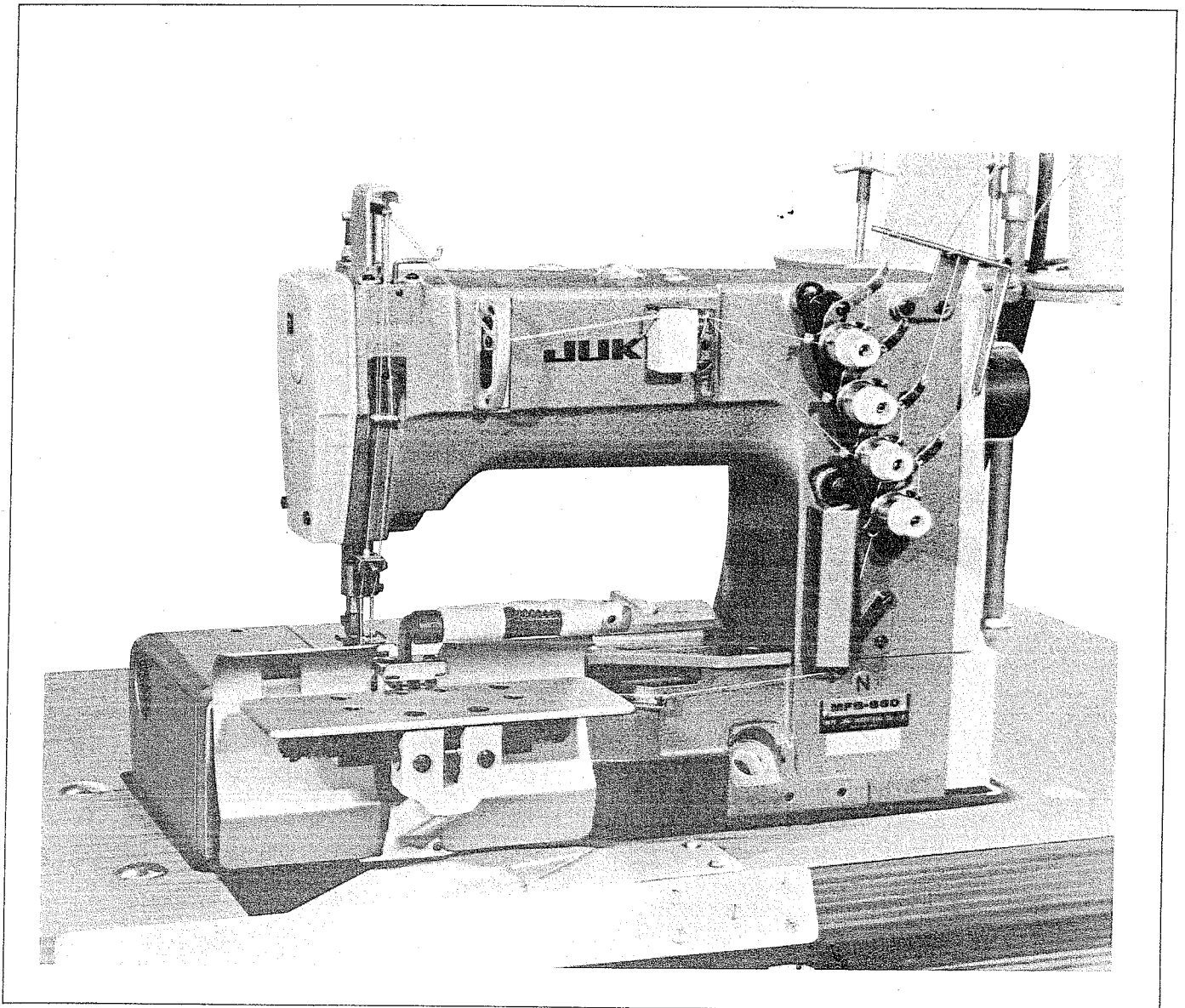


**JUKI**

2-Needle, 3-Thread, Bottom Covering Stitch  
Belt-loop Making Machine

**MFB-860**

# ENGINEER'S MANUAL



## PREFACE

This Engineer's Manual is for the technical personnel responsible for the servicing and maintenance of sewing machines.

The Instruction Manual for the maintenance personnel and sewing machine operators covers the details of the functions and operations of the sewing machine. This Engineer's Manual describes "Standard adjustment," "How to adjust" and other functions not contained in the Instruction Manual.

When carrying out maintenance work on this machine, refer to the Instruction Manual and the Parts List as well as this Engineer's Manual.

This Engineer's Manual consists of two parts; the former is a simplified explanation of "Standard adjustment"; the latter explains the "Results of improper adjustment" in which the sewing and/or mechanical failures are described, and "How to adjust," in which the corrective measures are explained.

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## I. General

### 1. Major features

- 1) The machine is easy to operate and does not require any special skill or experience.
- 2) The cloth feed mechanism is interlocked with the main feed so that the material is fed smoothly. The belt loop is therefore finished without being hitched, even when the joining length is inadequate.
- 3) The machine is capable of sewing loops even if the seam does not overlap.
- 4) The machine is capable cutting, tucking and sewing belt loops. Consequently, the operator does not need to cut the material by hand.
- 5) The machine is capable of feeding the material under the binder as long as the material is placed within the work clamp with the case removed and when a light-weight material with a finishing width of 10 mm or less is to be sewn. As a result, the operator does not need to cut the next piece of material and insert it under the binder using a pair of tweezers.
- 6) Thanks to the exclusive work clamp foot, the needle width does not deflect with regard to the finished width, thereby assuring beautifully and consistently finished belt loops.
- 7) When a wide material is used, the machine can sew belt loops continuously. If the ruler with a magnet is used as well, the knife will cut the material according to the desired width, thus eliminating any material waste.
- 8) If the type of material is changed, the sewing machine will be capable of sewing by making a fine adjustment to the thread tension.
- 9) The machine can sew various types of material, mainly for slacks (denim, jeans, knit, wool, cotton gabardine and drill).

### 2. General explanation and major specifications

#### 1) General explanation

- a) This machine is a sub-class machine of the MF-860 Series of sewing machines. It is an industrial sewing machine developed exclusively for sewing belt loops. The MFB-860 consists of a sewing machine head of the MF Series and a belt loop sewing device. It comes with a special knife for cutting both sides of the material and automatically cuts roughly cut material placed on the machine into a tape-shaped workpiece. Thanks to the feed mechanism, the workpiece is formed into a belt loop, fed under the binder, and sewn.

#### b) Specifications

1. Applications : Sewing belt loops in men's wear, work uniforms, school uniforms etc.
2. Sewing speed : 3,000 s.p.m.
3. Needles : DV×1 #1 through #14 (standard: #11)  
SCHMETZ UY128GAS #75 through #90 (standard: #75)
4. Needle gauges : (F) 4.8 mm (G) 5.6 mm (H) 6.4 mm  
(The letter in parentheses is the code for the needle gauge.)
5. Finishing width : (8), 10, 12, 15, (18), (20)  
(The parts for the numbers in parentheses are made to order.)
6. Lubrication : Manual lubrication, Oil wick lubrication
7. Type of knife : Upper knife: Vertically driven  
Lower knife: Driven by the spring pressure
8. Adjusting the cutting width of the knife : Min. 12 mm, Max. 50 mm
9. Lifting method of the work clamp foot : Manual lifting
10. Driving method : Feed components:  
Interlocked with the differential feed mechanism of the main unit of the sewing machine  
Knife components:  
Interlocked with the main shaft of the main unit of the sewing machine
11. Adjustment of the feed amount : Interlocked with the feed adjustment mechanism of the main unit.  
The differential feed amount can be compensated.
12. Amount of movement of the knife : Standard: 5 mm  
Adjustable in the range of 1 mm to 7 mm.
13. Cloth feed mechanism: Bottom feed
14. Pressure of the work clamp : Standard: 2.5 kg

### 3. Applications

The belt loops can be sewn in many different ways. When the roughly cut material is set in place, the machine is capable of;

- Determining the material width according to the specified finishing width of the belt loop and cutting it to the correct width.
- Rolling the material into the shape of a belt loop.
- Sewing the belt loops.

The machine performs steps a) through c).

The machine mainly uses waste pieces of cut cloth for the belt loops, sewing them along their length.

## II. Operation

### 1. Installation and necessary preparations for the operation of the sewing machine

- Installing the cloth chip chute and the table reinforcement plate

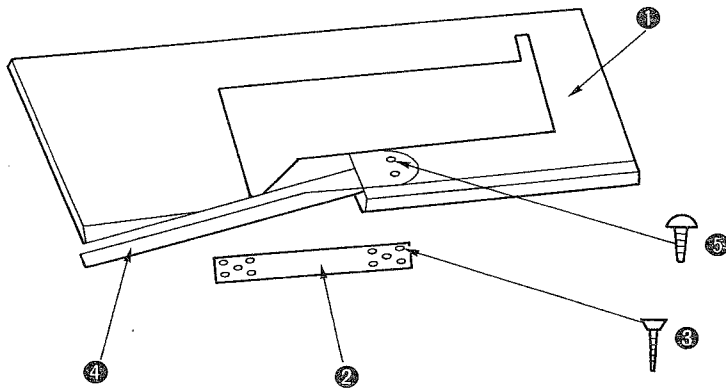


Fig. II-1-1

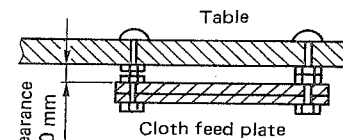


Fig. II-1-2

Fig. II-1-1 Attach exclusive table ① so that this side of the table reaches the notch as illustrated. Attach table reinforcement plate ② so that the notch is aligned with the center and fix it in place using ten screws ③. Fix cloth chip chute ④ in place using two screws ⑤ so that the curved section reaches the notch in the table.

- Clearance between the table and the clamp feed plate  
Adjust to obtain a clearance of 20 mm between the table and the cloth feed plate. (See Fig. II-1-2)

### 2. Motor pulley and belt

a) Cycle (frequency)	50	60
b) Diameter of the pulley	$\phi 70$	$\phi 60$
c) Part number of the pulley	MTKPV070000	MTKPV060000
d) Belt	34 mm	34 mm
e) Sewing speed (Standard: 3,000 s.p.m.)	3058 spm	3138 spm
f) Motor	3-phase, AC (single-phase, AC) 400 W (1/2 hp) clutch motor	

### 3. Caution when adjusting the sewing speed

If the sewing machine has been left unused for a long period of time, run the sewing machine at 2,000 s.p.m. for approximately 10 minutes until all the sliding parts are sufficiently lubricated.

Operate the sewing machine only after the feed components, looper rod components, knife shaft, and the manually lubricated components have been fully lubricated.

The belt loop sewing device should be lubricated once a day.

### 4. Thread tension

Adjust the tension disc every time the sewing conditions are changed (type or thickness of the material or thread, needle gauge, stitch length etc.). Turning the tension disc clockwise will increase the tension of the disc, while turning the disc counterclockwise will decrease it.

The following is an example of adjusting the tension disc to suit the sewing conditions.

### 5. Adjusting the tension of the needle thread

Example of the standard adjustment for cotton thread

Type of material	Needle thread	Looper thread	Tension of the needle thread	Tension of the looper thread	Needle
Denim 14 oz.	#30	#50	250 – 300 g	8 g	DV × 1 #14
Denim 11 oz.	#50	#60	170 g	8 g	DV × 1 #11
Drill	#50	#50	150 – 160 g	8 g	DV × 1 #11
Cotton gabardine	#50	#50	150 – 160 g	8 g	DV × 1 #11
Wool	#60	#60	90 – 100 g	5 g	DV × 1 #11
Knit	#60	#60	90 – 100 g	5 g	DV × 1 #11

For synthetic thread (tetron thread)

Heavy-weight type	#30	#30	100 – 150 g	15 g	DV × 1 #14 #16
Light-weight type	#50	#50	60 – 90 g	10 g	DV × 1 #11

**(Caution)** The machine is adjusted according to the same procedure for both cotton thread and synthetic thread, except that a needle thread guide and a silicone oil lubricating device are necessary for some types of synthetic thread.

### III. Model name indication

The needle gauges, binders and seam numbers for the MFB-860 are specified as follows:

MFB 860 G P B ZZ Seam No.  
 (1) (2) (3) (4) (5)

- (1) B . . . . . S110 For sewing belt loops
- (2) G . . . . . Needle gauge (F 4.8 mm, G 5.6 mm, H 6.4 mm)
- (3) P . . . . . Presser foot (hinged presser for exclusive use with the MFB)
- (4) B . . . . . Material thickness  
 (B for medium-weight, Canton type corresponding to 12.5 oz. material)  
 (H for heavy-weight, Canton type corresponding to 12.5 oz. material or heavier)
- (5) Seam Number . . . . . Binder size

Needle gauge	Seam No.	Finish code	Material thickness	Finishing width	
F 4.8 mm	1) Made to order	MAS1100	H00B	8 mm	
	2)		K00B	10 mm	
	3)		M00B	12 mm	
	G 5.6 mm	1)		K00B	10 mm
		2)		M00B	12 mm
		3)		M00H	12 mm
		4)		Q00H	15 mm
	H 6.4 mm	1)		K00B	10 mm
		2)		M00B	12 mm
		3)		M00H	12 mm
		4)		Q00H	15 mm
		5) Made to order	1270	T00H	18 mm
6) Made to order		1272	V00H	20 mm	

Standard binder	Seam No.	Finishing width	Material thickness	
	1)	1242	10 mm	B
	2)	1244	12 mm	B
	3)	1264	12 mm	H
	4)	1267	15 mm	H

There are four different standard types of binder available.

Contact your nearest dealer if you need a binder with a special needle gauge and a finishing width other than standard.

#### IV. Adjustment of the major components

##### 1. Adjusting the timing between the needle bar and the upper knife

When the feed mechanism of the machine stops, the knife will cut the material. When the feed mechanism of the machine is actuated, upper knife ① goes up to allow the material to be fed smoothly. Adjust so that upper knife ① is brought to the highest position of its stroke when the needle bar of the main unit of the sewing machine is in its highest position. (See Fig. IV-2-1)

##### 2. Actuating position of the upper knife

The knife is actuated while interlocked with the main feed mechanism of the main unit of the sewing machine. The amount of movement of the upper knife is factory-adjusted to the standard amount of 5 mm, using the feed pitch of 2.5 mm as reference.

If the feed pitch is changed, the amount of movement of the upper knife ① will also change as illustrated in Table 1. Therefore, when the feed pitch is changed, the amount of movement of the upper knife ① should be adjusted accordingly.

	Standard			Unit: mm
Feed pitch	2	2.5	3	
Amount of movement of the upper knife	3.8	5	6	
Engaging amount	0.8	1	1.2	

Table 1.

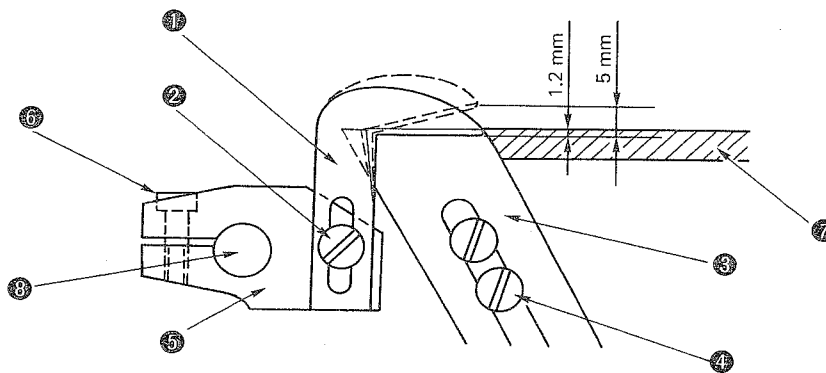


Fig. IV-2-1

##### 3. Adjusting the actuating position of the upper knife

The actuating position of upper knife ① can be changed by loosening screw ⑥. Take care not to raise the upper knife ① too much. If the upper knife ① is positioned too high, it may come in contact with lower knife ③. (See Fig. IV-2-1)

##### 4. Adjusting the amount of movement of the upper knife

Loosen the screw ④ in feed rocker arm, lower ⑤. Then raise feed rocker arm, lower ③ to decrease the amount of movement of upper knife ① or tilt the rod horizontally to increase it.

Once the desired amount of movement of the upper knife ① has been obtained, tighten up the screw ④ in the lower feed rod. At this time, take care not to allow feed rocker arm, lower ③ to move to the left or right. (See Fig. IV-4-1)



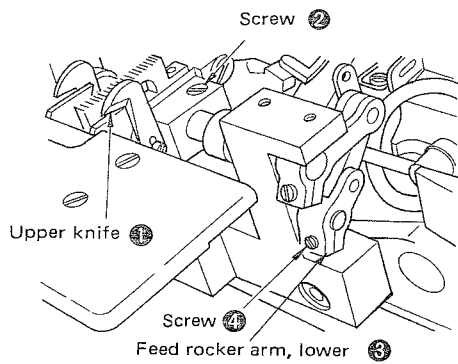


Fig. IV-4-1

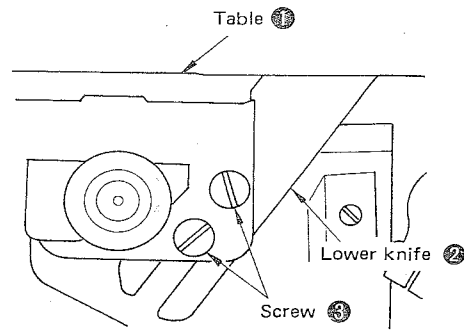


Fig. IV-4-2

5. Attaching position of the lower knife

The lower knife should be in its standard position where the blade of lower knife ② is almost flush with top surface ① of the table. Tighten two screws ③ so that the lower knife is fixed tightly in place. (See Fig. IV-4-2)

6. Attaching/detaching the knife

The knife will wear out and become blunt once it has been used for a predetermined period of time. If the sharpness of the blade on the right-hand side and that of the blade on the left-hand side are not uniform, it may not be possible for the material to be fed straight, resulting in defectively finished belt loops.

If this occurs, remove the upper and lower knives, and grind the blades.

1) Removing the upper knife

Loosen screw ②, and remove upper knife ①. (See Fig. IV-6-1)

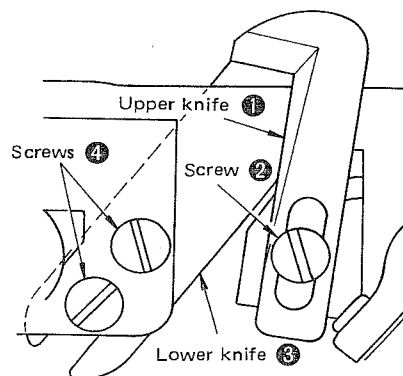


Fig. IV-6-1

2) Removing the lower knife

Loosen two screws ④, and pull out lower knife ③ from the upper section of the blade. (See Fig. IV-6-1)

**(Caution)** Be sure to grind the blades on the left-hand side and right-hand side so that the cutting action is uniform.

If the blades are unable to cut both sides of the material uniformly, it will not be possible for the material to be fed straight. As a result, the material will not be accurately fed into the belt loop holder (binder).

7. Adjusting the amount of engagement between the blades of the upper knife and the lower knife .

- 1) Adjust so that upper knife ① engages with lower knife ③ by 1 mm in its lowest dead point when the lower knife ③ is in its standard position. Loosen screw ② , and adjust the position of the knives. Now adjust the position of upper knife ① while lightly pressing back lower knife ③ . If you do not do this, the lateral position of upper knife ① may change from its correct position. In the case the moving amount of upper knife is set to the standard value of 5 mm, a clearance of 4 mm should be obtained between the top end of upper knife ① and lower knife ③ when the upper knife ① is in the highest position of its stroke. (See Fig. IV-7-1)

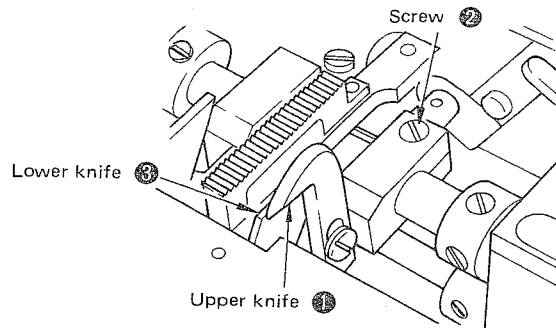


Fig. IV-7-1

- 2) Confirming the cutting capability of the knife  
Adjust so that both the upper knife and lower knife are able to cut one piece of #60 cotton thread at the bottom, center and tip of the blades when they engage with each other.

8. Adjusting the cutting width

The cutting width of the material can be adjusted within the range of 12 mm to 50 mm by changing the position of upper knife ① and lower knife ③ . (See Fig. IV-8-1)

- 1) Adjusting the cutting width of the upper blade  
Loosen screw ② , and adjust the upper knife cutting width by moving the upper knife to the left or right. Then tighten the screw so that the upper knife is fixed firmly in place. ( See Fig. IV-8-1 )

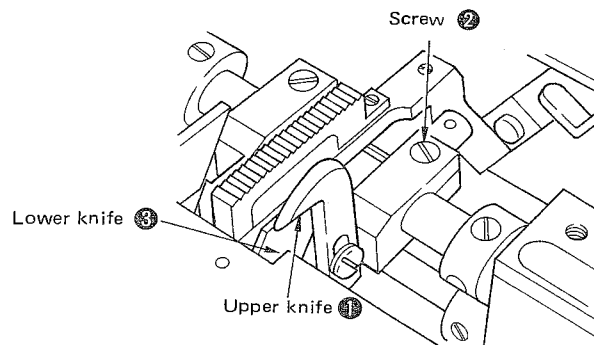


Fig. IV-8-1

- 2) Adjusting the cutting width of the lower knife  
Loosen two screws ② (left-hand side and right-hand side) on the table surface ④ , and move lower knife base ③ in a lateral direction so that the desired cutting width of the lower knife is obtained. Then tighten the screws ② to fix the lower knife base in place. (See Fig. IV-8-2)

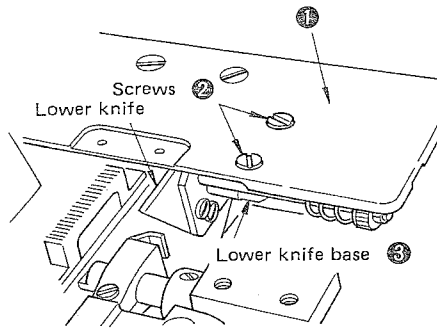


Fig. IV-8-2

- 3) Adjusting the cutting pressure of the lower knife  
 Turning spring regulator ② so that it approaches the knife increases the pressure, while turning it in the opposite direction decreases the pressure. Once the desired pressure is obtained, tighten spring locknut ①.  
 Adjust the standard pressure of lower knife spring ③ so that the spring works under a pressure of 1.2 to 1.5 kg. (See Fig. IV-8-3)

(Caution) When the cutting width of the material is adjusted, it is necessary to allow the material to be cut equally on both the left-hand and right-hand sides, centering the needle bar of the sewing machine, otherwise, the material will become twisted, resulting in a defective finish. This will also lead to inconsistent sewing.

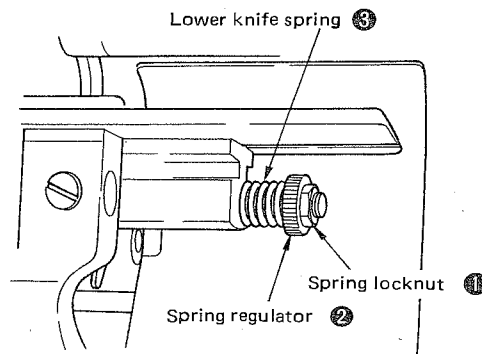


Fig. IV-8-3

9. Adjust the longitudinal and vertical actions of the cloth feed

- 1) Loosen the screw ①, and adjust the height and longitudinal position of the cloth feed ④ using cloth feed plate connecting link ② and the eccentric shaft of feed shaft ③.  
 The height of the cloth feed should be adjusted so that it protrudes 0.8 to 1.0 mm from the top surface of the cloth feed base. (See Fig. IV-9-1)
- 2) Make the adjustment by raising or lowering the feed arm.

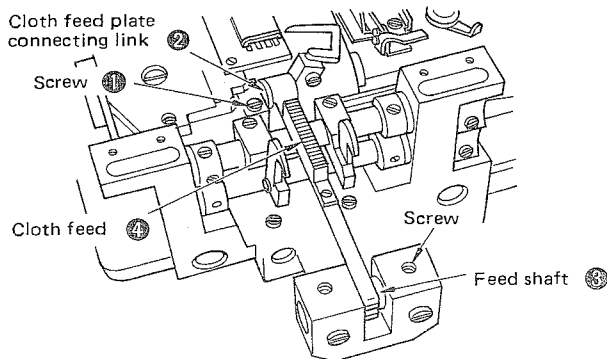


Fig. IV-9-1

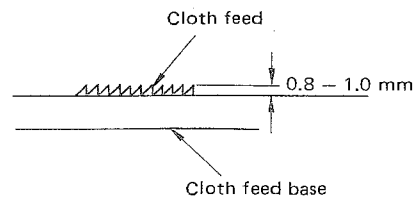


Fig. IV-9-2

10. Adjusting the lateral position of the cloth feed

Loosen the screw ①, and adjust the lateral position of the cloth feed by moving cloth feed plate connecting link ② and feed shaft ③ to the left or right. (See Fig. IV-9-1)

11. Adjusting the pressure of the cloth feed

Press down presser lifting lever ①, and loosen the two fixing screws in cloth presser ②. Lower the work clamp to increase the pressure, or raise it to decrease the pressure. After making the adjustment, adjust the position of presser lifting lever ①.

Adjusting the pressure of the cloth feed in accordance with the type of material to be used will improve the sewing conditions. The standard pressure of the cloth feed is 2.5 kg. (See Fig. IV-11-1)

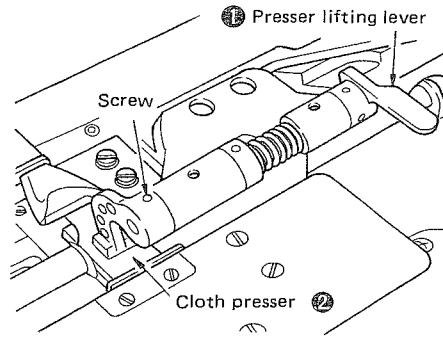


Fig. IV-11-1

12. Adjusting the receding amount of the looper

Remove left-side and right-side cloth covers ①, followed by the two rubber caps on cloth chip guard cover ②. Adjust the receding amount of the looper using a screwdriver through the holes in the cloth chip guard cover. (See Fig. IV-12-1)

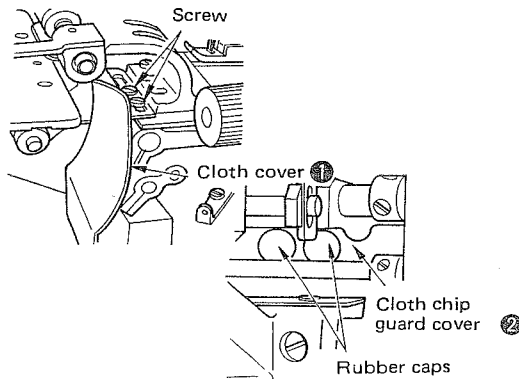


Fig. IV-12-1

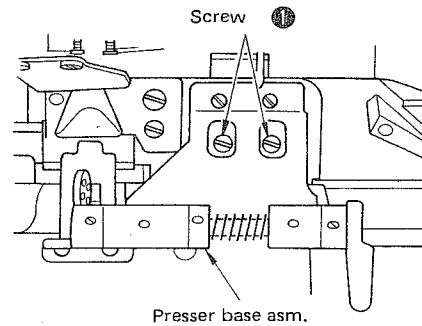


Fig. IV-12-2

13. Aligning the looper and adjusting the bobbin thread cam

Remove the two screws ①. The presser base asm. can be removed while still assembled. Then adjust the looper and the bobbin thread cam using a hexagonal wrench. (See Fig. IV-12-2)

14. Adjusting the finishing width (Knife cutting width)

Set left-hand side and right-hand side upper knives to obtain the desired finishing width.

The standard cutting width of the tape depends on the type of material to be used and the required finishing conditions.

Finishing width  $\times 2 + 1$  to 3 mm

Finishing width 15 mm  $\rightarrow$  Tape cutting width + specified conditions (type of material and overlapping width)

15 mm  $\rightarrow 30 (15 \times 2) + 1$  to 3 mm

The tape width should be equal on both the left-hand and right-hand sides of the needle entry point.

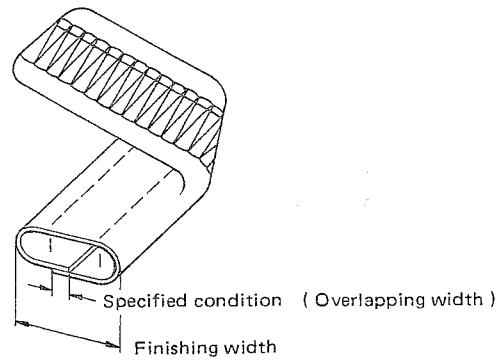


Fig. IV-14-1

15. Adjustment for synthetic thread

- 1) Thread the two threading holes in the lower thread guide and then thread the two threading holes in the thread guide.
- 2) Adjust the thread guide of the thread take-up and use the needle thread guide.
- 3) Use the silicon oil lubricating device.

Adjust all other components following the same procedure as that for the MF-860 sewing machine.

## V. Disassembling/assembling the machine components

### 1. Work clamp foot

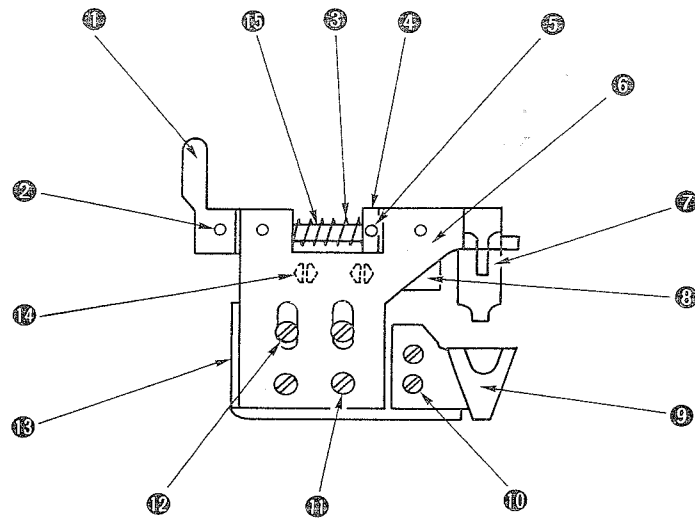


Fig. V-1-1

#### Disassembling

Loosen and remove the two screws 12 (screws used to attach the work clamp to the base). It will then be possible to separate the work clamp foot components from the main unit as illustrated in Fig. V-1-1. To disassemble the work clamp components, first loosen screws 2 in presser lifting lever 3, and remove presser lifting lever 3. Then loosen the two screws 5 to remove looper rocker shaft 15, spring 5 and collar 4. Now remove the setscrews 11 so that presser base 6 can be removed. Remove two screws 10 in folder 9 so that it can be removed. Then remove two screws 14 so that cloth cover 8 and right-hand side cover 13 can be removed. Now loosen the two screws so that cloth presser 7 can be removed from the looper rocker shaft 15.

To assemble the work clamp components, follow the disassembly procedure in reverse order.

### 2. Cloth feed plate and table

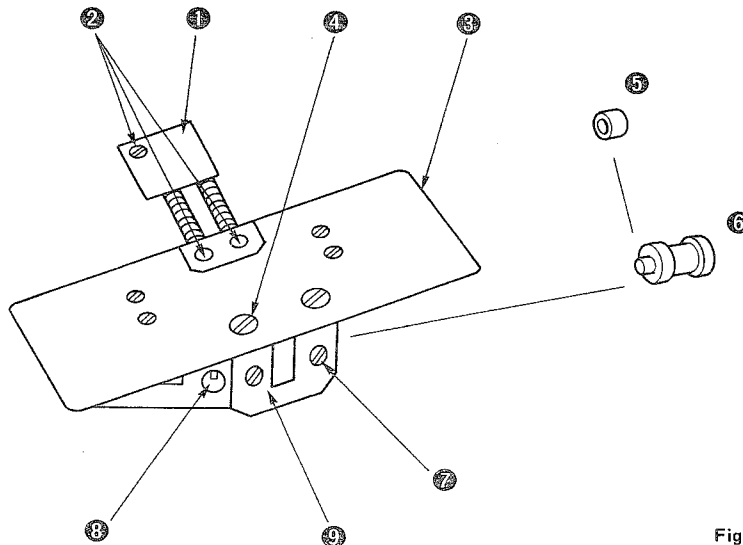


Fig. V-2-1

#### Disassembling

Loosen and remove three screws 2 in cloth feed plate 1 so that cloth feed plate 1 can be removed. Remove two screws 4 in table 3 so that table 3 can be removed (together with the lower knife components). Then loosen two screws 7 to remove feed shaft 6, roller 5 and regulating shaft 8 from table support arm 9.

To assemble the cloth feed plate components, follow the disassembly procedure in reverse order.

### 3. Lower knife

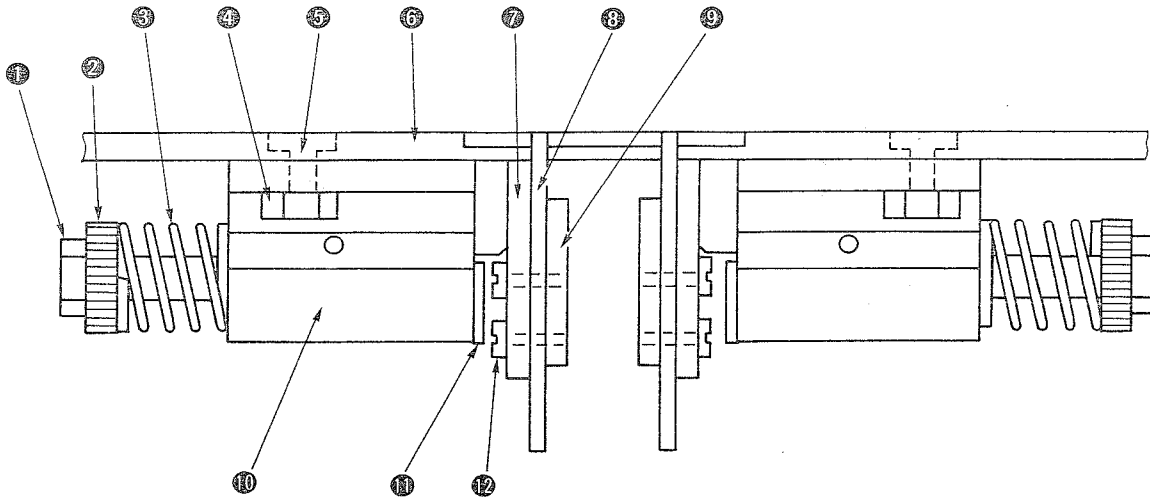


Fig. V-3-1

#### Adjustment

Loosen two screws (5) fixing lower knife base (10), and adjust the position of the lower knife base (10) by moving it to the left or right.

Turning spring regulator (2) in the direction that allows the knob to come closer to lower knife (3) will increase the knife pressure, while turning it in the opposite direction will decrease the knife pressure. The standard pressure of the knife is 2.5 kg (the adjustment should be made in accordance with the type and thickness of the material to be used.) Once the spring has been adjusted, fix the spring in place using locknut (1).

Make the same adjustment for both the left-hand side lower knife and the right-hand side lower knife.

#### Disassembling/assembling

Loosen two screws (5), and remove base attaching nut (4). It will then be possible to remove the lower knife components while still assembled. Now remove spring receiving locknut (1) so that spring regulator (2) and spring (3) can be removed and so that lower knife holder (7) can be pulled out. Lower knife shaft rotation stopper (11) should then be removed. Loosen two screws (12) so that lower knife (3) can be drawn out from above.

When two screws (12) are removed, lower knife set plate (9) can then be removed.

Disassemble the left-hand side and right-hand side lower knives, following the same procedure. To assemble the lower knife components, follow the disassembly procedure in reverse order.

#### 4. Moving parts of the knife

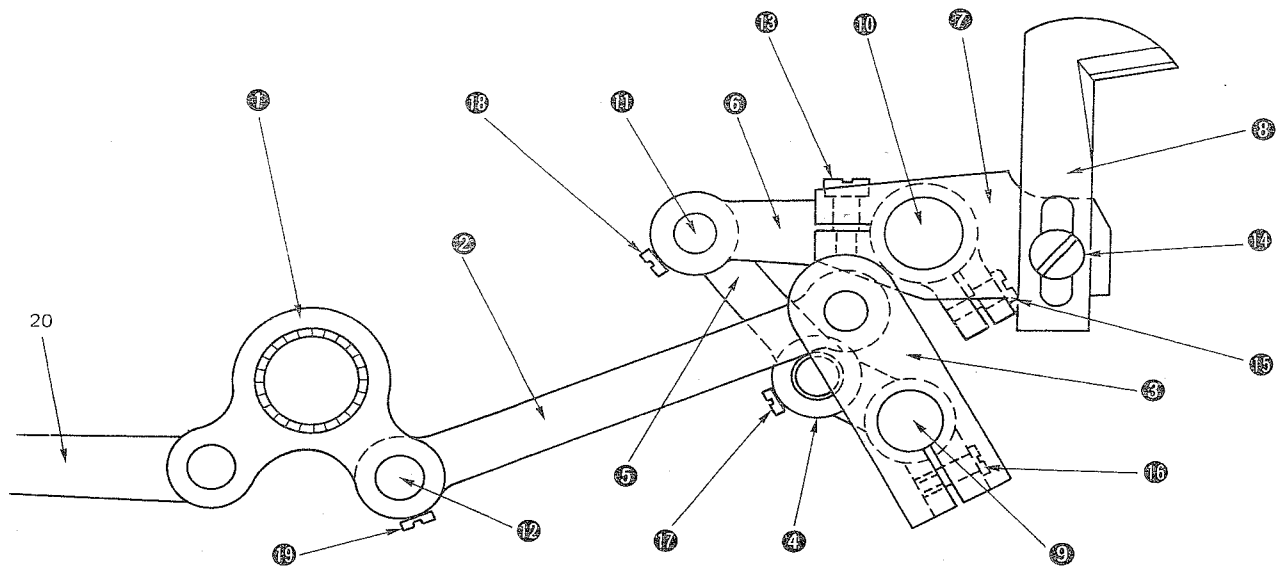


Fig. V-4-1

Fig. V-4-1 illustrates the major moving parts of the knife. Feed crank link ① mounted on the lower shaft moves vertically along the elliptical stroke using the shaft of the feed crank link ⑪ which is eccentric to the rotation of the lower shaft. Driving arm ③ of driving link ② connected to feed crank link ① oscillates, centering feed rocker shaft ⑨ along with the vertical and elliptical movement of feed crank link ①. The oscillation of the driving rod is then transferred to feed rocker arm, lower ④, while the vertical movement is transferred to feed rocker link ⑥. Consequently, feed rocker arm, upper ⑥ also moves vertically, while causing differential feed shaft ⑩ to oscillate. Upper knife base ⑦ attached to differential feed shaft ⑩ oscillates, centering the knife shaft and actuating the vertical movement of the knife.

The vertical movement (stroke) of the knife can be changed by changing the position of driving arm ③ and feed rocker arm, lower ④.

#### Disassembling/assembling

Remove screw ⑭ so that upper knife ⑧ can be removed from upper knife base ⑦. Loosen screw ⑮ and draw out differential feed shaft ⑩. Upper knife base ⑦ can now be removed.

Loosen screw ⑯ in feed rocker arm, upper ⑥, and screw ⑰ so that feed rocker link ⑤ and feed rocker arm, lower ④ can be removed while still assembled.

Loosen driving rod screw and then feed shaft rocking rod screw in feed shaft rocking arm 20. Then feed shaft rocking arm 20, adjusting link ⑫, driving link ② and driving arm ③ will be removed with assembled. Finally, loosen the screws in the four thrust collars mounted on both ends of feed rocking shaft ⑨ and differential feed shaft ⑩ so that feed rocking shaft ⑨ and differential feed shaft ⑩ can be removed. The four thrust collars and both sides of the upper knife mounting bases can now be removed.

To assemble the moving parts of the knife, follow the disassembly procedure in reverse order.



## 5. Moving parts of the feed components

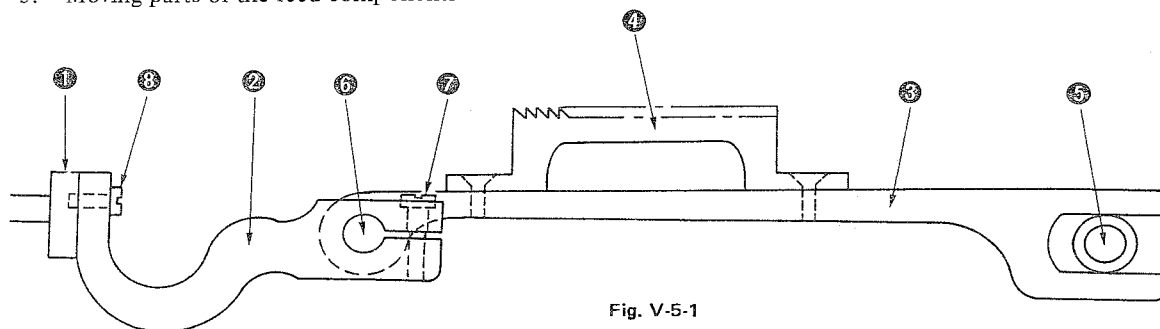


Fig. V-5-1

When the feed arm is attached to differential feed shaft ①, the differential feed movement (longitudinal and elliptical movement) can be transferred to cloth feed bar ③. The differential feed movement is also transferred to cloth feed ④ mounted on the cloth feed plate. Cloth feed bar ③ holds feed shaft ⑤ in the forked section and moves along its stroke.

The height and longitudinal position of the cloth feed are adjusted by changing the eccentricity of cloth feed plate connecting link ⑥ and feed shaft ⑤.

Use a screwdriver in the driver groove on the right-hand side of each shaft, and adjust the eccentricity by turning the groove clockwise or counterclockwise.

Adjust the attaching position of feed arm ②. The moving parts of the feed components can now be adjusted as a whole.

### Disassembling/assembling

Loosen the screw and pull out feed shaft ⑤. Then loosen and remove screw ⑦ retaining cloth feed plate connecting link ⑥. Cloth feed bar ③ and cloth feed ④ can now be removed while still assembled. If screw ③ is removed instead of screw ⑦, all of the moving parts of the feed components can be detached from the main unit.

To assemble the moving parts of the feed components, follow the disassembly procedure in reverse order.

## 6. Base components

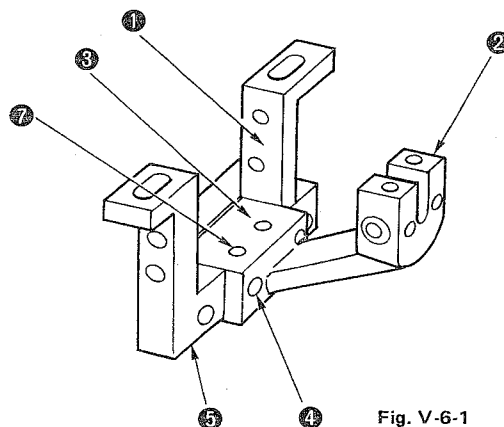


Fig. V-6-1

### Assembling and adjusting the base components

Temporarily fix base ① on to the bed of the main unit of the MF sewing machine using two screws ⑤. Temporarily fix table support arm ② into the groove in base ① using two screws ④. Then attach cloth chip guard cover ③ using two screws ⑦.

Attach the components illustrated in Fig. V-2-1 (cloth feed plate and table). First adjust the position of the cloth feed plate, as shown in Fig. V-2-1. Once the cloth feed plate has been correctly positioned, use an electric drill to bore two knock pin holes in both base ① and table support arm ②.

Then widen the holes using a taper reamer, and drive the knock pins with tapers into the holes so that the base components are fixed in place.

### Disassembling

Remove two screws ⑦, so that cloth chip guard cover ③ can be removed. Then remove two screws ⑤ and lightly hit both ends of the base. Base ① can now be removed from the side face of the main unit of the MF sewing machine with the knock pins attached. Note that table support arm ② need not be removed from the base once the knock pins have been driven in.

## VI. Lubricating the components

### 1. Lubricating the oil wick

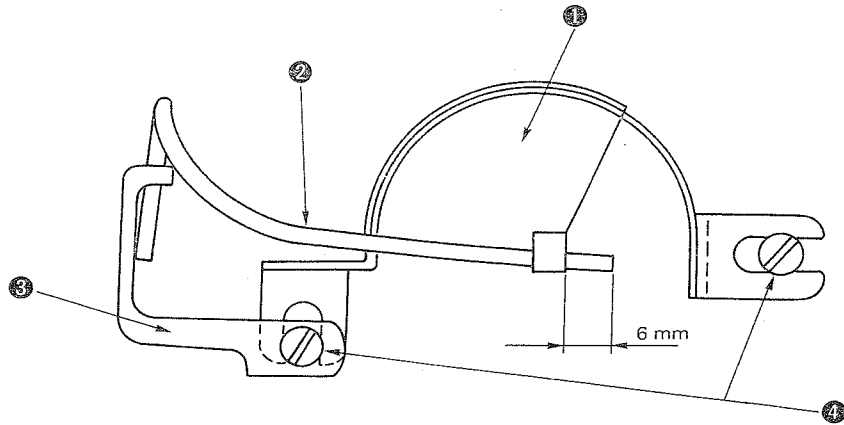


Fig. VI-1-1

#### a) Lubricating the needle of the feed crank link

Lubricate the needle components from the oil reservoir in the bed using felt oil wick ②. The oil wick should be 150 mm long. First fix in place the oil wick attaching section in feed cam oil shield ① when the tip of oil wick ② protrudes 6 mm from the plate. Then attach oil feed cam shield ① and oil wick holder ③ to the main unit of the sewing machine using screw ④. Oil wick holder ③ should now be mounted on feed cam oil shield ①. Then fix in place oil wick ② using the middle part of oil wick holder ③. The remaining part of the oil wick should be inserted into the hole in the oil reservoir of the main unit of the sewing machine.

#### b) Lubricating the forked rod of the upper knife

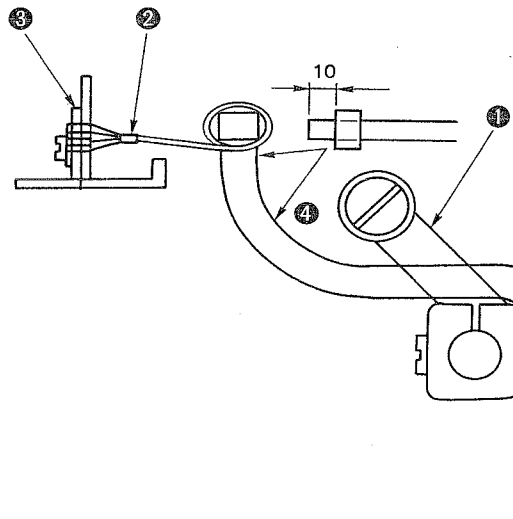


Fig. VI-1-2

Oil reservoir in the bed

Attach oil wick holder ② to bobbin thread guide plate ③ (asm.). Fix the felt ④ in place when it protrudes 10 mm, pass the felt through looper driving lever arm ①, and insert it into the hole in the oil reservoir in the bed.

## 2. Lubricating the oil reservoir

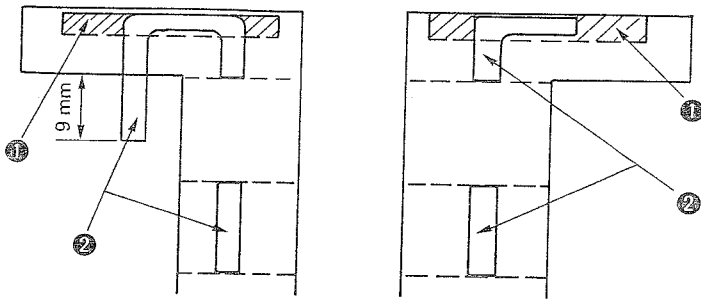


Fig. VI-2-1

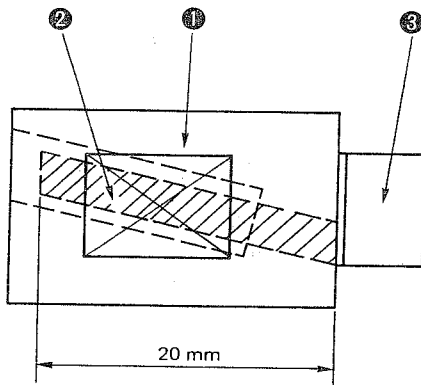


Fig. VI-2-2

- a) Lubricating the metal base and driving rod
- Supply oil into the left- and right-hand side covers. The oil will then be fed to the oil reservoir through felt (1), and then to the components which need to be lubricated using oil wick (2).
  - The oil wick protrudes 9 mm from the left-hand side so that the driving rod can be lubricated.

- b) Lubricating the bearing roller
- Supply oil into the oil hole in adjusting shaft (1). The roller (3) will then be lubricated using oil wick (2). The oil wick should be 20 mm long.

## 3. Supplying oil into the oil hole (for direct lubrication)

Supply oil into the oil holes in the lower knife base and the cloth presser base.

Be sure to lubricate the components stated in 2) and 3) each working day before operating the machine.



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