

W/UT *Series Technical Manual*

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CONTENTS

UT Component lists

W500/UT Component list	1
W600/UT Component list	2
W700/UT Component list	3

Specifications for W Series UT Motor by countries

Mitsubishi L motor specifications for UT of bottom cover threads	4
Mitsubishi L motor specifications for UT of top & bottom cover threads	5
Pana - servo motor specifications for UT of bottom cover threads	6
Pana - servo motor specifications for UT of top & bottom cover threads	7

Schematic diagrams of the sewing table for UT

W500-600-700 (- 01,03,08,71)	
Non - submerged installation	8
W500 (- 01,03,08,21,82)	
Semi - submerged installation	9
W600 (- 30,32,33,34,35)	
Non - submerged installation	10
W600 (- 05,33)	
Semi - submerged installation	11
W600 (- 81)	
Semi - submerged installation	12

Sewing machine installation

Cutting the table and assembling the machine rest board	13
Motor pulley and V belt	14
Installing the position detector	14
Installing the electric presser foot lift	15

Threading

W500 Threading	16
W600 Threading	17
W700 Threading	18

Connecting cords

Connecting cords of the electric UT device	19-20
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Installing and adjusting the UT device

Needle position adjustment (without top cover thread and for pneumatic top cover thread trimmer)	21
Needle position adjustment (with electric top cover thread trimmer)	22
Caution	23
Positioning the operation detector	23
Treadle	24
Presser foot lift switch	24
Adjusting the motor maximum speed	24
Selecting the needle stop position	24
W500-700 Installing the solenoid assembly	25
W500-700 Installing the knife holder assembly	26-27
W500-700 Connecting the solenoid assembly with the knife holder assembly	28
W600 Adjusting the solenoid and knife holder assembly	29-32
W500-700 Thread wiper adjustment	33
W600 Thread wiper adjustment	34
Thread releaser adjustment	35
Operation detector adjustment	36
(Electric top cover thread trimmer which trims the thread from the right side)	
W500-700	
Connecting cords and air lines for the pneumatic UT device	37-38
W600	
Connecting cords and air lines for the pneumatic UT device	39
W500-600-700 Installing the air cylinder assembly	40
W500-600-700 Connecting the air cylinder assembly with the knife holder assembly	40
Assembling and adjusting the electric top cover thread trimmer	41-43
(Pneumatic top cover thread trimmer which trims the thread from the left side)	
W500-600-700	
Connecting cords and air lines for the pneumatic UT device	44-45

W500/UT (Component list)

Machine models	UT device	Thread trimmer mechanism		Top cover thread trimmer mechanism		Thread wiper mechanism		Foot lifter mechanism		Motor
		Electric type	Pneumatic type	Electric type	Pneumatic type	Electric type	Pneumatic type	Electric type	Pneumatic type	
W541 - 01,03,08 W542 - 01,03,08	UT101	●				●		●		■ MITSUBISHI ■ LIMI - STOP Motor ■ PANASONIC ■ PANA SERVO Motor
	UT102	●				●				
W561 - 01,03,08,21 W562 - 01,03,08,21	UT103	●						●		
	UT104	●								
W561 - 01,03,08 W562 - 01,03,08	UT203	●		●				●		
	UT204	●		●						
W541 - 01,03,08 W542 - 01,03,08	UT301		●			●			●	
	UT302		●			●				
W561 - 01,03,08,21 W562 - 01,03,08,21	UT303		●						●	
	UT304		●							
W541•W542-01,03,08 W561•W562-01,03,08,21	UT331		●				●		●	
	UT403		●						●	
W561 - 01,03,08,21 W562 - 01,03,08,21	UT404		●							
	UT405		●							
W561 - 01,03,08,21 W562 - 82	UT423		●					●		
	UT424		●					●		

W600/UT (Component list)

Machine models	UT device	Thread trimmer mechanism		Top cover thread trimmer mechanism		Thread wiper mechanism		Foot lifter mechanism		Motor
		Electric type	Pneumatic type	Electric type	Pneumatic type	Electric type	Pneumatic type	Electric type	Pneumatic type	
W664-08,33,35B,81 W644-01,03,05,08,33,35B,71,81	UT109	●				●		●		<input type="checkbox"/> MITSUBISHI LIMI - STOP Motor <input type="checkbox"/> PANASONIC PANA SERVO Motor
	UT110	●				●		●		
W664-01,03,05,71	UT111	●								
	UT112	●								
W664-01,03,08	UT211	●		●				●		
	UT212	●		●						
W664-08,33,35B,81 W644-01,03,05,08,33,35B,71,81	UT312		●			●			●	
	UT313		●			●				
W664-01,03,05,71	UT314		●						●	
	UT315		●							
W664-30,32,34,35A W644-30,32,34,35A	UT316		●			●			●	
	UT317		●			●				
W664-32	UT320		●						●	
	UT321		●							
W664-01,03,05,08,33,35B,71,81 W644-01,03,05,08,33,35B,71,81	UT333		●					●		
	UT334		●					●		
W664-01,03,08,	UT414		●						●	
	UT415		●							
W664-01,03,08,35B,71,81	UT434		●					●		
	UT435		●					●		
W664-30,34,35A	UT436		●					●		
	UT437		●					●		
W664-33	UT438		●					●		
	UT439		●					●		
W664-32	UT440		●					●		
	UT441		●					●		

W700/UT (Component list)

Machine models	UT device	Thread trimmer mechanism		Top cover thread trimmer mechanism		Thread wiper mechanism		Foot lifter mechanism		Motor
		Electric type	Pneumatic type	Electric type	Pneumatic type	Electric type	Pneumatic type	Electric type	Pneumatic type	
W742-01,03	UT105	●				●		●		■ MITSUBISHI LIMI - STOP Motor ■ PANASONIC PANA SERVO Motor
	UT106	●				●				
W762-01,03	UT107	●						●		
	UT108	●								
W762-01,03	UT207	●		●				●		
	UT208	●		●						
W742-01,03	UT305		●			●			●	
	UT306		●			●				
W762-01,03	UT307		●						●	
	UT308		●							
W742-01,03 W762-01,03	UT332		●					●		
	UT407		●						●	
W762-01,03	UT408		●	●						
	UT427		●					●		
W762-01,03	UT428		●					●		

SPECIFICATIONS FOR W SERIES UT MOTOR (MITSUBISHI L MOTOR)

[3 - phase] 200~220V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
JAPAN	200	50/60	802045 - 91
COLOMBIA ECUADOR PHILIPPINE TRINIDAD AND TOBAGO	220	60	802046 - 91
DOMINICA KOREA TAIWAN			
U.S.A	220	60	802046A91
CANADA	220	60	802046B91

[3 - phase] 380~440V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
CHILE PORTUGAL SWEDEN ZIMBABWE	380	50	802048 - 91
AUSTRIA FINLAND NETHERLANDS	380	50	802048A91
DENMARK FRANCE			
ARGENTINA POLAND	380	50	802048B91
PARAGUAY THAILAND			
HONG KONG	346	50	802048C91
U.K.	415	50	802049 - 91

[1 - phase]

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
JAPAN	100	50/60	802044 - 91
COLOMBIA ECUADOR KOREA TRINIDAD AND TOBAGO VENEZUELA	110	60	802044A91
COSTA RICA GUATEMALA TAIWAN			
U.S.A	110-120	60	802044B91
CANADA	110-120	60	802044C91
ARGENTINA CAMEROON CHINA GREECE IRAN KENYA NIGERIA PERU POLAND SPAIN THAILAND U.S.S.R.	110/220	50/60	802050 - 91
BEIRUT CHILE ETHIOPIA INDIA IRAQ MOROCCO PARAGUAY PHILIPPINE PORTUGAL TANZANIA TURKEY URUGUAY VIETNAM			

[1 - phase]

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
HONG KONG	200	50	802050A91
FINLAND	220	50	802050B91
BOLIVIA INDONESIA SYRIA	110/220	50/60	802050C - 91
AUSTRALIA FIJI SINGAPORE U.K.	240	50	802051 - 91
CYPRUS KUWAIT SOUTH AFRICA			
NEW ZEALAND SRI LANKA	230	50	802051A - 91
FRANCE	230	50	802051B91

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SPECIFICATIONS FOR W SERIES UT MOTOR (MITSUBISHI L MOTOR)

[3 - phase] 200~220V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
JAPAN	200	50/60	802045A - 91
COLOMBIA ECUADOR PHILIPPINE TRINIDAD AND TOBAGO	220	60	802046C91
DOMINICA KOREA TAIWAN			
U.S.A	220	60	802046D91
CANADA	220	60	802046E91

[3 - phase] 380~440V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
CHILE PORTUGAL SWEDEN ZIMBABWE	380	50	802048D91
AUSTRIA FINLAND NETHERLANDS	380	50	802048E91
DENMARK FRANCE			
ARGENTINA POLAND	380	50	802048F91
PARAGUAY THAILAND			
HONG KONG	346	50	802048G91
U.K.	415	50	802049A91

[1 - phase]

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
JAPAN	100	50/60	802044D91
COLOMBIA ECUADOR KOREA TRINIDAD AND TOBAGO VENEZUELA	110	60	802044E91
U.S.A	110~120	60	802044F91
CANADA	110~120	60	802044G91
ARGENTINA CAMEROON CHINA GREECE IRAN KENYA NIGERIA PERU POLAND SPAIN THAILAND U.S.S.R.			
BEIRUT CHILE ETHIOPIA INDIA IRAQ MOROCCO PARAGUAY PHILIPPINE PORTUGAL TANZANIA TURKEY URUGUAY	110/220	50/60	802050D91
COSTA RICA GUATEMALA TAIWAN			
VIETNAM			

[1 - phase]

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
HONG KONG	200	50	802050E91
FINLAND	220	50	802050F91
BOLIVIA INDONESIA SYRIA	110/220	50/60	802050G - 91
AUSTRALIA FIJI SINGAPORE U.K.	240	50	802051C91
CYPRUS KUWAIT SOUTH AFRICA			
NEW ZEALAND SRI LANKA	230	50	802051D - 91
FRANCE	230	50	802051E91

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SPECIFICATIONS FOR W SERIES UT MOTOR (PANA—SERVO MOTOR LIST)

[3 — phase] 200~220V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
JAPAN	200	50/60	802078 - 91
COLOMBIA ECUADOR PHILIPPINE TRINIDAD AND TOBAGO	220	60	802081 - 91
CANADA	220	60	802081B91

[3 — phase] 380~440V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
CHILE PORTUGAL SWEDEN ZIMBABWE	380	50	-
AUSTRIA FINLAND NETHERLANDS	380	50	-
ARGENTINA POLAND	380	50	802081 - 91
HONG KONG	346	50	-
U.K.	415	50	-

[1 — phase]

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
JAPAN	100	50/60	802077 - 91
COLOMBIA ECUADOR KOREA TRINIDAD AND TOBAGO VENEZUELA	110	60	802079 - 91
CANADA	110-120	60	802079B91
ARGENTINA CAMEROON CHINA GREECE IRAN KENYA NIGERIA PERU POLAND SPAIN THAILAND U.S.S.R.	110/220	50/60	802080 - 91
BEIRUT CHILE ETHIOPIA INDIA IRAQ MOROCCO PARAGUAY PHILIPPINE PORTUGAL TANZANIA TURKEY URUGUAY VIETNAM			

[1 — phase]

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
HONG KONG	200	50	802080 - 91
FINLAND	220	50	802080 - 91
BOLIVIA INDONESIA SYRIA	110/220	50/60	110V 802079 - 91 220V 802080 - 91
AUSTRALIA FIJI SINGAPORE U.K.	240	50	802080 - 91
NEW ZEALAND	230	50	802080 - 91
FRANCE	230	50	802080 - 91

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SPECIFICATIONS FOR W SERIES UT MOTOR (PANA—SERVO MOTOR LIST)

[3 - phase] 200~220V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
JAPAN	200	50/60	802078A - 91
COLOMBIA ECUADOR PHILIPPINE TRINIDAD AND TOBAGO	220	60	802081A91
CANADA	220	60	802081C91

[3 - phase] 380~440V

Nation	Voltage(V)	Frequency(Hz)	Part number of motor
CHILE PORTUGAL SWEDEN ZIMBABWE	380	50	-
AUSTRIA FINLAND NETHERLANDS	380	50	-
ARGENTINA POLAND	380	50	802081A91
HONG KONG	346	50	-
U.K.	415	50	-

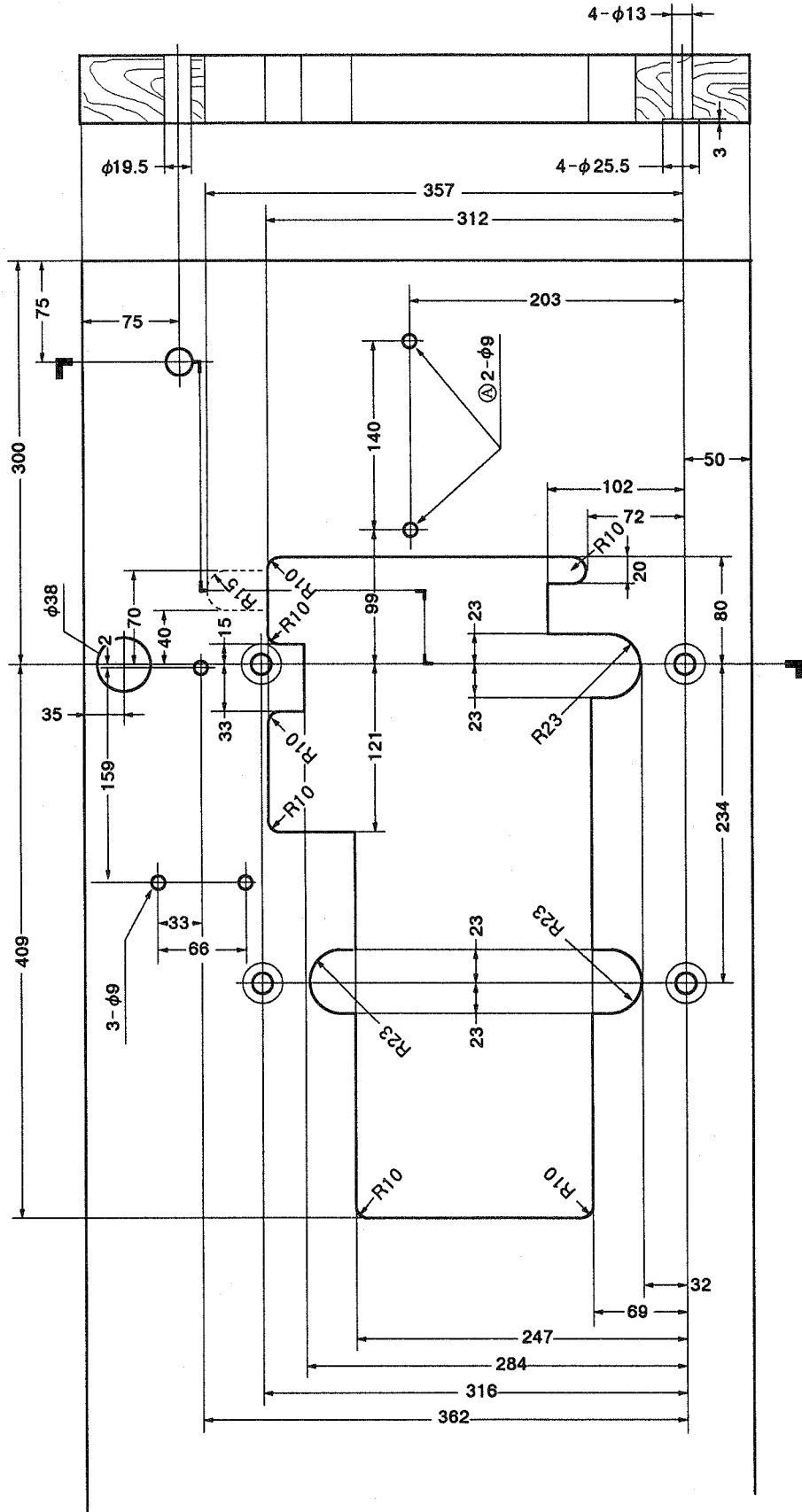
[1 - phase]

JAPAN	100	50/60	802077A91
COLOMBIA ECUADOR KOREA TRINIDAD AND TOBAGO VENEZUELA	110	60	802079A91
CANADA	110~120	60	802079C91
ARGENTINA CAMEROON CHINA GREECE IRAN KENYA NIGERIA PERU POLAND SPAIN THAILAND U.S.S.R.	110/220	50/60	802080A91
BEIRUT CHILE ETHIOPIA INDIA IRAQ MOROCCO PARAGUAY PHILIPPINE PORTUGAL TANZANIA TURKEY URUGUAY VIETNAM			

[1 - phase]

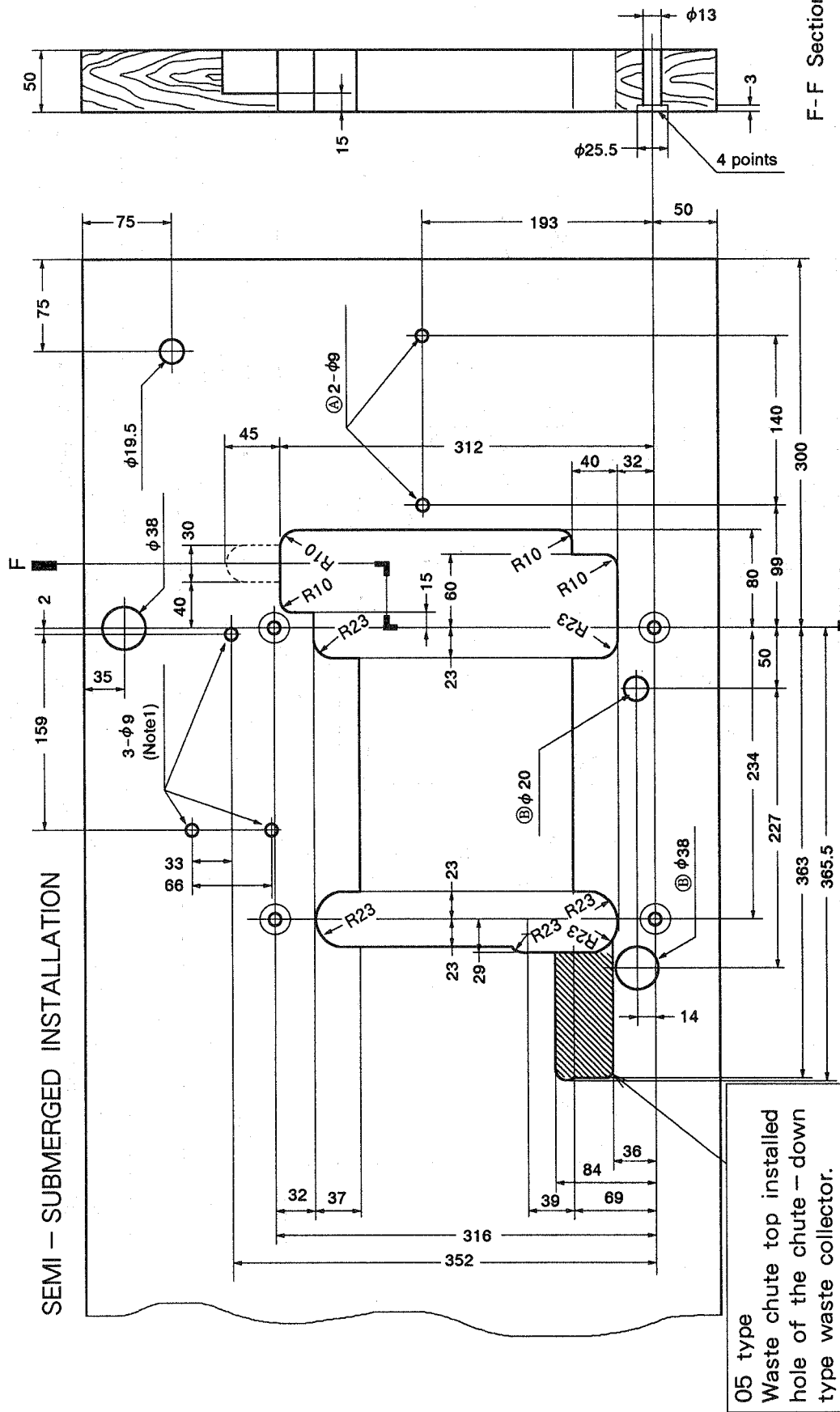
HONG KONG	200	50	802080A91
FINLAND	220	50	802080A91
BOLIVIA INDONESIA SYRIA	110/220	50/60	110V 802079A91 220V 802080A91
AUSTRALIA FUJI SINGAPORE U.K.	240	50	802080A91
NEW ZEALAND FRANCE	230 230	50 50	802080A91 802080A91
CYPRUS KUWAIT SOUTH AFRICA			
SRI LANKA			

MODEL: W500-01,03,08,21,82 [For UT Device]



- Refer to parts book for bracket installation.
- Note) The hole marked (A) is provided for fitting electric PL.

MODEL: W600-05,33 [with UT Device]



SEMI - SUBMERGED INSTALLATION

05 type
Waste chute top installed
hole of the chute - down
type waste collector.

• Refer to parts book for
bracket installation.

Note) 1. Holes for fitting motor (Matsushita, Mitsubishi or Hitachi)
For other motors than the above listed, refer to their own instruction
manuals.
2. The hole marked (A) is provided for fitting electric PL.

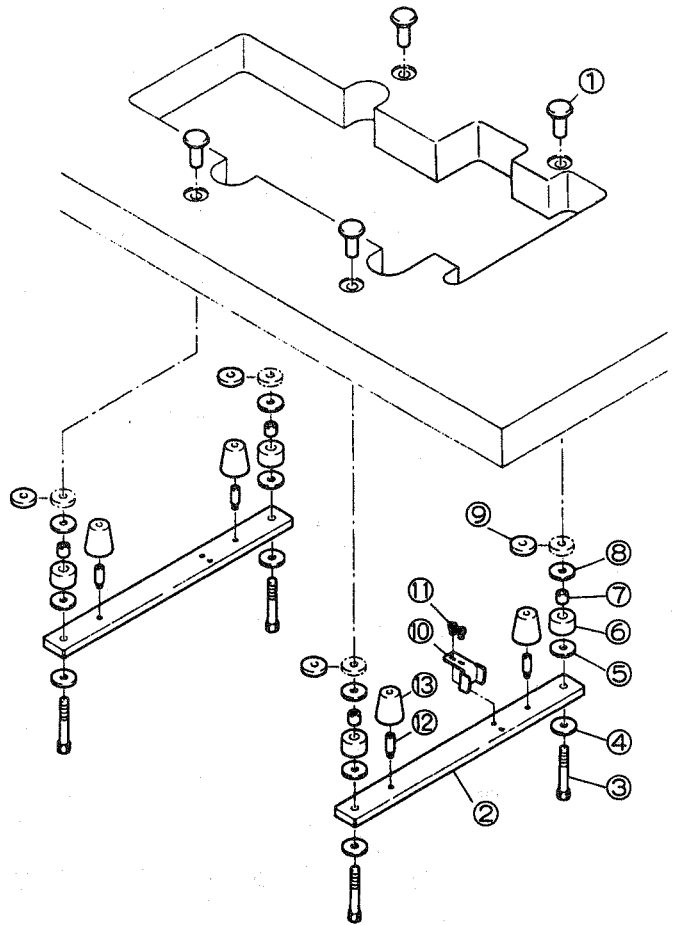
CUTTING THE TABLE AND ASSEMBLING THE MACHINE REST BOARD FOR SEMI-SUBMERGED INSTALLATION

Semi-submerged installation is adopted for the W500 Series with UT.

Following are the procedure for cutting the table and assembling the machine rest board.

1. Cut the table by referring to pages ⑨ to ⑫.
2. Assemble the machine rest board by following steps ① to ⑬ in the right illustration.

- ◇ A table 50mm thick is recommended for the W Series with UT.
- ◇ Washer ⑨ is not needed for a table 50mm thick.
- ◇ Washer ⑨ is needed for tables less than 47mm thick.

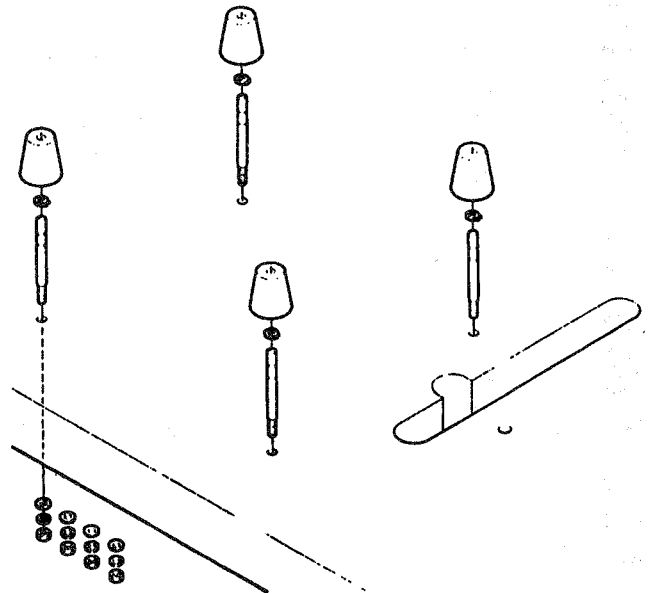


CUTTING THE TABLE AND ASSEMBLING THE MACHINE REST BOARD FOR NON-SUBMERGED INSTALLATION

Following are the procedure for cutting the table and assembling the machine rest board.

1. Cut the table by referring to page ⑩.
2. Assemble the machine rest board by referring to the right illustration.

- ◇ A table 50mm thick is recommended for the W Series with UT.

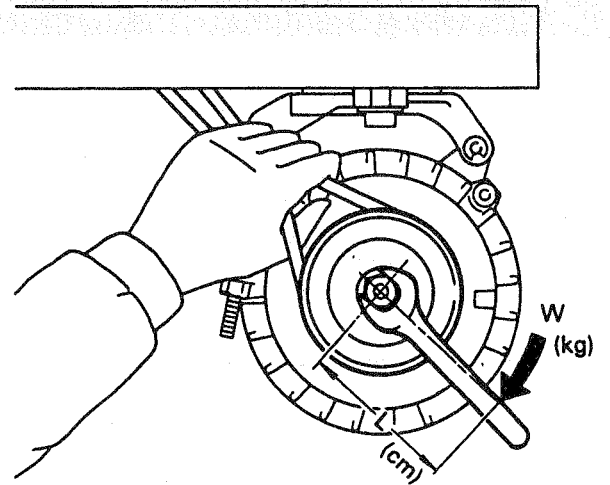


MOTOR PULLEY AND V BELT

Following are the specifications for the motor and V belt.

1. Motor: Double pole, 550W clutch motor
2. V belt: Type M
3. Motor pulley: Select the proper motor pulley for the speed of the machine to be used by referring to the table shown below.

◇When replacing the motor pulley, fix the motor pulley with the V belt or a rod and then tighten the nut.
Refer to the illustration of page 24 for the belt tension.



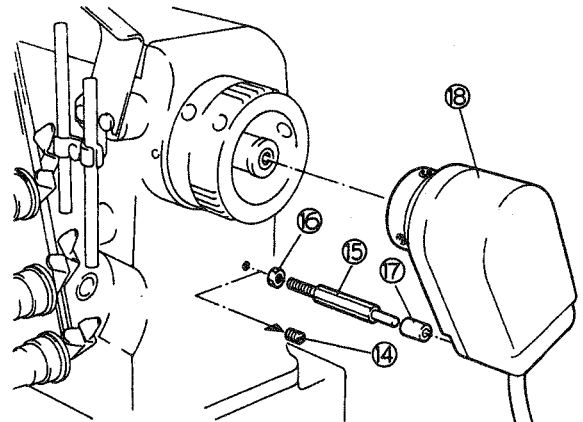
Tightening torque
 $T = W \times L$
 (T should be 200 to 250kg.cm.)

Relationship between machine speed and motor pulley

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

INSTALLING THE POSITION DETECTOR

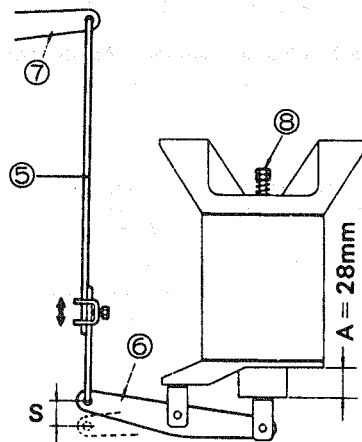
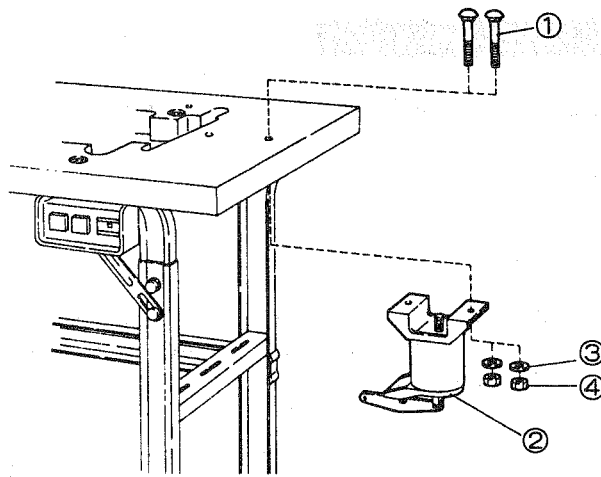
1. Remove screw ⑭
2. Install the position detector by referring to steps ⑮ to ⑱ in the right illustration.
(Fix pin screw ⑮ with nut ⑯.)

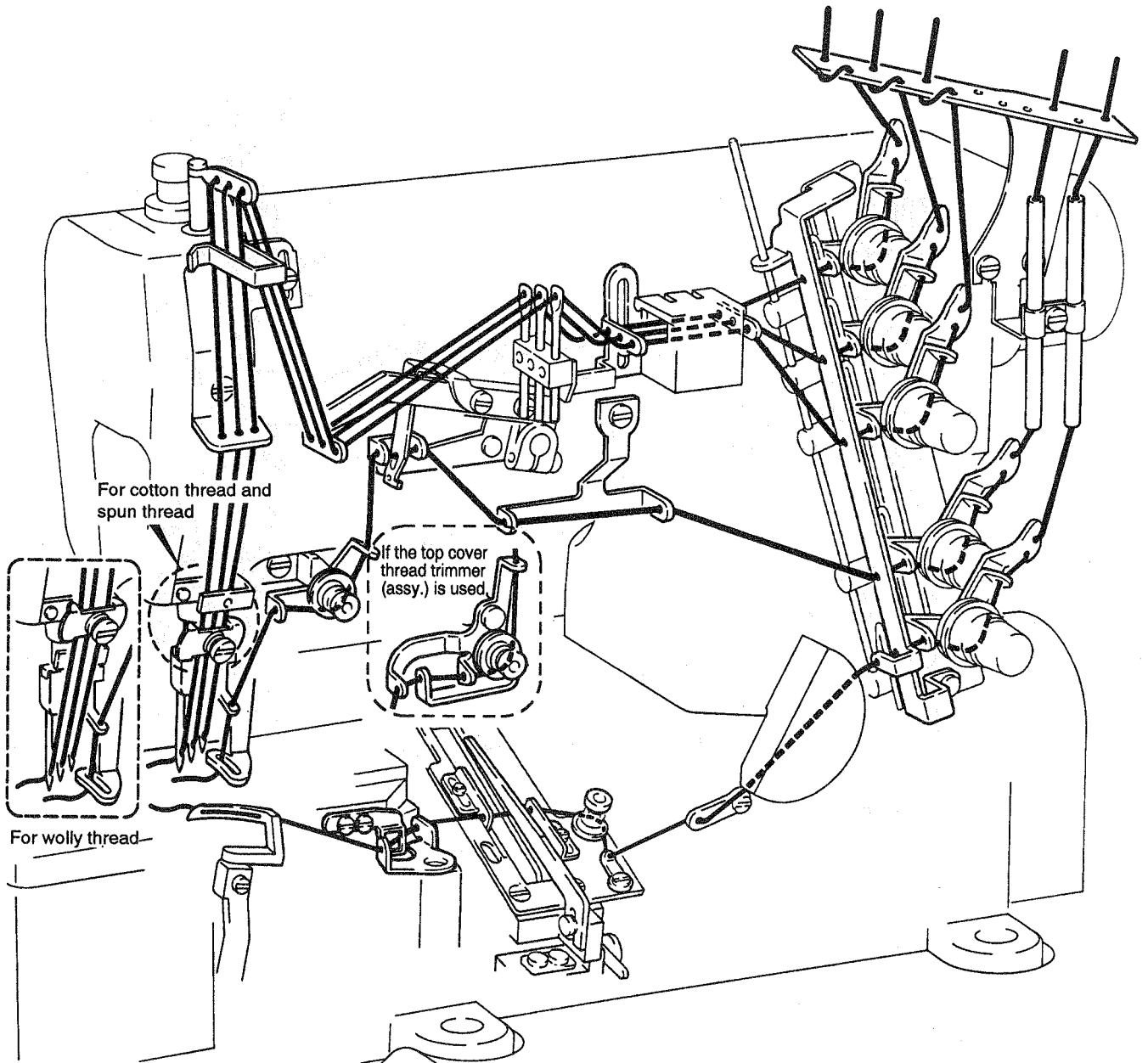


INSTALLING THE ELECTRIC PRESSER FOOT LIFT

Follow steps ① to ④, and ⑤ to ⑧.
(See the right illustrations.)

- ◇ Adjust stroke "S" with nut ③.
- To obtain the standard stroke, dimension "A" should be 28mm.
- ◇ To produce a little play on foot lift lever ⑦, adjust pitman rod ⑥.

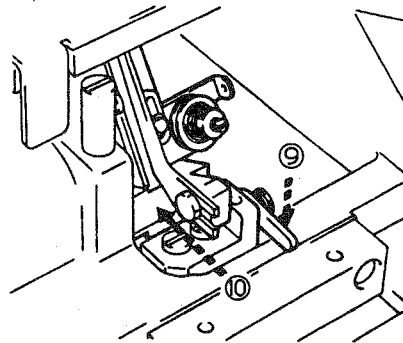




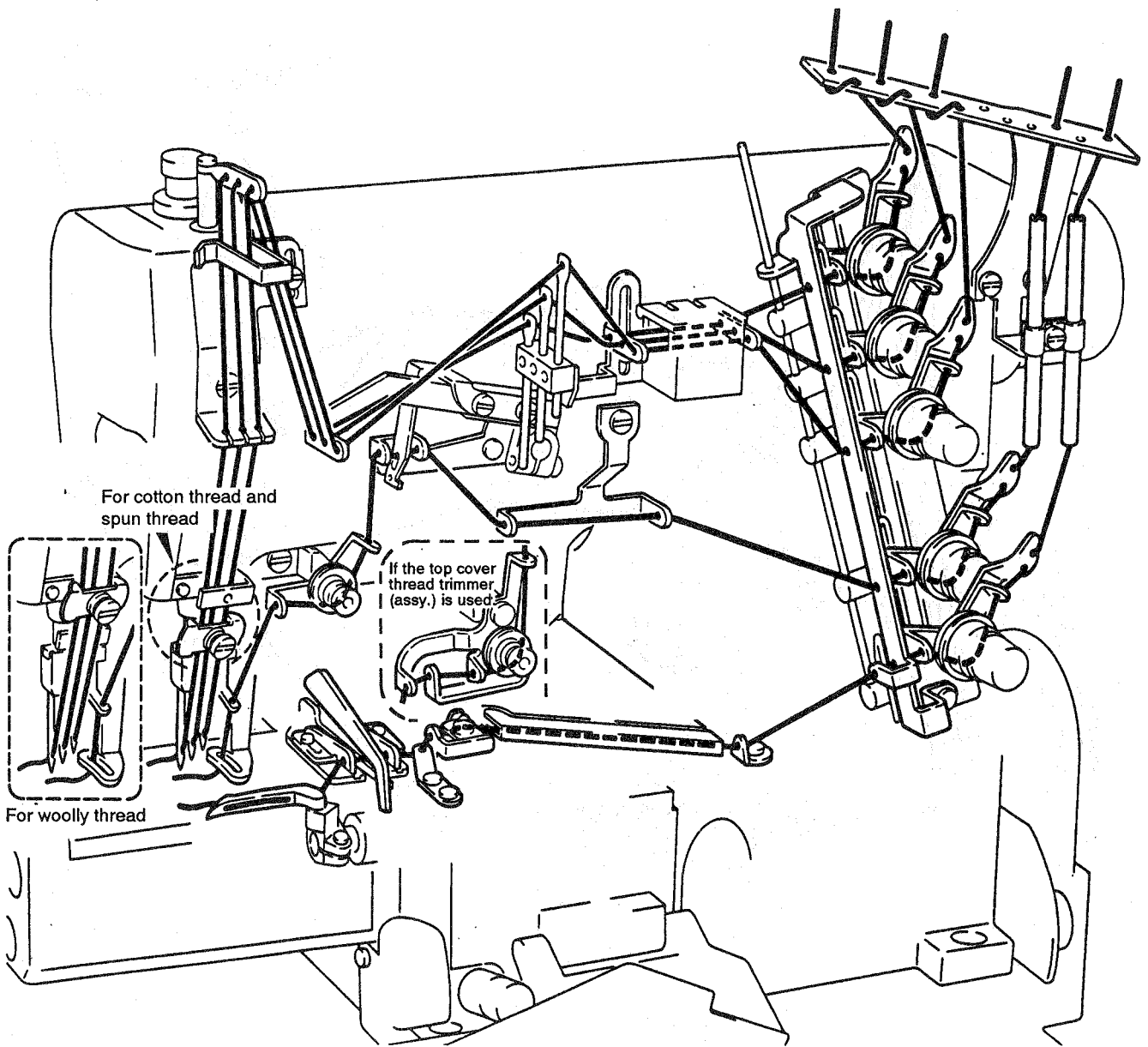
LOOPER THREAD TAKE-UP BRACKET

Press lever ⑨ down, then the bracket will come out to the operator so that the machine can be threaded easily.

To replace the bracket push bracket ⑩ back to the machine.

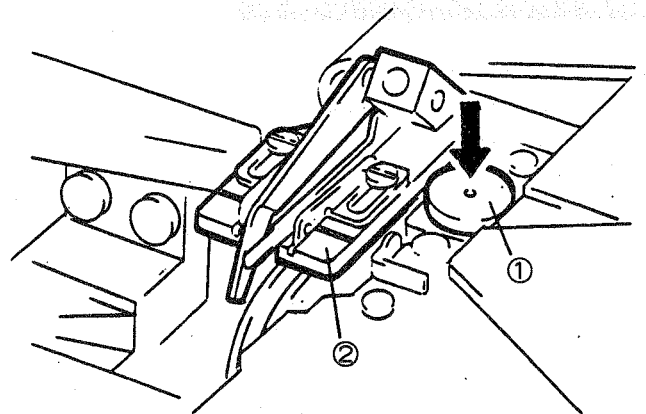


W600
THREADING

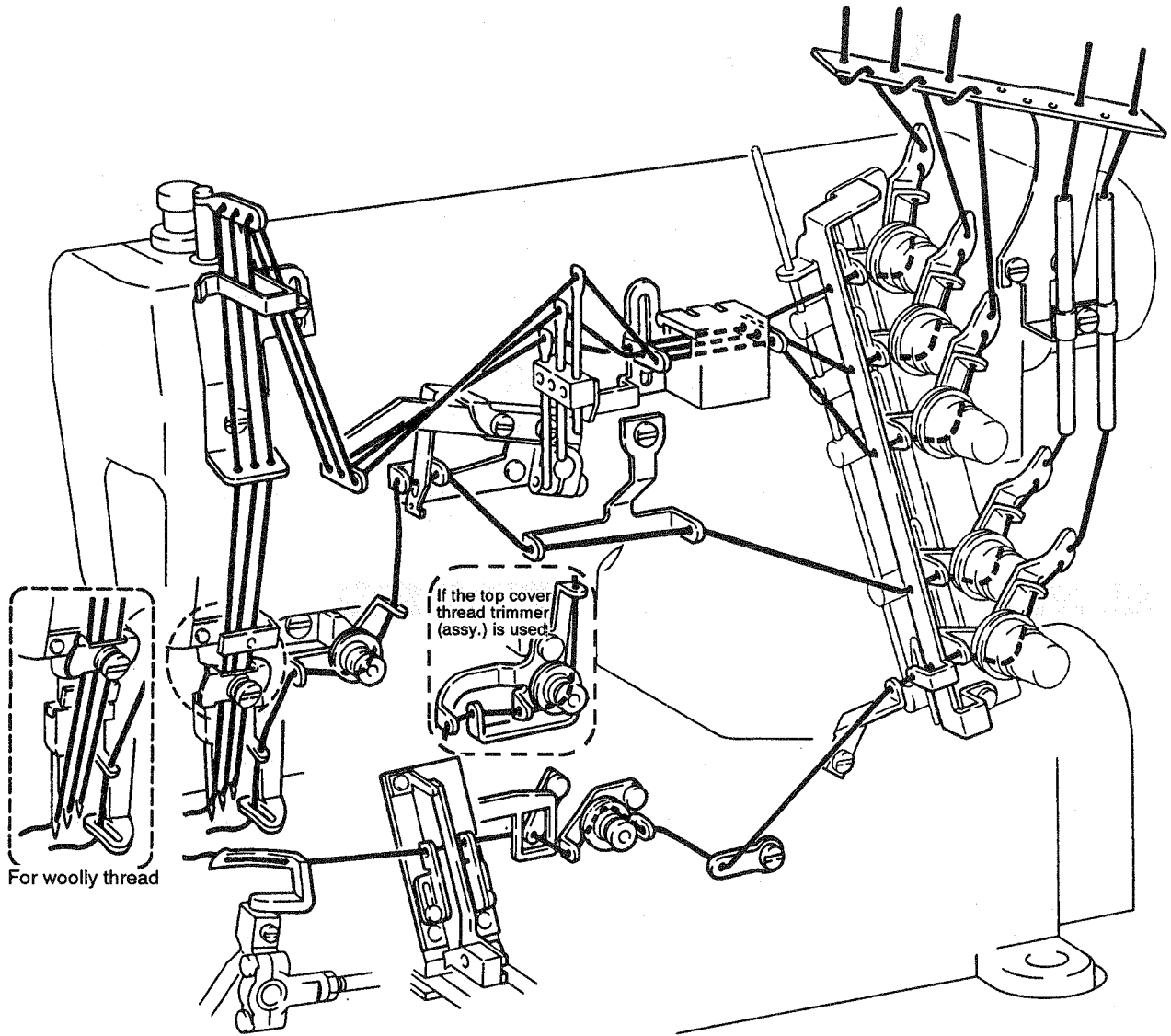


Press pushbutton ① and lift looper thread take-up ② to thread the machine easily.

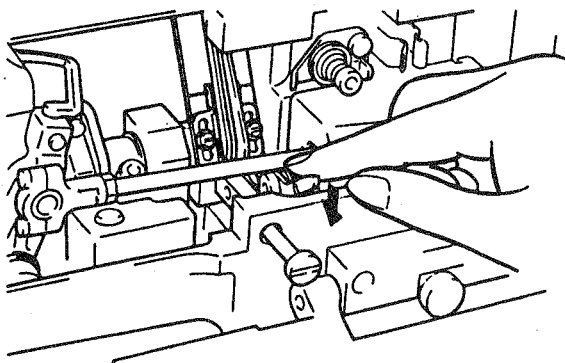
Press the looper thread take-up down and replace it after threading the machine.



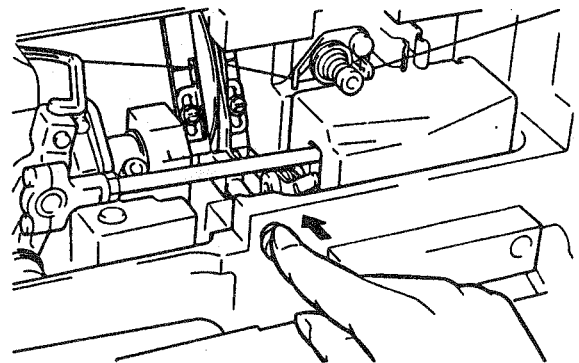
W700
THREADING



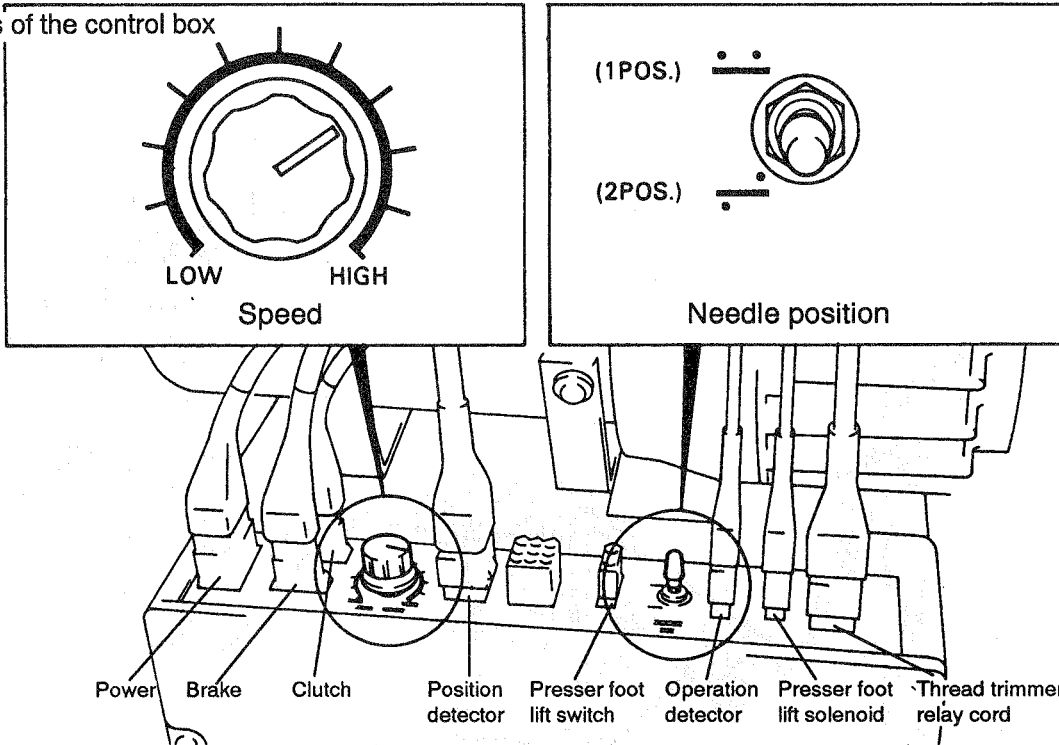
Before threading



After threading



Descriptions of the control box

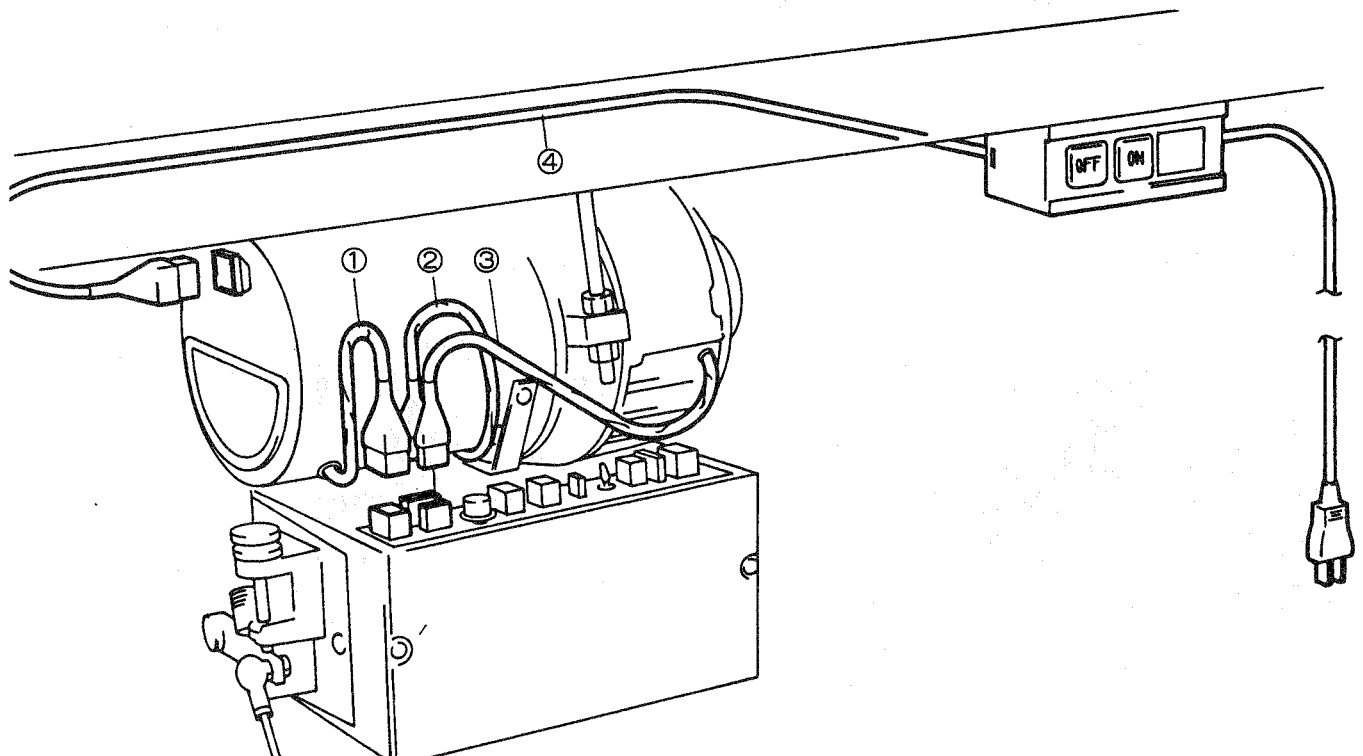


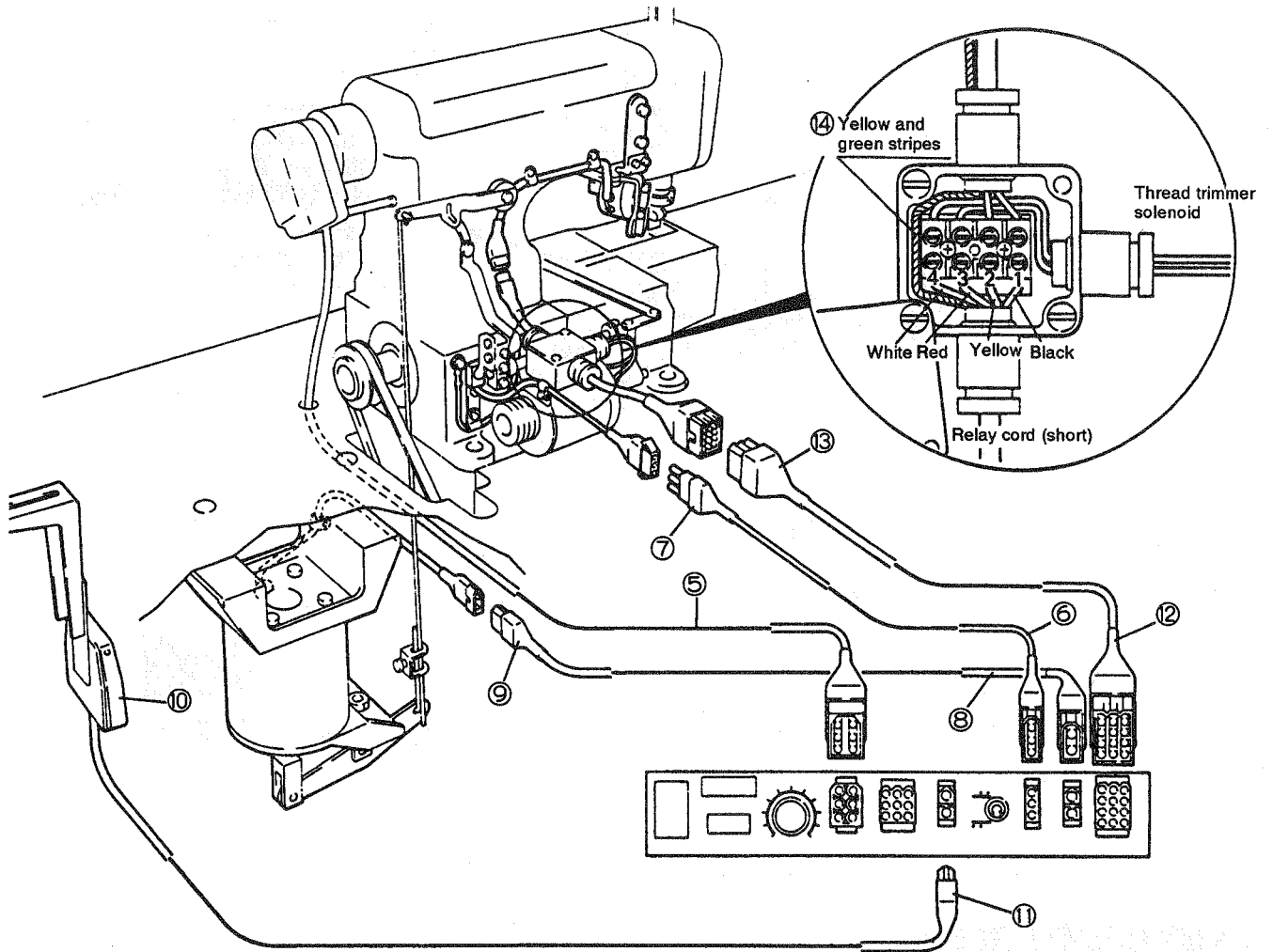
CONNECTING CORDS

- ◇ Do not connect thread trimmer relay cord ⑫ until highest and lowest needle positions have been determined by the position detector.
- ◇ Set the POS. switch on the control box to 2 POS. (→).
- ◇ Be sure to connect the operation detector to the motor to run the motor.

CONNECTING STEPS

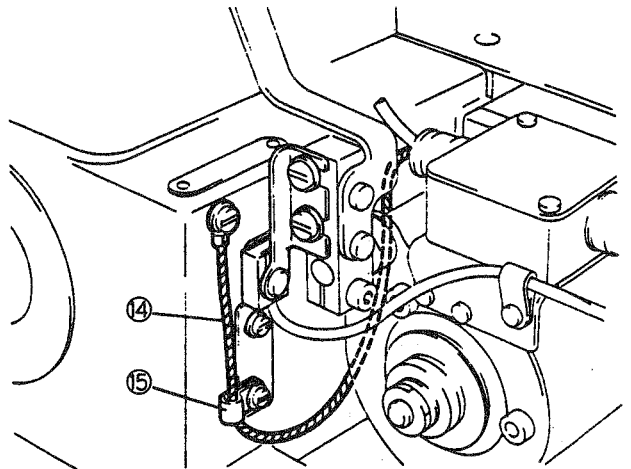
1. Connect connectors ①, ② and ③ of the motor to the control box.
2. Connect connector ④ of the power switch to the motor.
3. Connect connector ⑤ of the position detector to the control box.
4. Connect connector ⑥ of the operation detector relay cord to the control box and another connector ⑦ to the operation detector.

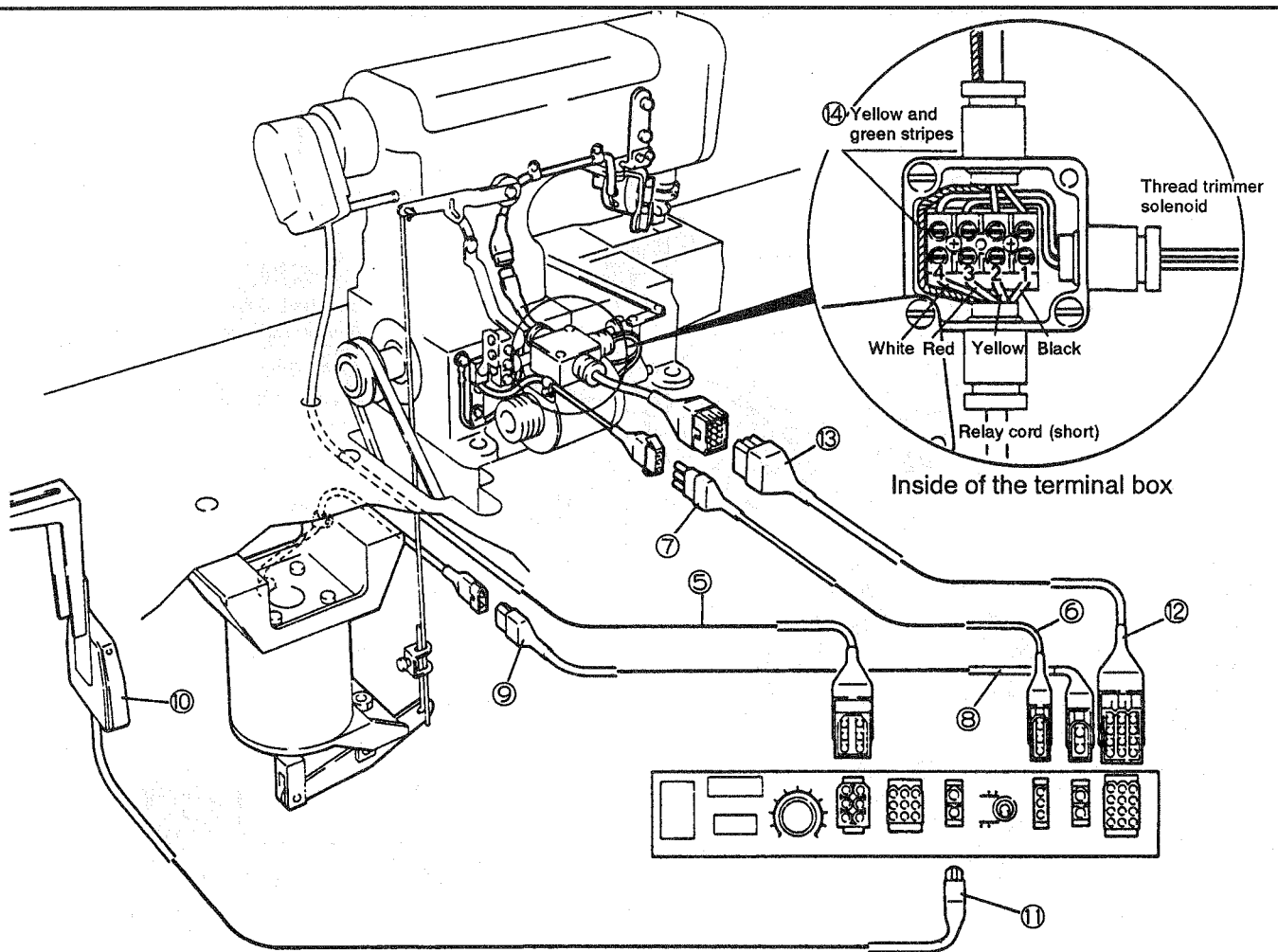




5. Fix ground wire ⑭ of yellow and green stripes on the machine bed with cord clip ⑮.

6. Turn the machine on to check the rotating direction.
 If the machine rotates in the reverse direction, connect power connector ④ upside down.
 Turn the machine off.





NEEDLE POSITION ADJUSTMENT

(without top cover thread and for pneumatic top cover thread trimmer)

1. Remove cover ⑬ and loosen screw ⑰.

2. Adjusting the highest position

Align A portion of upper position detecting plate ⑧ (black) with the center of sensor baseplate ⑨ and then set the needle at its highest position.

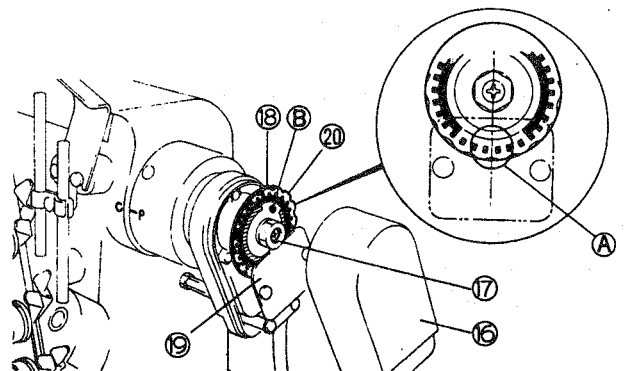
If mark P on the handwheel and the black circle on the arm do not align, fix the upper position detecting plate and turn the handwheel to align mark P with the black circle, then tighten screw ⑰.

3. Adjusting the lowest position

Align B portion of lower position detecting plate ⑳ (red) with the center of sensor baseplate A.

◇ When adjusting the lowest position, there is no need for loosening screw ⑰.
The highest position adjustment must be made first.

4. Turn the machine on and treadle in the neutral position. The needle stops at its lowest position. Then heel the treadle to stop the needle at its highest position, and check to see if mark P on the handwheel is aligned with the black circle on the arm.



5. Connect connector ③ of the presser foot lift solenoid relay cord to the control box and another connector ④ to the solenoid.

6. If presser foot lift switch ⑩ (option) is used, connect connector ① to the control box.

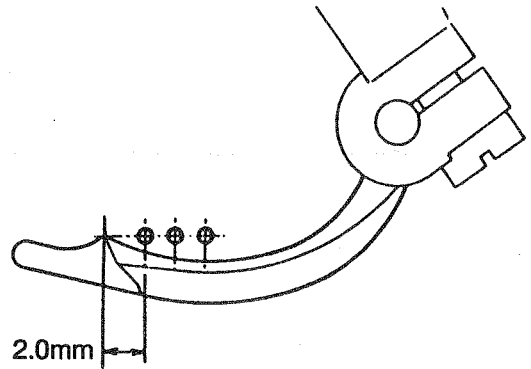
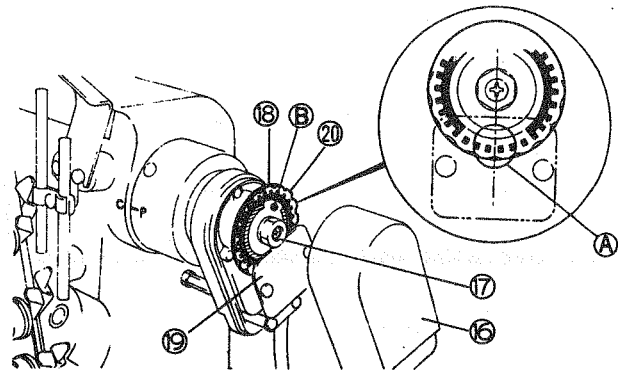
7. Connect connector ⑫ of the thread trimmer relay cord (long) to the control box and another connector ⑬ to the relay cord (short).

◇ Refer to the illustration of the inside of the terminal box shown above for the connection in the terminal box.

NEEDLE POSITION ADJUSTMENT

(with electric top cover thread trimmer)

- Turn the machine on to check the rotating direction.
If the machine rotates in the reverse direction, connect power connector upside down.
Turn the machine off.
- Remove cover ⑥ and loosen screw ⑦.
- Adjusting the highest position
Turn the handwheel by hand to make correct relationship between the spreader and the left needle as shown in illustration. Align A portion of upper position detecting plate ⑮ (black) with the center of sensor baseplate ⑲ and then tighten screw ⑦.
- Adjusting the lowest position
(The highest position adjustment must be made first.)
Turn the handwheel by hand so that the spreader will reach its extreme position to the right.
Align B portion of lower position detecting plate ⑳ (red) with the center of sensor baseplate A.



◇ When adjusting the lowest position, there is no need for loosening screw ⑦.

- Turn the machine on and treadle in the neutral position. The needle stops at its lowest position.
- Connect connector ③ of the presser foot lift solenoid relay cord to the control box and another connector ④ to the solenoid.
- If presser foot lift switch ⑩ (option) is used, connect connector ① to the control box.
- Connect connector ⑫ of the thread trimmer relay cord (long) to the control box and another connector ⑬ to the relay cord (short).

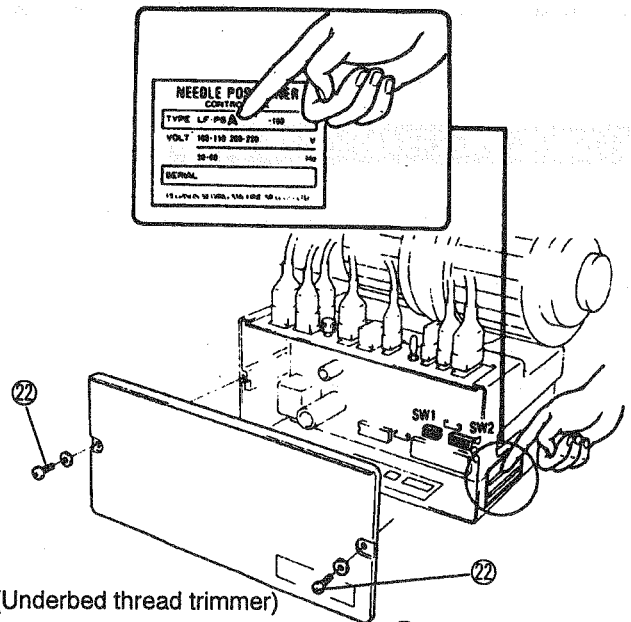
◇ Refer to the illustration of the inside of the terminal box (page 21) for the connection in the terminal box.

TO SET THE MOTOR APPLICATION TO THE ELECTRIC TOP COVER THREAD TRIMMER

Change the motor application with one of dip switches ⑳ in the control box.

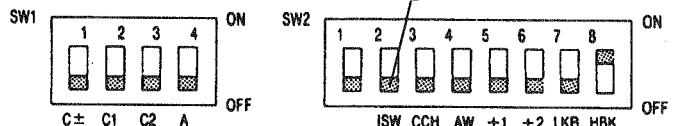
Turn the machine off and remove screws ㉒ and the cover of the control box. Then move (ISW) of dip switches ⑳ to ON in order to apply the motor to the top cover thread trimmer.

◇ Dip switch ISW is factory-set to OFF (without top cover thread).

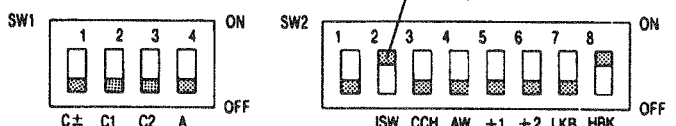


(Underbed thread trimmer)

LF-PSA-***



LF-PSA-***W



Set dip switch ⑳ to ON.

(Top cover thread trimmer and underbed thread trimmer)

CAUTION

1. Belt tension

Adjust the belt tension so that 1 kg pressure on the center of the belt allows approximately 15mm deflection.

◇ Excessive tension may overload the machine and motor.
If the tension is not sufficient, the machine at medium or low speed may not run evenly and also the needle may not stop correctly.

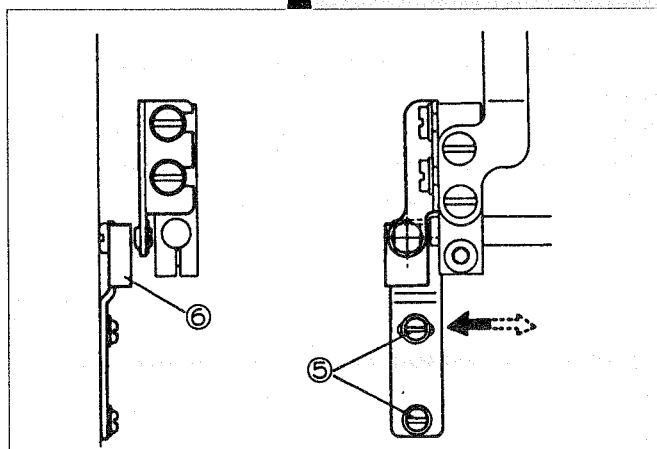
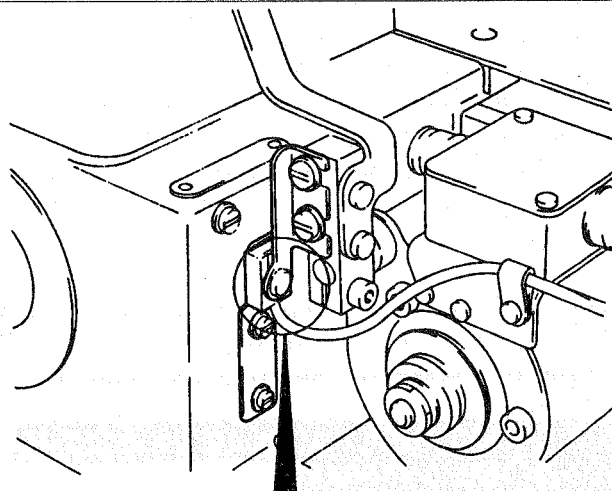
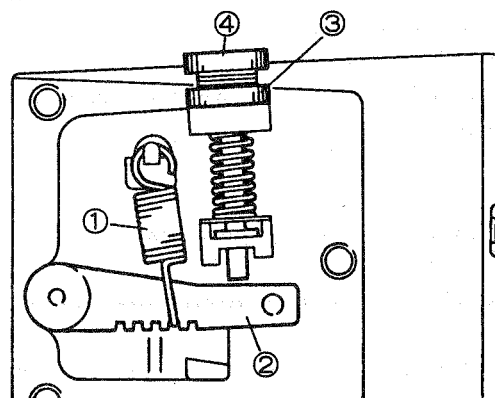
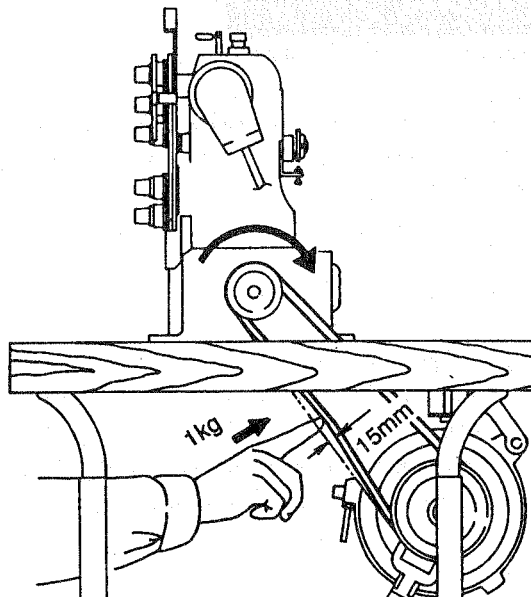
2. Treadle toeing force adjustment

The treadle toeing force can be adjusted by selecting where to hook tension spring ① over lever ②.

◇ If the force is too light, the stop position of the lever may not be fixed, causing trouble.

3. Loosen nut ③ and turn bolt ④ to adjust the spring pressure.
Then tighten nut ③ securely to set the spring pressure.

◇ Read and study the instruction manual packaged in the control box and motor carefully.



POSITIONING THE OPERATION DETECTOR

The presser foot is lifted up by heeling the treadle when the machine is on. Loosen screw ⑤ and slide operation detector ⑥ to the right slowly to lower the presser foot.

Then replace the operation detector to the left until the presser foot is raised. Tighten screw ⑤.

(This adjustment should be made from the rear side of the machine.)

TREADLE

Toeing the treadle starts the machine.

- ◇ The machine speed can be adjusted freely by the toeing amount.
- ◇ The presser foot can be lifted or down readily by heeling the treadle after the thread has been trimmed.
- ◇ The machine pulley can be turned by hand easily while the machine is stopped.

PRESSER FOOT LIFT SWITCH

To lift the presser foot up without trimming the thread while the machine is stopped, press presser foot lift switch ⑩.
(See illustration ⑩ of page ⑦.)

- ◇ The presser foot lift switch is optional.

SELECTING THE NEEDLE STOP POSITION

The needle stop position can be selected by switch ⑦ on the control box.

($\frac{\bullet}{\bullet}$) indicates 1 position and ($\frac{\bullet}{\bullet}$) indicates 2 position.
(See the table shown on the right side above.)

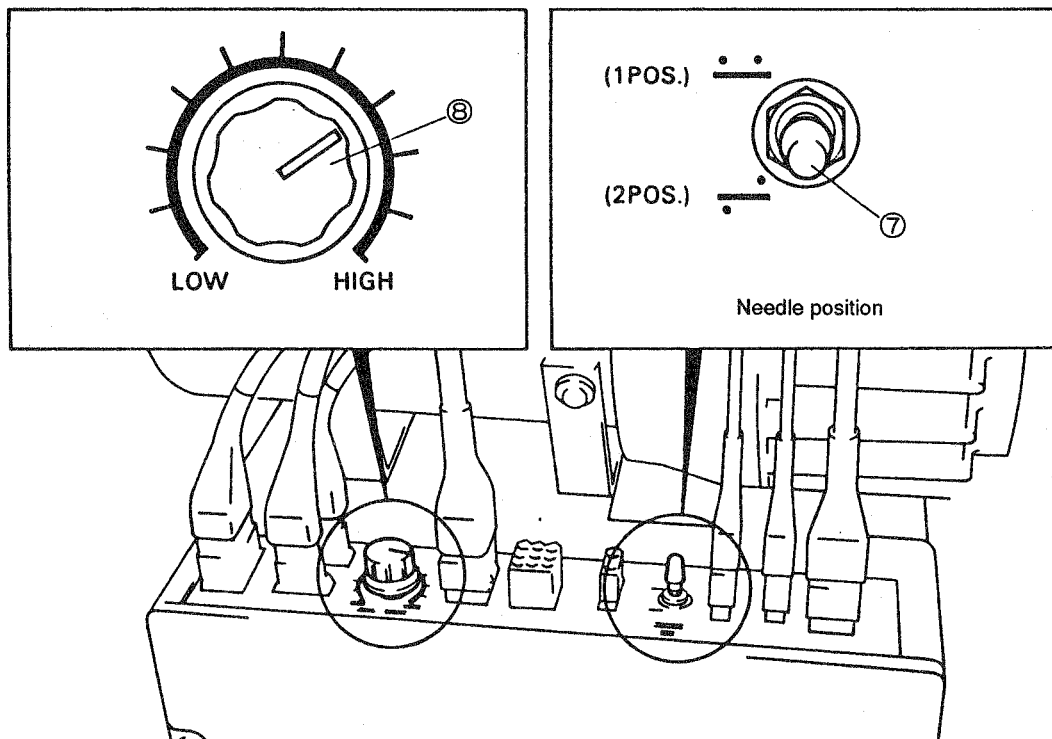
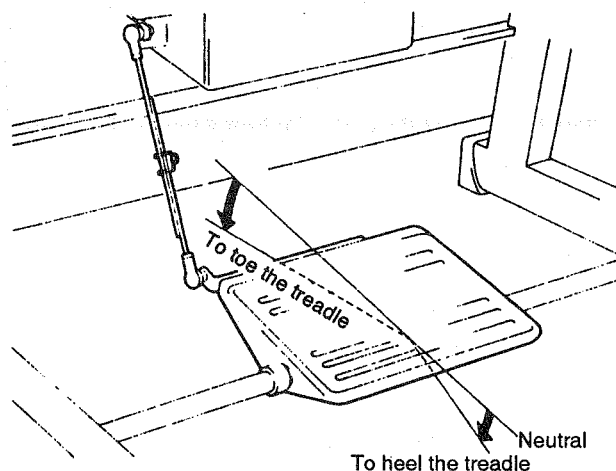
- ◇ If the motor application is set to the electric top cover thread trimmer, ② position operation can be always performed by selecting either of the two positions.

Treading	Toe treadle → Neutral	Neutral → Heel treadle
1POS. (-)	Stops at highest position.	Thread trimmed, then presser foot lifted.
2POS. (-)	Stops at lowest positions.	Stops at lowest position. — Needle goes up at highest position to trim thread, and then presser foot lifted.

ADJUSTING THE MOTOR MAXIMUM SPEED

The motor maximum speed can be obtained by dial 8 on the control box.

- ◇ The motor does not run at more than 6,000 r.p.m., however large the motor pulley diameter is.



W500-W700

INSTALLING THE SOLENOID ASSEMBLY

1. Install the solenoid assembly by performing ① and ② steps so that the top surface of crank ⑦ can be flush and parallel with that of the machine bed.
(See *.)

(See *.)

2. Adjusting the stroke of the solenoid

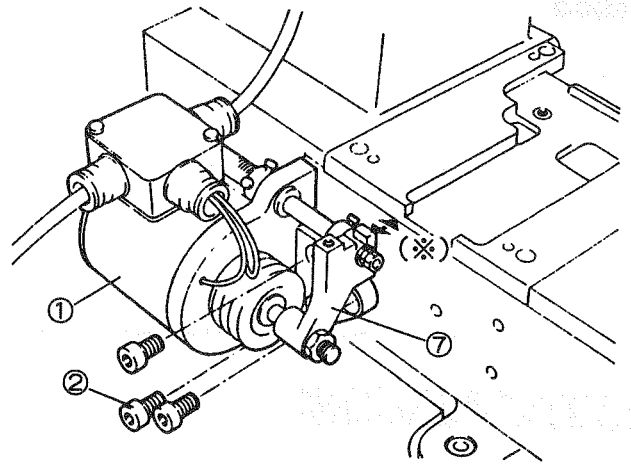
Remove rubber cover ③ and loosen nut ④, then set the solenoid stroke to 17.9mm with stopper ⑤.

◇ When loosening nut ④, an approximately 3mm rod should be inserted into stopper ⑤ in order to prevent from rotating.

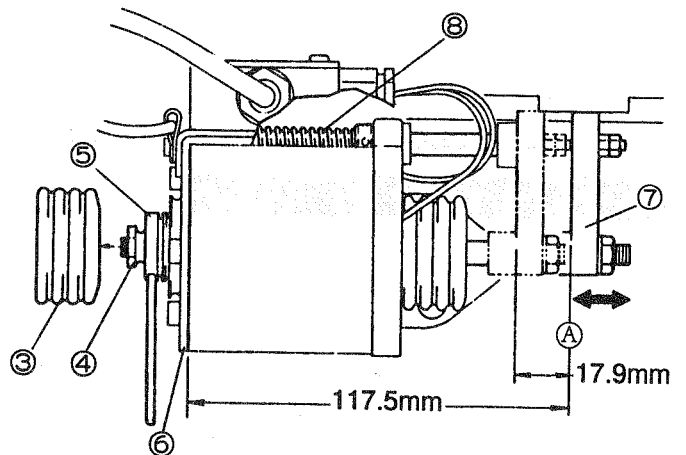
3. Positioning the crank

Set the distance between the right edge of bracket ⑥ and surface A to 117.5mm.

◇ Make sure that crank ⑦ moves lightly when pressure spring ⑧ is not fixed.



As seen from the near side



W500-W700

INSTALLING THE KNIFE HOLDER ASSEMBLY

1. To assemble the upper knife assembly

The distance between the end of upper knife holder ⑨ and the cutting edge of upper knife ⑩ should be 167mm.

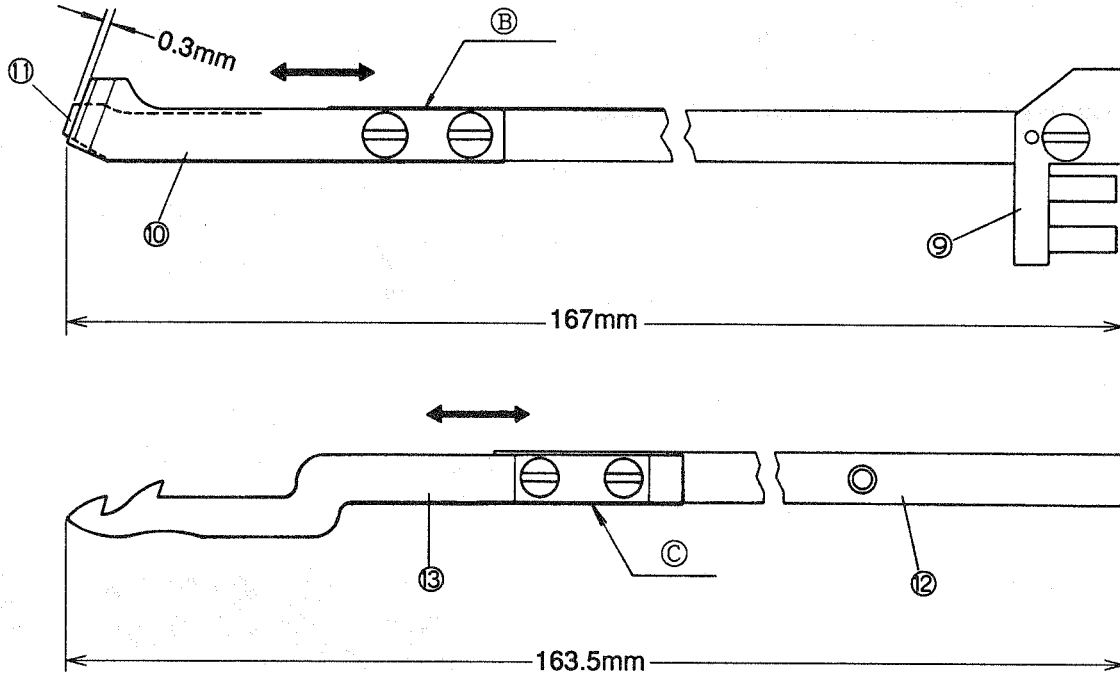
On the W500

The clearance between the cutting edge of upper knife and the end of plate spring ⑪ should be 0.3mm.

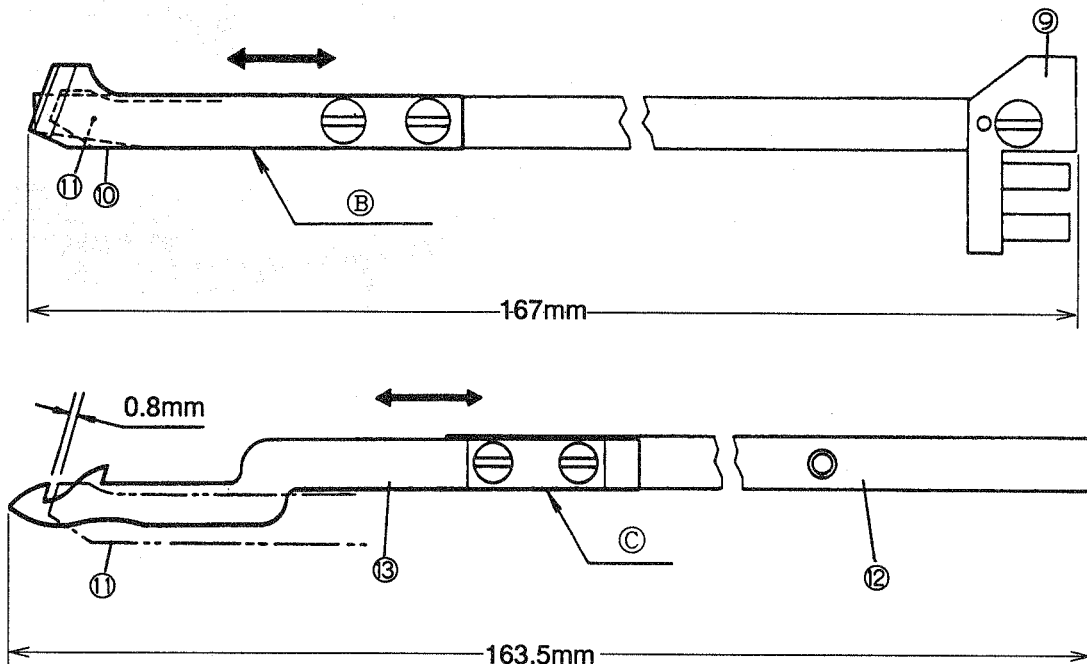
On the W600

The clearance between the left cutting edge of the lower knife and the end of plate spring ⑪ should be 0.8mm. In addition, be sure that the upper knife holder is aligned with surface B of the upper knife.

W500

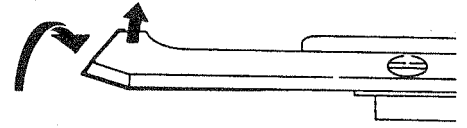


W700



2. To assemble the lower knife assembly

The distance between the end of lower knife holder ⑫ and the tip of lower knife ⑬ should be 163.5mm. Be sure that front surfaces C of the lower knife holder and the lower knife should be aligned.



● Twist and raise the cutting edge of the upper knife slightly in the direction of the arrows, more positive cutting action can be obtained.

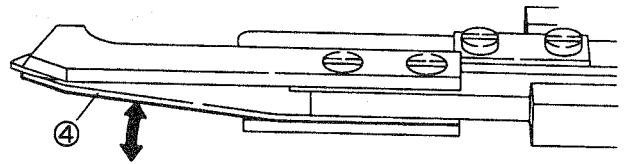
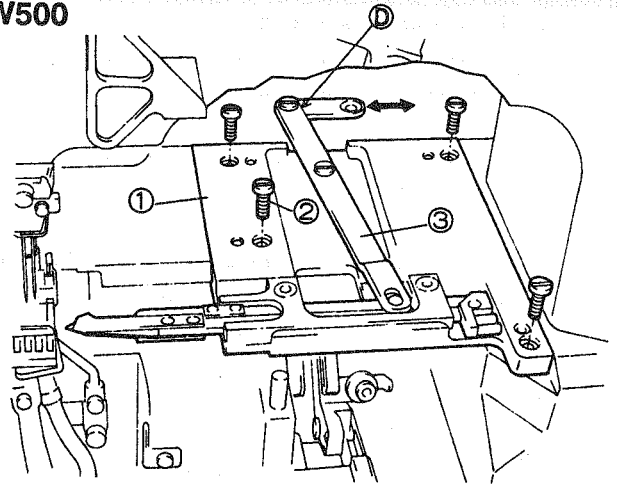
W500-W700

INSTALLING THE KNIFE HOLDER ASSEMBLY

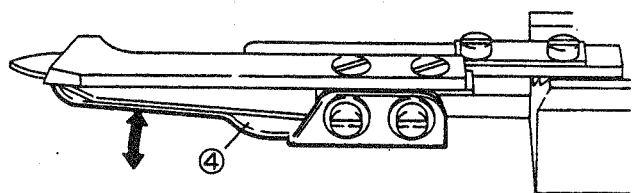
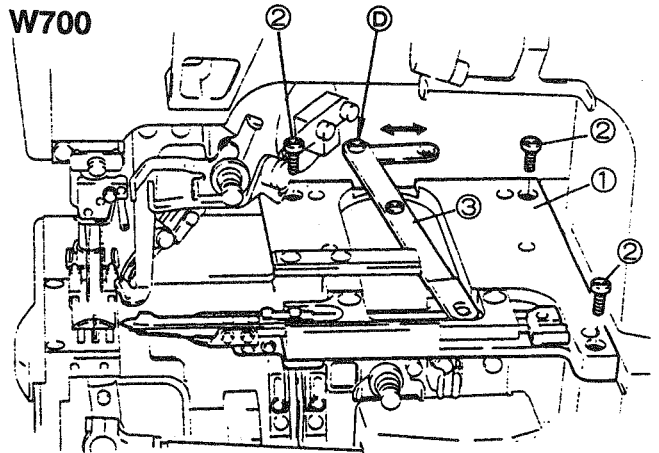
Install the knife holder assembly by performing steps ① and ② in order as shown in the right illustration, and check to see if lever ③ is moved lightly after installation. (Approximately 500g load at point D)

- ◇ Checking the knife cutting action
Confirm that a woolly thread is trimmed smoothly.
Adjust plate spring ④ for improper cutting action.

W500



W700

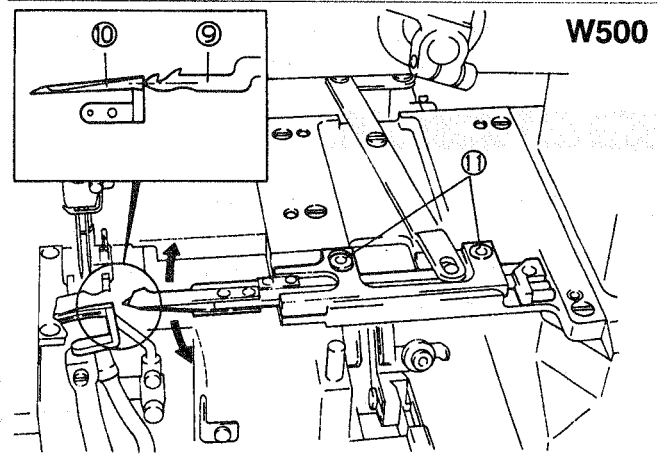
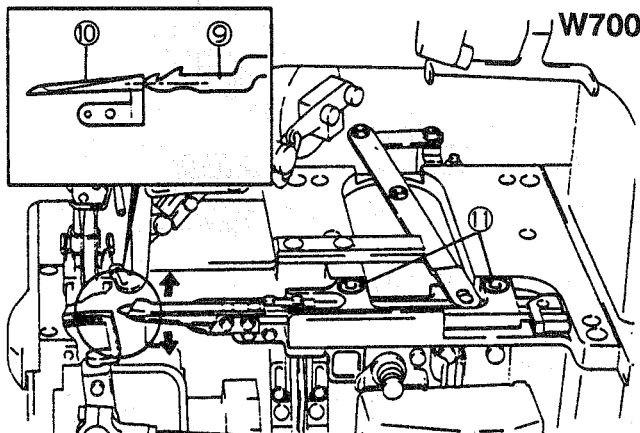
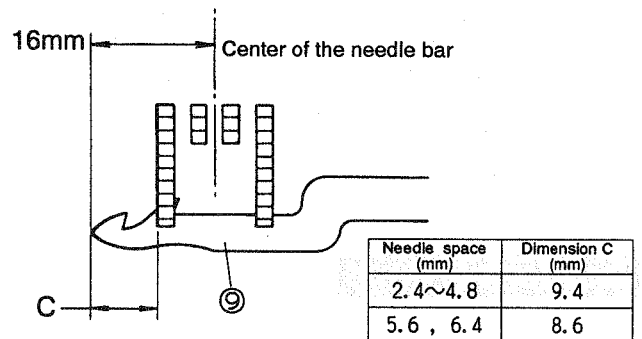
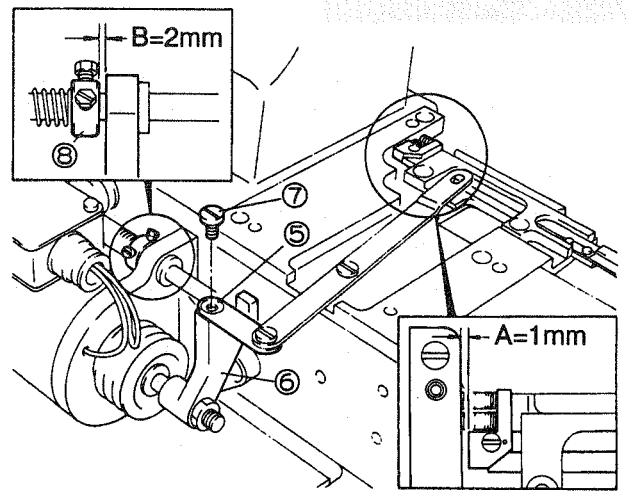


W500•W700

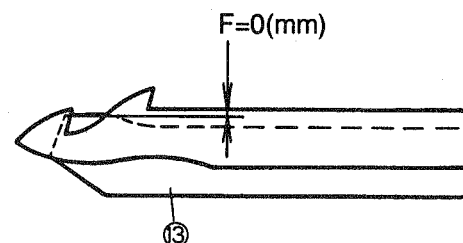
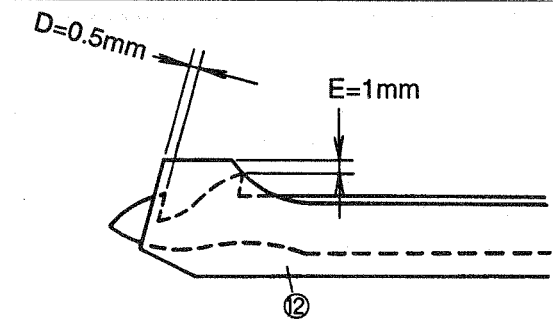
CONNECTING THE SOLENOID ASSEMBLY WITH THE KNIFE HOLDER ASSEMBLY

Connect link ⑤ and crank ⑥ with screw ⑦ by referring to the right illustration. Check the dimensions of each portion. (The needle bar should be at the highest position of its travel. This setting is made by P mark on the handwheel.) (Upper stop position)

1. Clearance A should be 1mm after installation.
2. To adjust the return spring pressure, position collar 8 so that clearance B can be 2mm.
3. The projection of lower knife ⑨ is dimension C when the lower knife is at the extreme left of its travel. (See the right illustration.)



4. To position lower knife ⑨ front to back correctly, the tip of the lower knife should be centered over looper ⑩. Adjustment can be made by screws ⑪. At this time the needle bar should be at the highest position of its travel. (Upper stop position)
5. Dimension D should be 0.5mm when the left cutting edge of the lower knife mates the cutting edge of upper knife ⑫. Dimension E between the tip of the right cutting edge of the lower knife and the upper knife should be approximately 1mm.
6. Position plate spring ⑬ and the lower knife as shown in the right illustration so that dimension F can be 0mm.



◇When the above parts is positioned exactly at the dimensions as specified, check to see if the solenoid assembly, the knives and knife holder assemblies are installed correctly by referring to pages 25 to 27.

W600

ADJUSTING THE SOLENOID

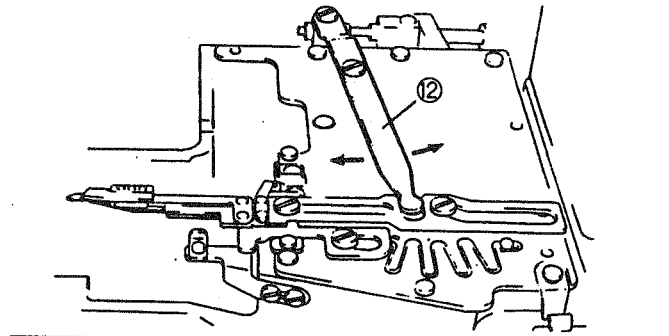
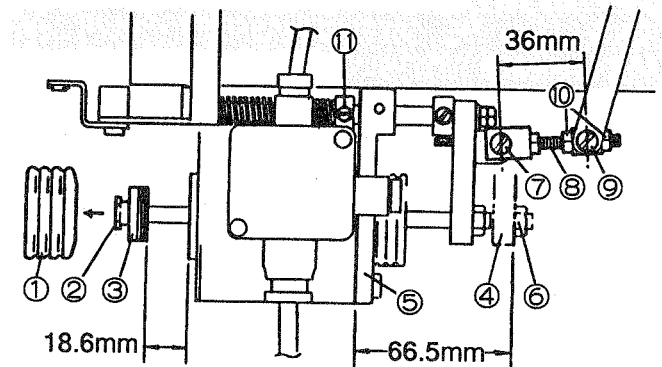
1. The amount of the solenoid movement should be set to 18.6mm. Remove rubber cover ①, loosen nut ② and then adjust the solenoid by means of stopper ③.

◇ When loosening nut ②, an approximately 3mm rod should be inserted into stopper ⑤ in order to prevent from rotating.

2. Position crank ④ so that the distance between the left end of bracket ⑤ and the right end of crank ④ will be 66.5mm with the solenoid activated as shown in the right illustration. Loosen nut ⑥ to make this adjustment.

3. There must be a 36mm distance between the center of screw ⑧ and that of screw ⑨ in order to mount connecting rod ⑦. Since fine adjustment is made when adjusting the lower knife, fix the connecting rod temporarily with nut ⑩.

4. Loosen collar set screw ⑪ in order to adjust the knives.
(See page 30.)



ADJUSTING THE KNIVES

The needle should be at the highest position of its travel to make this adjustment. Loosening collar set screw ① can make lever ⑫ drive easily by hand. Then adjust the knives.

LOWER KNIFE ADJUSTMENT

1. Horizontal positioning adjustment of the lower knife.

The distance between the center of lower knife set screw ⑭ and tip A of the lower knife should be 65.5mm. To make this adjustment, loosen lower knife set screw ⑭.

◇ Press pushbutton ⑮ to raise the looper thread take-up, and then install thread guide ⑰ by loosening set screw ⑱ so that bracket 16 and thread guide ⑰ will not touch with each other.

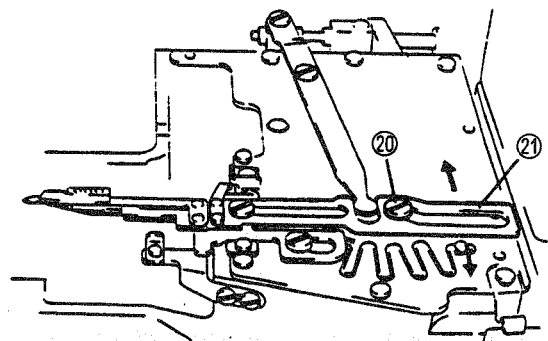
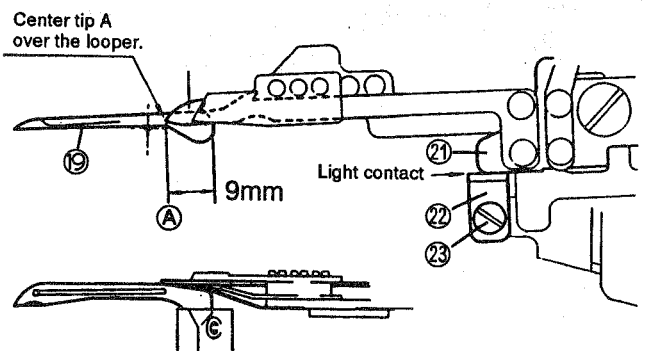
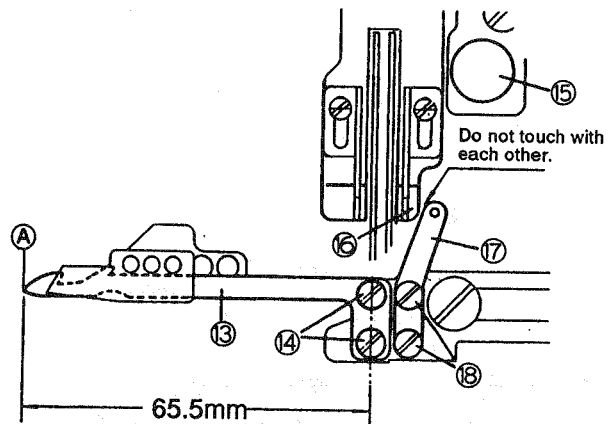
2. Front-to-back positioning adjustment of the lower knife.

To position lower ⑬ knife front to back correctly, tip A of the lower knife should be centered over the looper when tip A has moved 9mm to the left from the right edge of looper ⑲.

This adjustment can be made by loosening set screw ⑳ and shifting lower knife holder ㉑ front to back.

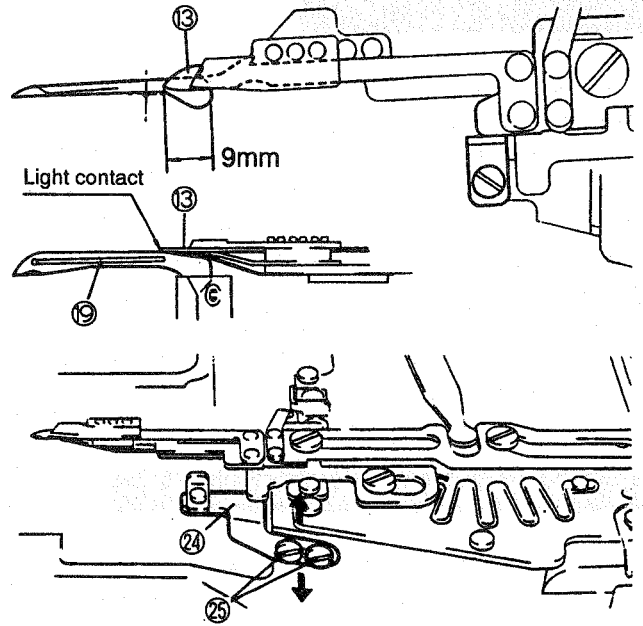
3. Positioning adjustment of the knife holder guide.

With the lower knife tip positioned at the place described in above ② (9mm away from the right edge of the looper), adjust knife holder guide ㉒ by loosening set screw ㉓. Be sure that knife holder guide ㉒ contacts the end surface of lower knife holder ㉑ slightly.



4. Vertical positioning adjustment of the lower knife.

With the lower knife tip positioned at the place described in above 2 (9mm away from the right edge of the looper), move the lower knife up or down as required by loosening set screws 25 on bracket 24 to make this adjustment. Be sure that the bottom surface of lower knife 13 contacts the top surface of looper 19 slightly.



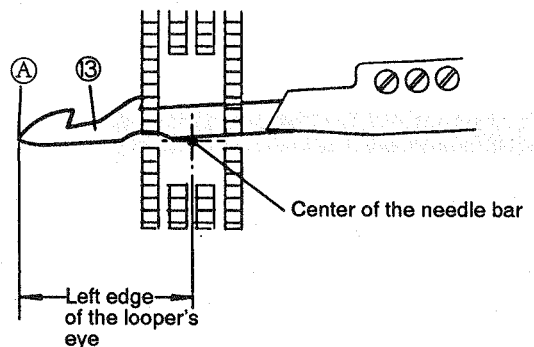
5. Adjusting the lower knife at the extreme left end of its travel

With lower knife 13 at the farthest position to the left, loosen nut 26 to adjust the lower knife so that the distance between tip A of the lower knife and the center of the needle bar will be 22mm.

◇To make the above adjustment easily, check to see if the left edge of the looper's eye aligns the tip of the lower knife.

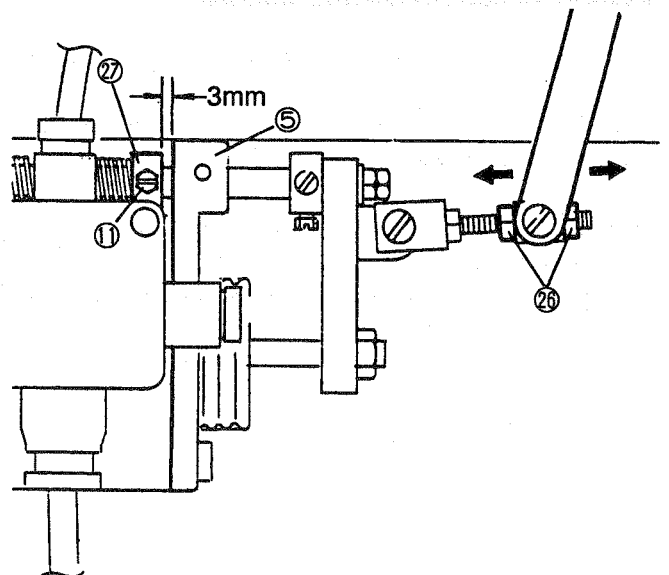
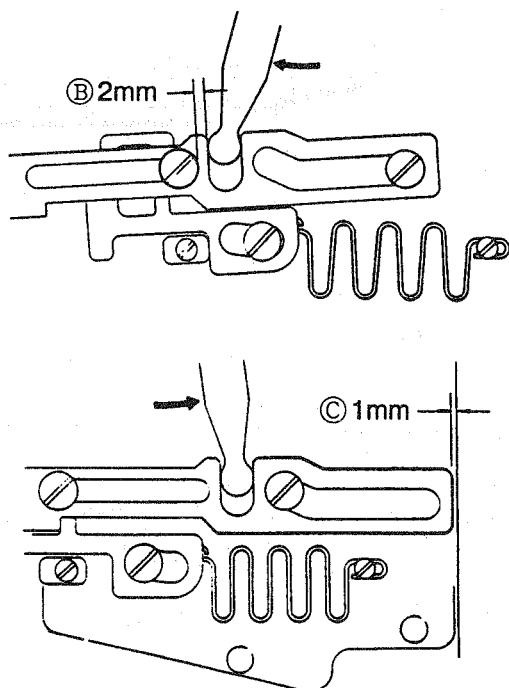
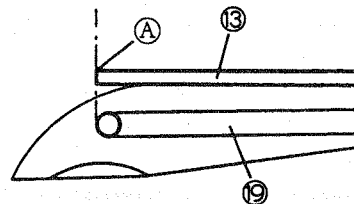
6. Confirm the following after the above adjustment has been made.

- ◇Dimension B should be approximately 2mm with lower knife 13 at the extreme left end of its travel.
- ◇The clearance between the right end of the lower knife holder and the arm bed should be approximately 1mm with lower knife 13 at the extreme right end of its travel.



7. Loosen set screw 11 and then position collar 27 and bracket 5

when the solenoid is not activated (see below). Make sure that the clearance between the left end of bracket 5 and the right end of collar 27 is 3mm.

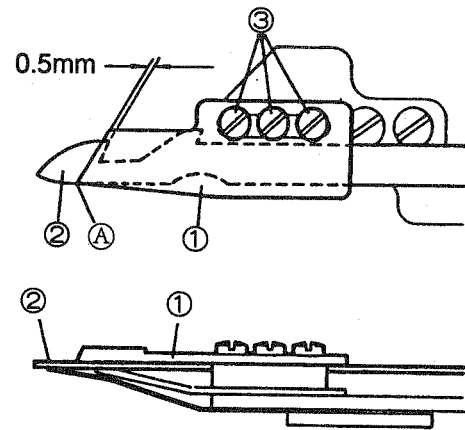


W600

UPPER KNIFE ADJUSTMENT

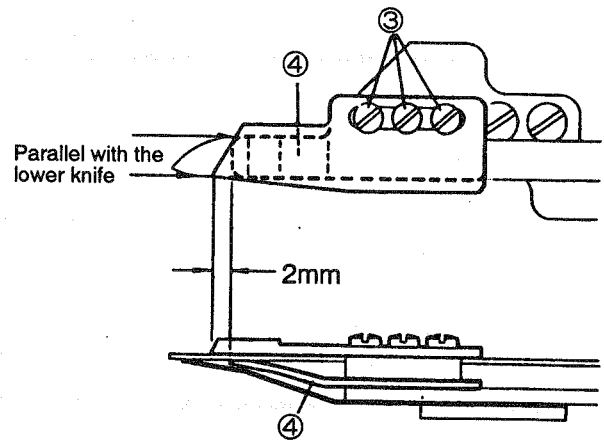
1. Overlap and front-to-back positioning adjustments of the upper and lower knives

This adjustment achieves the correct overlap of upper knife ① and lower knife ②. There should be 0.5mm when the lower knife is at the farthest position to the right. To adjust the upper knife front to back, align tip A of the upper knife with the front edge of the lower knife by loosening set screw ③. When making the above adjustment, the lower knife clamp spring can be loosened, adjust the lower knife clamp spring simultaneously. (See the following.)



LOWER KNIFE CLAMP SPRING ADJUSTMENT

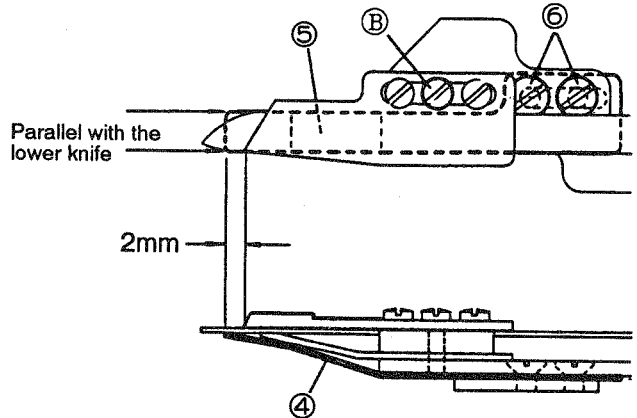
1. Position lower knife clamp spring ④ 2mm to the right from the tip of the upper knife as shown in the right illustration. Adjust the lower knife clamp spring front to back by loosening set screws ③. Be sure that the lower knife clamp spring is parallel with the lower knife.



UNDER THREAD HOLDER ADJUSTMENT

1. Position under thread holder ⑤ 2mm to the left from the tip of the upper knife as shown in the right illustration. Adjust the under thread holder front to back by loosening set screws ⑥. Be sure that the looper thread holder is parallel with the lower knife.
2. Under thread holder ⑤ holds the under threads at the knife portion after the under threads have been cut. Adjust the looper thread holder with screw B.

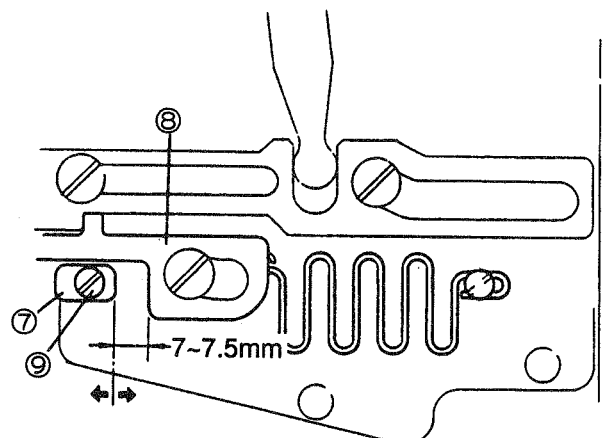
◇ To increase the under thread holder spring pressure, turn screw B counterclockwise.



UPPER KNIFE STOPPER ADJUSTMENT

1. Position upper knife stopper ⑦ to provide a 7-7.5mm clearance between knife holder guide ⑧ and upper knife stopper ⑦ when knife holder guide is all the way to the right. Loosen set screw ⑨ to make this adjustment.

◇ Increasing the clearance reduces the needle thread length.
◇ Decreasing the clearance increases the needle thread length.



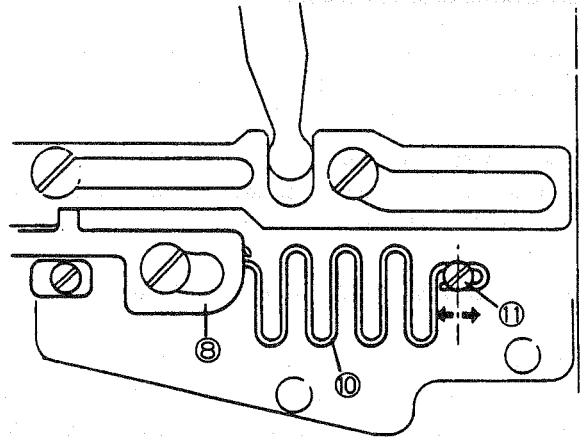
KNIFE HOLDER GUIDE CLAMP SPRING ADJUSTMENT

1. Knife holder guide clamp spring ⑩ presses knife holder guide ⑧ to keep the upper knife in the position when the upper and lower knives overlap. In the standard setting, screw ⑪ should be centered in the set slot for spring ⑩.

In the standard setting, Screw S should be in the center of the elongated hole of Spring ⑩.

If the upper knife and lower knives are not activated properly in the standard setting, adjust the spring pressure by loosening screw ⑪.

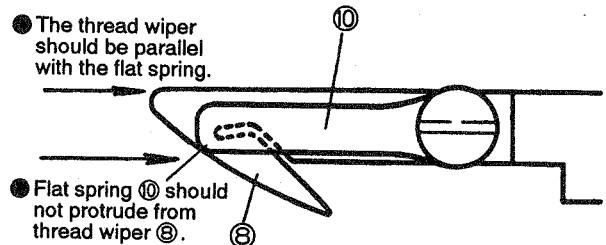
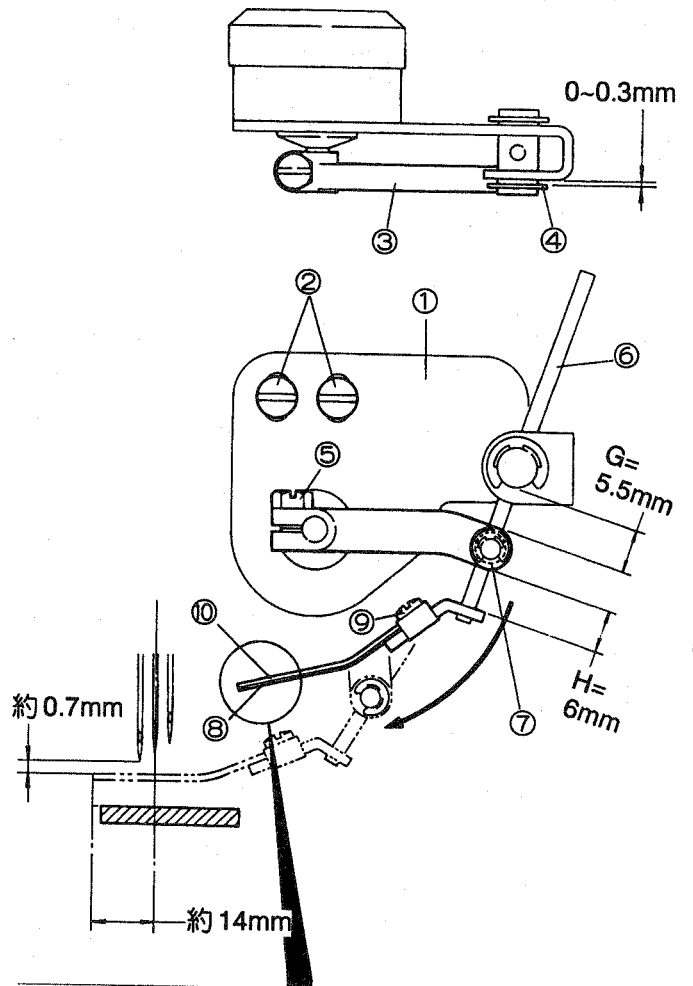
If the spring pressure is too heavy, the upper and lower knives will not return home correctly.



W500•W700

THREAD WIPER ADJUSTMENT

1. Temporarily fix bracket ① horizontally with screws ②. Screws ② should be in the center of the slots.
2. Tighten screw ⑤ to position lever ③ horizontally. There should be a 0 to 0.3mm clearance between bracket ① and stopper ring ④. And dimension G is 5.5mm.
3. Secure shaft ⑥ with screw ⑦. Dimension H should be 6mm.
4. Position thread wiper ⑧ with screws ⑨ and ②. The distance between the left end of the thread wiper and the center of the needle bar should be approximately 14mm when the thread wiper is all the way to the left and a standard clearance 0.7mm is between the thread wiper and the left needle with the needle bar at the highest position of its travel.
5. On the W500 the ends of thread wiper ⑧ and flat spring ⑩ must be aligned as shown below.
6. On the W700 position thread wiper ⑧ parallel with flat spring ⑩.



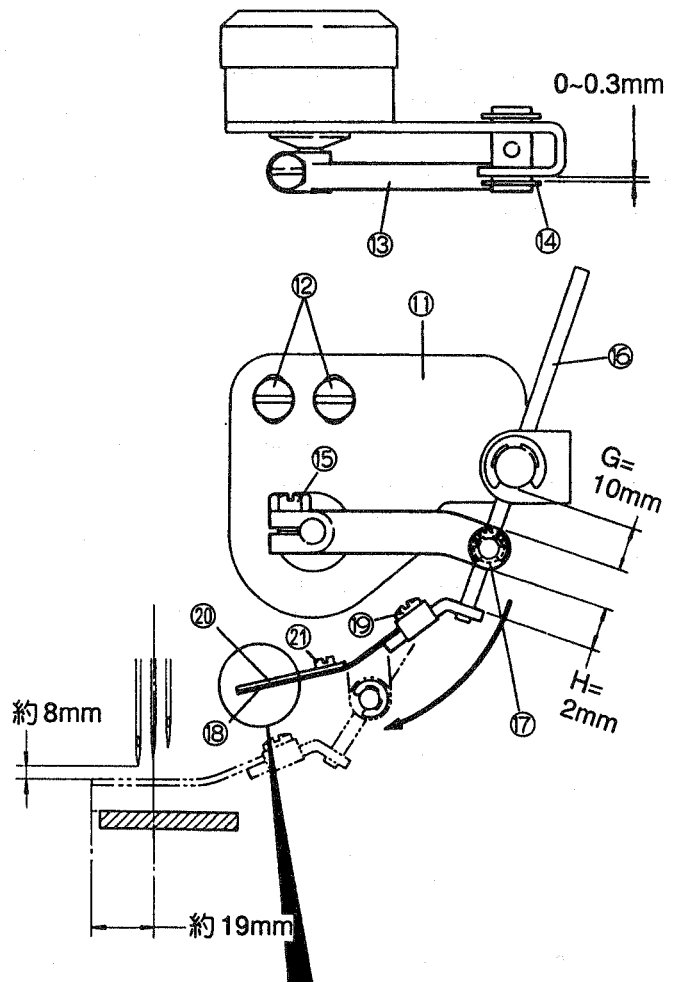
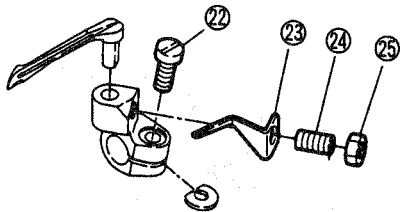
W600

THREAD WIPER ADJUSTMENT

1. Temporarily fix bracket ① horizontally with screws ②. Screws ② should be in the center of the slots.
2. Tighten screw ⑤ to position lever ③ horizontally. There should be a 0 to 0.3mm clearance between bracket ① and stopper ring ④. And dimension G is 10mm.
3. Secure shaft 16 with screw 17. Dimension H should be 2mm.
4. Position thread wiper ⑧ with screws ⑨ and ⑩. The distance between the left end of the thread wiper and the center of the needle bar should be approximately 19mm when the thread wiper is all the way to the left and the clearance between the left needle and thread wiper should be approximately 8 mm.
5. Position thread wiper ⑧ parallel with flat spring ⑫ with screw ⑪.

LOOPER THREAD HOOK INSTALLATION

Parts ⑫~⑮ are packaged in the accessory box. Install looper thread hook ⑫ with screw ⑭.



● The thread wiper should be parallel with the flat spring

● Flat spring ⑫ should not protrude from thread wiper ⑧.

THREAD RELEASER ADJUSTMENT

1. On the W500 and 700 Series, position thread releaser crank ① with screw ② so that the distance between the side of the bed and that of the crank will be 33mm.

2. Loosen screw ④ of crank ③ and connect lever ⑤ with cranks ① and ③ by means of screw ⑥.

3. On the W600 Series, position thread releaser crank ⑦ with screw ⑧ so that the distance between the side of the bed and that of the crank will be 10mm.

4. Connect lever ⑤ with cranks ① and ③ by means of screw ⑥.
(See the above description for the W500 and 700 Series.)

5. Lever shaft ⑨ should be adjusted to provide a clearance of 0-0.5mm between the tension disc and the finger of thread releaser ⑦. And then tighten screw ④ of crank ③.

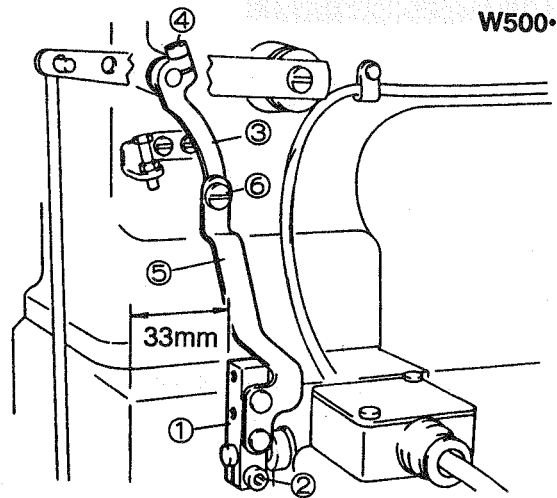
6. Secure shaft ⑩ with screw ⑪ so that dimension A can be 37mm.

◇The thread releasing amount can be decided by the relationship between thread guide ① and thread releaser ②.
Adjust the amount by referring to the following.
For cotton thread:
Adjust to reduce each distance shown above for stretchy threads such as woolly threads.

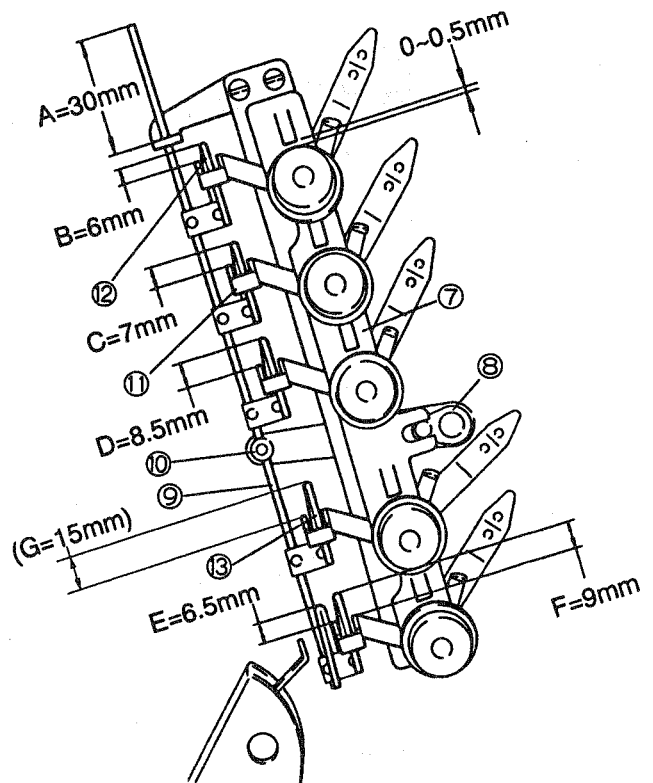
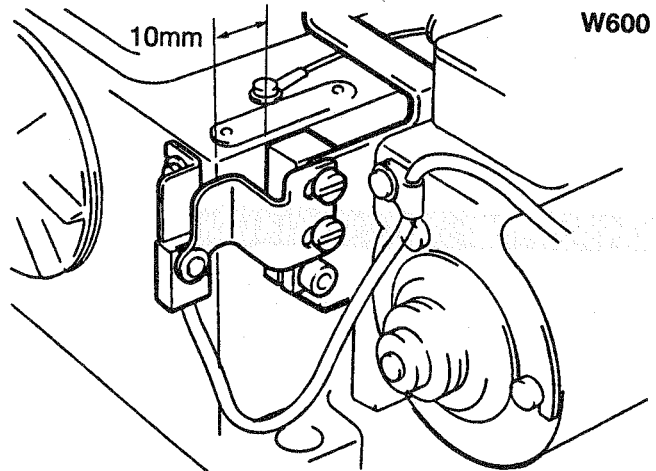
◇Without top cover thread trimmer
Thread releaser ⑬ for top cover thread must be set to the position where cannot be affected when the needle thread and looper thread are loosened.

◇With top cover thread trimmer
G should be 15mm.

W500-700

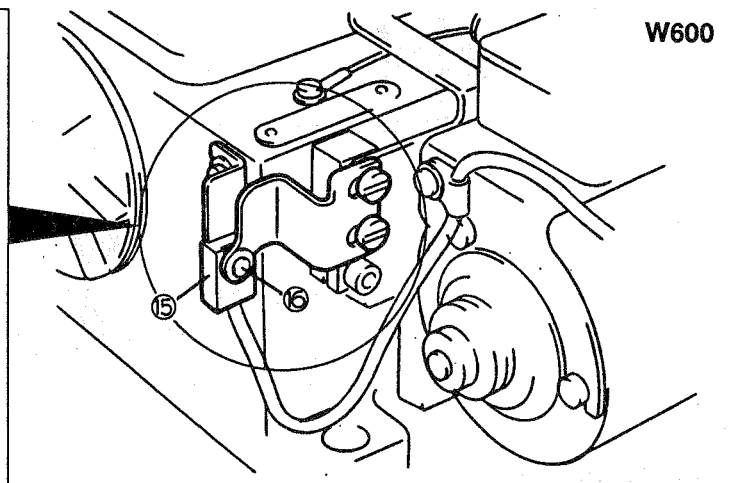
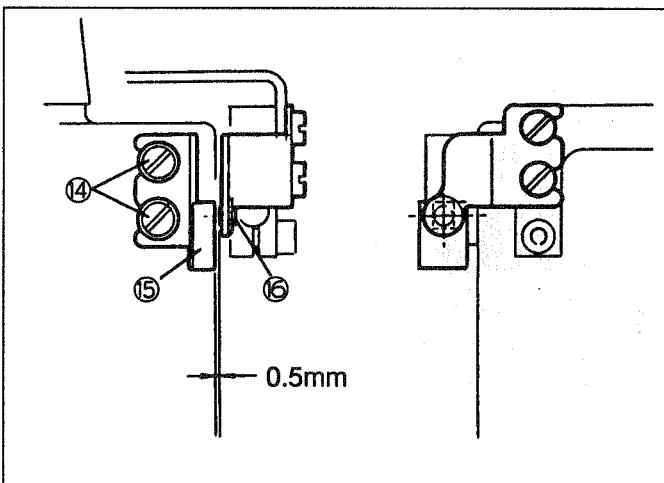
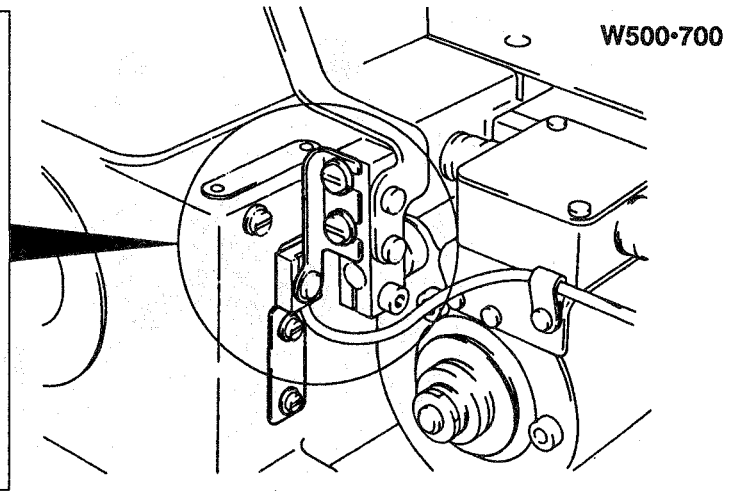
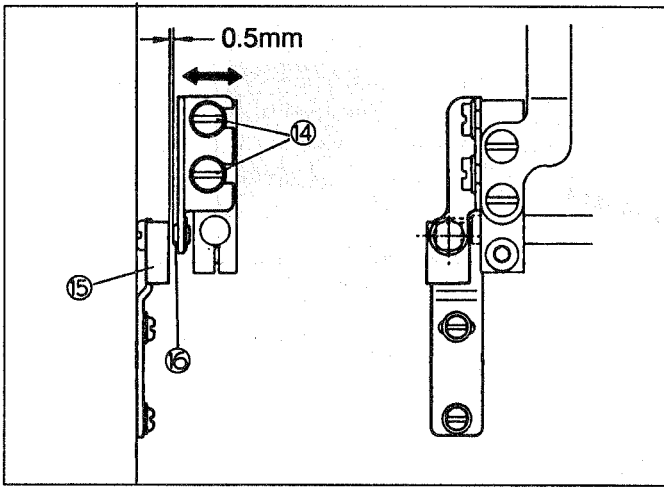


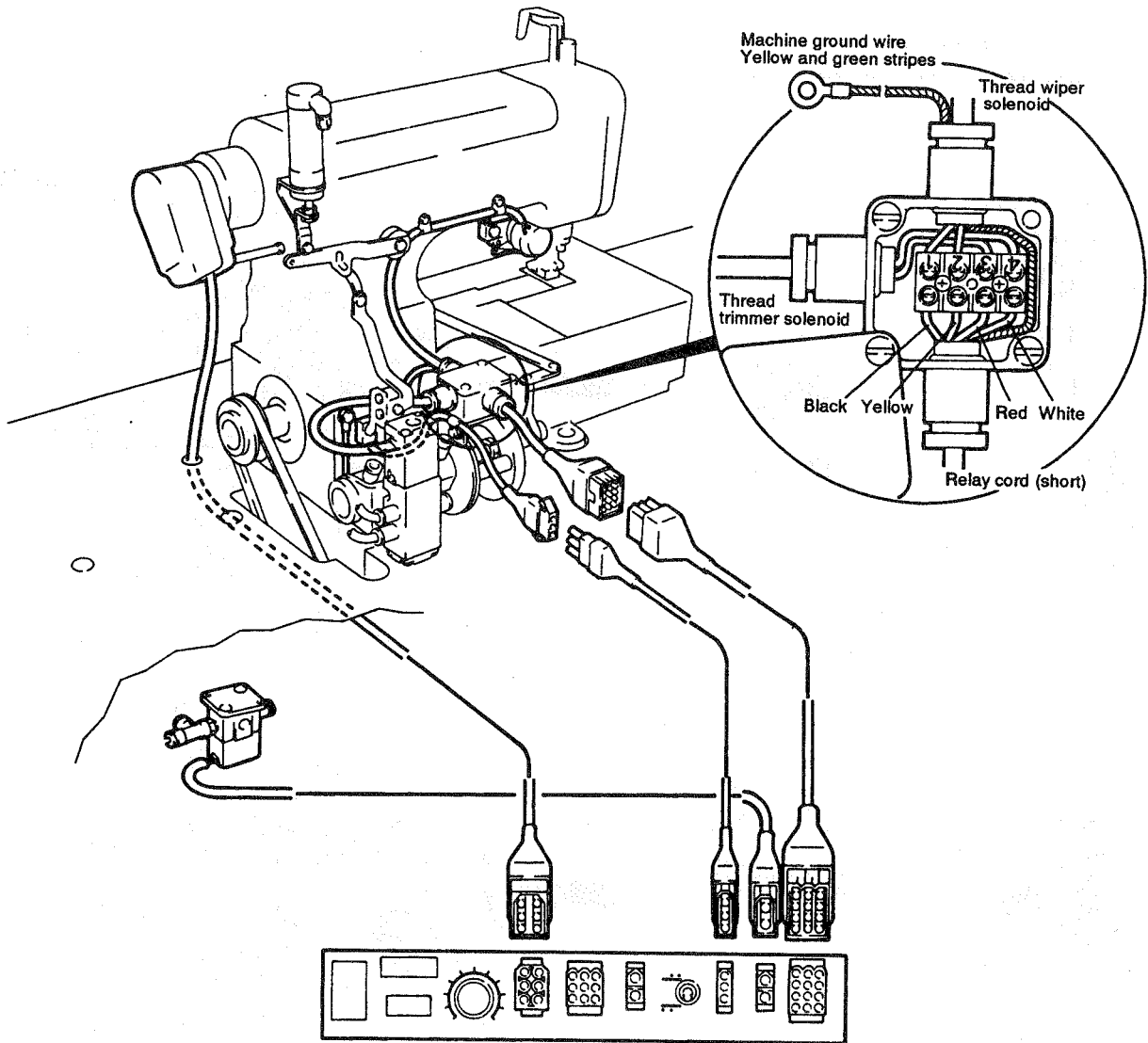
W600



OPERATION DETECTOR ADJUSTMENT

Loosen screws ⑭. Be sure that the clearance between operation detector ⑮ and magnet ⑯ is 0.5mm. (See page 23 for the left-to-right positioning adjustment.)





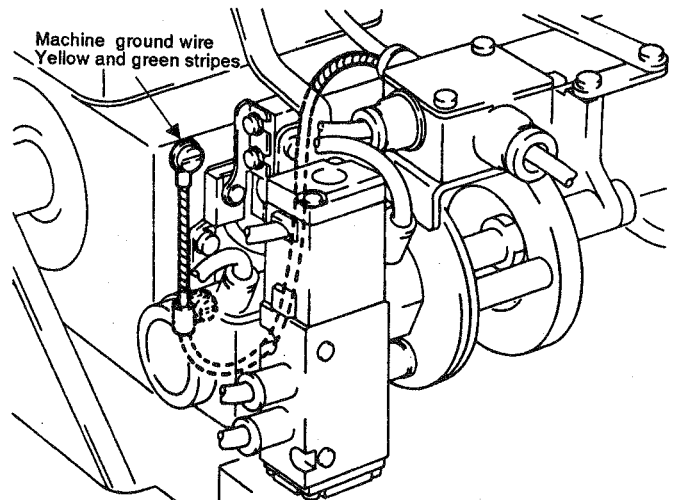
W500-700

CONNECTING CORDS FOR THE PNEUMATIC UT DEVICE

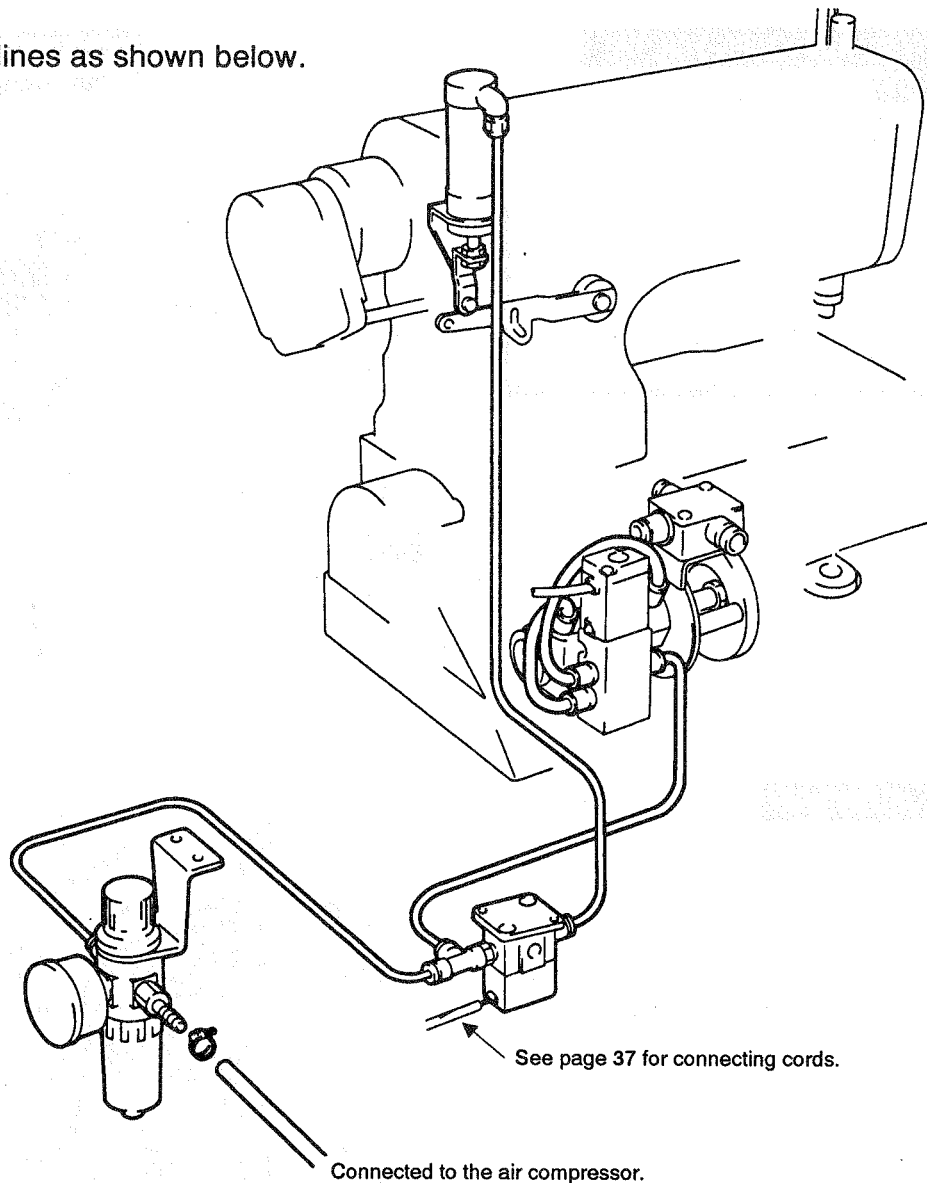
(Electric top cover thread trimmer which trims the thread from the right side)

Connect cords as shown in the illustrations.

Refer to pages 19 to 24 of notes, procedures and adjustments for connecting cords of the electric UT device.



Connect air lines as shown below.



CONNECTING AIR LINES OF THE PNEUMATIC UT DEVICE

Connect air lines by referring to the above illustration.

ADJUSTING AIR PRESSURE (FOR THE TYPE WHICH TRIMS THE TOP COVER THREAD FROM THE RIGHT SIDE)

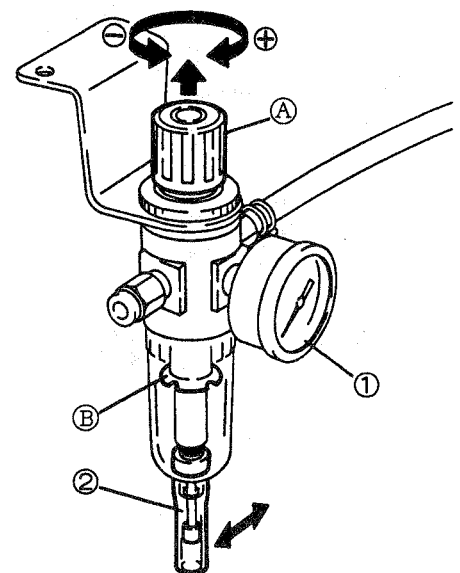
Pull knob A of filter regulator ① up. The knob clicks and lifts up slightly. Then adjust air pressure to set 5 - 7kg/cm² as required..

- ◇To increase the air pressure, turn knob A clockwise.
- ◇To decrease the air pressure, turn knob A counter clockwise.

◇Note that the cutter will be actuated by pressing the valve actuator if air is left enough to operate the cutter in the tube even after the air supply is shut off from the compressor.

DRAINING THE FILTER REGULATOR

Drainage collected in filter regulator ① must be drained until drainage level reaches baffle B by moving hose ② to the left or right.

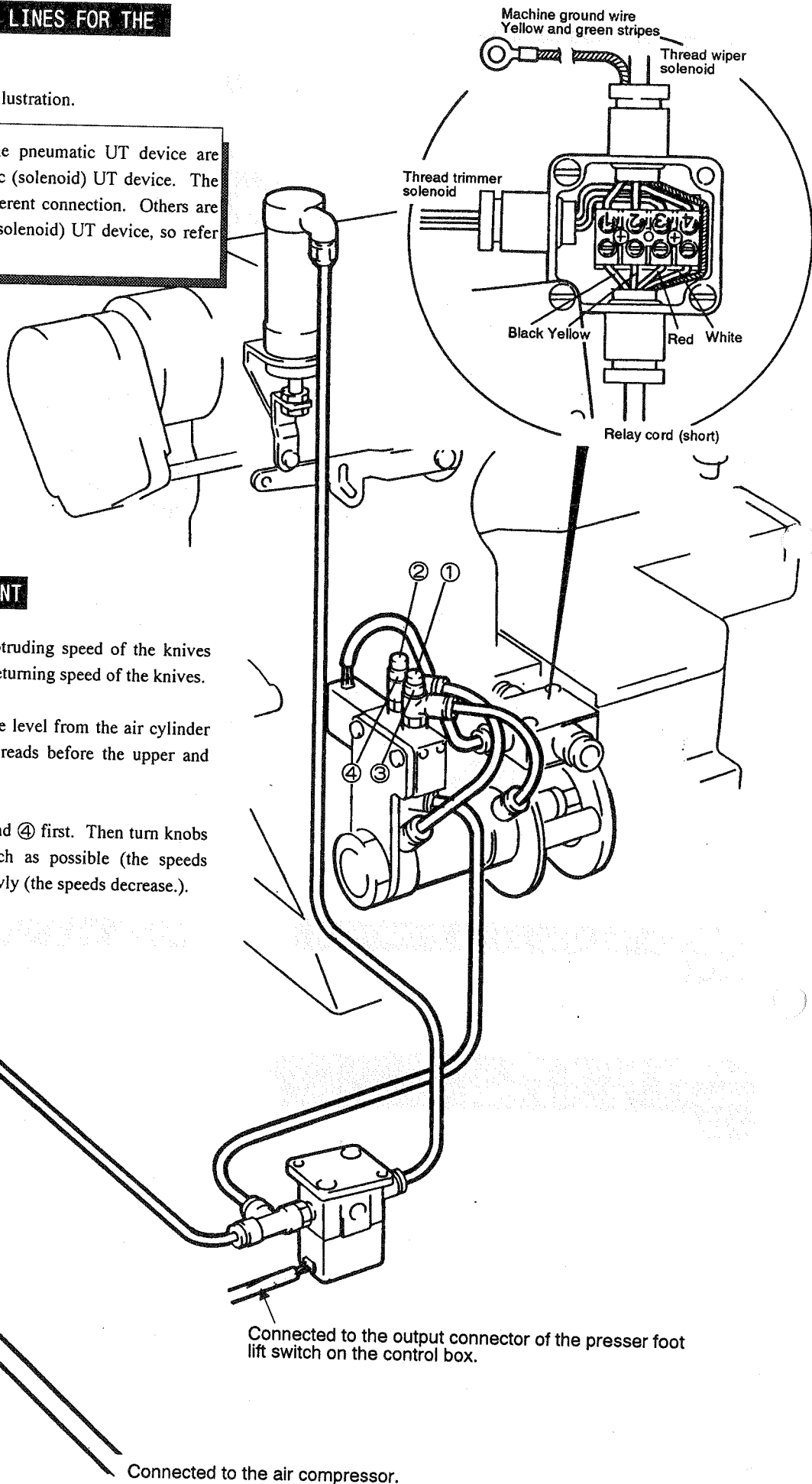


W600

CONNECTING CORDS AND AIR LINES FOR THE PNEUMATIC UT DEVICE

Connect air lines by referring to the illustration.

◇ The connecting procedures of the pneumatic UT device are different from those of the electric (solenoid) UT device. The illustration describes only the different connection. Others are the same as those of the electric (solenoid) UT device, so refer to pages 37 to 38.



SPEED CONTROLLER ADJUSTMENT

Speed controller ① regulates the protruding speed of the knives and speed controller ② regulates the returning speed of the knives.

Too fast speeds may increase the noise level from the air cylinder or cause thread breakage on some threads before the upper and lower knives mates with each other.

To adjust the speeds, loosen nuts ③ and ④ first. Then turn knobs ① and ② counterclockwise as much as possible (the speeds increase.) and turn them clockwise slowly (the speeds decrease.).

INSTALLING THE AIR CYLINDER ASSEMBLY

1. Install the air cylinder assembly by performing ⑤ and ⑥ steps so that the top surface of crank ⑦ can be flush and parallel with that of the machine bed.

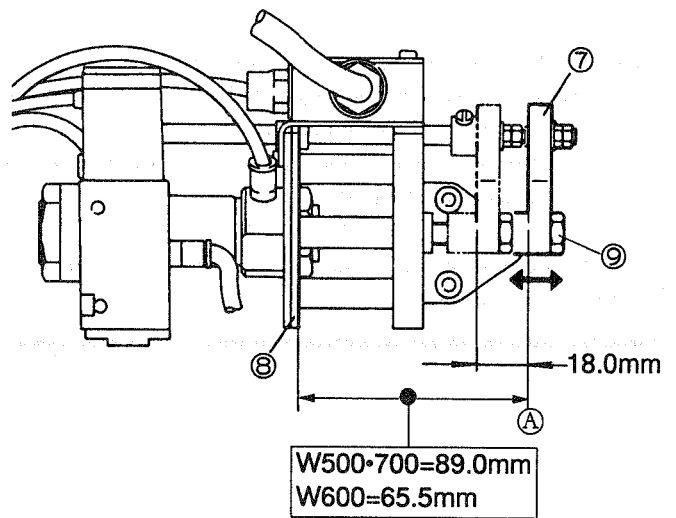
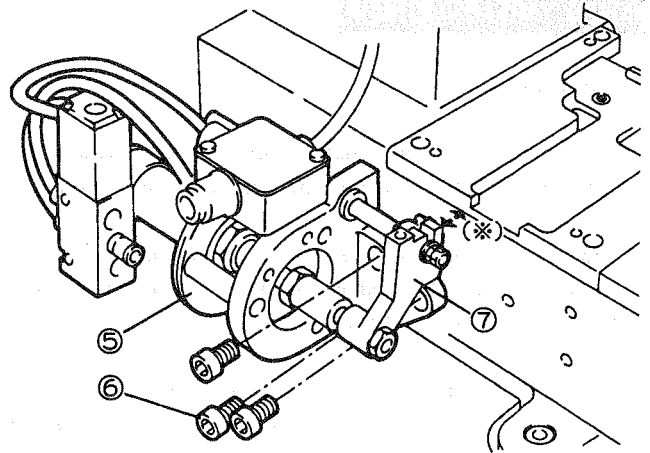
(See ※.)

2. The air cylinder stroke is 18.0mm.

3. On the W500 and 700 the distance between the right edge of bracket ⑧ and surface A of crank ⑦ should be 89.0mm.

On the W600 it should be 65.5mm.

This adjustment can be made by nut ⑨.

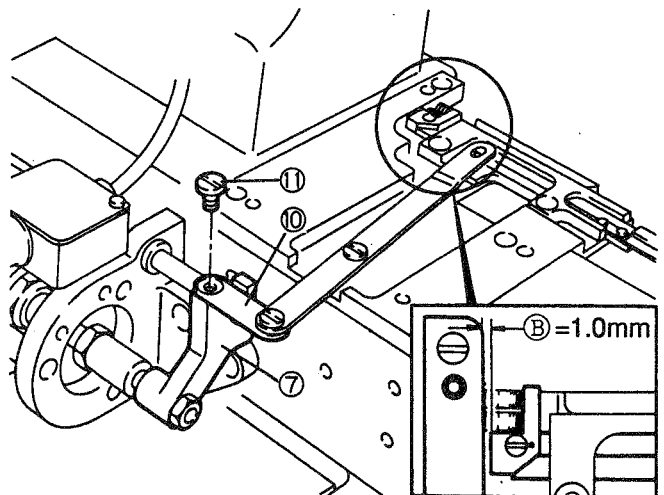


CONNECTING THE AIR CYLINDER ASSEMBLY WITH THE KNIFE HOLDER ASSEMBLY

Connect link ⑩ and crank ⑦ with screw ⑪ by referring to the right illustration.

1. Dimension B should be 1.0mm after installation.

◇Refer to page 28 of notes, procedures and adjustments for the electric UT device.

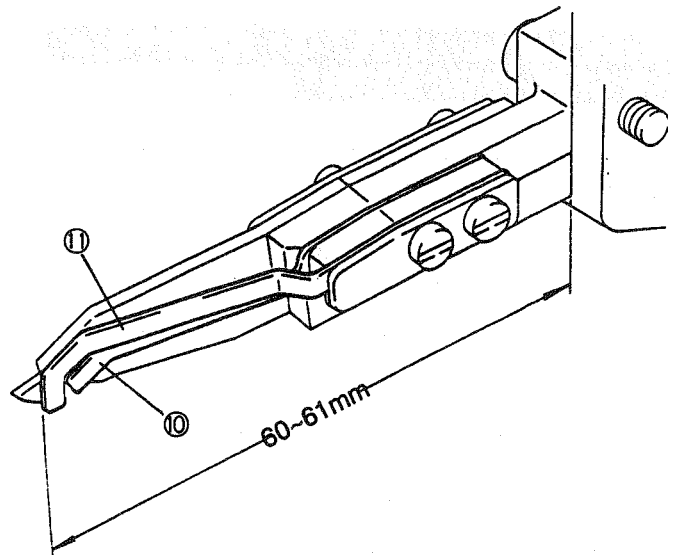
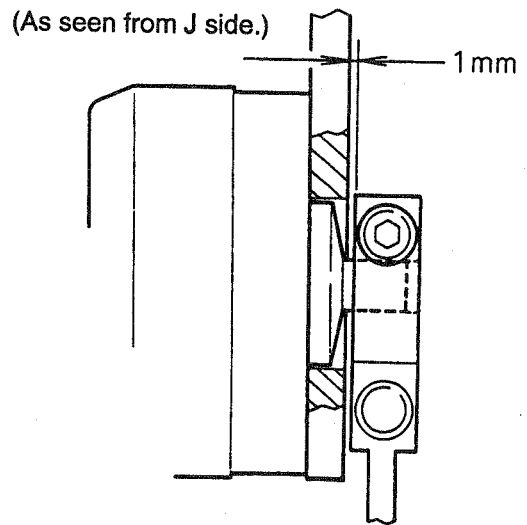
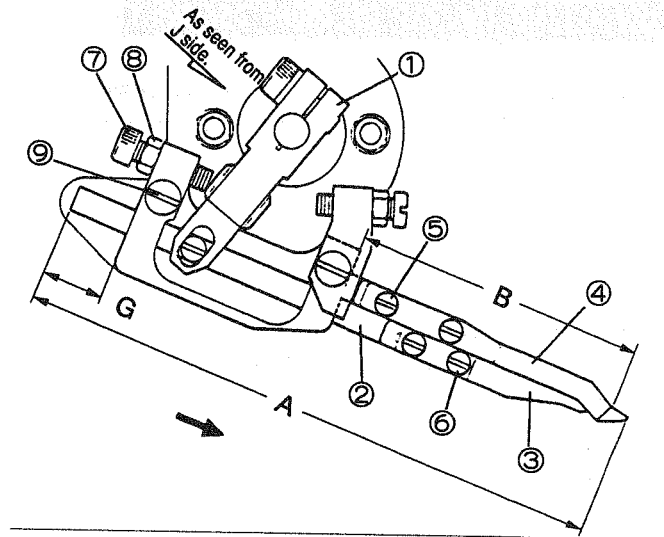


ASSEMBLING AND ADJUSTING THE ELECTRIC TOP COVER THREAD TRIMMER

Knives adjustment

1. Remove lever ① first. Then confirm that knife holder ② is moved easily to direction F by less than approximately 150g.
2. Adjust and fix movable knife ③ and stationary knife ④ with set screws ⑤ and ⑥. Dimension A should be 120mm while dimension B should be 59mm.
3. Fix lever ① so that dimension G can be 13mm. Stopper screw ⑦ should contact cushion rubber on lever ①. Then tighten nut ⑧.
4. Assemble plate springs ⑩ and ⑪.
5. (a) Confirm that a woolly thread is cut smoothly.
(b) Make sure that the remaining part of the woolly thread to be used is held by ⑪ after trimming.
The tension in order to pull out the thread while retaining the thread is more than 10g.

◇ Adjust pressure on plate springs ⑩ and ⑪ if the thread is not trimmed or held correctly.

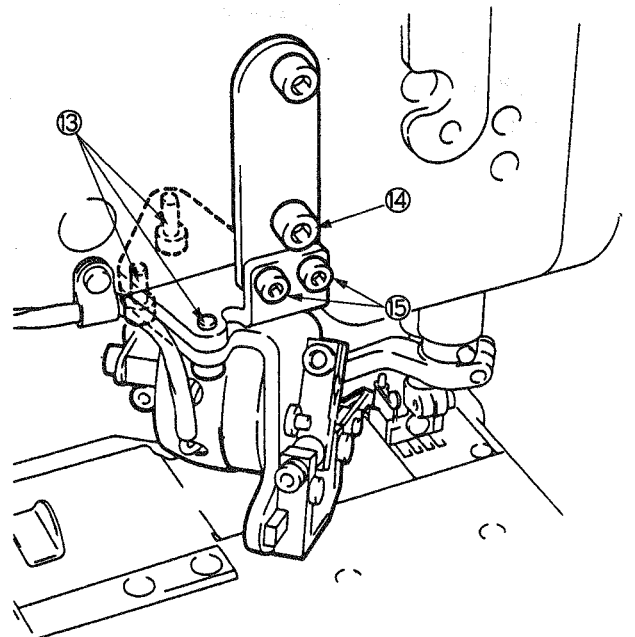
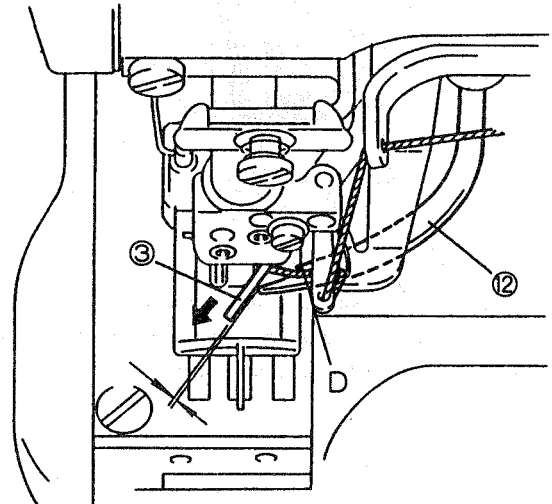
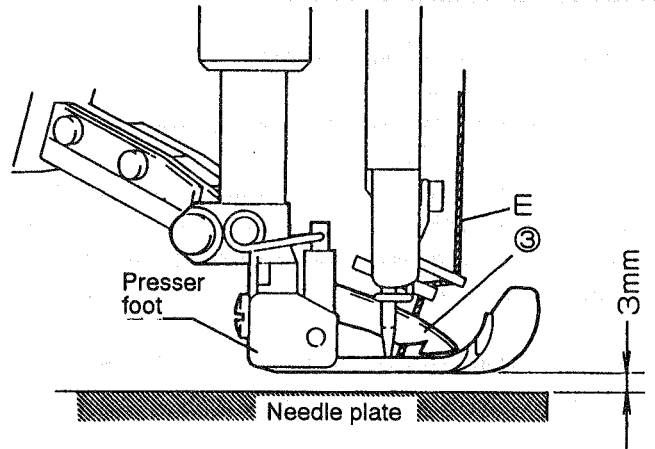


ADJUSTING THE MOVABLE KNIFE REACH

Adjust when the needle is at the lowest position of its travel.

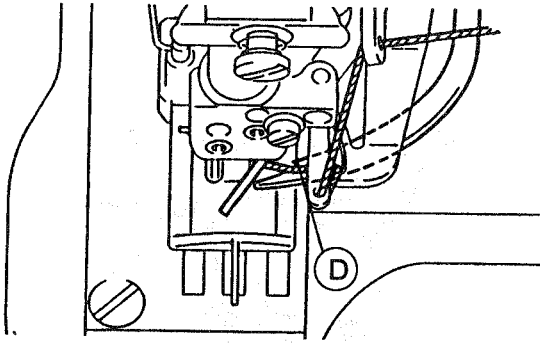
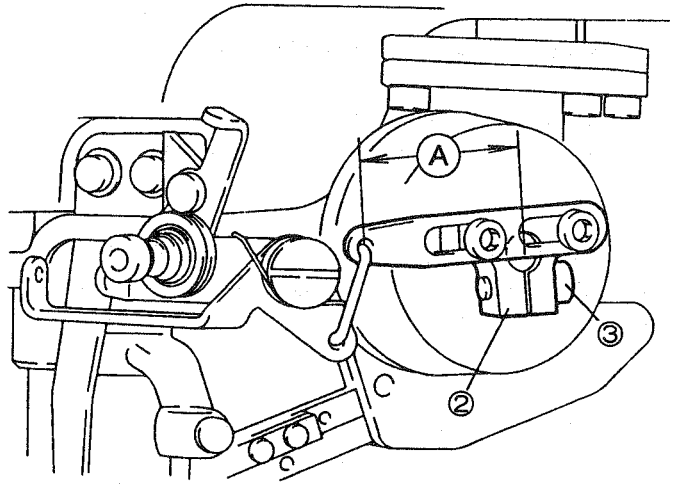
1. The presser foot should be raised 3mm above the top surface of the needle plate (equivalent to 8 pieces of knit fabrics).
2. With movable knife ③ out in the direction of the arrow, bring movable knife ③ toward spreader ⑫. But do not reach spreader ⑫. (Set screws ⑬, ⑭ or ⑮ are used to make this adjustment.)
3. Under the same condition of movable knife ③ as described in ② above install movable knife ③ so that the movable knife can hook top cover thread E as it returns. (Screws ⑨, ⑭ or ⑮ are used to make this adjustment.)

After this adjustment, if the hook of movable knife ③ does not reach top cover thread E with lever ① moved all the way in the direction of arrow F, or the tip of the movable knife rams the presser foot, adjust the knife front to back with set screw ⑥. Should be the case, repeat "Knife adjustment".

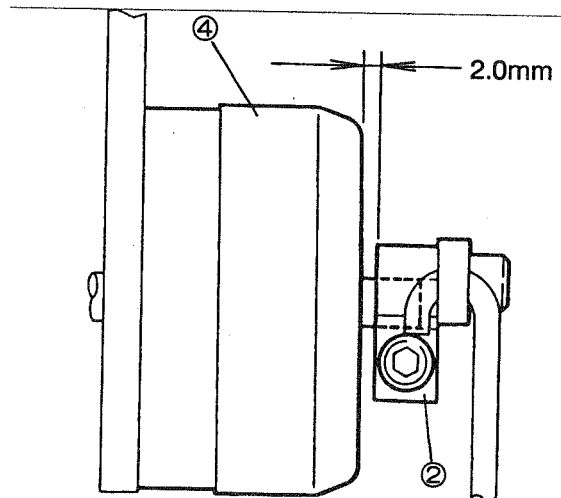
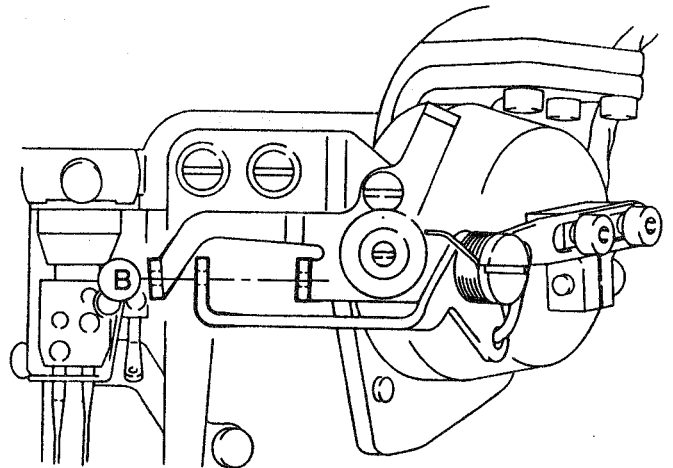
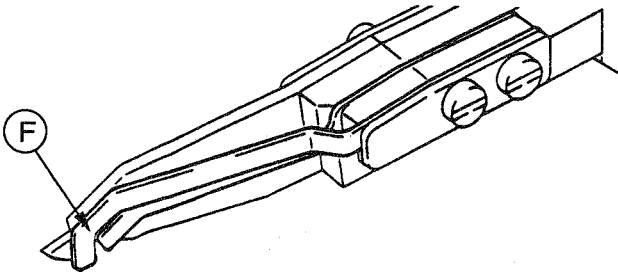


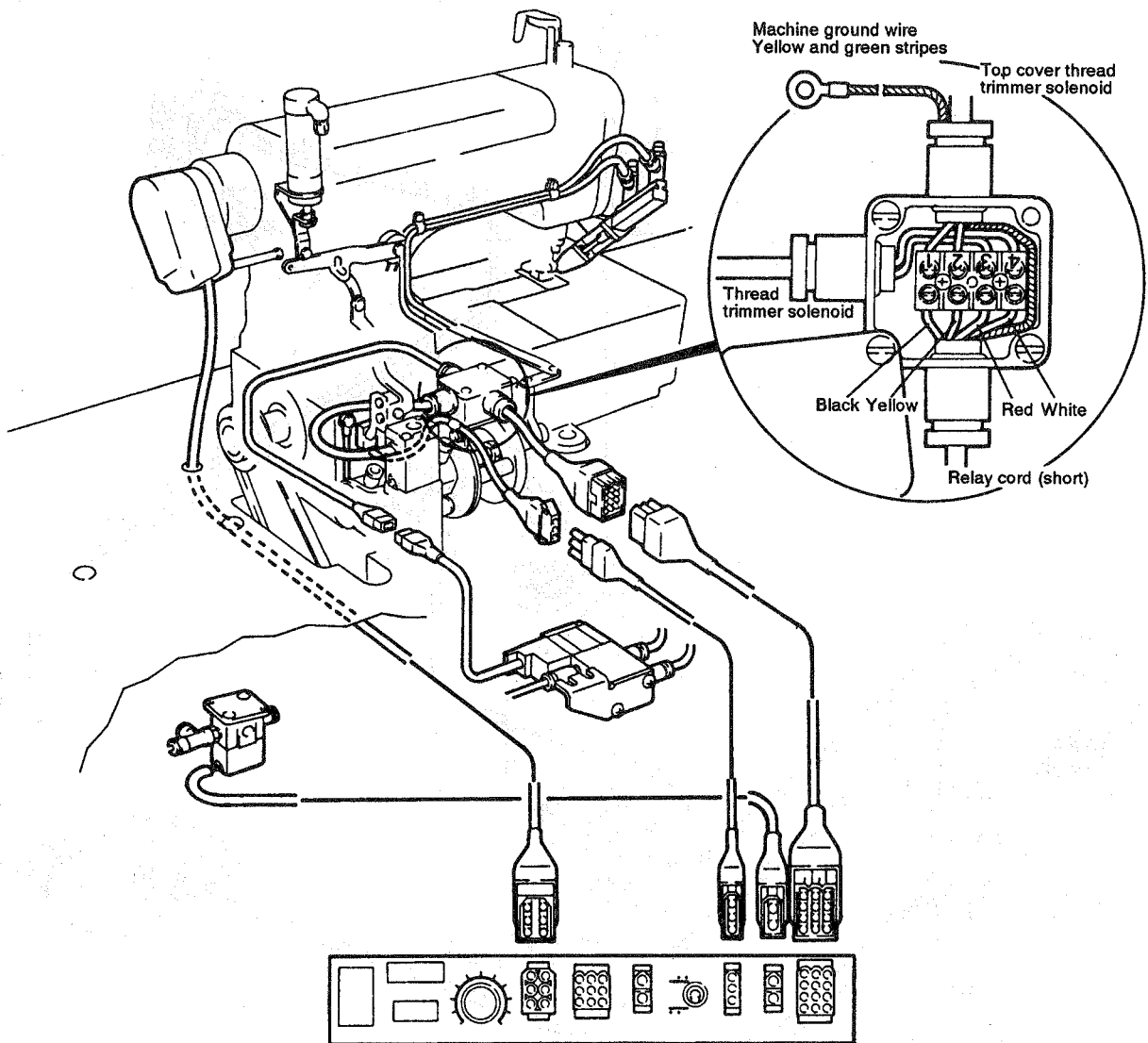
ADJUSTING THE TOP COVER THREAD TRIMMER AND THE TOP COVER THREAD TAKE-UP

1. Position lever ① according to the following dimensions.
 A = 23mm (standard)
 B = 30mm (for thread with great elasticity such as woolly)
2. Fix bracket ② with set screw ③ so that all the thread guide holes can be aligned (see B) when the solenoid is not activated. Then check to see if the clearance between bracket ② and solenoid ④ is approximately 2mm.
3. Start the machine to operate the top cover thread trimmer.
 Run the machine to operate the top cover thread cutter device.
 - a) If tip (D in the illustration below) of the spreader tends to miss the thread, shorten dimension A.



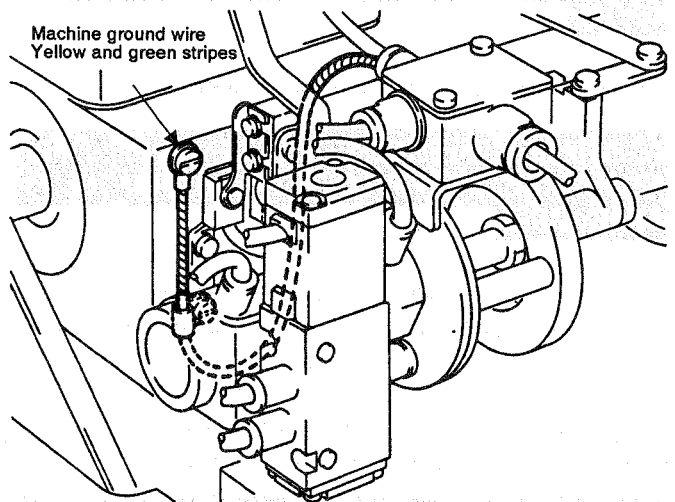
- b) If the top cover thread slips from top cover thread holder spring (F in the illustration below) before the thread gets hooked on the left needle, lengthen dimension A.



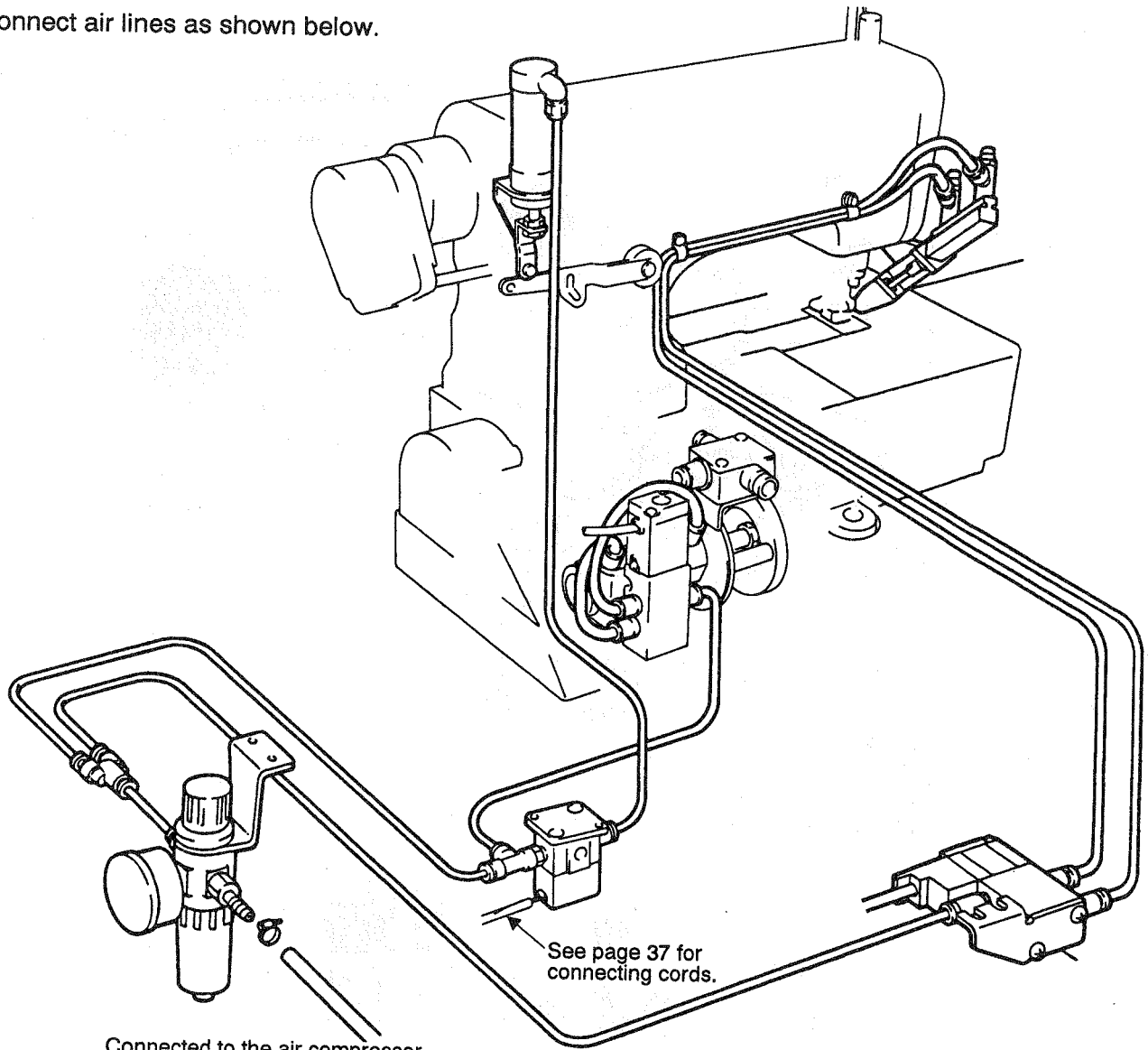


CONNECTING CORDS FOR THE PNEUMATIC UT DEVICE WHICH TRIMS THE TOP COVER THREAD FROM THE LEFT SIDE

Connect cords as shown in the illustrations. Refer to pages 19 to 25 of notes, procedures and adjustments for connecting cords of the electric UT device.



Connect air lines as shown below.



Connected to the air compressor

CONNECTING AIR LINES OF THE PNEUMATIC UT DEVICE

Connect air lines by referring to the above illustration.

DRAINING THE FILTER REGULATOR

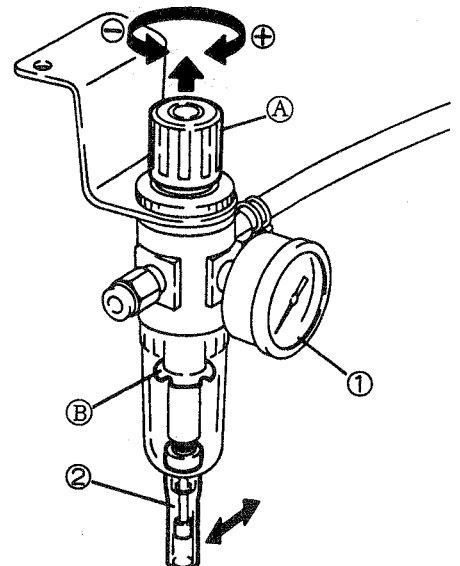
Drainage collected in filter regulator ① must be drained until drainage level reaches baffle B by moving hose ② to the left or right as required.

ADJUSTING AIR PRESSURE (FOR THE DEVICE TYPE WHICH TRIMS THE TOP COVER THREAD FROM THE RIGHT SIDE)

Pull knob A of filter regulator ① up. The knob clicks and lifts up slightly. Then adjust air pressure to set 5 – 7kg/cm² as required.

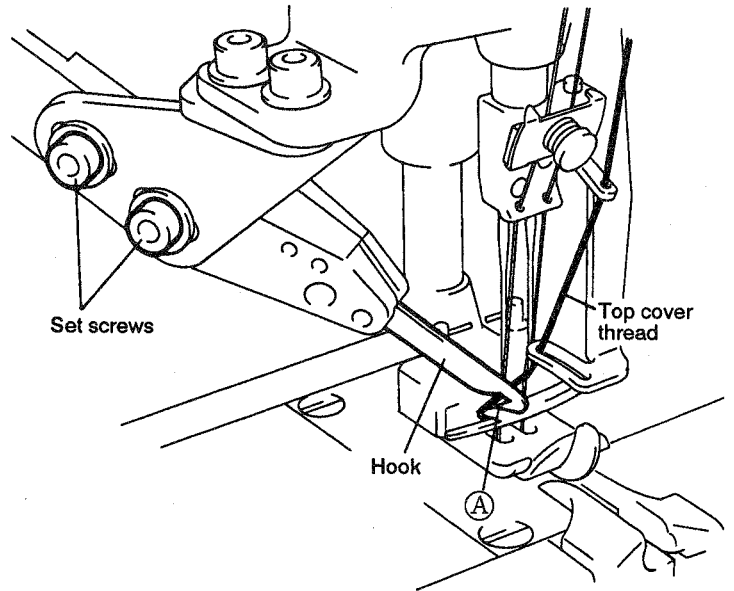
- ◇To increase the air pressure turn knob A clockwise.
- ◇To decrease the air pressure turn knob A counterclockwise.

- ◇Note that the cutter will be actuated by pressing the valve actuator if air is left enough to operate the cutter in the tube even after the air supply is shut off from the compressor.

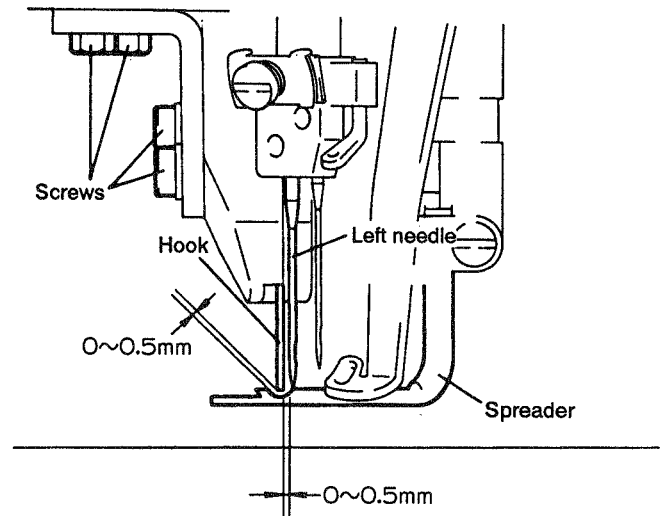


ADJUSTING THE TOP COVER THREAD TRIMMER

1. Adjust the top cover thread trimmer with set screws.
Be sure that A portion of the hook passes over the top cover thread as shown in the right illustration.



2. Position the hook, spreader and left needle correctly.
Refer to the right illustration for the relationship between the above three parts.



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