

INSTRUCTIONS

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W500/UT

Thread Trimming Mechanism for
Flat Bed Interlock Stitch Machine
平型偏平縫ミシン用糸切り装置

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INTRODUCTION

This manual contains the operating and servicing instructions of the Thread Trimming Mechanism used on the W500/UT machine.

For other instructions, refer to the W500/UT instruction manual.

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GENERAL DESCRIPTION

The W500/UT machine is driven by an electromagnetic clutch type needle positioning motor. The micro-processor based precision controller controls needle positioning, thread trimming, thread wiping and foot lifting.

Pressing the pedal backward at the end of sewing causes the looper thread to be cut off under the needle plate. Then, the wiper takes out the needle threads from the presser foot, and the presser foot lifts. The presser foot can be moved up or down by pedal action at the start of sewing.

COMPONENTS AND MOTOR

The W500/UT machine consists of a foot lifter, motor and W500/UT machine equipped with the thread trimming mechanism. The standard motor is MITSUBISHI LIMI-STOPZ. Various motors suitable for the voltage and phase are provided for use as listed in Table 1.

IDENTIFICATION

The machine is shown by the machine type, gauge and the UT device type number. Between them is a slash /.

Example: W500-01CA x 232/UT103

W500/UT ORGANIZATION CHART

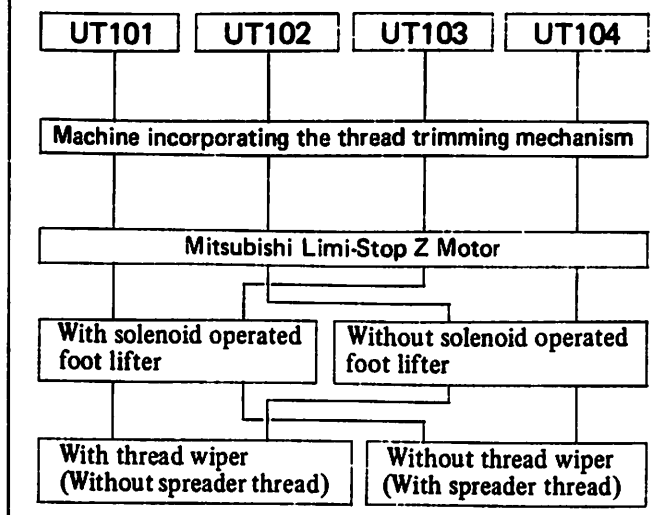


Table 1

VOLTAGE	PHASE	PART NO.
100V	1	802044 - 91
200V	3	802045 - 91
220V	3	802046 - 91
240V	3	802047 - 91
380V	3	802048 - 91
415V	3	802049 - 91
220V	1	802050 - 91
240V	1	802051 - 91

See page 45.

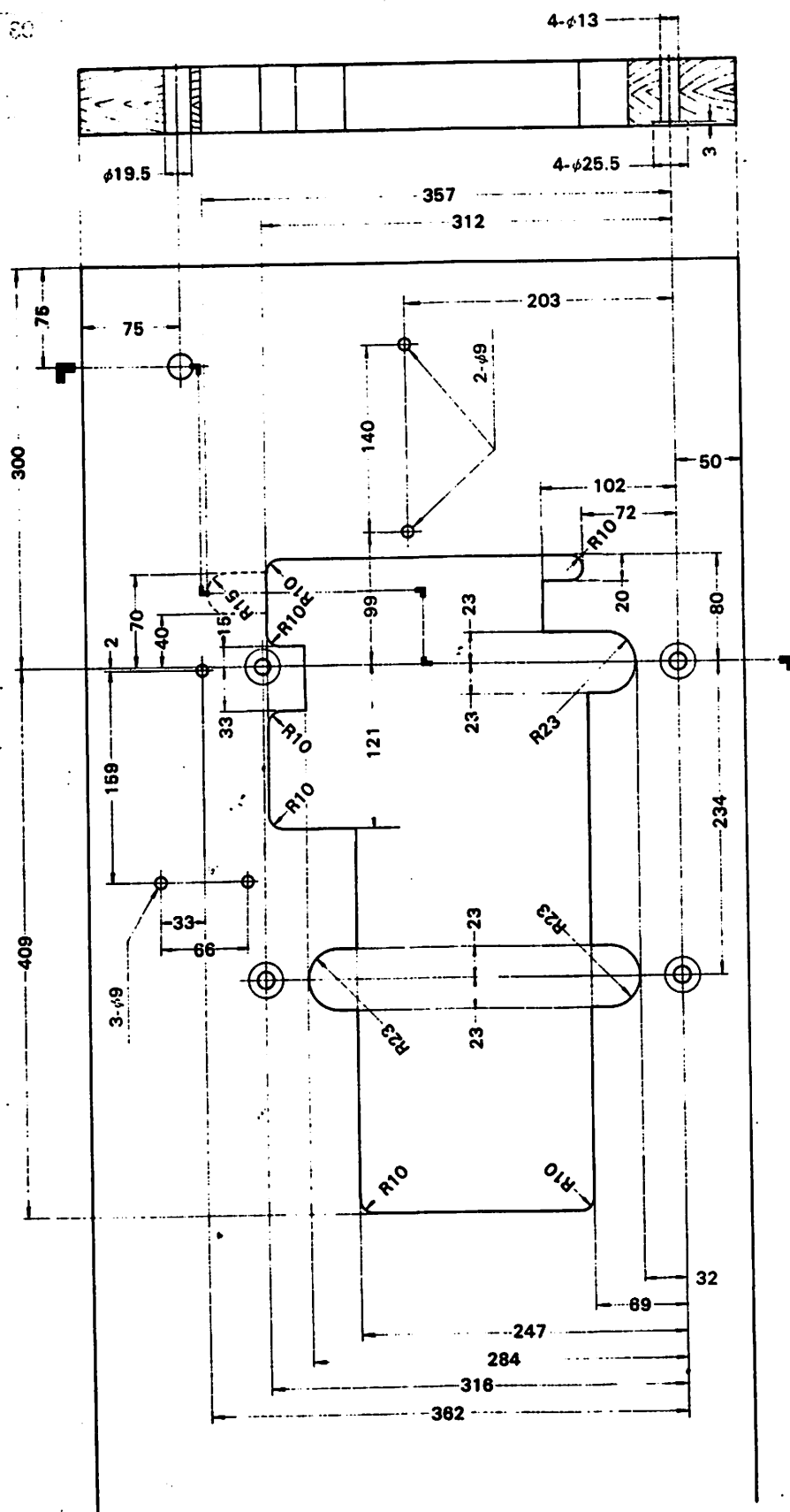


TABLE CUTTING AND MACHINE REST BOARD ASSEMBLY

For W500/UT machine, semi-submerged installation is adopted.

Refer to Fig. 1 and cut the table.

Refer to Fig. 2 and assemble the machine rest board ① ~ ⑬ in sequence.

NOTE:

- For W500/UT machine, a table of thickness 50mm is recommended.
- For the table of thickness 50mm, Washer ⑨ is unnecessary.
- For the table of thickness 47mm or smaller, use Washer ⑨.

DRIVING MOTOR PULLERY AND BELTING

The machine should use a motor and belt of the following specifications.

- Motor: Clutch motor, 2 pole, 550 watts.
- BELT: V belt, Type M
- Motor pulley: Select an appropriate pulley referring to Table 2.

Relation between Machine Speed and Motor Pulley Table 2

Machine speed (s. p. m.)	Motor pulley diameter (mm)	
	60 Hz	50 Hz
6,000	105	125
5,500	95	115
5,000	85	105
4,500	80	95
4,000	70	85

NOTE

- The motor pulley mounting shaft for W500/UT machine is tapered. Accordingly, refer to Fig. 3 and use the tapered hole motor pulley.

Fig. 2

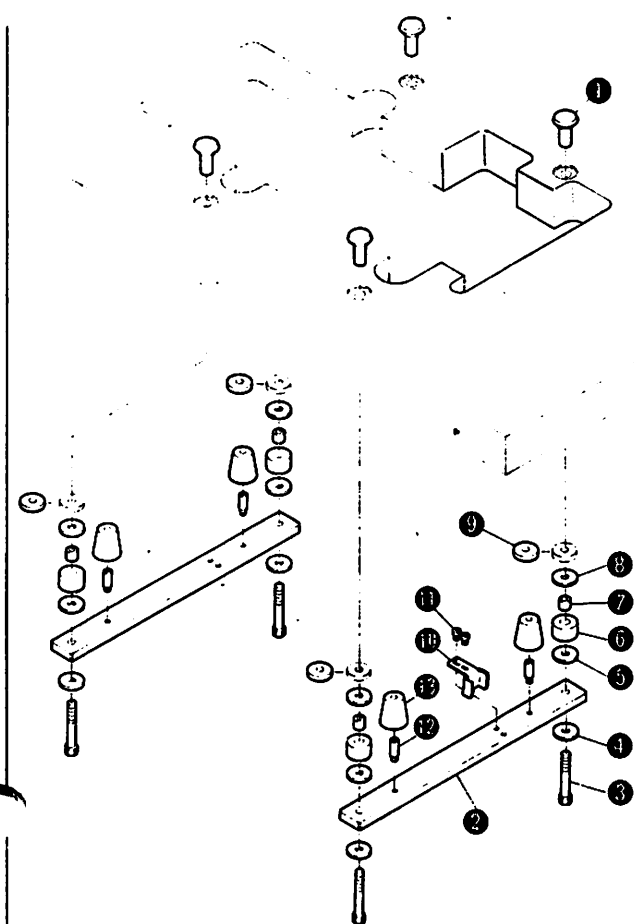
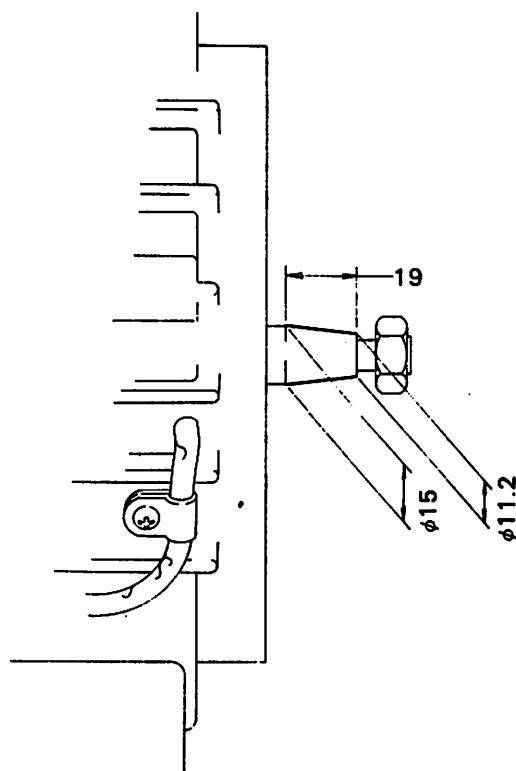


Fig. 3



POSITION DETECTOR (Fig. 4)

1. Remove Screw ①.
2. Refer to Fig. 4, and install ② and ③ in sequence.
(Fix Screw with Pin ② with Nut ③.)

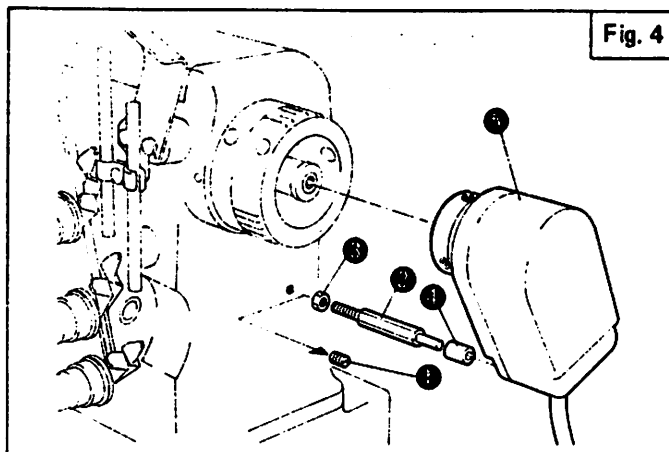


Fig. 4

SOLENOID OPERATED FOOT LIFTER (Figs. 5,6)

Refer to Figs. 5, and 6, and install parts ⑥ to ⑨, and ⑩ to ⑬ in sequence.

- Loosen Nut ⑬ and adjust the stroke S.
Setting distance "A" to 28 mm provides standard stroke.
- Adjust Pitman Rod ⑪ so that Foot Lift Lever ⑫ has a little play.

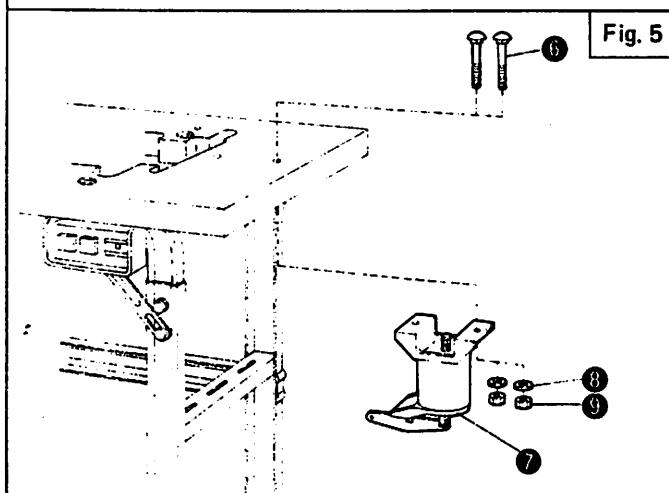


Fig. 5

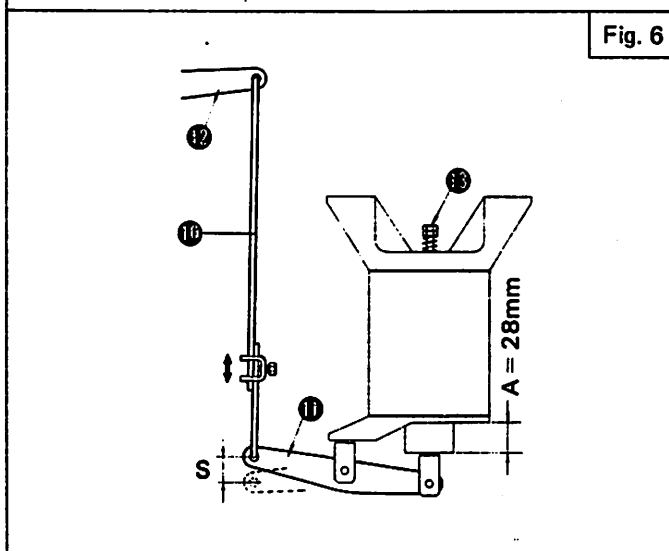


Fig. 6

Fig. 7

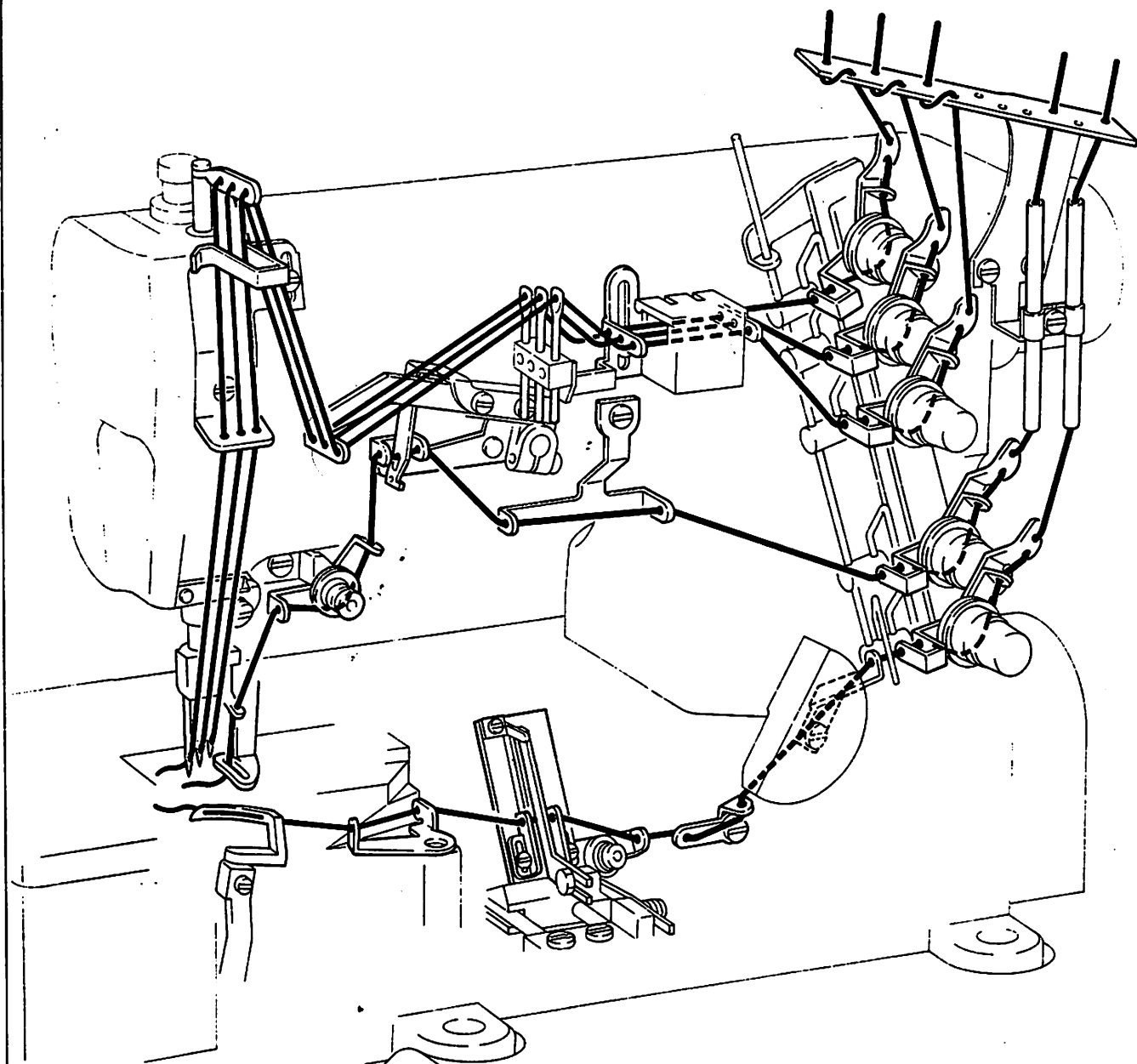


Fig. 8

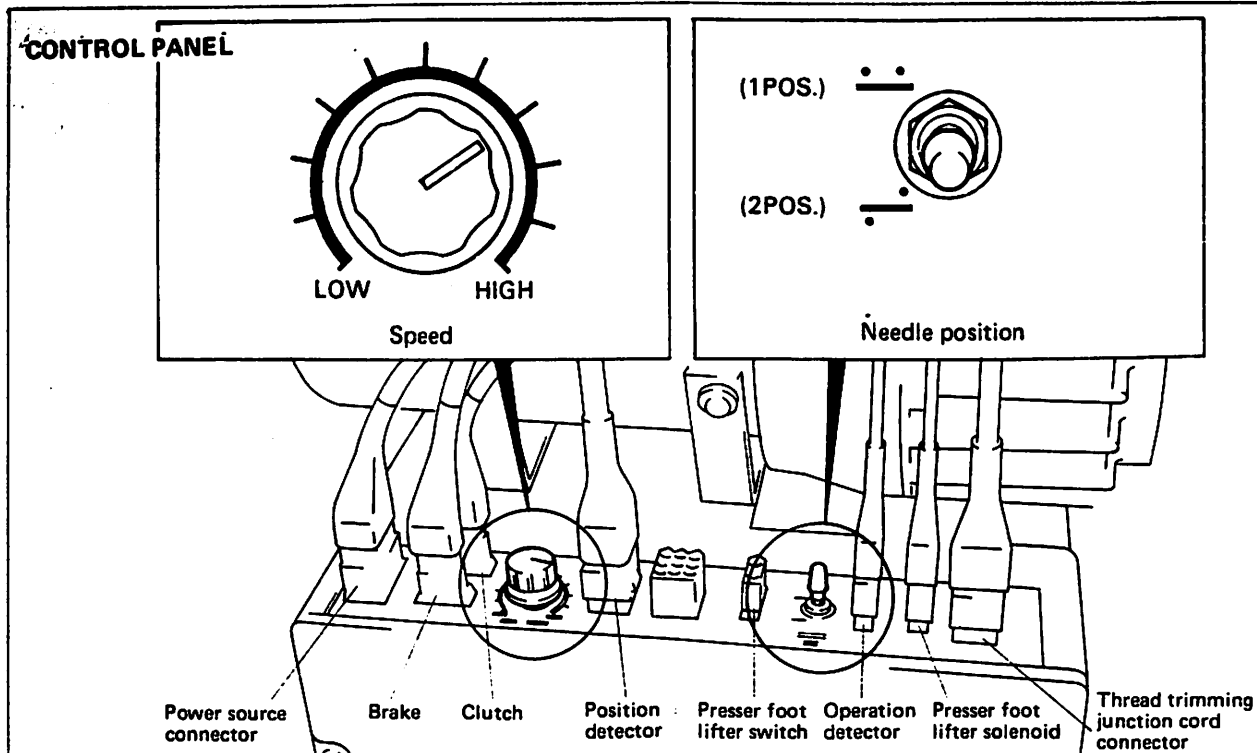
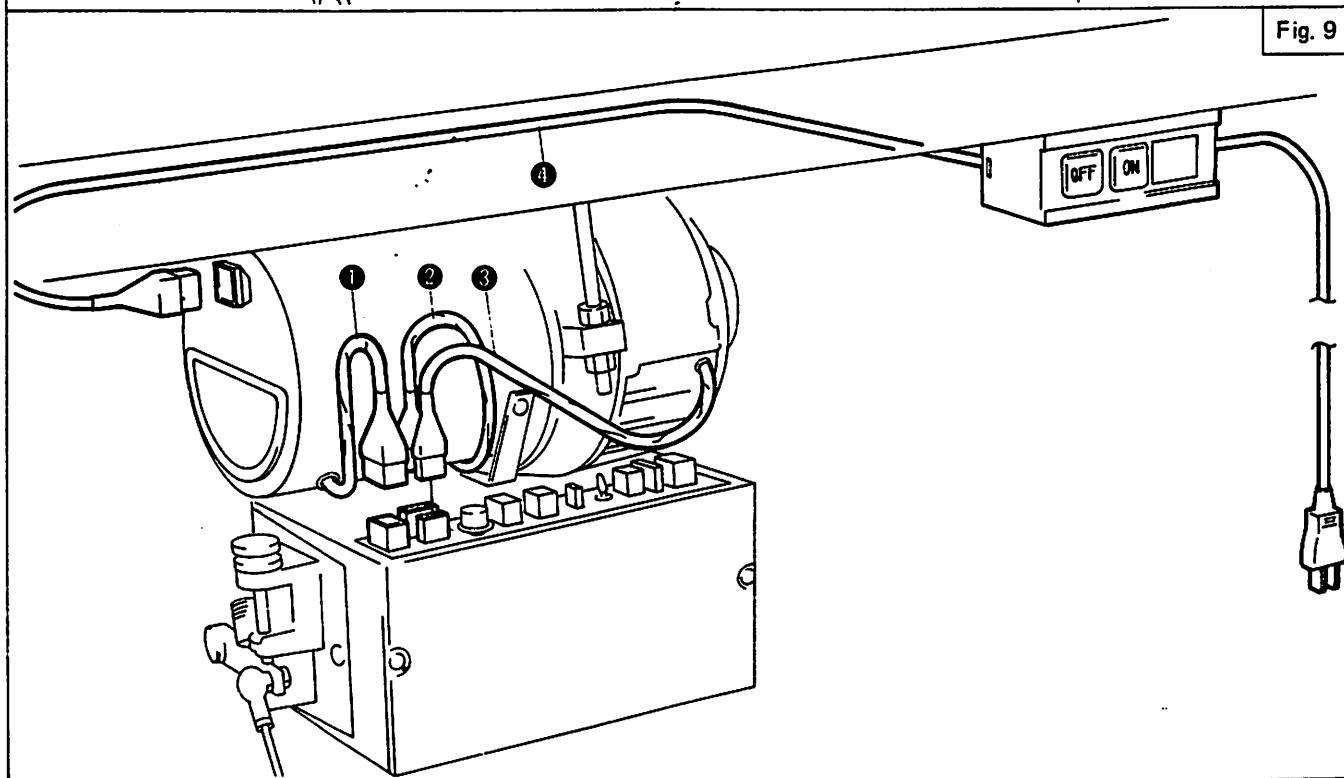


Fig. 9



CORD CONNECTION

NOTE

- Be sure to extend earth (ground) wire from the motor and machine to a good ground.
- Do not connect Thread Trimming Junction Cord ⑦ until the highest/lowest needle stop positions have been set by the synchronizer.
- Set the POS switch on the controller to "2POS" (—).

CONNECTING STEPS (Figs. 8 ~ 10)

1. Insert Connectors ①, ②, and ③ of the motor into the controller.
2. Insert Power Switch Connector ④ into the motor.
3. Insert Synchronizer Connector ⑤ into the controller.
4. Insert Safety Detector Junction Cord Connector ⑥ into the controller, and Connector ⑦ into the synchronizer.

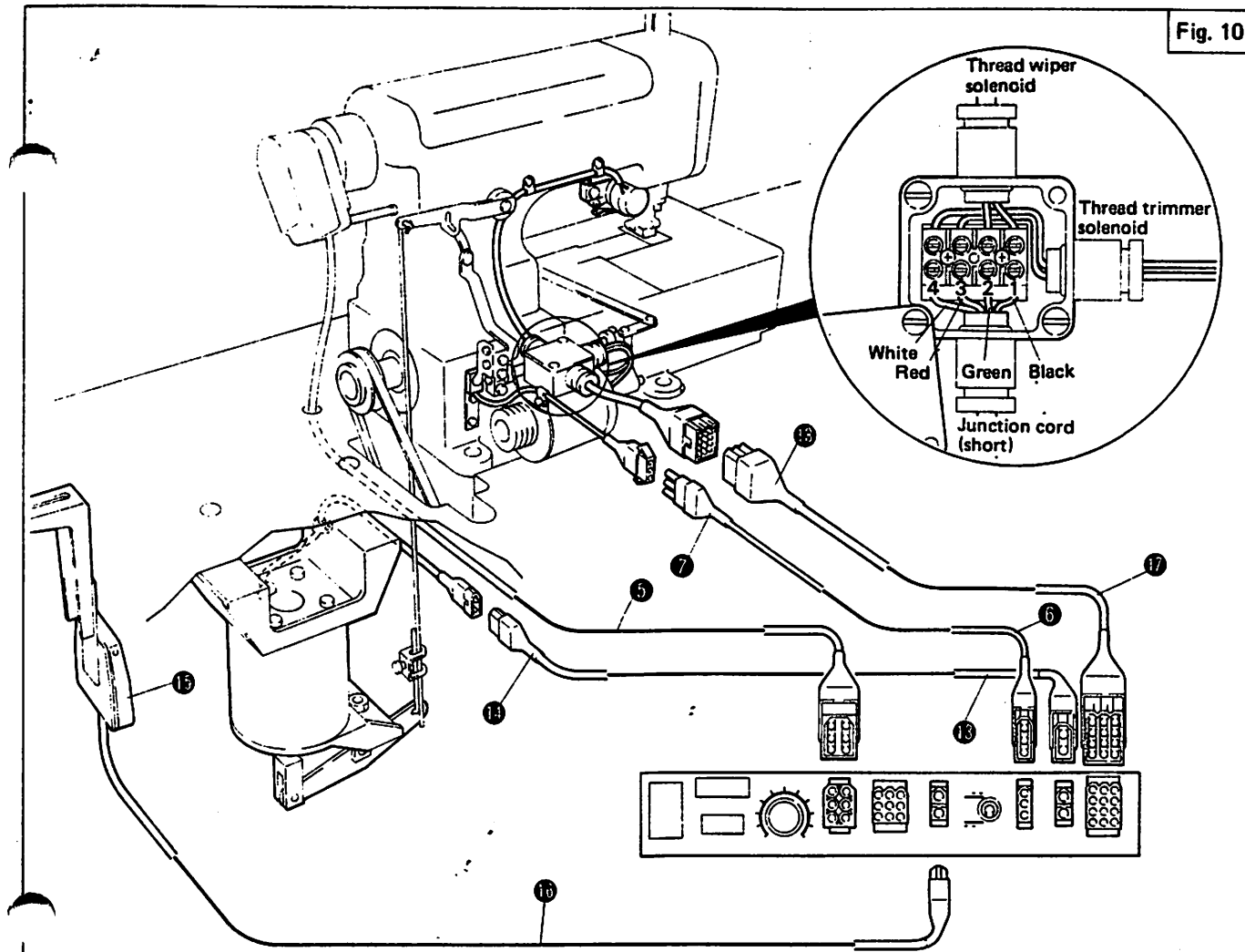


Fig. 10

5. Turn the power switch on. Press the pedal a little and check the direction of rotation of the machine. If the machine runs in reverse, re-insert Power Connector ④ upside down. Turn the power switch off.

6. To set the needle stop position (Fig. 11)

1) Remove Cover ⑧ and loosen Screw ⑨.

2) To set the upper dead point of needle:

Line up the part A of Upper Position Detecting Plate ⑩ (inside, black color) with the center of Sensor Baseplate ⑪, and stop it at the upper dead point of the needle.

If the P mark of the hand wheel and the ● mark of the arm do not agree, fix the upper position detecting plate, turn the handwheel to line up the P mark with the ● mark, and tighten Screw ⑨.

3) To set the lower dead point of needle:

Line up the part B of Lower Position Detecting Plate ⑫ (outside, red color) with the center of Sensor Baseplate ⑬.

In this case, Screw ⑨ need not be loosened.

Adjust first from the upper dead point of needle.

4) Turn the power switch on, and press down the pedal. Return the pedal to the neutral position, and the needle stops at its lower dead point. By

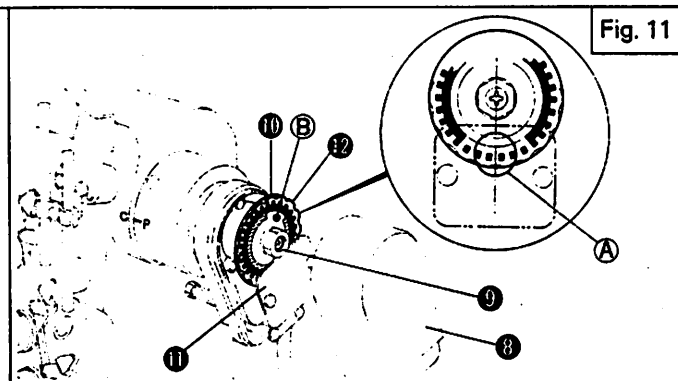


Fig. 11

further pressing down the pedal, the needle stops at its upper dead point. Then, check that the P mark on the handwheel is lined up with the ● mark on the arm.

7. Insert Connector ⑮ of Presser Foot Lift Junction Cord into the controller. Insert the other Connector ⑭ into the solenoid.

8. When using Presser Foot Lift Switch ⑮ (option), insert Connector ⑮ into the controller.

9. Insert Connector ⑰ of the thread trimming junction (long) into the controller and the other Connector ⑱ into the relay cord (short) side.

• For connection inside the terminal box, refer to the detailed drawing.

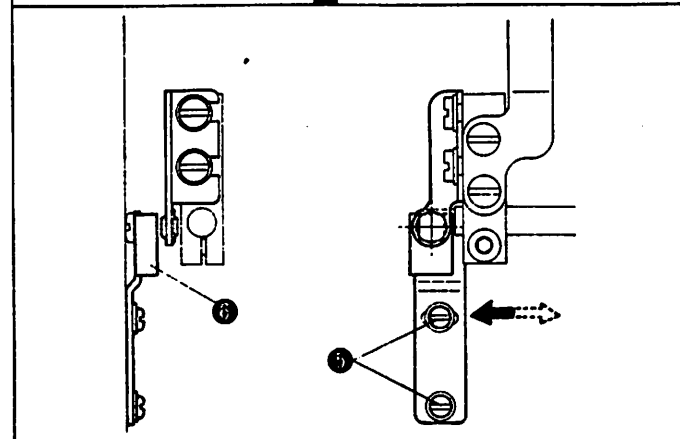
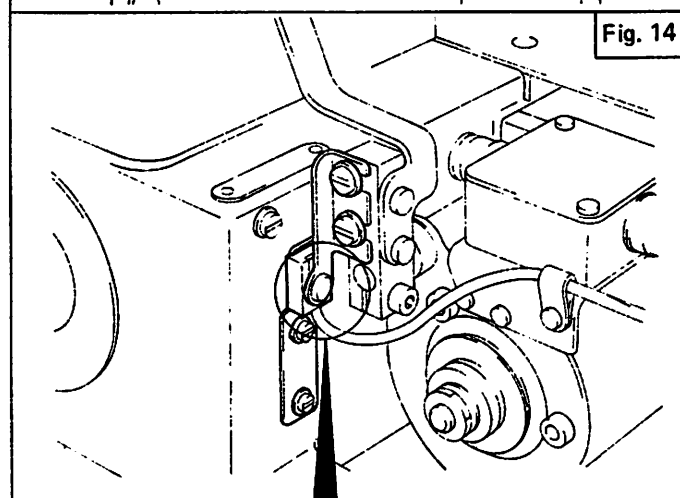
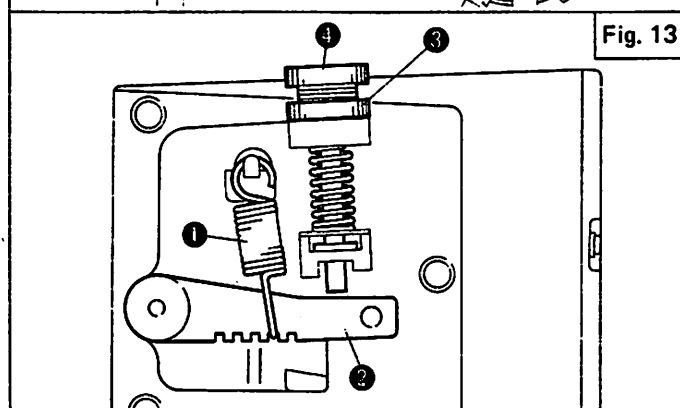
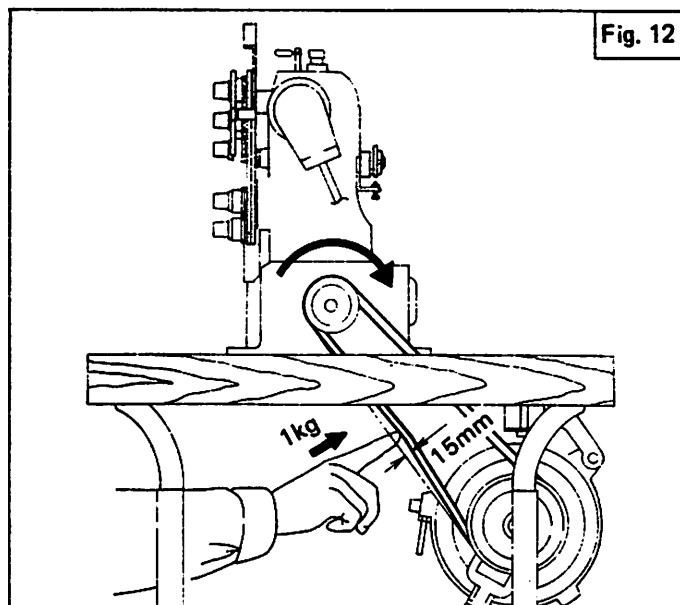
CAUTION (Figs. 12, 13)

1. Keep the belt tension correct. Adjust it so that a 1 kg force on the center of the belt allows a deflection of about 15 mm.
 - Excessive belt tension may overload the machine and motor.
 - Insufficient belt tension may cause the belt to slip, and the needle may not stop correctly.
2. To adjust pedal pressing force:
Pedal pressing weight can be adjusted by changing the position of hooking Tension Lever ① on Lever ②.
 - Insufficient spring tension may cause the lever stopping position unstable and lead to malfunction.
3. To adjust pedal pressing forward force:
Loosen Nut ③, and turn Bolt ④ to adjust the spring pressure.
Then, tighten Nut ③ to fix.
 - Read well the guide book enclosed in the controller and motor.

ADJUSTING POSITION OF OPERATION DETECTOR (Fig. 14)

Press the pedal backward under the energized state, and the presser foot lifts up.

Loosen Screw ⑤, and slide slowly rightward Operation Detector ⑥, and the presser foot will drop. Turn ⑥ back leftward to the position for the presser foot to lift up, and tighten Screw ⑤.
(Adjust from the rear side of the machine.)



PEDAL ACTION (Fig. 15)

Press the pedal forward and the machine runs.

- Machine speed can be freely adjusted by the pedal pressing amount.

After the thread has been trimmed, the presser foot can be lifted up or down by pedal action.

- While the machine is stopped, the handwheel can be turned freely by hand.

Table 3

PEDAL ACTION NEEDLE POSITION	PRESS PEDAL FORWARD ↓ NEUTRAL	NEUTRAL ↓ PRESS PEDAL BACKWARD
1 POS (↖)	Needle stops at highest position.	Thread trimmed, then presser foot lifted.
2 POS (↗)	Needle stops at lowest position.	Needle stops at lowest position, thread is trimmed at highest needle position, and then presser foot lifts up.

PRESSER FOOT LIFT SWITCH

To lift the presser foot without trimming the thread while the machine is stopped, press Presser Foot Lift Switch ⑮. (Refer to page 23. Fig. 10)

- This switch is available as option.

SELECTING NEEDLE STOP POSITION (Fig. 16)

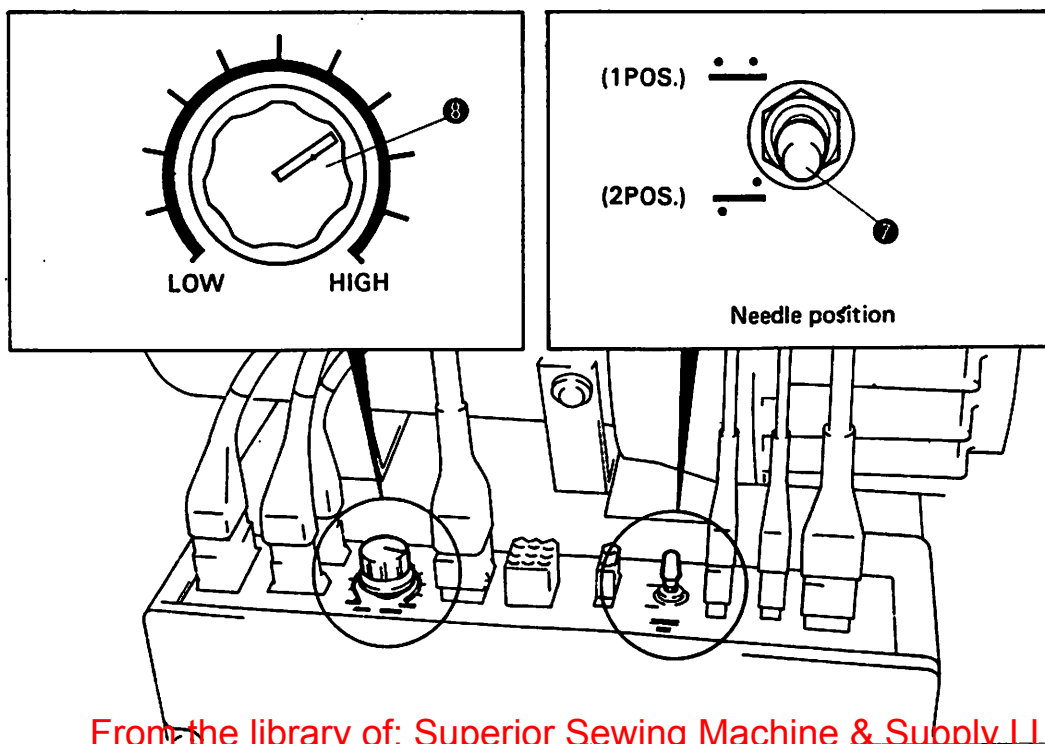
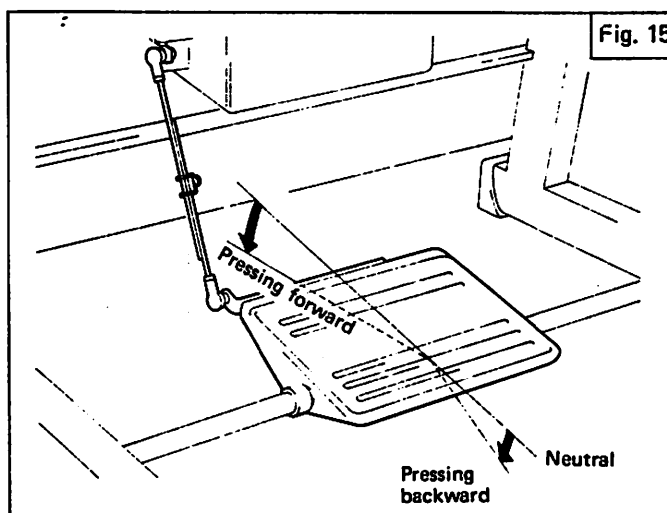
The needle stop position can be selected by the switch ⑦ on the controller panel.

(↖) side is Position 1, and (↗) side is Position 2. (Refer to Table 3)

TOP SPEED OF MOTOR (Fig. 16)

The top speed of the motor is adjustable by the knob ⑧ on the controller panel.

- The motor speed is so set as not to rotate beyond 6,000 r.p.m. however large the motor pulley diameter is made.



SOLENOID (UNIT) SETTING (Figs. 17, 18)

1. Refer to Fig. 17 and set ① and ② in sequence so that the upper face of Crank ⑦ should level with the upper face of the bed horizontally. (*)
2. Solenoid stroke adjustment:
Remove Rubber Cover ③, loosen Nut and set the stroke to 17.9mm with Stopper ⑤.
 - When loosening Nut ④, insert a round stopper bar (about 3 mm in diameter) into Stopper ⑤.
3. Crank position adjustment:
Set the distance between the right end face of Bracket ⑥ and the face A of Crank ⑦ to 117.5 mm.
 - Make sure that Crank ⑦ lightly moves when Compression Spring ⑧ is not fixed.

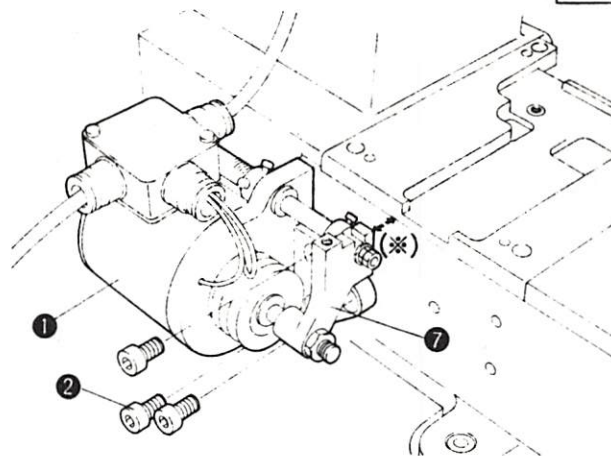


Fig. 17

KNIFE HOLDER (UNIT) SETTING (Figs. 19 ~ 22)

1. Setting Upper Knife (Unit):
Set the distance between the end face of Upper Knife Holder ⑩ and the edge of Upper Knife ⑪ to 167 mm, and the gap between the end face of Upper Knife and the end face of Plate Spring ⑨ to 0.3 mm, and yet set so that the upper knife holder agrees with the upper knife at their front faces B.
2. Setting Lower Knife (Unit):
Set the distance between the end face of Lower Knife Holder ⑬ and the edge of Lower Knife ⑭ to 163.5 mm, and that the lower knife holder agrees with the lower knife at their front faces C.

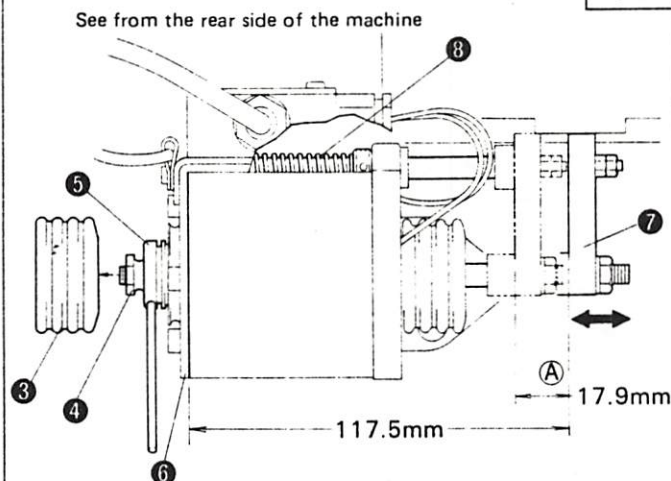


Fig. 18

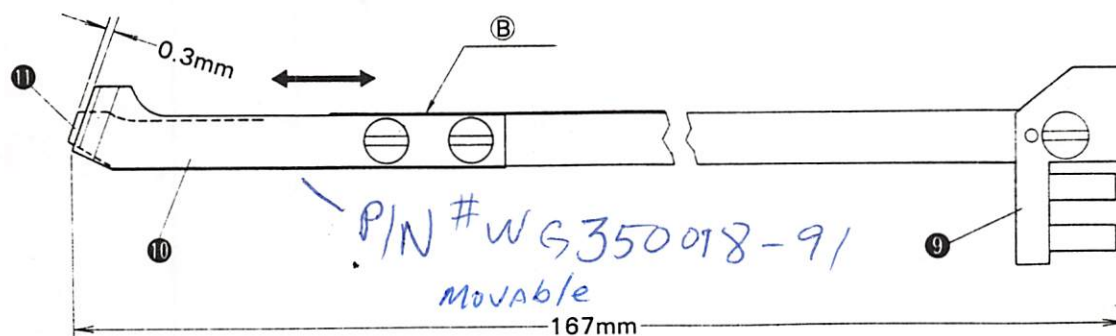


Fig. 19

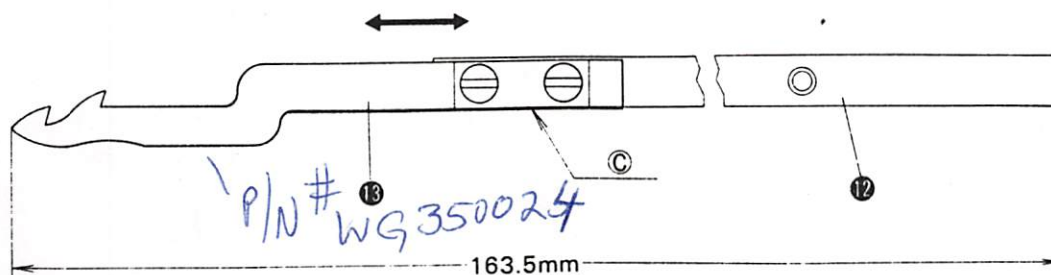


Fig. 20

Setting Knife Holder (Unit):

Refer to Fig. 21 and set ⑤ and ⑥ in sequence.

After setting, make sure that Lever ⑤ lightly moves. (about 500 g load at Point ④)

Checking Knife Cutting:

Check that a piece of woollie thread is smoothly trimmed. If not, adjust Plate Spring ⑦.

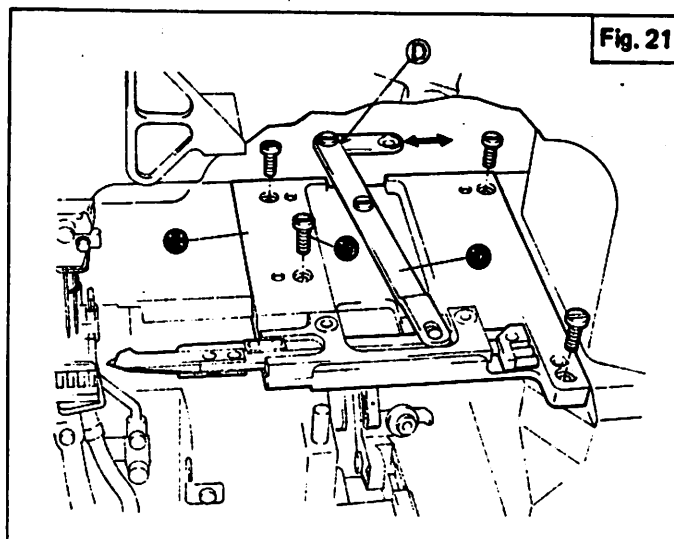


Fig. 21

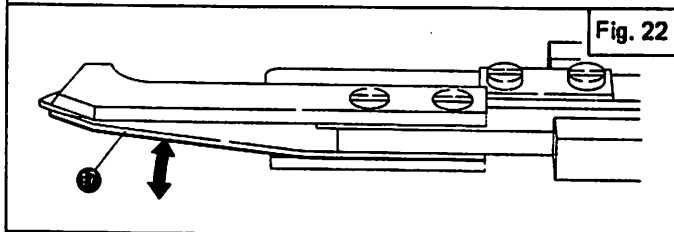


Fig. 22

THREAD RELEASER ADJUSTMENT (Figs. 29, 30)

1. Set Thread Releaser Crank ① so that the gap between the side of the bed and the side of the crank should be 33 mm.
 2. With Screw ③ of Crank ② loosened, connect Lever ④ and Cranks ① and ② with Screw ⑤.
 3. Adjust Lever Shaft ⑦ so that the gap between the thread tension disk and the claw of the thread releaser should be 0 ~ 0.5 mm. Then, tighten Screw ③ on Crank ②.
 4. Shaft ⑧ should be stopped with Screw ⑨ so that the size A should be 37 mm.
- The thread releasing for each thread depends on the positional relation between Thread Guide ⑩ and Thread Releaser ⑪.
- For cotton thread:
 B = 6 mm, C = 7 mm, D = 8.5 mm, E = 6.5 mm, F = 9 mm
- For elastic thread such as woollie threads, reduce the clearances slightly.

NOTE:

Thread Releaser ⑫ (for upper spreader thread) should be set to such a position that should not be affected even when the needle thread and the looper thread are loosened.

OPERATION DETECTOR ADJUSTMENT (Fig. 31)

Loosen Screw ⑬ and set the gap between Operation Detector ⑭ and Magnet ⑮ to 0.5 mm.
 (For adjusting the right and left positions, refer to page 24.)

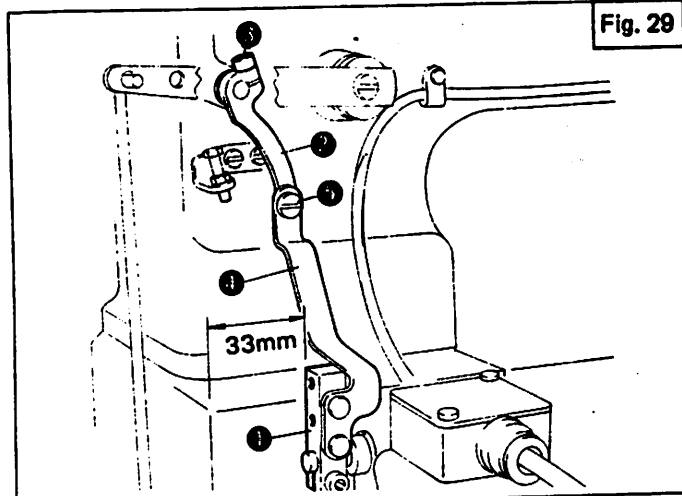


Fig. 29

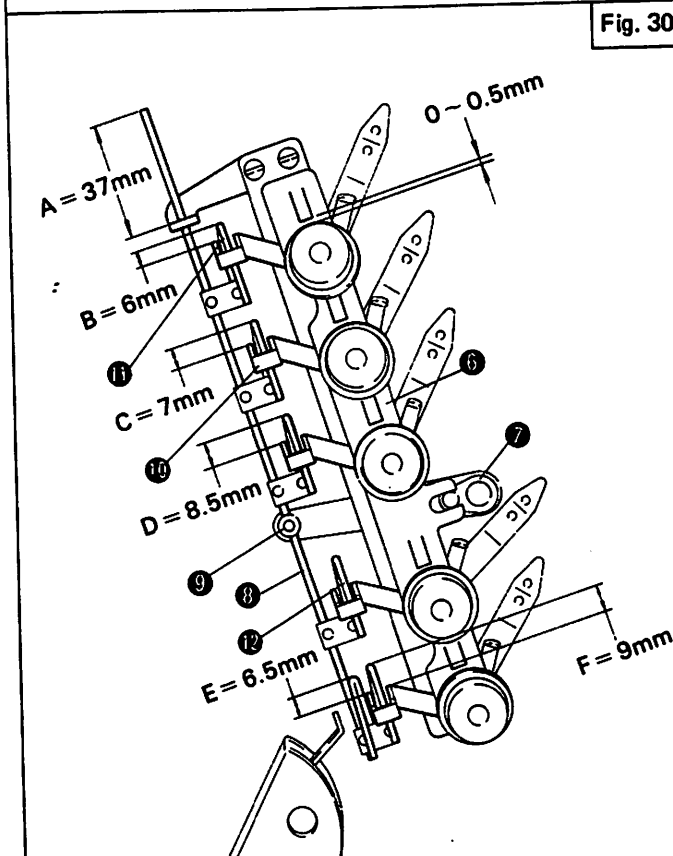


Fig. 30

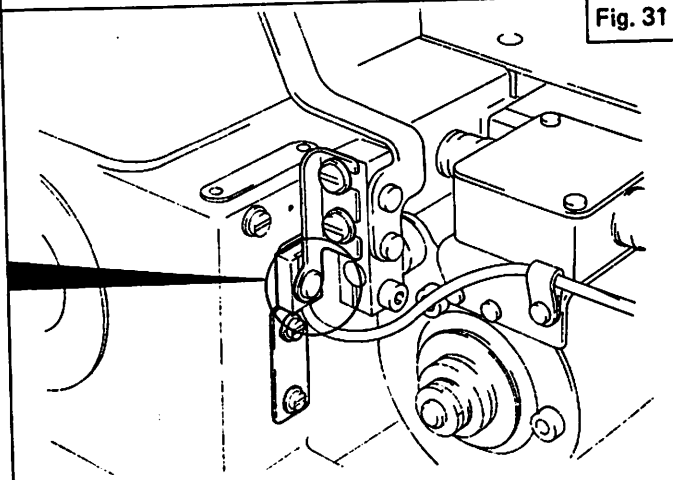
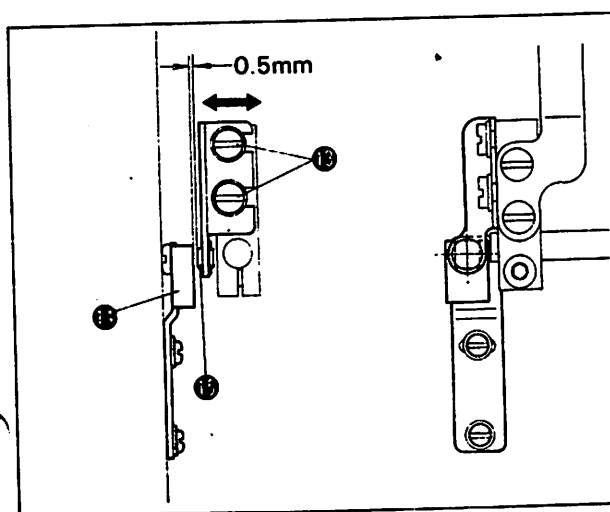


Fig. 31