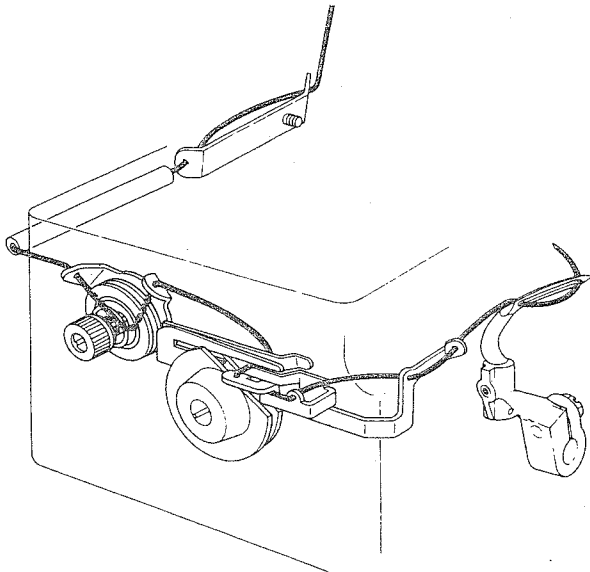
MO-2504N



MO-2514N

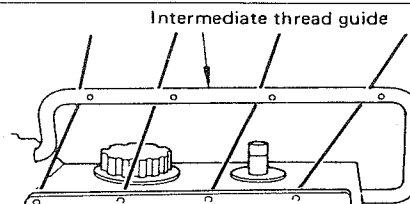


MO-2516N



Important :
Be sure to pass the double-chain stitch needle thread through the needle thread take-up.
(The outer thread is the overlock needle thread.)

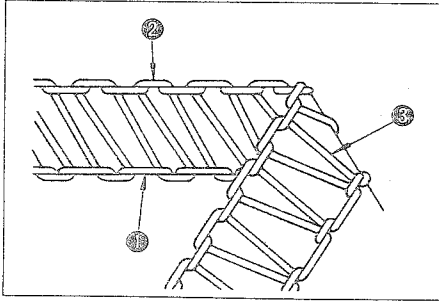
(Caution)
When using an untwisted thread such as wooly nylon thread or weak thread, do not wind it round the intermediate thread guide.



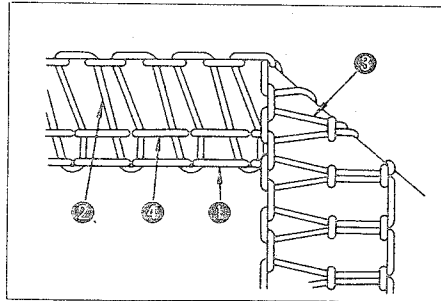
10. THREAD TENSION

Using the thread tension nut, adjust to an optimum thread tension according to your sewing conditions such as type of materials, type and size of thread, etc.

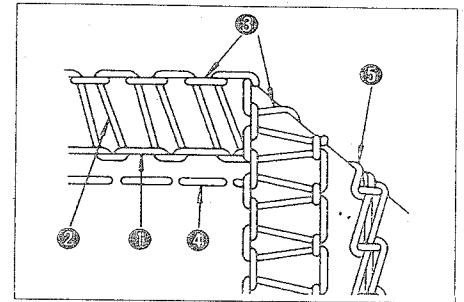
MO-2504N



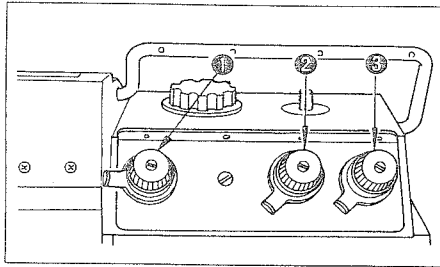
MO-2514N



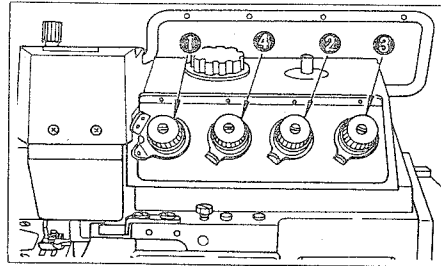
MO-2516N



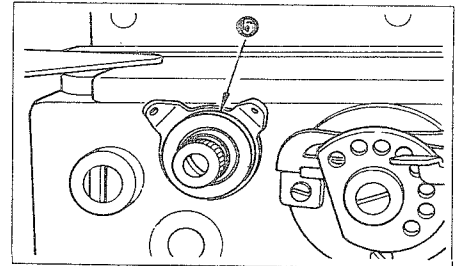
MO-2504N



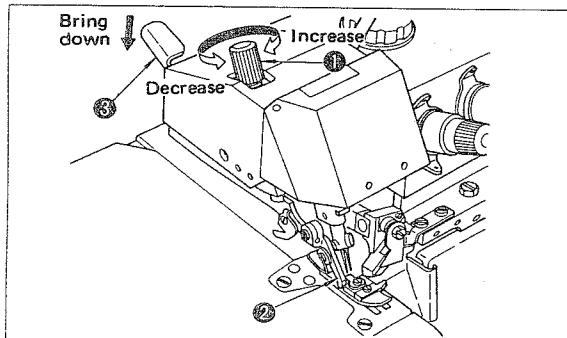
MO-2514N, MO-2516N



MO-2516N



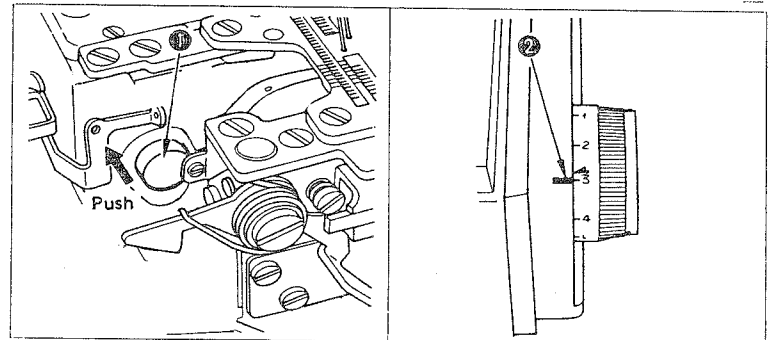
11. PRESSER FOOT PRESSURE AND LIFTER



Adjust the pressure of the presser foot by turning presser foot adjust screw ①. When the adjust screw is turned clockwise, the pressure increases, while the pressure decreases when the screw is turned counter-clockwise.

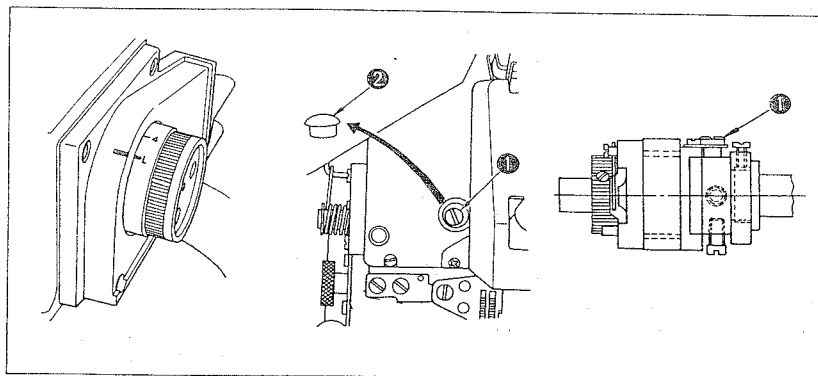
When you turn presser foot assembly ② side-ways, bring down presser lifting lever ③. Whenever the presser foot is returned to its original position, be sure to bring up the presser lifting lever.

12. ADJUSTING THE STITCH LENGTH



1. Slowly turn the handwheel as you keep depressing pushbutton ①, and you will find a point at which the pushbutton goes in farther.
2. With the above condition maintained, align a desired dial on the handwheel with white mark ② on the belt cover.
3. Reset the pushbutton after setting the dial.

13. ON THE LOCKING MECHANISM OF FEED ECCENTRIC CAM



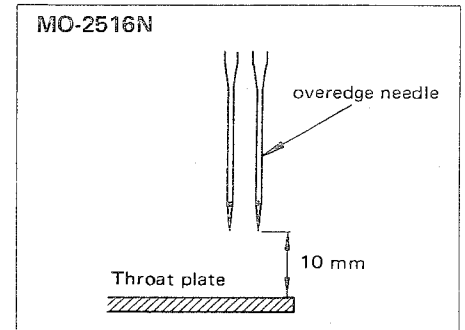
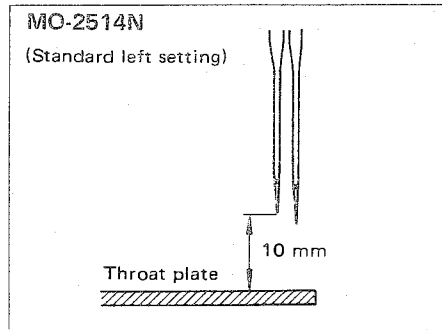
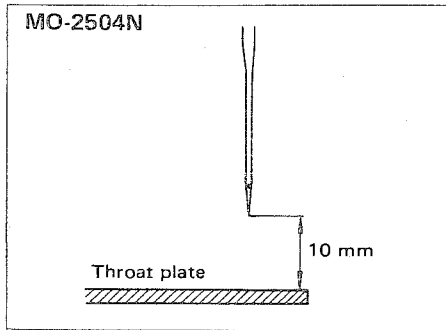
When the machine is operated continuously as in serging (or when frequent change of the stitch length is not required), it will be better to fix the feed eccentric cam.

This will prolong the life of the machine. Bring the "L" on the pulley to the white grooved line on the belt cover and remove rubber cap ② of the eccentric mechanism cam.

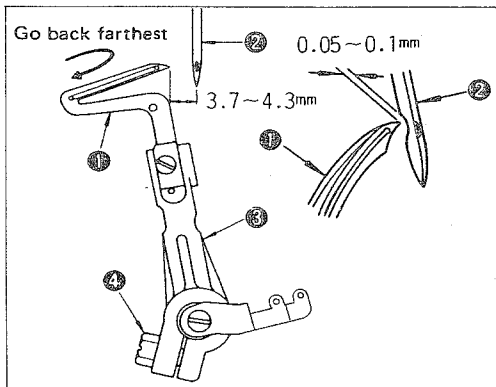
Now, feed cam fixing screw ① is seen. Fix the feed cam by tightening the screw.

14. HEIGHT OF NEEDLE

When the needle bar is at the highest point of its stroke, the pointed end of the overedging needle should be 10 mm above the throat plate surface.

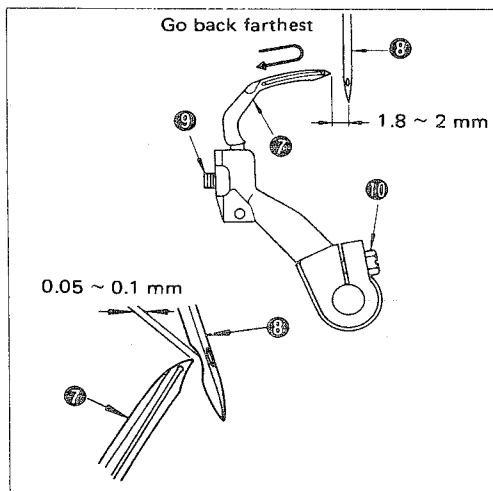


15. SETTING THE LOOPERS



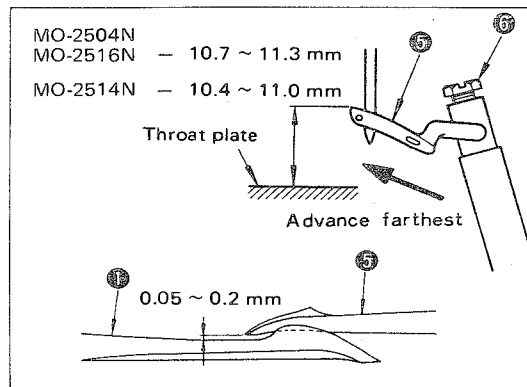
★ Lower looper

1. When lower looper ④ has gone back farthest, it should be distanced 3.7 to 4.3 mm from overedging needle ②.
2. When the lower looper is crossed with the needle, the clearance between them should be 0.05 to 0.1 mm.
3. To make adjustment, loosen setscrew ⑤ and move lower looper holder ③.



★ Double-chain looper

1. When double-chain looper ⑦ has gone back farthest, it should be distance 1.8 to 2 mm from double-chain needle ⑧.
2. The clearance between the double-chain looper and needle should be 0.05 to 0.1 mm when they are crossed each other.
3. To perform the adjustment, loosen set-screw ⑩ and move double-chain looper holder ⑨.



* Upper looper

1. When upper looper ⑤ has advanced farthest, it should be distanced 10.4 to 11.0 mm from the overedging needle for MO-2514N, and 10.7 to 11.3 mm for MO-2504N and MO-2516N.
2. The clearance between upper looper ⑤ and lower looper ④ when they are crossed each other should be 0.05 to 0.2 mm.

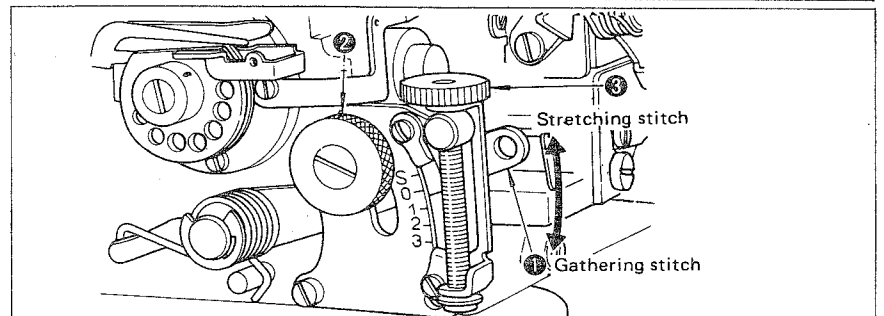
3. To make adjustment, loosen setscrew ⑥ and move the upper looper.

* Use a proper upper looper according to the count of the needle used in accordance with the table shown below. When placing orders, specify the bracketed numbers □.

Model	Numerals engraved on upper looper	Count of Needle
1-Needle Overedger Safety Stitcher	1188 [80]	#8 ~ #13 (#14)
	1188 [81]	#14 ~ #20 (#13)
	1199 [92]	#21
2-Needle Overedger	1188 [81]	#6 ~ #8 (#9)
	1199 [92]	#9 ~ #16

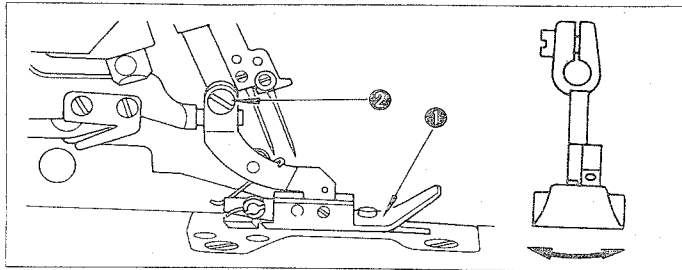
* Avoid using needles with the bracketed counts as much as possible.

16. DIFFERENTIAL FEED MECHANISM



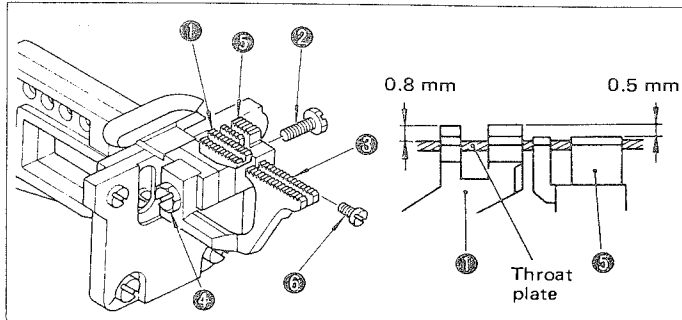
1. Loosen differential feed lock nut ②. Turn lever ④ up for stretching stitch or down for gathering stitch.
2. When you want to move the lever only slightly, use differential feed minute-adjust screw ③.
3. Position "S" is for stretching stitch of a ratio of 1:0.7 and position "0" provides a differential feed ratio of 1:1.
4. Gathering stitch can be made up to a differential feed ratio of 1:2 (possible up to 1:4 by adjusting the internal mechanism). The divisions beyond "0" may be used as a measure.

17. PRESSER FOOT AND FEED DOG



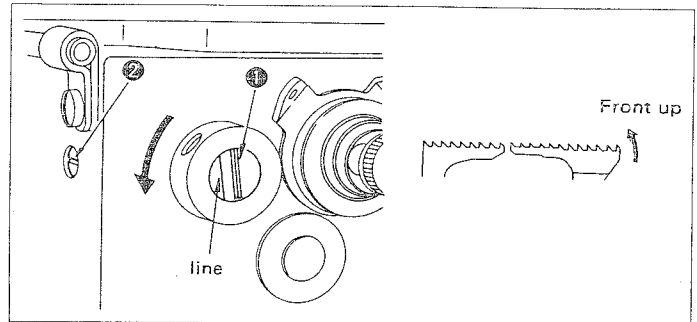
★ Contact of the presser foot with the throat plate top surface

Using adjust screw ②, perform adjustment so that the sole of the presser foot evenly comes in contact with the top surface of the throat plate when presser foot ① comes down.



★ Height of feed dog

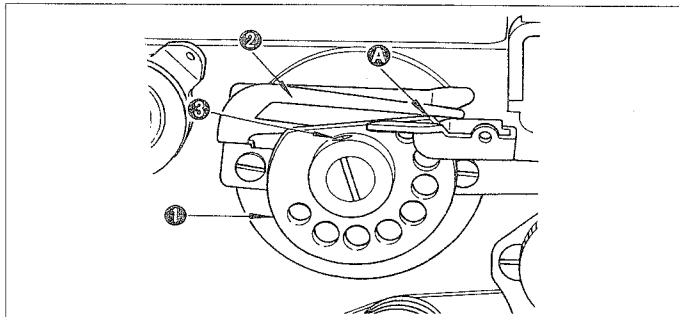
1. Feed dog ① is usually set so that its teeth protrude about 0.8 mm from the throat plate surface at the highest point in its trajectory. Increase the protrusion for heavy-weight materials or reduce it for light-weight materials.
2. Use setscrew ② to adjust the protrusion of the feed dog teeth.
3. Using setscrew ③, make adjustment so that differential feed dog ④ is level with the main feed dog.
4. Adjust the height of auxiliary feed dog ⑤ by setscrew ⑥ so that it is 0.5 mm lower than the main feed dog.



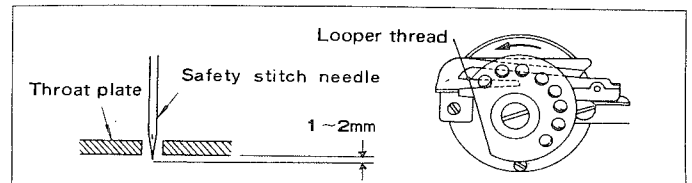
★ Inclination of feed dog

1. Loosen screw ②, and turn eccentric shaft ① in the arrowed direction to make the feed dog front up or turn it in the reverse direction to set the feed dog front down.
2. The feed dog should be levelled when the dot engraved on the eccentric shaft faces exactly to the line.

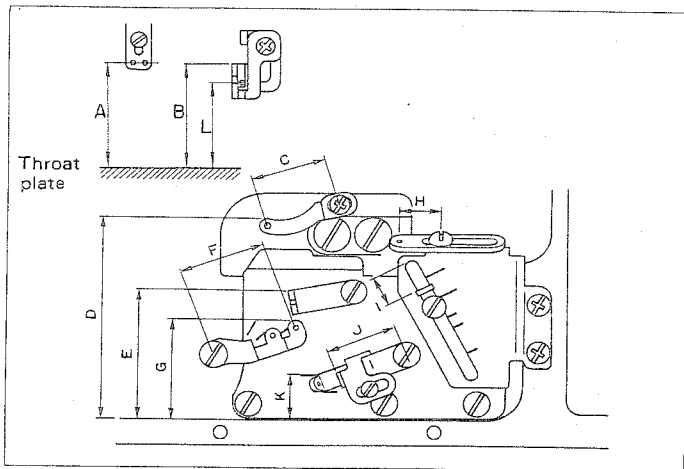
18. CHAIN LOOPER THREAD CAM (MO-2516N)



Loosen setscrew ③, and adjust chain looper thread cam ① so that A of the chain looper thread cam meets the bottom of looper thread cam pawl ② when the needle is at its highest point. Make sure that the chain looper thread cam releases the looper thread when the the needle point juts 1 to 2mm from the bottom surface of the throat plate.



19. THREAD GUIDE AND LOOPER THREAD TAKE-UP

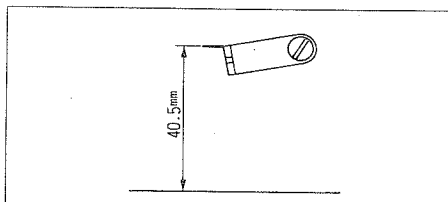


The table below shows the standard dimensions of the individual thread guides and looper thread take-ups when the upper looper has gone back farthest. Each of the thread take-ups has marker lines engraved on it which can be used as reference when adjusting the thread take-ups and thread guides.

Code	MO-2504N MO-2516N (Standard)		MO-2514N (Standard)		MO-2505N (Hemming bottom)		MO-2504N (Soft chain)	
	G	W	G	W	G	W	G	W
A	74	←	←	←	←	←	79.5	←
B	74	←	←	←	←	←	79	←
C	22.5	←	←	←	←	←	←	←
D	63.5	←	←	←	←	←	←	←
E	40.5	←	←	←	←	←	←	←
F	26	←	←	←	←	←	←	←
G	37.5	45	37.5	45	37.5	45	41	47
H	12	←	13	18.5	9.5	12	13	26.5
I	6.5	←	14	←	24.5	33.5	28.0	33.5
J	24	←	23	←	19	←	←	←
K	14	←	←	←	←	←	←	←
L	71	←	←	←	←	←	←	←

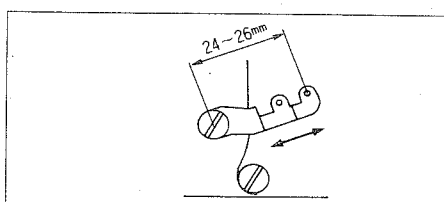
G : General thread W : Wooly thread (Unit : mm)

20. POSITION OF THE ENGRAVED MARKER LINES FOR THE LOOPER THREAD TAKE-UP LEVER



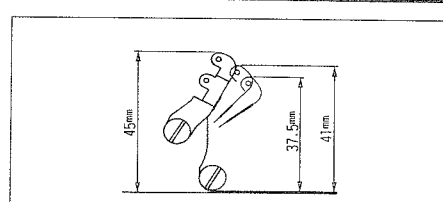
★ Dimension E (upper looper thread guide (center))

The oil shielding plate has a positioning line to be used for adjusting dimension E. The line locates 40.5 mm above the bottom of the plate. Install the upper looper thread guide (left) on the shielding plate while aligning the edge of the upper looper thread guide (center) with the center of the positioning line.



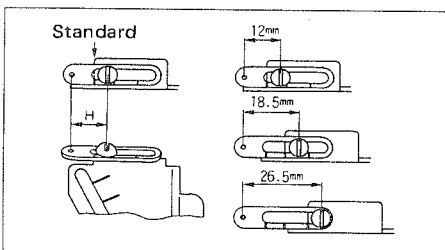
★ Dimension F (looper thread take-up lever (left))

The looper thread take-up lever (left) is designed to provide dimension F of 26 mm when it is installed on the lower looper shaft with shifted to the right until it will go no further, or 24 mm when it is installed on the shaft with shifted to the left until it will go no further.



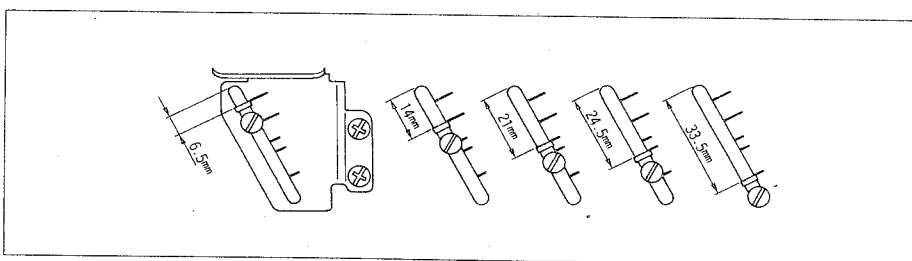
★ Dimension G (looper thread take-up lever (left))

The lower looper shaft has three positioning lines to be used for adjusting dimension G. Install the looper thread take-up lever (left) on the lower looper shaft while aligning the looper thread take-up lever (left) with the center of the line as illustrated in the sketch.



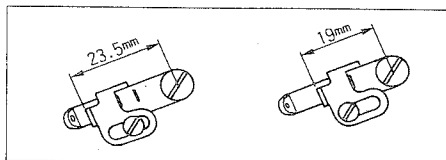
★ Dimension H (upper looper thread guide (right))

The upper looper thread guide (right) has three positioning lines on it to be used for adjusting dimension H. Install the upper looper thread guide (right) on the looper thread take-up cover while aligning the center of the line with the thread take-up cover as illustrated in the sketch.



★ Dimension I (lower looper thread guide)

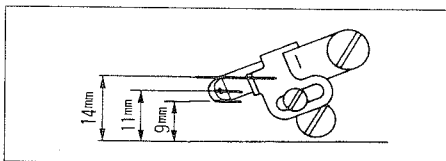
The thread take-up cover has five positioning lines on it to be used for adjusting dimension I. Install the lower looper thread guide on the thread take-up cover while aligning the upper side of the lower looper thread guide with the center of the line as illustrated in the sketch.



★ Dimension J (lower looper thread take-up lever)

The lower looper thread take-up lever should be installed on the upper looper thread take-up lever (right) while satisfying the two specified dimensions 19 mm and 23.5 mm as measured from the center of the upper looper shaft.

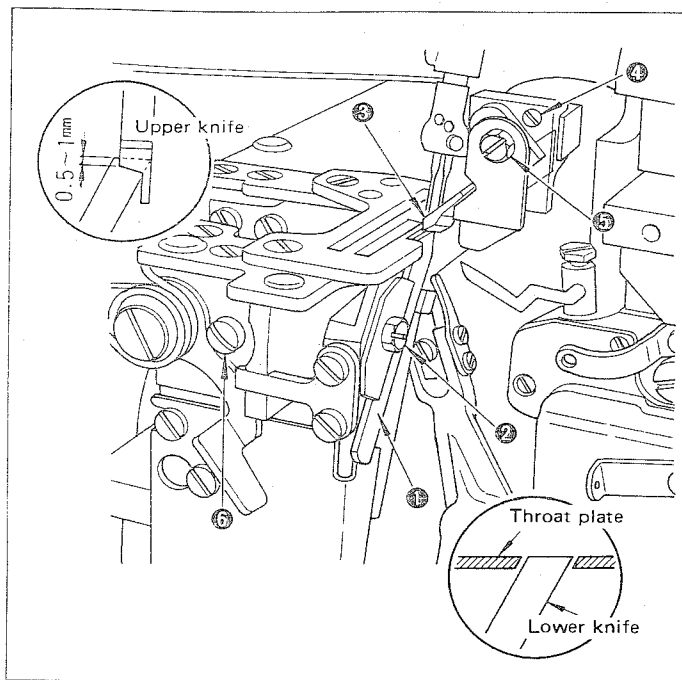
The reference position is the center of the line. So, install the lower looper thread take-up lever on the upper looper thread take-up lever (right) with slightly shifted from the reference position to adjust dimensions 23 mm and 24 mm.



★ Dimension K (upper looper thread take-up lever (right))

The upper looper shaft has three positioning lines to be used for adjusting dimension K. Install the upper looper thread take-up lever (right) on the upper looper shaft while aligning the edge of the upper looper thread take-up lever (right) with the center of the line as illustrated in the sketch.

21. KNIVES AND OVEREDGE WIDTH



★ Height of the lower knife

Loosen setscrew ④ and adjust the height of lower knife ② so that its edge is flush with the throat plate surface.

★ Height of the upper knife

Loosen setscrews ④, ⑤ and perform adjustment so that upper knife ① overlaps lower knife ② by 0.5 to 1 mm when the upper knife is at its lowest point.

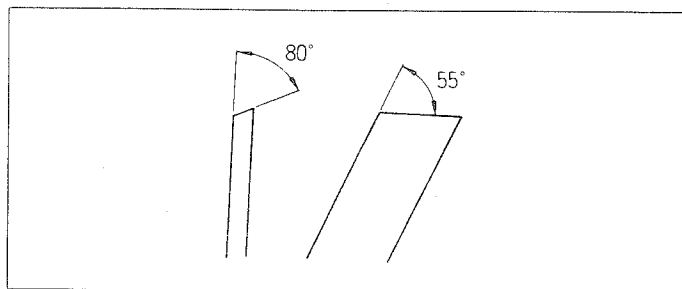
★ Overedge width

Overedge widths of 1.6 through 6.4 mm are provided by changing the parts or by using subclass models. (The overedge width will be slightly larger than the knife cut width.)

To change the overedge width;

1. Loosening setscrew ⑥, push lower knife ② to the left and fix it.
2. Loosen setscrew ⑤ and move upper knife ① as required, then fix it.
3. Lower the upper knife to its lowest point and loosen setscrew ④. Tighten setscrew ④ when the lower knife comes in contact with the upper knife.

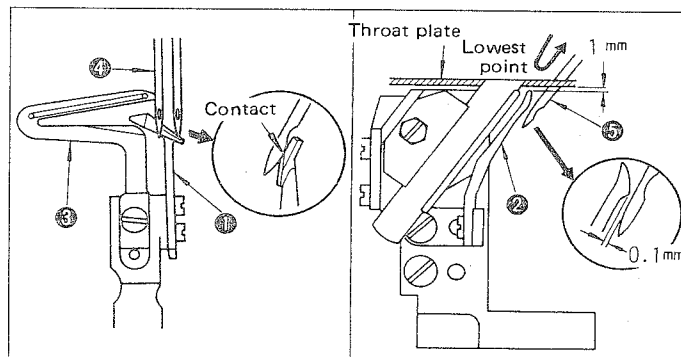
(Caution) Be sure to tighten screw ⑥ before operating machine.



★ Resharpener the lower knife

When the lower knife has become dull, resharpen it as shown in the figure left.

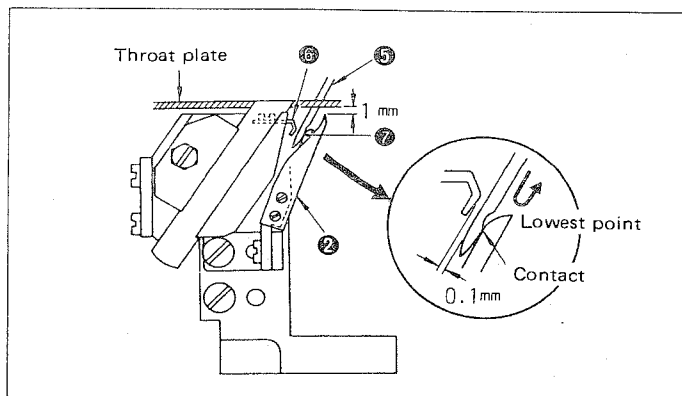
22. NEEDLE GUARD



★ For 1-Needle and 2-Needle Overedgers

An overedger is equipped with two needle guards ① and ②.

1. Position needle guard ① so that it lightly comes in contact with needle ④ when the blade point of lower looper ③ has reached the center of needle ④.
2. Position needle guard ② so that it is 1 mm lower than the bottom surface of the throat plate end is distanced 0.1 mm from needle ⑤ when the needle is at its lowest point.



★ For safety stitchers

A safety stitcher has four needle guards ①, ②, ⑥ and ⑦.

1. Position needle guards ① and ② in the same manner as the overedger explained above.
2. Position needle guard ⑦ so that it lightly comes in contact with needle ⑤, and position needle guard ⑥ so that it is distanced 0.1 mm from needle ⑤ when the needle is at its lowest point.

23. STITCH FAILURES AND CORRECTIVE MEASURES

STITCH FAILURE	CAUSES	CORRECTIVE MEASURES
1. Needle breaking	<ol style="list-style-type: none"> (1) Needle type is wrong. (2) Needle count is not correct. (3) Needle is not installed correctly. (4) Needle is not straight. (5) Needle-to-needle guard is inadequate. (6) Needle-to-looper relation is inadequate. 	<ul style="list-style-type: none"> ○ Use a specified needle. ○ Use a needle size suitable to the thread gauge and type of fabrics. ○ Install the needle in the correct way (See 8). ○ Use a straight needle. ○ Correct the relation (See 22). ○ Correct the needle to looper relation (See 15).
2. Cloth is not cut	<ol style="list-style-type: none"> (1) Position of the upper and lower knife is inadequate. (2) Knife blade has worn out. 	<ul style="list-style-type: none"> ○ Adjust the knife position (See 21). ○ Sharpen the lower knife or renew the upper knife.
3. Stitch skipping	<ol style="list-style-type: none"> (1) Needle-to-looper relation is wrong. (2) Looper blade is blunt. (3) Needle is threaded with S-twist (or left-hand twist) thread. (4) Thread tension is wrong. (5) Double chain looper thread tension is not enough. 	<ul style="list-style-type: none"> ○ Correct the needle-to-looper relation (See 15). ○ Correct the shape of the looper blade using an oilstone, or replace it. ○ Use a Z-twist (or right-hand twist) thread with the needle. ○ Adjust the thread tension (See 10). ○ Correct the position of the chain looper thread cam (See 18).
4. Thread breaking	<ol style="list-style-type: none"> (1) Quality of the thread is poor. (2) Thread is too thick for the needle size. (3) Needle is installed in a wrong way. (4) Thread tension is too high. (5) There is a scratch or bruise on the surface of needle, looper, throat plate or needle guard. 	<ul style="list-style-type: none"> ○ Use a thread of good quality. ○ Select a suitable needle or thread. ○ Install the needle correctly (See 8). ○ Adjust the thread tension nut. ○ Remove scratches and bruises using an oil-stone or buffing machine.
5. Double chain-off thread stitching are not correct. (MO-2316N)	<ol style="list-style-type: none"> (1) Presser foot does not evenly act on the feed dog. (2) Rear presser is shaking. (3) Needle thread and looper thread tensions are not correct. (4) Double chain looper is installed in a wrong way. 	<ul style="list-style-type: none"> ○ Correct the relation of the presser foot with the feed dog (See 17). ○ Adjust the rear presser for smooth and steady motion. ○ Adjust the thread tension (See 10). ○ Correct the double chain looper (See 15).
6. Puckering	<ol style="list-style-type: none"> (1) Needle is too thick. (2) Thread tension is too high. (3) Pressure applied by the presser foot is too high or too low. (4) Feed dog comes up too much from the throat plate surface. (5) Knife fails to cut the fabrics sharply. (6) Differential feed mechanism is not set correctly. 	<ul style="list-style-type: none"> ○ Select a suitable needle size for the thread and materials. ○ Adjust the thread tension. ○ Correct the presser foot pressure (See 11). ○ Lower the feed dog. ○ Sharpen the lower knife. ○ Correct the differential feed mechanism (See 16).
7. Irregular stitching	<ol style="list-style-type: none"> (1) Thread is not supplied smoothly. (2) Thread tension is too low. (3) Needle is blunt. (4) Pressure applied by the presser foot is inadequate. (5) Height of the feed dog is wrong. 	<ul style="list-style-type: none"> ○ Use smooth thread with even thickness or clean up the thread path. ○ Increase the thread tension. ○ Use a new needle. ○ Adjust the presser foot pressure (See 11). ○ Adjust the height of the feed dog (See 17).

24. SPECIFICATIONS

	MO-2504N	MO-2514N	MO-2516N
Sewing speed (Max.)	8,500 s.p.m.	8,000 s.p.m.	7,500 s.p.m.
Stitch length	0.8 – 4 mm (special model: up to 5 mm)		1.5 – 4 mm (5 mm)
Needle gauge	—	1.6, 2.0, 2.4 mm	1.6, 2.0, 2.4, 3.2, 4.8, 6.8 mm
Overedge width	1.6, 2.4, 3.2, 4.0, 4.8, 6.4 mm	2.0, 3.2, 4.0, 4.8 mm	3.2, 4.0, 4.8, 5.6, 6.4 mm
Differential feed ratio	Gathering stitch 1:2 (Max. 1:4) Stretching stitch 1:0.7 (Max. 1:0.6)		
Needle	DC x 27 (standard) (DC x 1 may be used)		
Presser foot lift	Max. 7.0 mm (excluding some subclass models)		
Lubricating oil	JUKI New Defrix Oil No. 2		



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

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1992. 11 Printed in Japan (T)®