

ENGLISH

**TC16
INSTRUCTION MANUAL**

Read safety instructions carefully and understand them before using.
Retain this Instruction Manual for future reference.



CAUTION

This Instruction Manual is intended for the TC16. To use this product when it is installed on a machine (sewing machine), make sure to read and fully understand the “IMPORTANT SAFETY INSTRUCTIONS” provided in the Instruction Manual for the machine on which this product is to be installed in advance.

For a clearer view of the TC16 illustrations of the machine (sewing machine) are simplified, and illustrations of some of the safety devices are partially omitted.

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I . SPECIFICATIONS

Applicable model : MF-7500(D)-C11, MF-7500(D)-E11/MD11

Tape width used : Max. 40 mm (finished width)

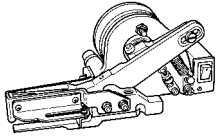

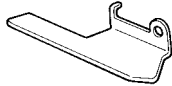
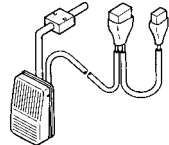
Applicable motor	Name of device	Type
Clutch motor	TC16A	With control box (220 to 440V)
	TC16B	With control box (100 to 240V)
SC-921	TC16C	For servo-motor



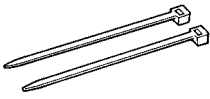
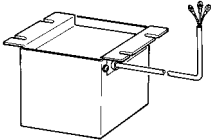
II . INSTALLATION OF THE DEVICE

1. Components of device (components packed together with a single unit of device at the time of delivery)

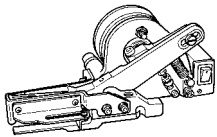

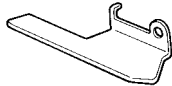
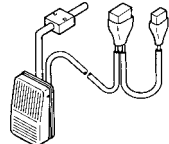
(1) TC16A Type with control box (220 to 440V)



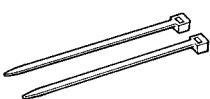
(2) TC16B Type with control box (100 to 240V)

	①	②	③	④
Part No.	40043920	SM6051402TP	40019893	40042221
Description	Tape cutter unit	Tape cutter unit setscrew	Tape guide	Knee switch B (asm.)
				
Q'ty	1	2	1	1

	⑤	⑥	⑦	⑧
Part No.	D2113555B00	SK3514000SC	EA9500B0100	40039579 (TC16A) 40039580 (TC16B)
Description	Cord clamp fittings	Knee switch wood screw	Clip band	Control box
				
Q'ty	2	2	2	1

(3) TC16C Type for servo-motor

	①	②	③	④
Part No.	40043920	SM6051402TP	40019893	40049440
Description	Tape cutter unit	Tape cutter unit setscrew	Tape guide	Knee switch C (asm.)
				
Q'ty	1	2	1	1

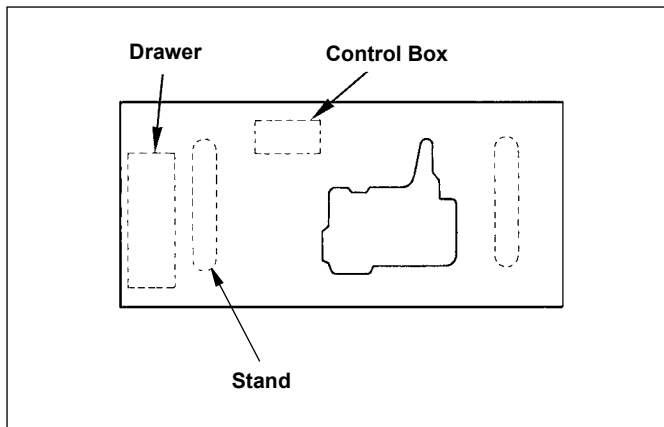
	⑤	⑥	⑦
Part No.	D2113555B00	SK3514000SC	EA9500B0100
Description	Cord clamp fittings	Knee switch wood screw	Clip band
			
Q'ty	2	2	2

2. Installing the control box (for TC16A and TC16B only)



WARNING :

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



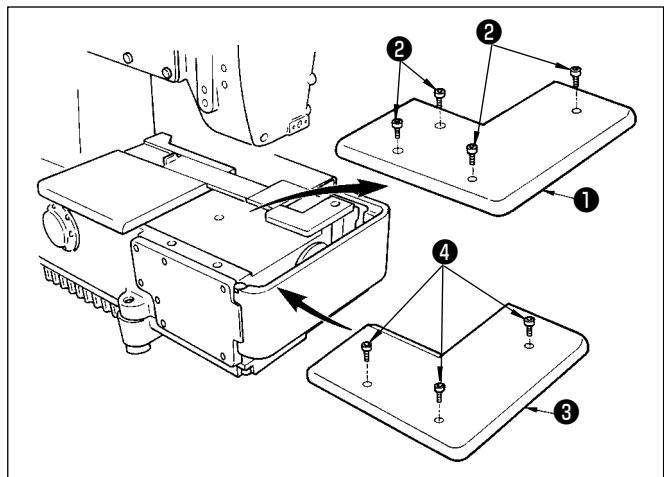
Install the control box on the bottom surface of the table with wood screws supplied as accessories with the unit.

3. Replacing procedure of the cloth plate (left) when installing TC16 after setting up the sewing machine



WARNING :

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



- 1) Loosen four setscrews **2** and remove the standard cloth plate (left) **1**.
- 2) Install cloth plate (left) for tape cutter **3** with three setscrews **4**.

	Part No.	Description
For C11	40019896	TC cover
For E11	70003999	TC cover for subclass

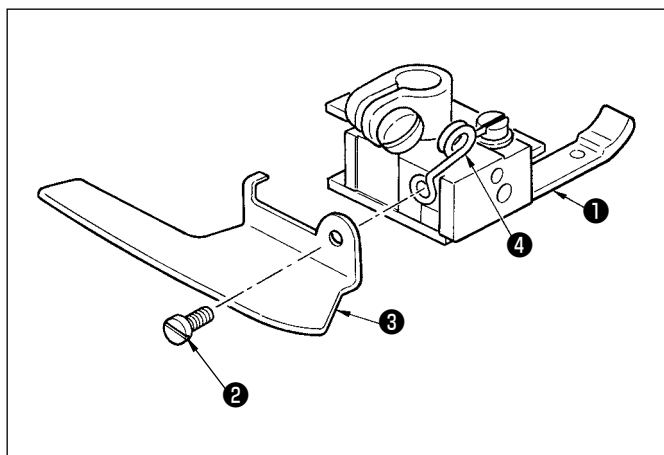
Moreover, use the setscrews of the standard cloth plate (left) **1** for installing.

4. Installing the tape guide (auxiliary presser)



WARNING :

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



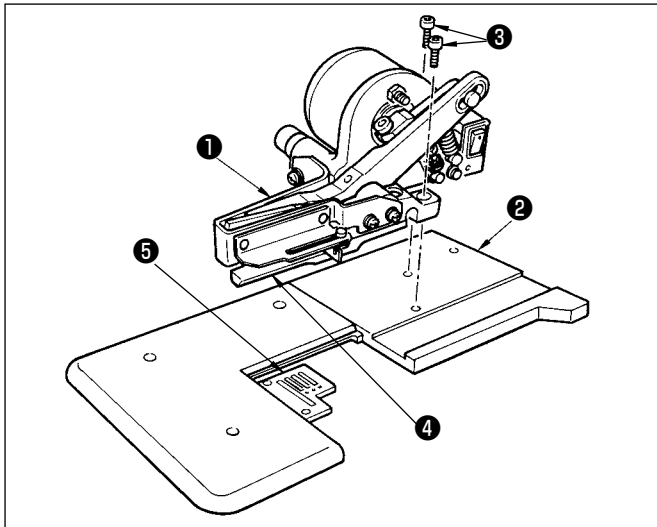
- 1) Remove presser foot **1** from the sewing machine.
- 2) Remove presser spring setscrew **2** and tighten tape guide **3** together with the presser spring. (Install tape guide **3** so that it is placed on presser spring **4**.)

5. Installing the tape cutter unit



WARNING :

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



- 1) Install tape cutter unit ① on cloth plate (right) ② using two setscrews (hexagon socket head bolt M5 14 mm long) ③ supplied as accessories.
- 2) Adjust the whole orientation so that counter knife ④ of the tape cutter comes in parallel contact with rear end ⑤ of the throat plate



Perform the work with care so as not to allow your hands or the like to touch the blade section of the cutter.

6. Connecting the cord

Connecting procedures of the cord are classified in two kinds below. The respective connecting procedures are as shown below.

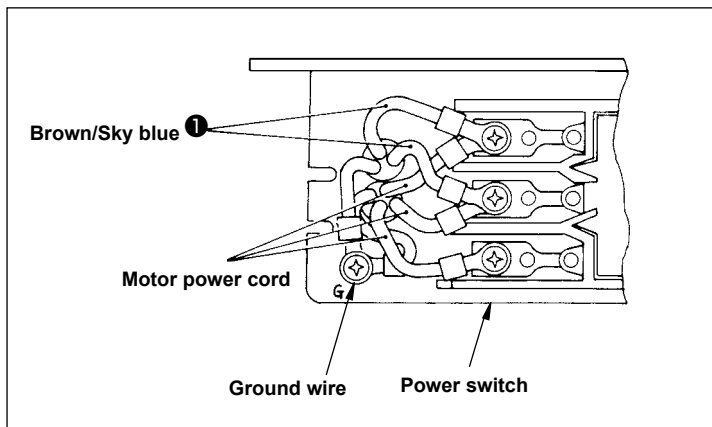
Classification	Name of device	Type
(1)	TC16A	With control box (220V to 440V)
	TC16B	With control box (100V to 240V)
(2)	TC16C	For servo-motor

(1) TC16A,TC16B (with control box) types



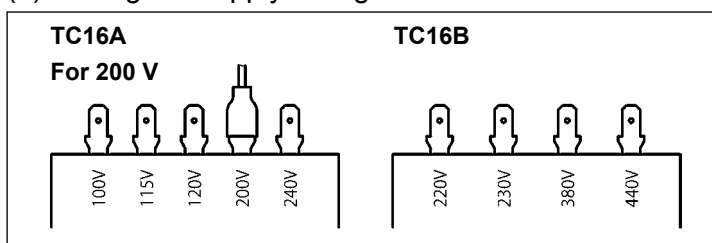
WARNING :

Draw out the power plug before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.

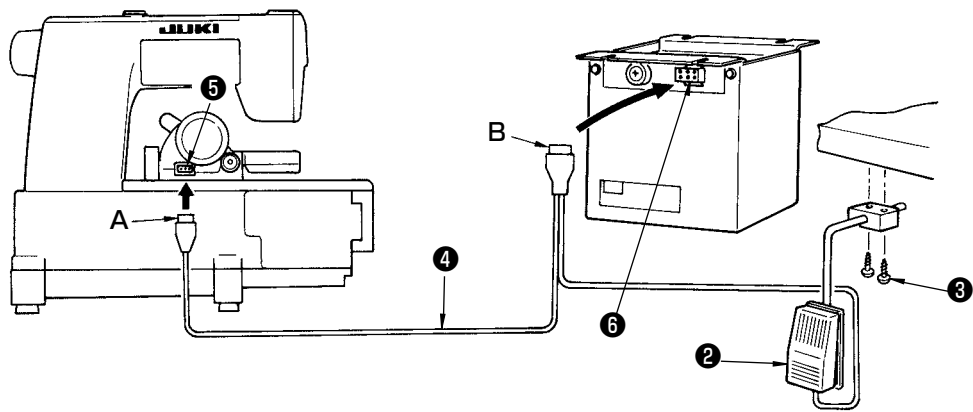


Connect power cords ① of the control box together with the motor power cords to the secondary side of the power switch after confirming the electrical specifications of the rating plate attached to the control box.

(2) Setting the supply voltage



Change round the transformer terminals according to the supply voltage to be used.



A : 3P connector
B : 6P connector

Install knee switch ② on the bottom surface of the table using wood screws ③ (SK3514000SC) supplied as accessories, and connect relay cord ④ to control box ⑥ and cutter unit ⑤.

6P connector (relay cord) / control box ⑥

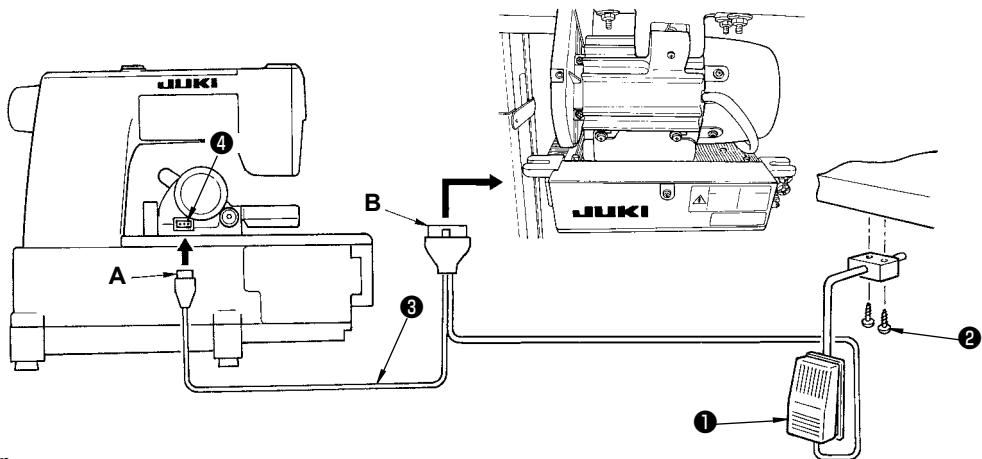
3P connector (relay cord) / tape cutter unit ⑤

(3) TC16C (for servo-motor) type



WARNING :

Draw out the power plug before starting the work so as to prevent accidents caused by abrupt start of the sewing machine.



A : 3P connector
B : 14P connector

Install knee switch ① on the bottom surface of the table using wood screws ② (SK3514000SC) supplied as accessories, and connect relay cord ③ to CN36 connector of SC-921 and cutter unit ④.

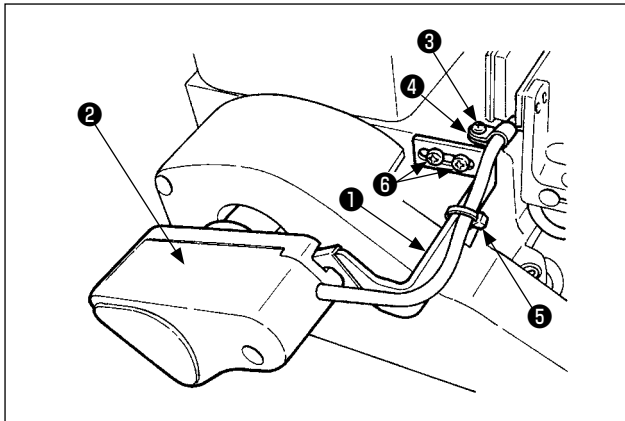
14P connector (relay cord) / CN36 connector of SC-921

3P connector (relay cord) / tape cutter unit ④

7. Installation and setting SC-921 (for TC16C only)

For the details of installation of SC-921, refer to the Instruction Manual for SC-921.

(1) Installing procedure



1) Referring to the Instruction Manual supplied with the SC-921, connect the SC-921 control box to the M51N motor.

2) Installing procedure of the synchronizer

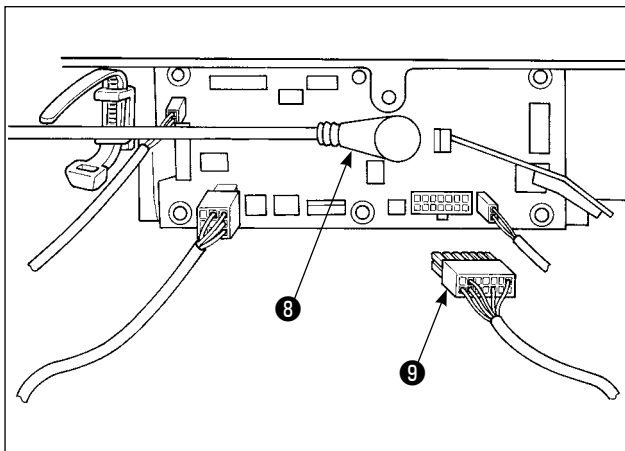
Attach synchronizer fixing bracket **1** on the sewing machine with two setscrews **6** to install synchronizer **2**. Secure the cord of the synchronizer on synchronizer fixing bracket **1** with clip band **5**. Fix the cord at the position as shown in the illustration with cord clamp **4** and setscrew **3**.

* Refer to the Instruction Manual for the MF-7500 for how to attach the belt cover.

3) Installing procedure of the exclusive cord for MF

Connect the exclusive cords for MF to the respective designated connectors as follows.

- Synchronizer cord **8** / CN33
- TC cord **9** /CN36



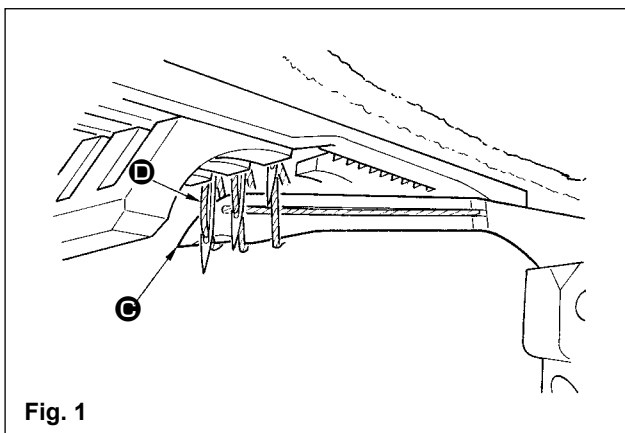
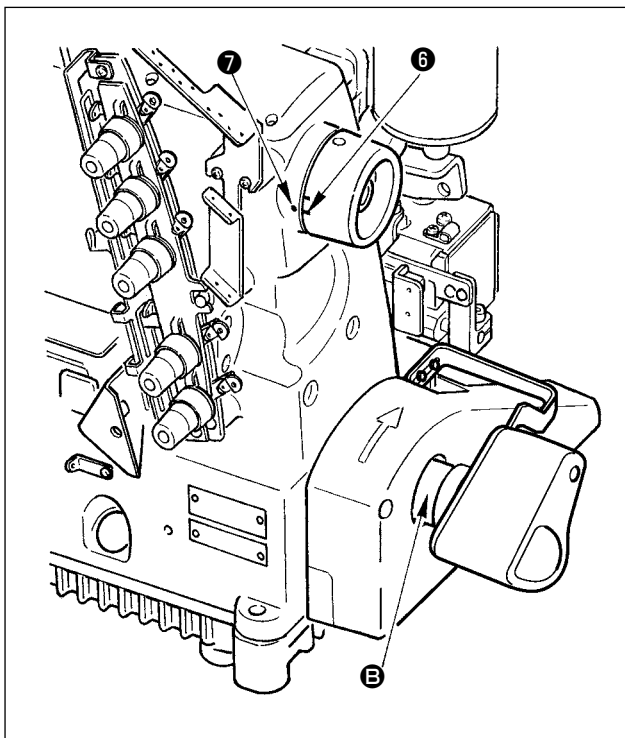
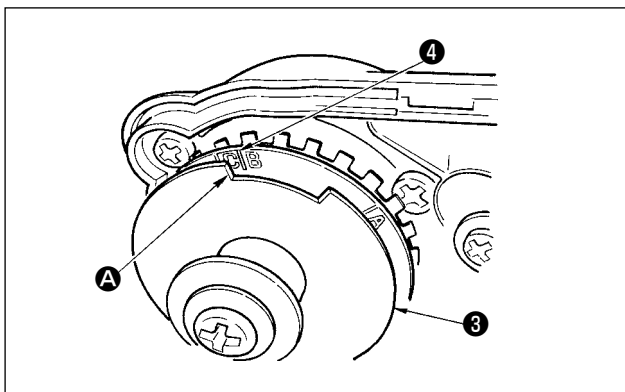
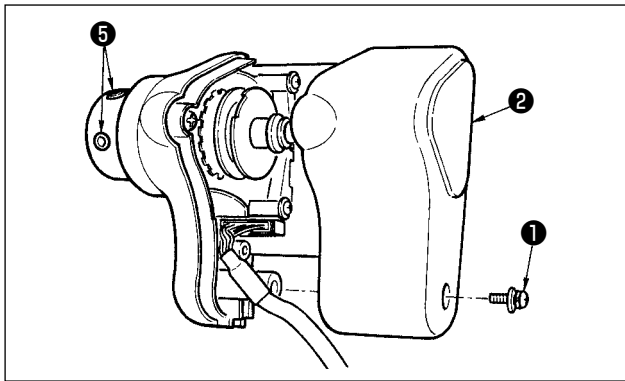




Fig. 1

4) Adjusting the synchronizer

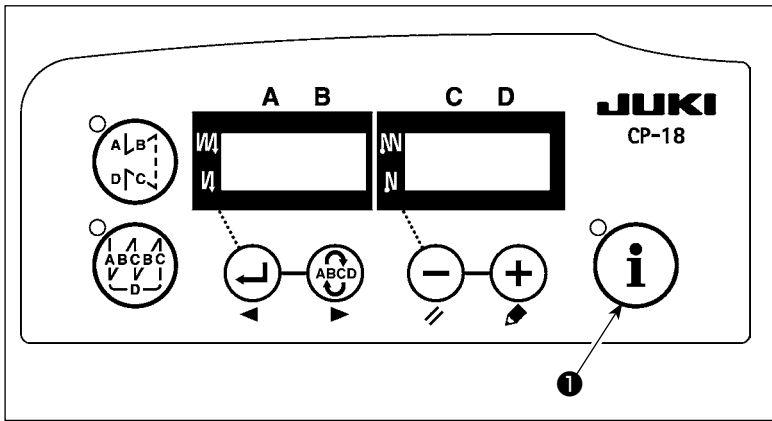
WARNING :
 To protect against possible injury to hands or fingers due to abrupt start of the machine during performing adjustment, perform the adjustment of the stop position under the function setting mode.

1. Loosen screw ① and remove cover ②.
2. Turn disk ③ on this side by hand, and adjust the adjusting mark "B" of disk ④ in the rear to edge A of disk ⑤.
3. Temporarily tighten the synchronizer to the lower main shaft handwheel with screw ⑤.
4. When the power is turned ON, the sewing machine turns approximately by one half and stops.
5. Turn OFF the power, and loosen screw ⑤.
6. Holding B section of the synchronizer so as not to move, turn the upper main shaft handwheel, adjust mark ⑥ of the handwheel to the position where mark ⑦ on the machine head side aligns with it, and temporarily tighten screw ⑤.
7. Again, turn ON the power, and confirm that the sewing machine stops at the position where mark ⑥ of the handwheel aligns with mark ⑦ on the machine head side. Then tighten screw ⑤.
8. After the adjustment, be sure to attach cover ② and tighten screw ①.
9. After the adjustment above has been performed, when the sewing machine stops at the DOWN position, top end C of the looper is located at the position where it has scooped loop D of left needle thread as shown in the figure 1.

When using the synchronizer as UP/DOWN stop position type without using the thread trimmer device, change the setting of the function setting No. 74 to "1 (thread trimming) / 0 (UP/DOWN position)". Thread trimmer safety device error occurs unless the setting is changed, and it is impossible to operate the sewing machine. So, be careful.

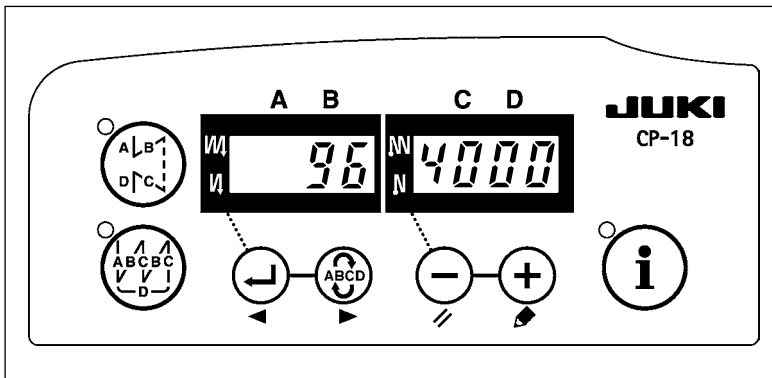


(2) Change of the setting



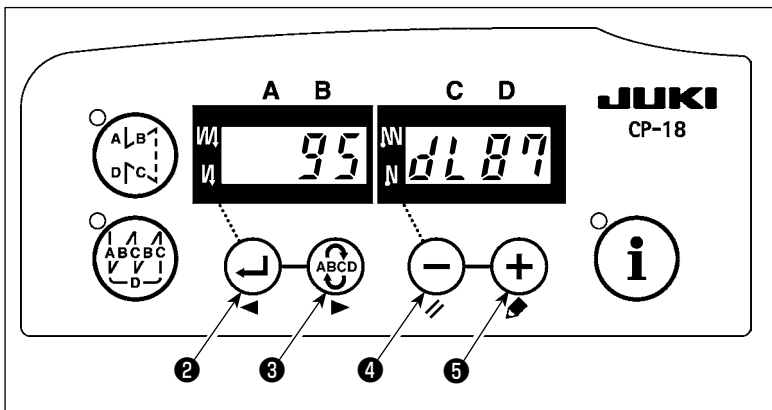
[Adjusting procedure]

- 1) Turn the power OFF.
- 2) Pressing switch ①, turn ON the power.

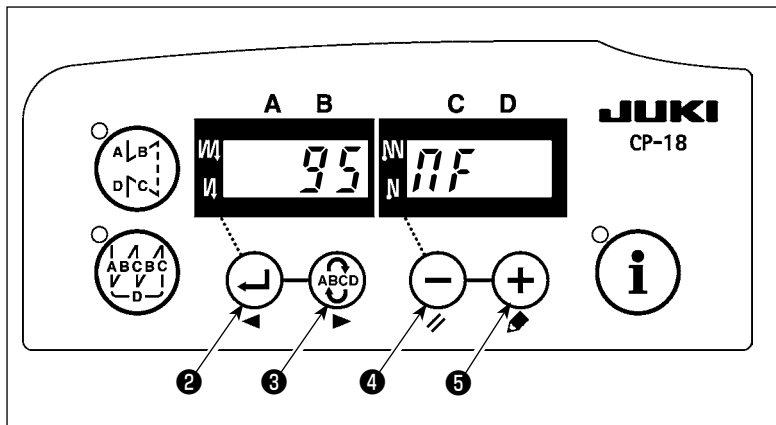


- 3) The screen display is as shown in the figure. (In the case the screen display does not change, re-carry out the steps of procedure 1) and 2).)

Caution: If you have already set another number and data, the last number and the data you have set are displayed.

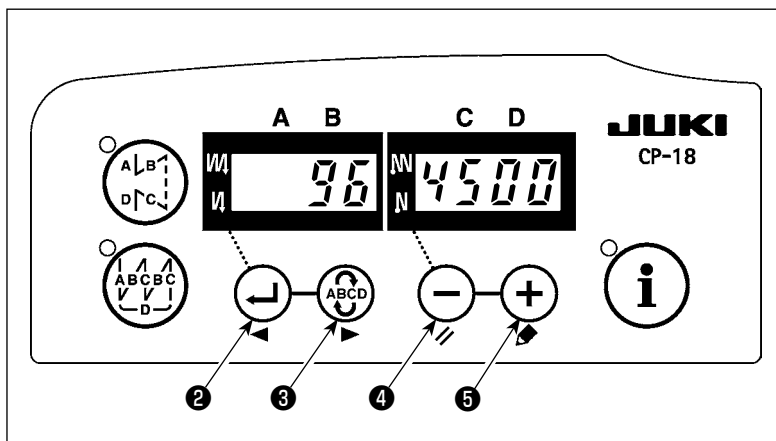


- 4) Press switch ② or ③ to activate the display (No. 95) shown in the figure.



- 5) Change type of the machine head by pressing \ominus switch ④ (or \oplus switch ⑤). Then select dL87 → MFS1 or MF.

Machine head	Display of option	Factory-set sewing speed sti/min	Maximum sewing speed sti/min
MF-7500D-C11	MFS1	4000	5000
MF-7500D-E11			
MF-7500(D)-E11/MD11			
MF-7500-C11	MF	4500	6500



- 6) After selecting the type of machine head, by pressing \leftarrow switch ② (\rightarrow switch ③), the step proceeds to 96 or 94, and the display automatically changes to the contents of the setting corresponding with the type of machine head.



When you have changed the machine head type, the previous settings are restored to the standard ones.

Turn the power OFF.



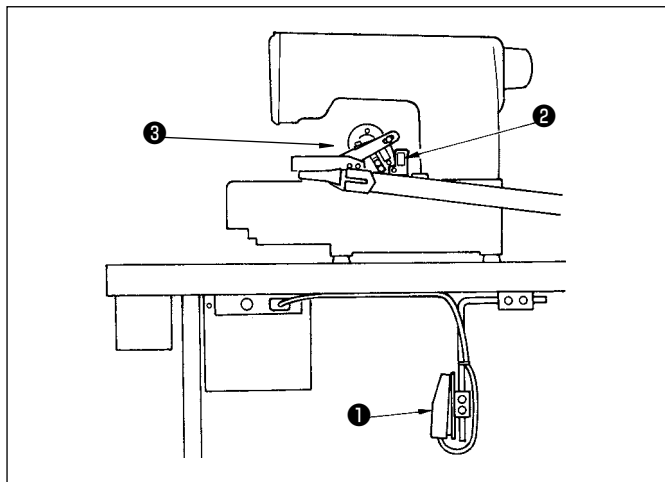
Be aware that the setting changes you have made will not take effect if you turn the power OFF without carrying out the confirmation operation.

III . OPERATION



WARNING :

Do not place hands, fingers, etc. within the operating range of the tape cutter when the power is turned ON so as to prevent accidents caused by abrupt start of the sewing machine.
In addition, do not use the tape cutter unit with safety cover and the like removed.



Press knee switch ① when cutting the tape at the start or the end of sewing. The moving knife of the cutter comes down and the tape is instantly cut. (Cut width is possible up to 40 mm.)

Besides, when performing sewing without using tape cutter ③, turn OFF (press to the lower side) cutter motion switch ② located on the right side of tape cutter unit , and tape cutter ③ does not operate even when the knee switch is pressed. This action can prevent tape cutter ③ from being carelessly operated by the wrong operation.



For safety sake, turn OFF cutter motion switch ② when tape cutter ③ is not used.

VI . ADJUSTMENT OF COMPONENTS

Standard adjustment of assembling adjustment of the tape cutter mechanism components has been performed at the time of delivery. However, when performing assembling due to the replacement of components or the like, perform the adjustment with the dimension value below.



Perform the adjustment work by the maintenance engineers who are familiar with the sewing machine and trained for the safety so as to prevent accidents caused by unfamiliarity or wrong adjustment.

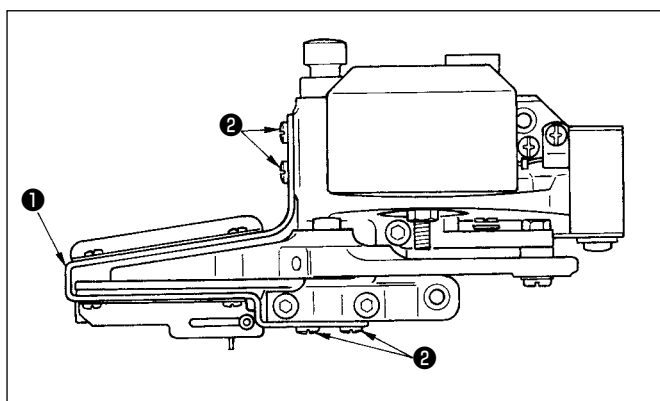
1. Replacing the moving knife or the counter knife



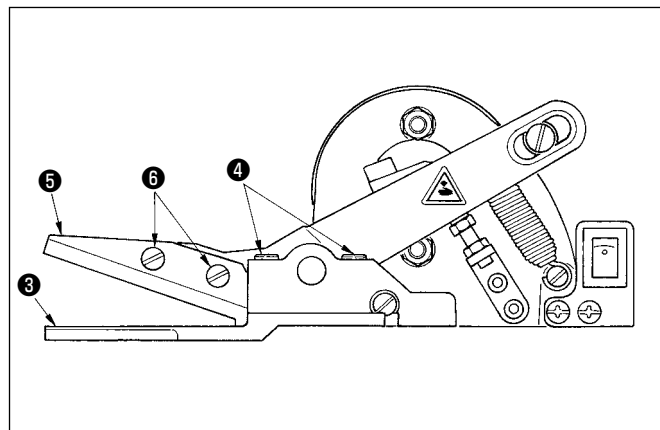
WARNING :

Do not place hands, fingers, etc. within the operating range of the tape cutter when the power is turned ON so as to prevent accidents caused by abrupt start of the sewing machine.
In addition, do not use the tape cutter unit with safety cover and the like removed.

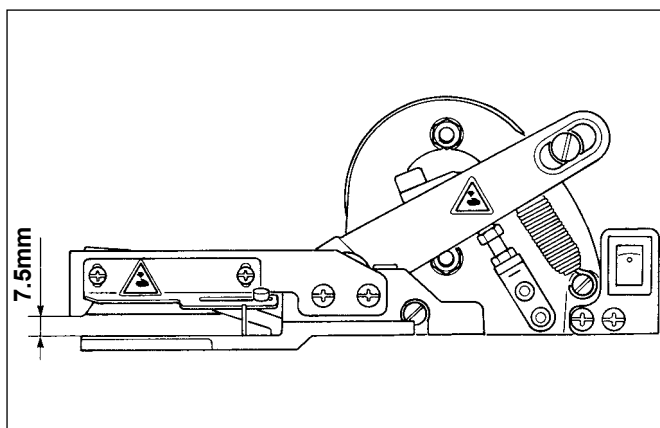
When the moving knife or the counter knife is worn out and replacement is necessary, perform the replacement by the procedure below.



- 1) Remove the whole of tape cutter unit from the sewing machine.
- 2) Loosen four setscrews (2) and remove the whole of safety cover (1).



- 3) Loosen two setscrews (4) and replace counter knife (3).
- 4) Loosen two setscrews (6) and replace moving knife (5).



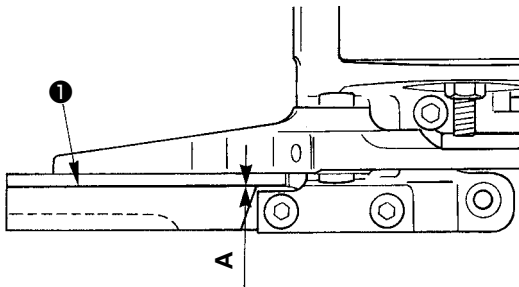
- 5) Install safety cover (1) in its home position.
In addition, adjust the dimension of the height of the cover as shown in the illustration on the left side.

2. Adjusting the angle of the counter knife

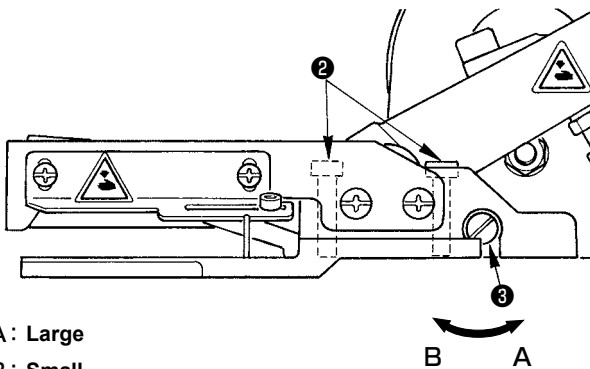


WARNING :

Do not place hands, fingers, etc. within the operating range of the tape cutter when the power is turned ON so as to prevent accidents caused by abrupt start of the sewing machine.
In addition, do not use the tape cutter unit with safety cover and the like removed.



A : Less than 0.1 mm



A : Large
B : Small

To improve the sharpness of the cutter, it is necessary for the moving knife to engage with the counter knife slightly slantwise.

It is the standard that there is a clearance of less than 0.1 mm at the root of plane of engagement ①

- 1) Slightly loosen two setscrews ② in the counter knife (temporarily tightened state) and turn adjustment screw ③ for adjustment.
- 2) When turning adjustment screw ③ counterclockwise, the angle of counter knife in terms of the moving knife is increased and the knives are set to the state that they engage with each other more slantwise.



When the angle to engage with each other slantwise is large, the initial sharpness is improved. However, on the contrary, the blade section is quickly worn out, and the knives are put in the state of poor lasting quality.

Accordingly, make the angle of engagement as small as possible within the range where the tape can be cut.

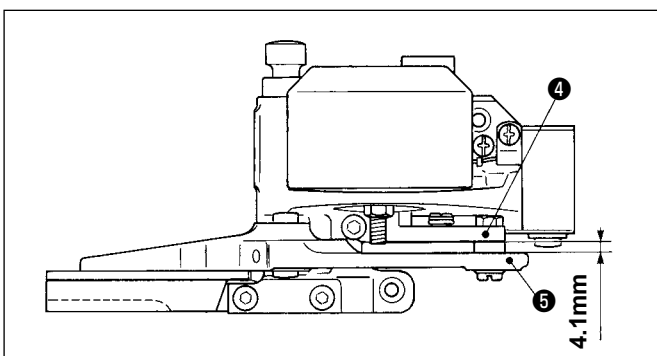
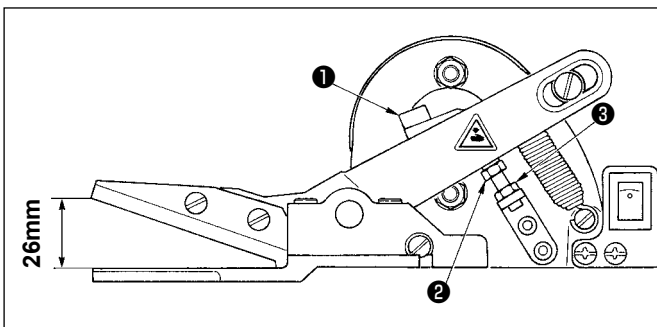
3. Adjusting the lift height of the moving knife



WARNING :

Do not place hands, fingers, etc. within the operating range of the tape cutter when the power is turned ON so as to prevent accidents caused by abrupt start of the sewing machine.
In addition, do not use the tape cutter unit with safety cover and the like removed.

The lift height of the moving knife has been factory-adjusted at the time of delivery. However, when performing the replacement of the rotary solenoid or the like, perform re-adjustment by the procedure below.



- 1) Remove the safety cover.
(For the replacing procedure of the safety cover, refer to "**IV. ADJUSTMENT OF COMPONENTS**" p.11.)
- 2) Loosen solenoid lever clamp screw ①.
- 3) Loosen lock nut ③ of stopper bolt ②.
- 4) Turn stopper bolt ②, and adjust the height of the moving knife to 26 mm from the counter knife.
- 5) Fix lock nut ③ of the stopper bolt.
- 6) Adjust the longitudinal position so that the clearance between solenoid lever ④ and TC lever ⑤ is 4.1 mm and fix the position with clamp screw ①.



Interference of components occurs and the cutter fails to properly work when it works unless the clearance between solenoid lever ④ and TC lever ⑤ is correctly adjusted.

- 7) Install the safety cover in its home position.

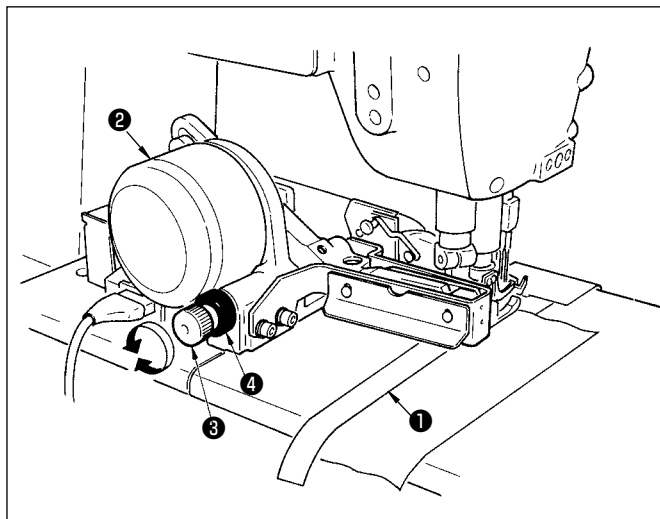
V . TEST CUT



WARNING :

Do not place hands, fingers, etc. within the operating range of the tape cutter when the power is turned ON so as to prevent accidents caused by abrupt start of the sewing machine.
In addition, do not use the tape cutter unit with safety cover and the like removed.

Perform the test cut of the tape cutter by the procedure below using the material for testing before entering sewing of the products.



- 1) Sew tape ① on the material for testing.
 - 2) Press the knee switch to actuate tape cutter ② and check that the tape is smoothly cut.
 - 3) When the condition of cutting is not good, it is necessary to adjust the pressing pressure of the cutter. Loosen lock nut ④ of adjustment screw ③ and perform the adjustment of the pressing pressure.
- * **Pressing pressure of the cutter is increased when adjustment screw ③ is screwed up.**



Initial sharpness is improved when the pressing pressure of the cutter is high. However, on the contrary, the blade section is quickly worn out, and the cutter is put in the state of poor lasting quality. Accordingly, make the pressing pressure as low as possible within the range where the tape can be cut.

- * **Standard adjustment value is the pressing pressure of 30 N when measuring with the spring balancer.**

In addition, when the condition of cutting is not good even when adjusting the pressing pressure of the cutter, perform the adjustment of the angle of counter knife.

(Refer to "[IV. ADJUSTMENT OF COMPONENTS](#)" p.11.)