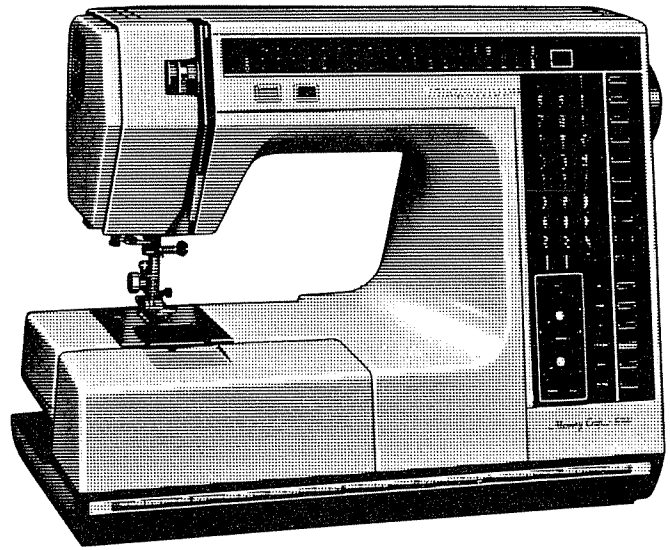
SERVICING MANUAL



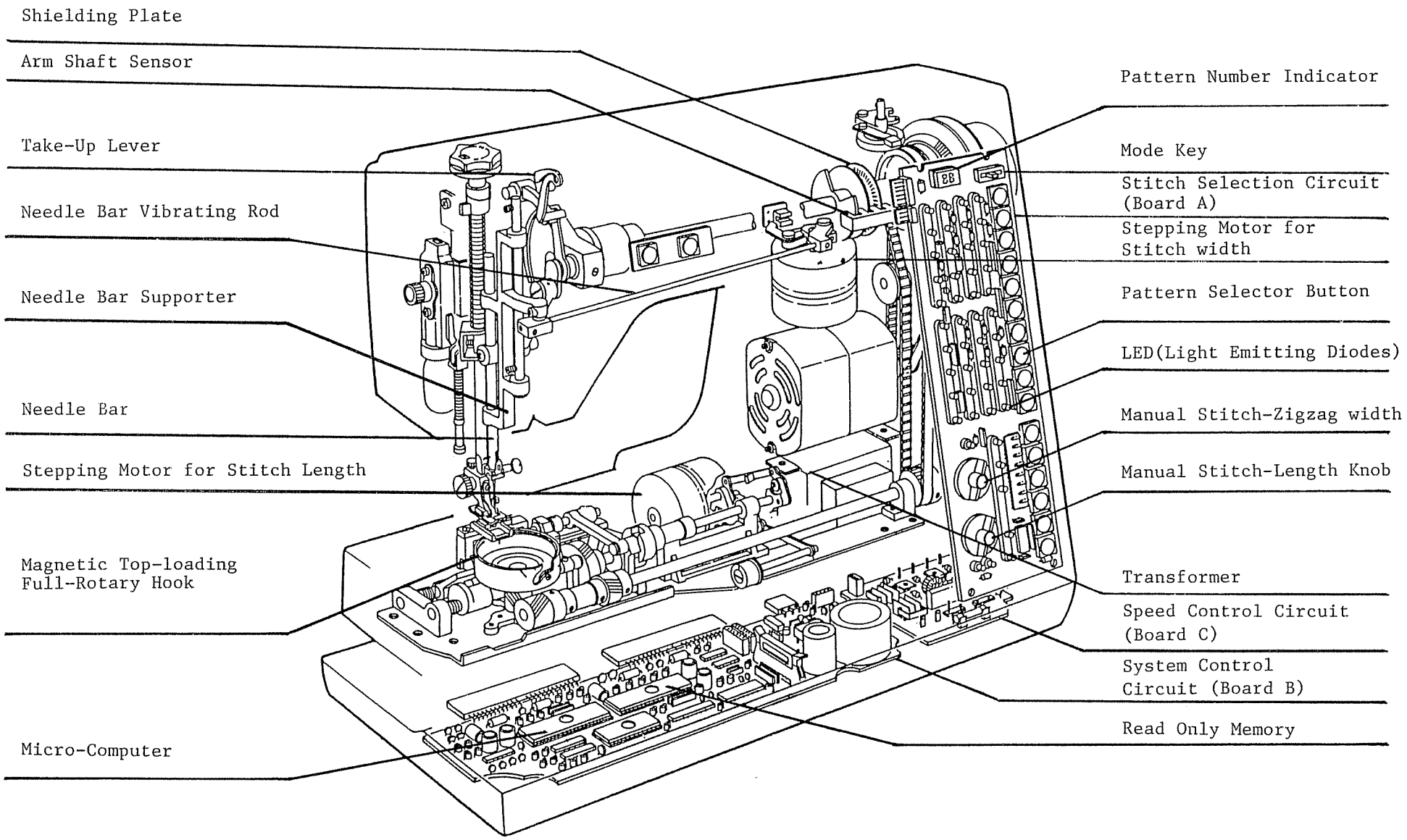
Memory Craft 6000

JANOME / NEW HOME®

Printed in Japan

INDEX

MEMORY CRAFT 6000 MACHINE CONCEPT



SECTION II SELF-DIAGNOSIS

1-1 Introduction

Memory Craft 6000 is a so called "Computerized Sewing Machine" in which a built-in micro computer controls the feed, the zigzag width, the main shaft revolution and the torque and revolution of the drive motor according to the digital memory stored in the memory chips.

As the results, this machine offers such unique features as availability of a great number of patterns and stitches, automated settings for the stitches, memorizing a sequence of series of patterns and stitches, automatic regulation of the maximum sewing speed for each stitch pattern, the needle stop at the top and bottom positions,etc.
Since the electronic circuit boards and other electronic parts had gone through rigid and multitude of tests before they were put to use, you will find them trouble-free and most reliable.

However, if deficiency occurs, you should firstly consult with Trouble Shooting Guide included with the instruction booklet.
If cause of the problem is considered to be electronical rather than mechanical, then utilize the Self diagnoser built in your Memory Craft 6000.(The Self Diagnosis with built in Diagnoser)

The Self Diagnosis with built in Diagnoser

The difficulty which a sewing machine dealer or service man may face when he is dealing with an electronic sewing machine like Memory Craft 6000 will be to diagnose any deficiency resulted from an electronic problem.
In case of our previous model "Memory 7" a separate diagnoser unit was built for this purpose but this unit was comparatively expensive.

Now, the first time in the world for a sewing machine, Memory Craft 6000 has its own diagnoser built in with each unit, so that a service man may be able to diagnose any problem without resorting to a special equipment.
There is a switch hidden underneath the machine bed or in the base. By setting this switch at "TEST", the LED displays in front of the machine will turn to "TEST MODE".

There is also a plastic card called "Diagnosis Chart" available for service man's use.

It will take only a few minutes to complete the whole checkings necessary and the displays will tell you of the conditions immediately.

1-2 What the Self-Diagnosis tells you

The diagnosis procedures or operations to be followed (22 steps, representing step signal 01 to 22) are clearly shown on the "Diagnosis Chart".
Each step will diagnose the following conditions:

(Step Signal)	(Points to be diagnosed)
01	Main switch and LEDs on board A
02	Mode key
03-06	Buttons of control key board
07-08	Bobbin winder switch
09-10	Needle bar swing(Volume control)
11-12	Feed regulator (Volume control)
13-18	Both stepping motors for feed and needle swing (Actuation)
19	Foot controller (Input volume)
20	Machine drive motor (Output volume)
21	Machine drive motor (Speed control)
22	Machine drive motor (Automatic brake)

1-3 Advice on diagnosis operations

1) Always turn off the power switch and momentarily unplug from the power supply if wrong step was taken. Start again from step 01 and follow through each step.
2) If you skip any of the steps or do not start from step 01, the machine will not diagnose.
3) If any defects are found at step 01 to 03, correct the defects in accordance with the instructions shown on the chart and test steps 01 to 03 again to make sure. Then proceed to step 04.
4) From step 04 and onward, proceed to the last step in order, even if LED lighted at "L" indicating a defecting condition with certain parts. After completion of whole procedures to step 22, the "TEST RESULT" tells you the machine conditions with the signals either "Co" or "Er". In case of "Er", the "TEST RESULT"also indicates where to be adjusted and/or replaced.

* In case of "TEST RESULT","Er", try again to confirm the same test result.

IMPORTANT

* When the machine does not work properly though "TEST RESULT" is"Co" for correct condition, check the mechanical areas referring to the Servicing Manual for MEMORY CRAFT 6000.

* If you have previous experience of adjusting or replacing electronic parts on MEMORY 7, it is easier for you to do the job as the replacement and adjustment procedures are detailed in this book.

* If you feel difficult to do the job by yourself, contact your supplier to obtain their advice.

Memory Craft 6000 — Diagnosis Chart

A B2 B1 B3

B

C D E F G H I J K L M N O P Q R

PREPARATION

1. Remove seal underneath machine lid and set diagnosis switch at "TEST"
2. Attach chart on secondary spool pin
3. Set B switch at "B1" position
4. Insert power plug into power supply

SIGNAL A	TEST	CORRECT CONDITION	DEFECT CONDITION — CORRECTION
01	Turn power switch on.	LED's light one by one in order, then all numerals stay lit. "0" on signal "02" flashes.	• Machine runs at high speed. → Rep. C board. • Some LED's do not light. → Rep. A board. • No LED's light. → Check LED's 1 and 2 underneath machine lid.
02	Set B switch at "B2" Set B switch at "B1" Set B switch at "B3" Set B switch at "B1"	Signal "02" stays lit. "2" on signal "02" flashes. Signal "02" stays lit. Signal "03" stays lit.	LED 1 / LED 2 / ADJUSTMENT No light: • Check 2.5 Amp. fuse on C board. • Check 1.6 Amp. and 2.5 Amp fuses on B board. • Replace transformer. • Replace B board. • Replace A board. Light "ON" / No light: • Check 1.6 Amp. fuse on B board. • Replace B board. • Replace A board. Light "ON": • Replace A board, and B. • Signal does not change to CORRECT CONDITION. → Replace A board, and B.
03	Press and hold buttons C — O and Q — T in order.	LED's change from flashing to steady light.	• LED's do not turn on when pressed. → Replace A board, and B.

Proceed to 04 after correcting any defects up to 03.
Adjustment for defect from 04 to 22 after completion of test

L ... Press button L in defect condition

04	Press button. (Signal is advanced in correct condition.)	L
05	Press button.	L
06	Press P (clear) button.	L
07	Shift bobbin winder shaft to right and press K.	
08	Shift bobbin winder shaft to left and press K.	
09	Set dial S at 0 and press K.	
10	Set dial S at 7 and press K.	
11	Set dial T at 0 and press K.	
12	Set dial T at 5 and press K. (Needle moves to left.)	
13	See L needle position and press K. (Needle moves to center.)	L
※ 14	See M needle position and press K. (Needle moves to right.)	L
※ 15	See R needle position and press K.	L
16	Turn hand wheel for 2.5mm reverse feed and press K.	L
※ 17	Turn hand wheel for no feed and press K.	L
※ 18	Turn hand wheel for 5.0mm forward feed and press K.	L
19	Press and hold foot.	L
20	Press and hold foot. (Machine runs slowly, and fast, then stops.)	
※ 21	(LED 3 underneath machine lid flashes a moment.) Press K.	L
※ 22	(LED 4 underneath machine lid flashes a moment.) Press K.	L

Sometimes signals marked ※ are skipped. (Especially 21 and 22.)
When skipped, continue test from the displayed signal and adjust according to TEST RESULTS

CORRECT

DEFECT

Condition signals

S

T

REP: Stepping motor for needle swing.
REP: Stepping motor for feed regulator.
ADJ: Zigzag mechanism.
REP: Upper shaft sensor.
REP: Foot control.
REP: C board or sewing machine motor.
REP: B board.
REP: A or F board.

TEST RESULTS

00	Correct condition. Test completed.
Er	Malfunction. LED lights indicate adjustment or replacement.

OPERATION PROCEDURES OF THE SELF DIAGNOSER

<table>
<tr><th>STEP</th><th>PROCEDURES</th><th>CORRECT CONDITION</th><th colspan="3">INCORRECT CONDITION</th><th>ACTION</th></tr>
<tr><td>1</td><td>Plug the machine in to the power supply.</td><td>1) Turn the lamp switch ON and OFF After checking, turn the light OFF.
2) Digital LED light is set ON all together.
3) LED of the pattern indicator light is ON one by one in order to check NO. 10,11,.....39.
4) Function LED light is ON all together and progress to the next step after NO.3 checking.</td><td colspan="3">1) If the lamp does not work at the correct condition 2), 3), 4).
2) If LED light is ON more than one lights or no light ON.
3) If none of LED light is ON (including LED -A).
a) The sewing machine's lamp is ON.</td><td>1) Replace the lamp.
2) Replace the printed wiring boad A.
2) Check the LED 1,LED 2 lights are ON underneath the base.</td></tr>
<tr><td colspan="7">OPERATION PROCEDURES is as follows:</td></tr>
<tr><td colspan="2"></td><td colspan="2">LED 1 / LED 2</td><td>CHECK POINT</td><td>ACTION</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="2" rowspan="2">NO LIGHT ON</td><td>1) Check 2.5A fuse on printed wiring boad C.
2) Check 1.6A fuse and 2.5A fuse on printed wiring boad B.</td><td>1) Replace the transformer
2) Replace the printed wiring boad B.
3) Replace the printed wiring boad A.</td></tr>
<tr><td>(NOTE)
If 2,5A fuse on printed wiring boad B is blown out after the replacement</td><td>1) Replace the printed wiring boad C.
2) Replace the printed wiring boad B.</td></tr>
<tr><td colspan="2" rowspan="2"></td><td>LIGHT ON</td><td>NO LIGHT ON</td><td>1) Check 1.6A fuse on the printed wiring boad B.</td><td>1) Replace the printed wiring boad B.
2) Replace the printed wiring boad A.</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="2">LIGHT ON</td><td></td><td>1) Replace the printed wiring boad B.
2) Replace the printed wiring boad A.</td></tr>
</table>

STEP	PROCEDURES	CORRECT CONDITION	INCORRECT CONDITION	ACTION
			3-b) If sewing machine lamp is ON.	Check the sewing machine lamp.
			In case of the sewing machine lamp wiring is blown out.	Replace the sewing machine lamp.
			If LED 1, LED 2 lights is not ON underneath the base.	Replace the foot control. Replace the plug holder unit
			3-c) If sewing machine motor rotates(runs) high speed only.	Replace the printed wiring boad C.
			*** *** All of faulty parts should be replaced after the checking. Then insert the power plug in to the sewing machine to check it with the self diagnoser again.	
2	Shift the B switch to the B 2 position.	At "0" side of digital indicator lights of LED-A is flashing when "B" switch is shifted at "B 1" or "B 3". Set the "B" switch at "B 2" position, at that time the LED-A light is "ON" instead of flashing.	If LED-A light does not change from flashing to ON.	Replace the printed wiring boad A. Replace the printed wiring boad B.
	Shift the "B" switch to the "B 1" position.	At "2" side of digital indicator light of LED-A is changed from flashing to ON.	Light of LED-A does not change.	Replace the printed wiring boad A. Replace the printed wiring boad B.
	Shift the "B" switch to the "B 3" position.	LED-A lights ON from flashing.	LED-A does not light ON from flashing.	Replace the printed wiring boad A. Replace the printed wiring boad B.
	Shift the "B" switch to the "B1" position.	Progress to the STEP 3.	Do not progress to the STEP 3.	Replace the printed wiring boad A. Replace the printed wiring boad B,

STEP	PROCEDURES	CORRECT CONDITION	INCORRECT CONDITION	ACTION
			NOTE: In this condition, flashing lights of digital indicator should show the strength and weakness of lighting on the indicating boad. If not, follow the instruction of ACTION. *** *** After the replacement, insert the power plug into the sewing machine and check it with the self diagnoser.	Replace the printed wiring boad A. Replace the printed wiring boad B.
3	Press the switch button from C,D,E,..... to R,S,T.	Light of LED should be changed from flashing to lighting in order to press the switch buttons. *** *** FROM STEP 4: If there is any faulty point at half way of inspection from STEP 4, the self diagnoser indicates the faulty point at the end of checking. You can continue to check until the last checking point. Then replace the parts.	1) Light of LED does not change from flashing to lighting. 2) Different light of LED is ON when switch button is pressed 3) Light of LED does not progress to the next point of LED when the switch button is released. 4) More than two lights of LED are ON when the switch button is released. 5) Light of LED does not progress to the next point when the switch button is pushed between C and T keys. *** *** After the replacement, insert the power plug to the sewing machine and check it with the self diagnoser. If there is any faulty point from 1 to 3 steps, the self diagnoser does not progress to the next step so that the faulty parts should be replaced at each step. Repeat the checking from begining of the step.	Replace the printed wiring boad A. Replace the printed wiring boad B.

OPERATION PROCEDURES OF THE SELF DIAGNOSER.

STEP	PROCEDURES	CORRECT CONDITION	INCORRECT CONDITION	ACTION
4	Push the "U" switch.	1) LED light on "K" key is "ON". Then progress to the next step.	1) LED light of "K" key is not "ON" when the "U" switch is pushed. In this case, push the "L" key switch. If light of "L" key is "ON", it is indication of the faulty point.	Replace the printed wiring boad A or F. Replace the printed wiring boad B.
5	Push the "V" switch.	1) LED light of "K" key is "ON". Then progress to the next step.	1) Same as step 4.	
6	Push the "P" switch (Clear).	1) Same as step 4.	1) Same as step 4.	Replace the printed wiring boad A. Replace the printed wiring boad B.
7	Shift the bobbin winder -ing shaft to the right Push the "K" key.	1) LED light of "K" key is "ON". Progress to the next step.	1) LED light of "L" key is "ON". "L" key indicates the faulty point.	1) Adjust the bobbin winder unit mechanism. 2) Replace the printed wiring boad A. 3) Replace the printed wiring boad B.
8	Shift the bobbin winder -ing shaft to the left. Push the "K" key.	1) Same as step 7.	1) Same as step 7.	1) Same as step 7.
9	Turn the dial"S" to the left side(Indicator is at 0). Push the "K" key.	1) LED light of "K" key is "ON" and progress to the next step.	1) LED light of "L" key is "ON" and indicates the faulty point. Progress to the next step.	1) Replace the printed wiring boad A. 2) Replace the printed wiring boad B.
10	Turn the dial "S" to the right side, (Indicator is at 7), Push the "K" key.	1) Same as step 9.	1) Same as step 9.	1) Same as step 9.
11	Turn the dial "T" to the left side. (Indicator is at 0), Push the "K" key.	1) Same as step 9.	1) Same as step 9.	1) Same as step 9.

STEP	PROCEDURES	CORRECT CONDITION	INCORRECT CONDITION	ACTION
12	Turn the dial "T" to the right. (Indicator is at 5) Push the "K" key.	1) Same as step 9.	1) Same as step 9.	1) Same as step 9.
13	Needle is set at LEFT needle position.	1) LED light of "K" key is "ON" and progress to the next step.	1) Push the "L" key. If light of LED is "ON", start the step 16.	1) Adjust the zigzag mechanism. 2) Replace the stepping motor of zigzag width regulator. 3) Replace the printed wiring boad B.
14	Needle is set at MIDDLE needle position.	1) If it is correct position, push the "K" key and progress to the next step.	1) Push the "L" key, if needle position is not at MIDDLE needle position.	1) Same as step 13.
15	Needle position is set at RIGHT needle position.	1) If it is correct position, push the "K" key and progress to the next step.	1) Push the "L" key if the needle position is not at RIGHT needle position.	1) Same as step 13.
16		1) Check the backward movement of feed dog. 2) Push the "K" key. 3) If LED light of "K" key is ON, progress to the next step.	1) Push the "L" key, if the movement of feed dog is not backward. 2) Then progress to the step 19.	1) Adjust the feed mechanism. 2) Replace the stepping motor of feed regulator. 3) Replace the printed wiring boad B.
			2) If the stepping motor of feed regulator or the printed wiring boad B is incorrect condition, LED light of the "L" key is ON automatically and progress to the step 19.	1) Replace the stepping motor of feed regulator. 2) Replace the printed wiring boad B.
		*** The self diagnoser indicates *** incorrect results at step 16 to 18 if you do not turn the balance wheel toward you with your hand. Make sure the balance wheel is turned toward you and check the movement of feed dog.		

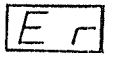
STEP	PROCEDURES	CORRECT CONDITION	INCORRECT CONDITION	ACTION
17	Turn the balance wheel toward you. Check the movement of the feed dog.	1) Push the "K" key if it is correct condition. 2) Progress to the next step.	1) Push the "L" key if the movement of the feed dog is incorrect.	1) Same as step 16.
18	Turn the balance wheel toward you. Check the movement of the feed dog.	1) Push the "K" key if it is correct condition. 2) Progress to the next step.	1) Push the "L" key if the movement of the feed dog is not 5.0 mm.	1) Same as step 16.
19	1) Press the foot control.	1) LED light of the "K" key indicates correct condition. Progress to the next step 20.	1) Push the "L" key if LED light does not indicate at the "K" key. 2) LED light of the "L" key indicates the incorrect condition, then progress to the next step 20.	1) Replace the foot control. 2) Replace the printed wiring boad B. 3) Replace the printed wiring boad C or the sewing machine motor.
20	1) Press the foot control continually from step 19.	1) Sewing machine motor rotates SLOW SPEED-HIGH SPEED-SLOW SPEED and STOP. 2) LED light of the "K" key indicates good condition. 3) Total results of inspection is indicated at the "A" (DIGITAL) position. ** ** If sewing machine is faulty at the step 19 or you release the foot control with your foot, motor rotates(runs) SLOW speed and STOP.	1) LED light of the "L" key indicates the incorrect condition if motor does not rotate. 2) Then progress to the next step 3) If there is any faulty parts except motor as shown below,LED light of the "L" key indicates faulty point. Then total results of inspection is indicated at "A"(DIGITAL) position. FAULTY PARTS * Printed wiring boad D. * Printed wiring boad B. * Printed wiring boad A.	1) Replace the motor or the printed wiring boad C. 2) Replace the printed wiring boad B. 1) Replace the printed wiring boad D. 2) Replace the printed wiring boad B. 3) Replace the printed wiring boad A.

STEP	PROCEDURES	CORRECT CONDITION	INCORRECT CONDITION	ACTION
			In this step, if the self diagnoser indicates correct condition when motor has noisy sound or uneven rotation, take off(switch off) the power supply from the sewing machine. Slide the changeover key from TESTposition to NORMAL SEWING position. Set the slow speed condition. the motor is still having the noisy sound or uneven rotation with the slow speed condition,	1) Replace the printedwiring boad B. 2) Replace the printed wiring boad C.
21	1) Check the flashing light of the LED-3 underneath the base.	1) Push the "K" key, if the LED-3 is flashing. 2) Total results of inspection with the self diagnoser is indicated at the"A"(DIGITAL) position when LED light of the "K" key indicates correct condition.	1) Push the "L" key ,if LED-3 light not ON. 2) Total results of the inspection with the self diagnoser is indicated at the "A"(DIGITAL) position when LED light of the "L" key indicates faulty condition.	1) Replace the printed wiring boad C. 2) Replace the motor. 3) Replace the printed wiring boad B. 1) Replace the printed wiring boad B. 2) Replace the printed wiring boad C. 3) Replace the sewing machine motor.
22	1) Check the flashing light of the LED-4 underneath the base.	1) Push the "K" key, if the LED-4 is flashing. 2) Total results of the inspection with the self diagnoser is indicated at the "A"(DIGITAL) position when LED light of the "K" key indicates correct condition.	1) Same as step 21.	1) Same as step 21.

TOTAL RESULTS OF THE SELF DIAGNOSER CHECKING

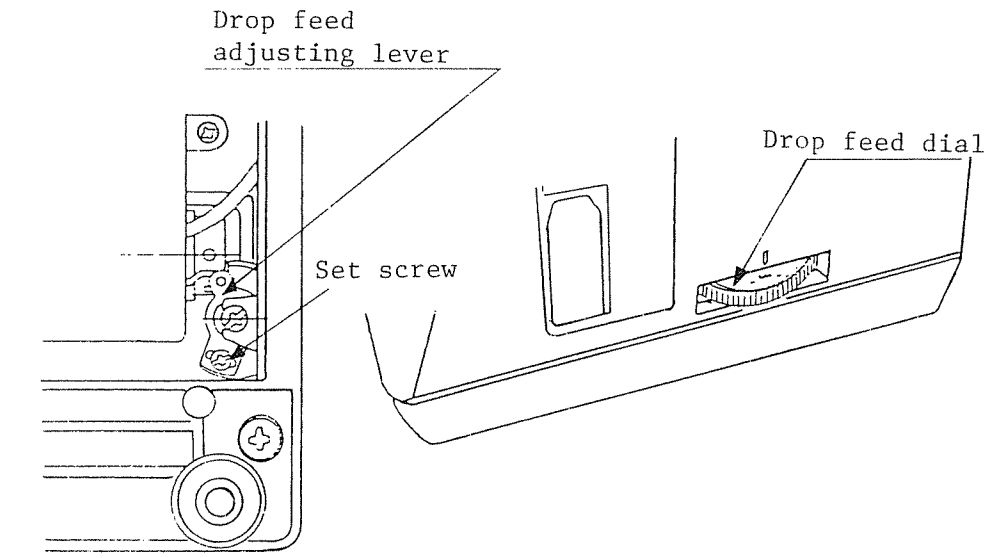
If these steps are all cleared,sewing machine condition is indicated at LED-A and FUNCTION LED.

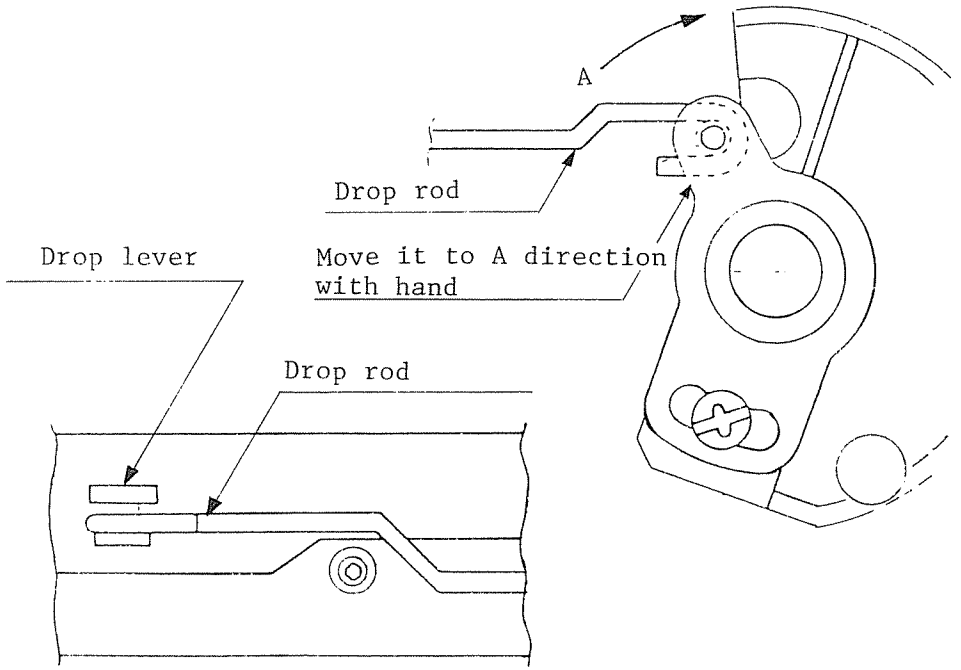
In case of good condition:
1) LED-A (DIGITAL INDICATOR) indicates 
2) FUNCTION LED does not indicate.

In case of faulty condition:
1) LED-A(DIGITAL INDICATOR) indicates 
2) FUNCTION -LED indicates faulty position or faulty parts.

Description of FUNCTION LED	Faulty condition or replacement parts.
LED for MEMORY	Printed wiring boad A or F.
LED for TURN OVER MEMORY	Printed wiring boad B.
LED for STOPPING STITCH	Printed wiring boad C or sewing machine motor.
LED for TWIN NEEDLE	Upper shaft senser.
LED for SLOW(LOWER) SPEED	Foot control.
LED for STITCH WIDTH	Stepping motor for zigzag width regulator.
LED for STITCH LENGTH	Stepping motor for feed regulator.
LED for length of the pattern	Adjustment of the zigzag mechanism.

NOTE: FUNCTION LED indicates more than one lights in case of the faulty parts(faulty condition).



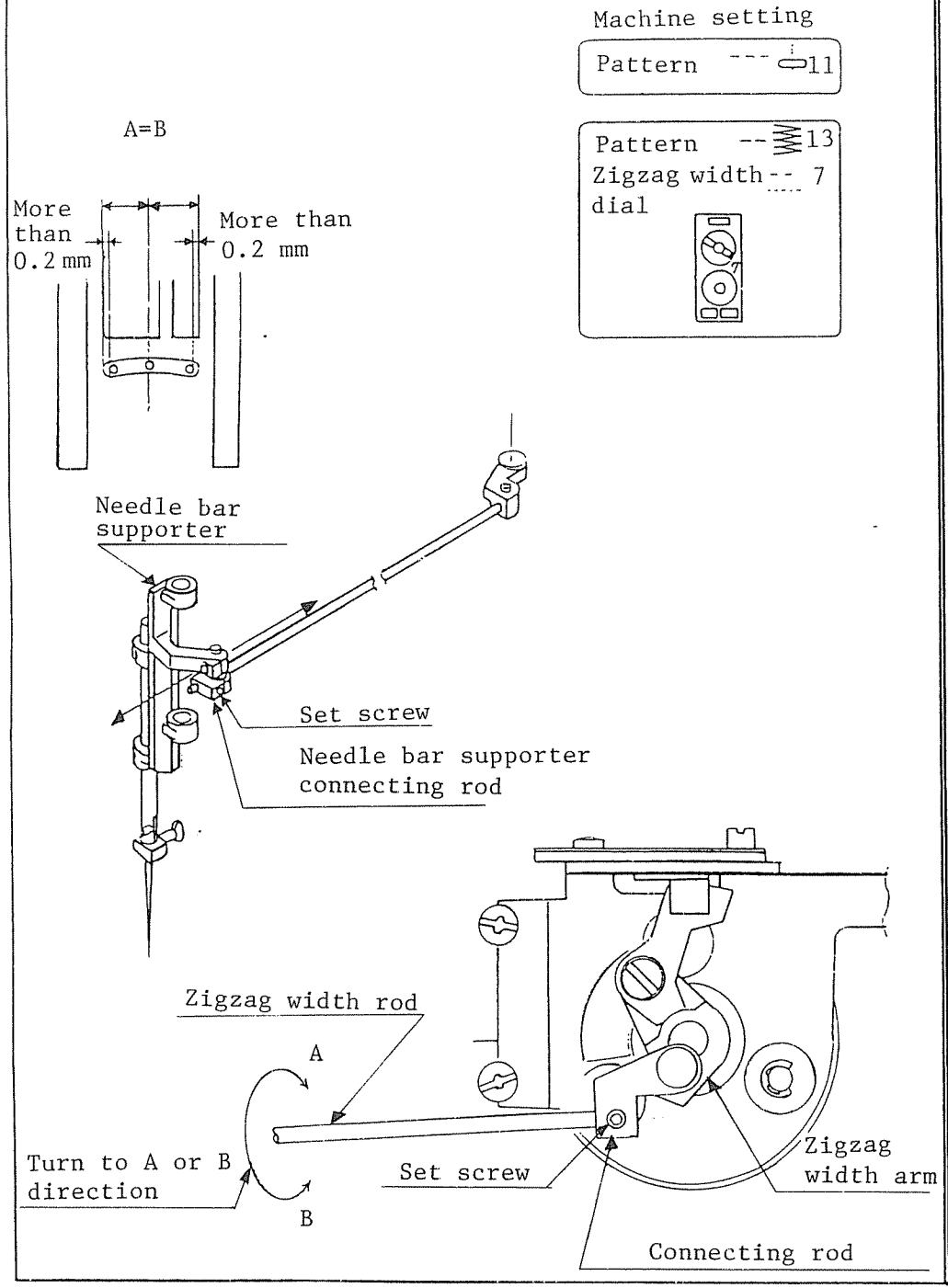


CORRECT SETTING

- When drop feed dial is set at "¯▲▲▲¯", feed dog should be located under needle plate.
- When drop feed dial is set at "_▲▲▲_", feed dog should be located above needle plate with balance wheel being turned toward you one turn.

TO ADJUST

1. Tilt the machine back until it rests on flat table.
2. Remove circuit cover and bed cover. (See p. 56)
3. Loosen screw.
4. Set drop feed dial at "_▲▲▲_".
5. Move drop feed adjuster lever in the direction of "A". Then tighten screw in condition that drop rod butts against drop lever.
6. Refit circuit case and bed cover. (See p. 56)



CORRECT SETTING

- When pattern 11 in Mode I is selected, needle should enter the center of needle hole on needle plate.
- When pattern 13 is selected and manual stitch width knob is set at "7", the clearance between needle and edge of needle hole on needle plate, in both of left and right needle down positions should exceed 0.2 mm respectively.

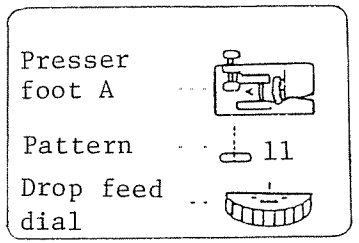
TO ADJUST

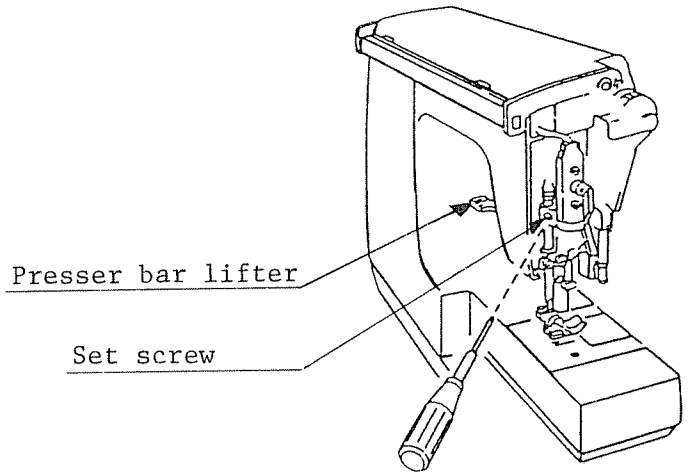
1. Remove face plate and presser foot. (See p. 54)
2. Switch on the power and select pattern 11 in Mode I.
3. Revolve balance wheel one turn, then position needle at its lowest point.
4. Loosen screw and move needle bar supporter toward left or right. Tighten screw in condition that needle locates in center of needle hole.

NOTE: In case adjustment cannot be made satisfactorily, remove top cover and loosen screw. Rotate zigzag width rod about 90 to 180 degrees then tighten screw.

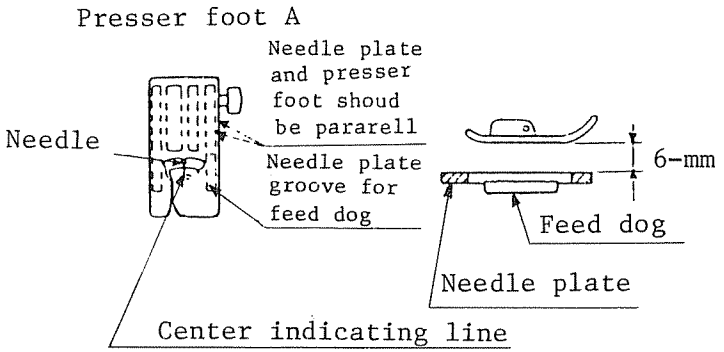
5. Select pattern 13 in Mode I. Press manual stitch width knob and turn it to "7".
6. Turn balance wheel to make sure the clearance between needle and edge of needle hole on needle plate, in both of left and right needle down positions should exceed 0.2 mm respectively.
7. Switch off the power. Refit presser foot and face plate. (See p. 54)

Machine setting





CHECK POINT



CORRECT SETTING

- The correct alignment of presser bar should be in a straight line between needle and slit of zigzag foot A.
- The height of presser bar should measure 6 mm between needle plate and bottom of zigzag foot A.

CHECKING CONDITION

- Use zigzag foot A.
- Select pattern 11. in Mode I.
- Drop feed dog with drop feed dial at "▲▲▲".
- Before adjustment, make sure that center needle down position is correct.

TO ADJUST

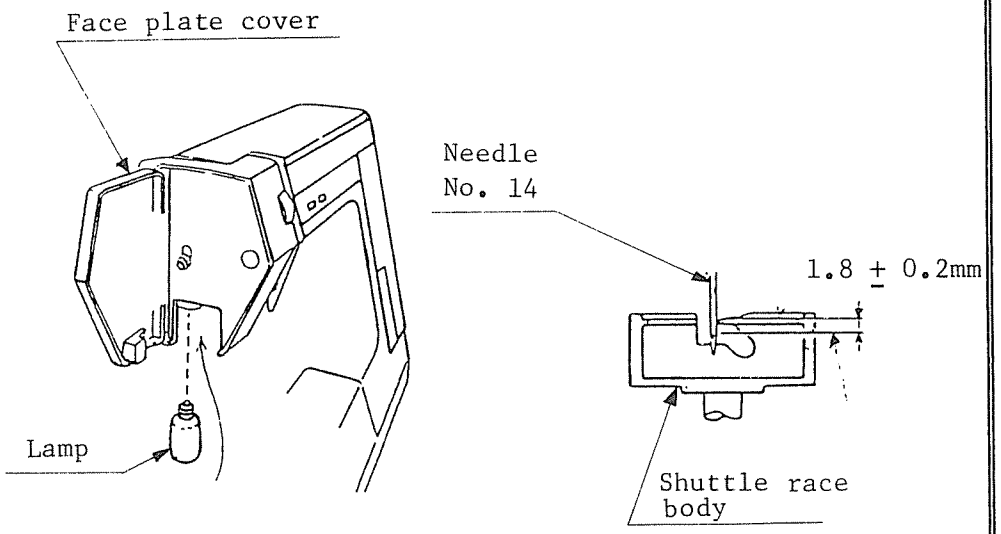
1. Remove face plate. (See p. 54)
2. Raise presser foot lifter and loosen screw. Adjust height and direction of presser bar. Then, tighten screw.
3. Lower presser foot lifter. Lower needle into needle hole on needle plate and check if needle has been in a straight line with the slit of zigzag foot A.
   Both left and right sides of zigzag foot should be even to the feed dog slots in needle plate.
4. Refit face plate.

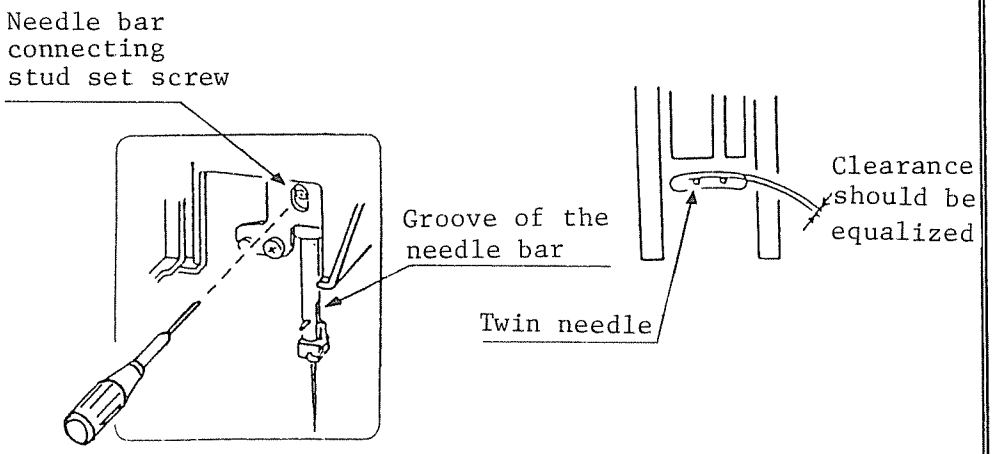
TO ADJUST NEEDLE BAR HEIGHT

Machine setting

Pattern 10

Pattern 11





CORRECT SETTING

- The distance between tip of horizontal rotary hook and upper edge of needle eye should be in range of 1.6 mm to 2.0 mm when tip of rotary hook meets the right side of needle swung down to the right with straight stitch pattern No. 10 in Mode I.

CHECKING CONDITION

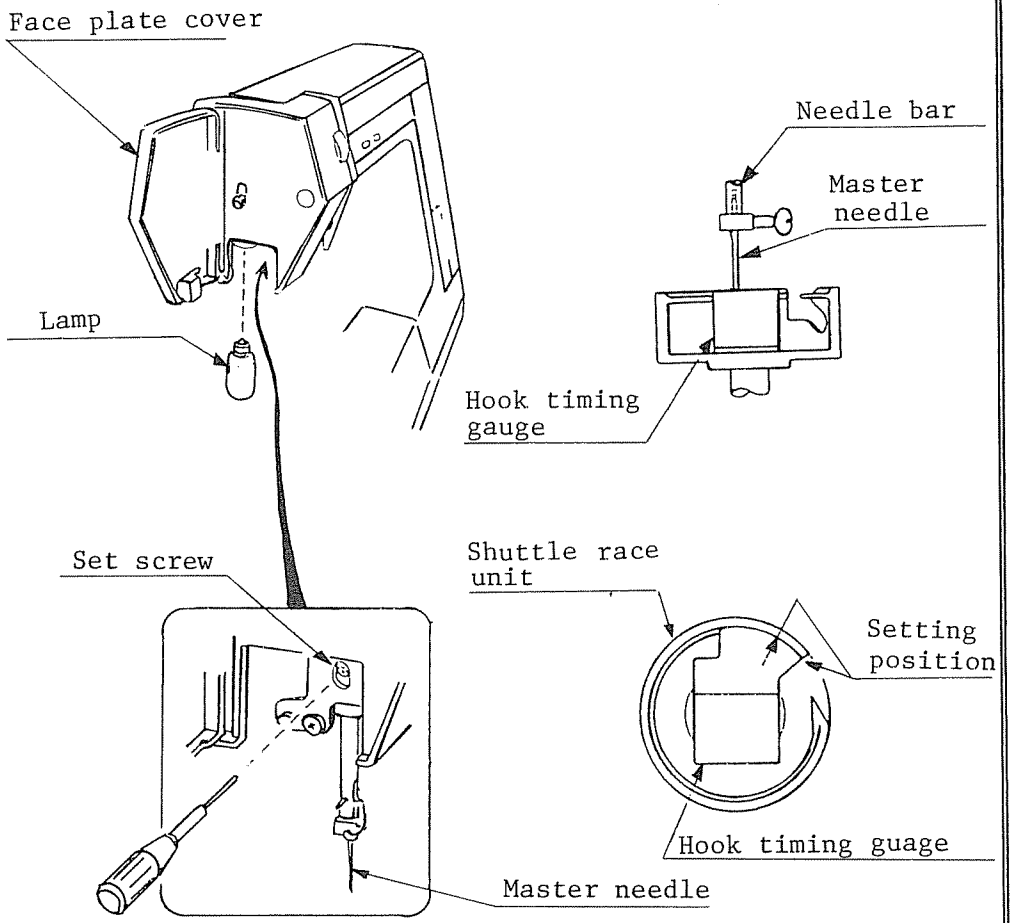
- Before adjustment, make sure that Hook Timing is correct.

TO ADJUST

1. Remove needle plate and bobbin holder, then open face plate and remove sewlight bulb.
2. Turn balance wheel toward you setting needle bar at its lowest point.
3. Switch on the power and select pattern 10 in Mode I.
4. Loosen screw.
5. Turn balance wheel toward you until tip of rotary hook meets the right side of No. 14 needle.
6. Raise or lower needle bar in order to get the correct distance between tip of rotary hook and upper edge of needle eye. Then tighten screw.
7. Select pattern 11 in Mode I and replace needle with twin needle. Then check both clearances between needles and the edge of the needle plate slot as shown.
8. Refit bobbin holder and needle plate.
9. Turn off the power and refit sewlight bulb.

Machine setting

Pattern	----⊂10
Pattern	----⊂11



CHECKING CONDITION

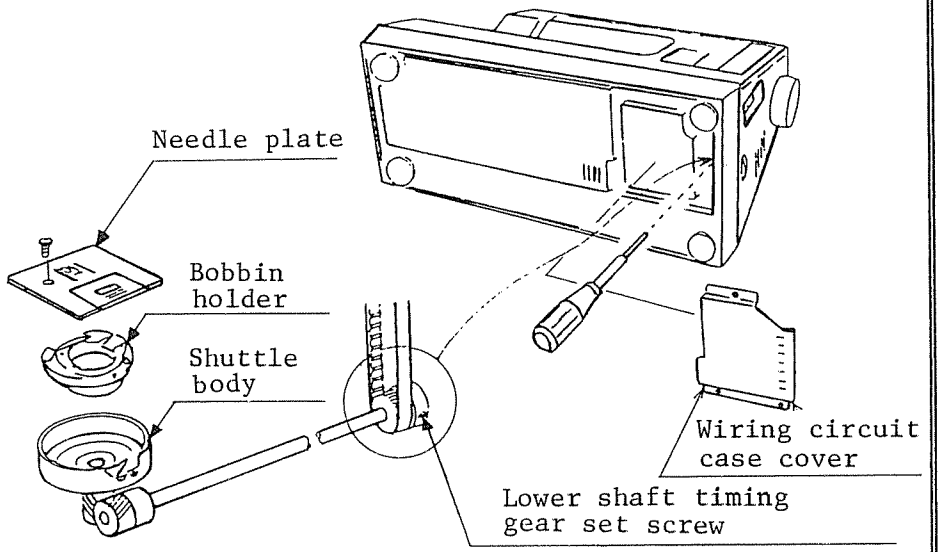
- Before adjustment, make sure that Hook Timing is correctly adjusted.
- Use master needle.
- Use needle bar height gauge.

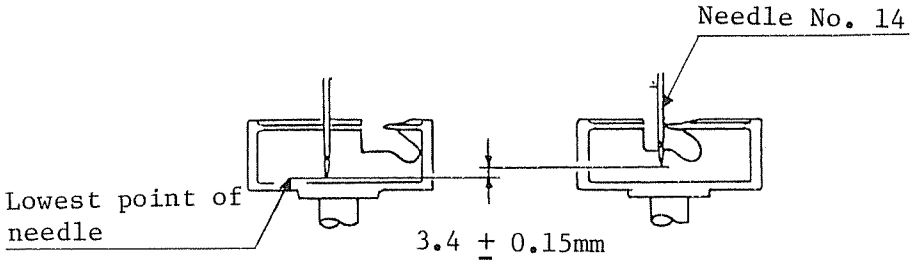
TO ADJUST

1. Remove needle plate and bobbin holder.
2. Attach master needle.
3. Set gauge.
4. Open face plate cover. Loosen screw. Remove sewlight bulb.
5. Select pattern 10 in Mode I.
6. Turn balance wheel toward you for setting needle bar at its lowest point.
7. Move needle bar until master needle comes to touch gauge. Face groove on needle bar toward front and tighten screw.
8. Select pattern 11 in Mode I and replace needle with twin needle. Then check both clearances between needles and the edge of the needle plate slot are even.
9. Refit bobbin holder and needle plate.
10. Switch off the power and refit sewlight bulb.

Machine setting

Pattern ---10





CORRECT SETTING

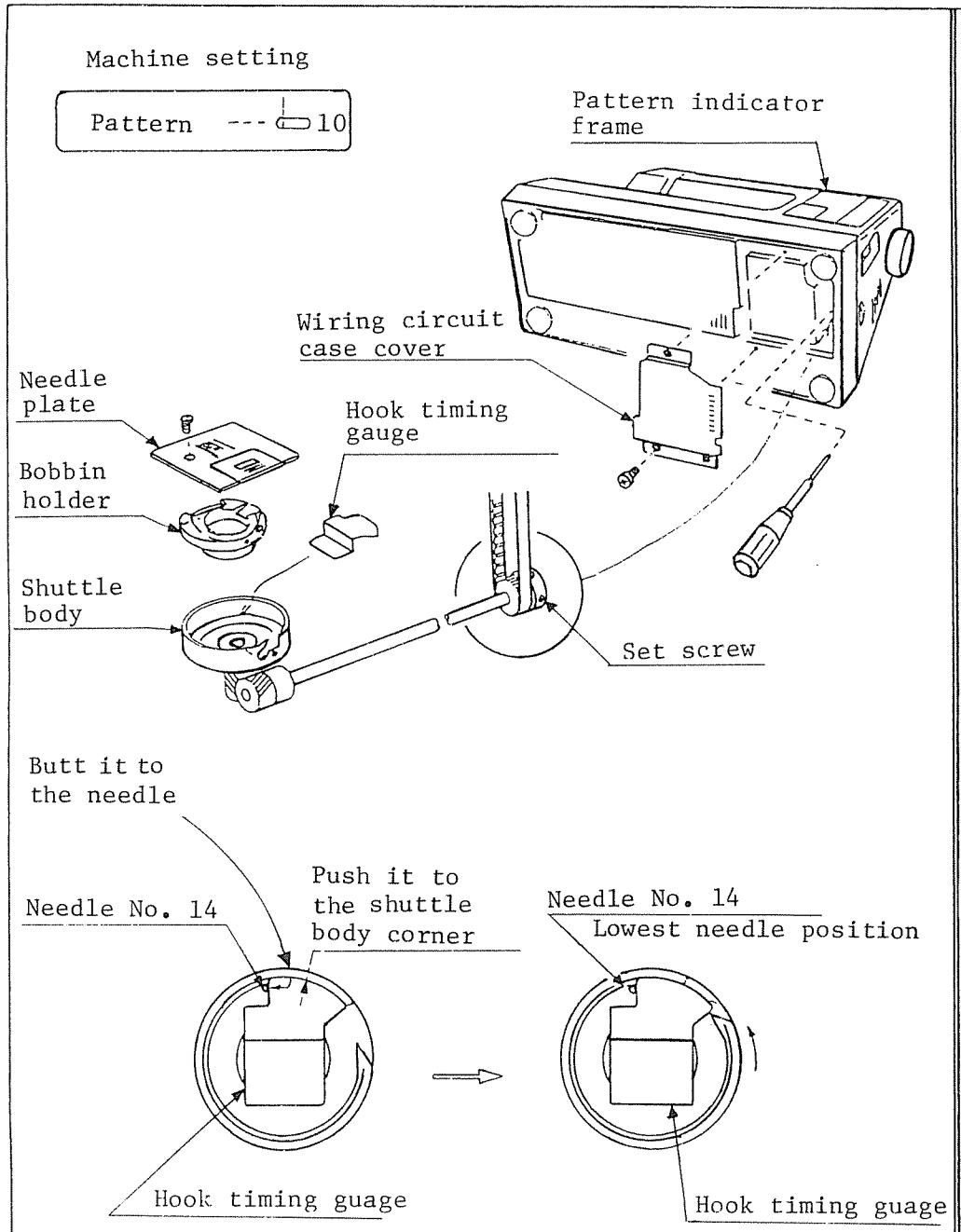
The standard height of needle point from its lowest point of travel should be in range of 3.25 to 3.55 mm and tip of rotary hook should meet exactly the right side of No. 14 needle when pattern is selected at "10" in mode I.

CHECKING CONDITION

- Select pattern 10 in Mode I.
- Use No. 14 needle.

TO ADJUST

1. Remove needle plate and bobbin holder.
2. Tilt the Machine back until it rests on flat table.
3. Remove circuit cover and loosen 2 pcs. of screws.
4. Turn balance wheel toward you until tip of rotary hook meets the right side of needle swung down to the right.
5. While holding rotary hook in position, turn balance wheel toward you until needle comes at its lowest point. Then turn balance wheel continuously toward you in order to raise needle point 3.25 to 3.55 mm from its lowest position.
6. Tighten 2 pcs. of screws.
7. Refit circuit cover and put the machine back to its upright position, then refit bobbin holder and needle plate.



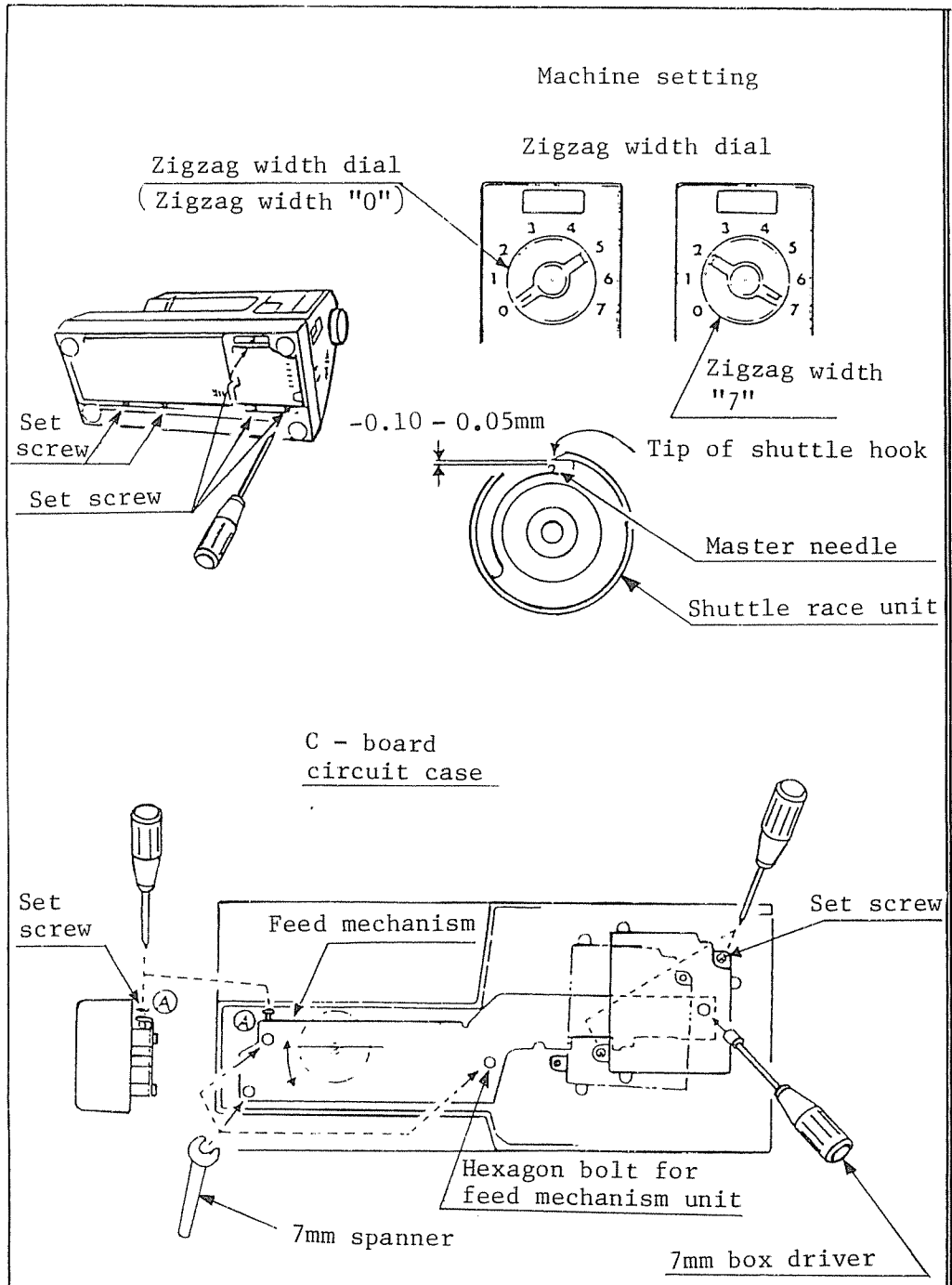
CHECKING CONDITION

- Use hook timing gauge.
- Select pattern 10 in Mode I.
- Use No. 14 needle.

TO ADJUST

1. Remove needle plate and bobbin holder.
2. Tilt the machine until it rests on flat table.
3. Turn balance wheel toward you until needle comes near its lowest point but should not pass through the point.
4. Set gauge by pressing it to rotary hook.
5. Remove circuit cover and loosen screws.
6. In condition that left portion of hook timing gauge butts against needle, turn balance wheel toward you slowly until tip of rotary hook meets the right side of hook timing gauge.
7. While holding rotary hook in position, turn balance wheel toward you in order to position needle at its lowest point.
8. Tighten screws. Then refit circuit cover.
9. Put the machine back to its upright position. Then refit bobbin holder and needle plate.

TO ADJUST CLEARANCE BETWEEN NEEDLE AND RATARY HOOK



CORRECT SETTING

The standard clearance between needle and hook should be minus (-) 0.1 to plus (+) 0.05 mm at each needle position.

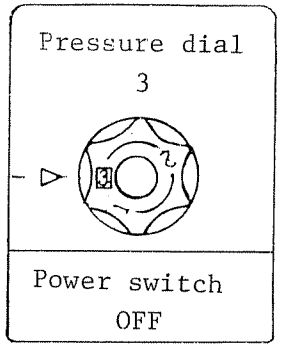
CHECKING CONDITION

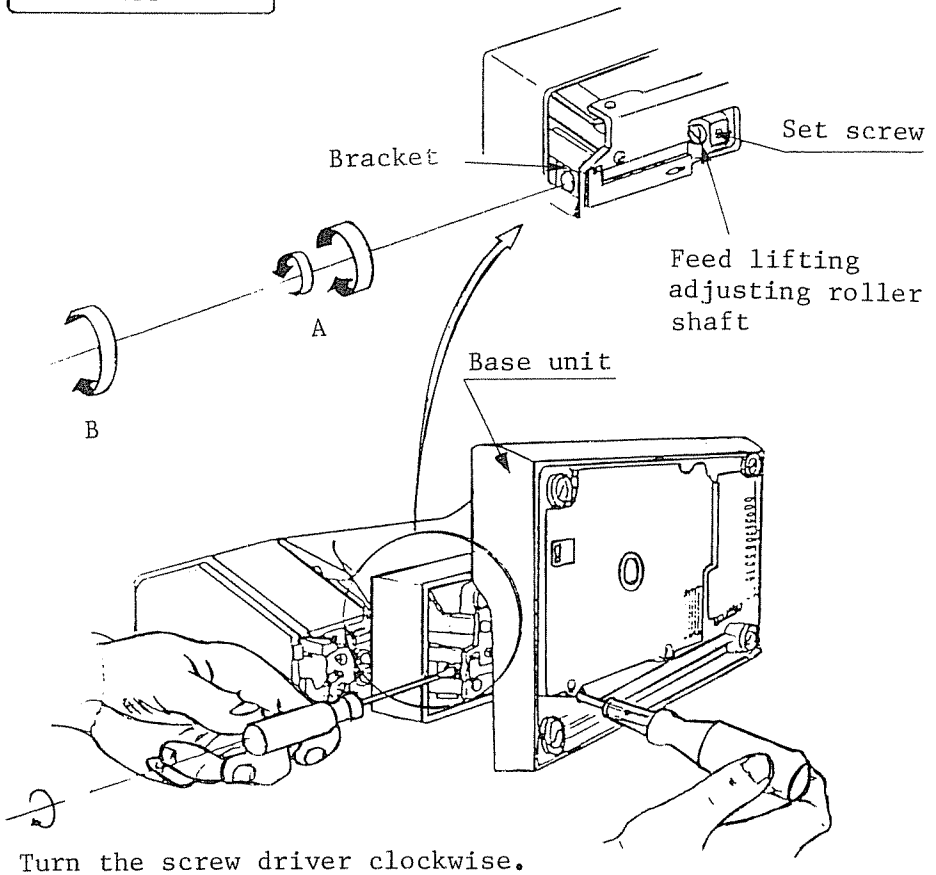
- Select pattern 13 in Mode I.
- Use master needle.

TO ADJUST

1. Remove extension table (accessory box), needle plate, rotary hook and bed cover. (See p. 56)
2. Remove circuit cover. Loosen 2 pcs. of screws and move C board circuit case to the left.
3. Switch on the power and select pattern 13 in Mode I.
4. Push manual stitch width knob and turn it to "0".
5. Turn balance wheel toward you until needle comes to the center of needle hole on needle plate.
6. Loosen 4 pcs. of bolts.
7. Attach one piece of screw to "A" portion.
8. Turn screw in order to raise or lower feed mechanism and adjust the clearance between needle and hook in range of minus (-) 0.1 to plus (+) 0.05 mm.
9. Attach 4 pcs. of bolts.
10. Turn manual stitch width knob to "7" and turn balance wheel to make sure the clearance between needle and hook should be minus (-) 0.1 to plus (+) 0.05 mm at each needle position.
11. Loosen one piece of screw from "A" portion.
12. Refit C board circuit case, circuit cover and bed cover taking care not to scratch flexible cords. (See p. 56)
13. Refit bobbin holder and needle plate.
14. Replace master needle with ordinary sewing needle.
15. Refit extension table (accessory box).

Machine setting





Turn the screw driver clockwise.
Adjust the feed dog height when feed dog rises above the needle plate surface .

CORRECT SETTING:

Set the pressure dial at "3" and lower the presser foot. Turn the balance wheel toward you to raise the feed dog to its highest point. At this point, standard height of feed dog must be 0.75 to 0.85 mm above the needle plate.

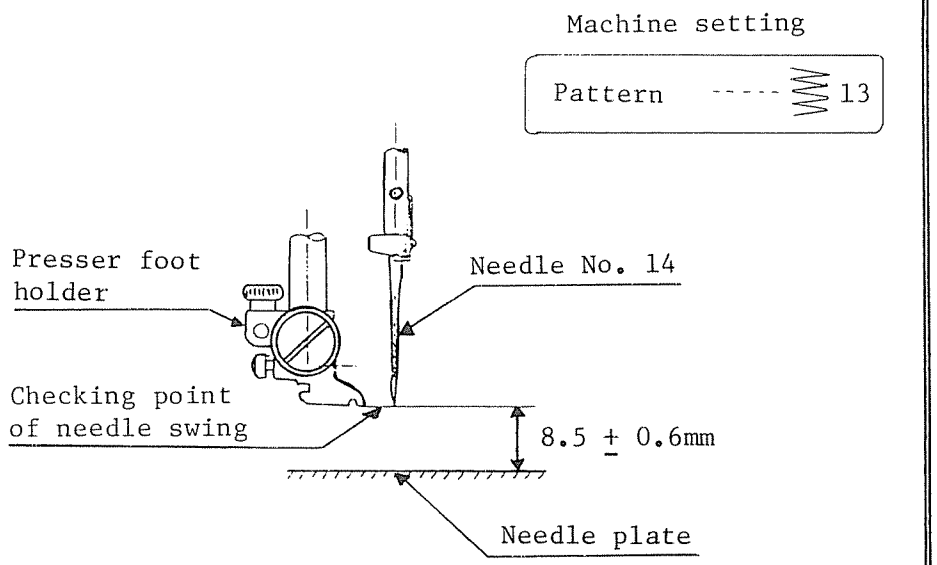
CHECKING CONDITION: Set the pressure dial at "3" stitch length regulator dial at 4. Unplug the machine from power supply.

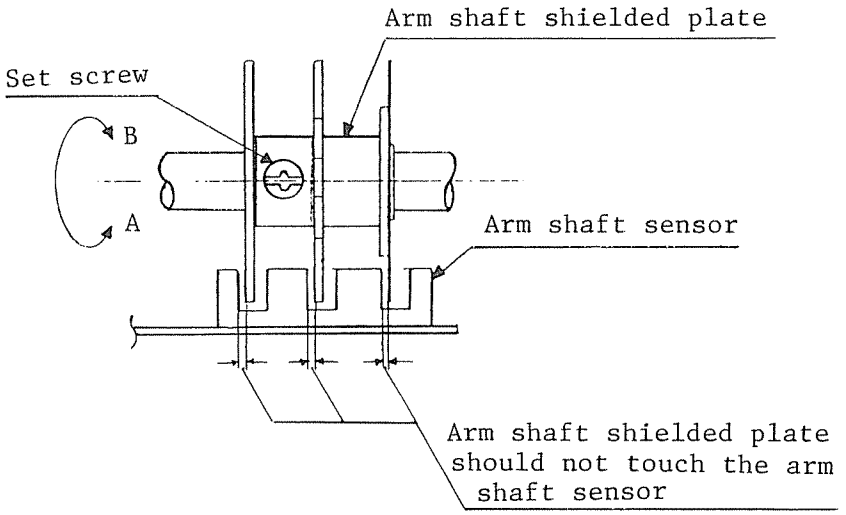
TO ADJUST:

1. Remove the bed cover. (See p. 56)
2. Open the top cover.
3. Lower the presser foot and make sure the feed dog is set at highest point. Tilt the machine until it rests on flat table.
4. Insert the hexagon screw driver from left hand side of working hole of the bed cover. Loosen the feed lifting cam shaft set screw as illustrated in the figure.
5. Insert the negative driver through the hole on bracket and turn the feed lifting cam shaft.
   1) If feed dog height is higher than standard, turn the screw driver to the left and lower the feed dogs slightly. Then, turn to the right for adjustment. (A)
   2) If feed dog height is lower than standard, turn the screw driver to the right. (B)

   IMPORTANT

   Adjustment should be done when the feed dog is coming upward by turning the feed lifting cam shaft to the right.
6. Tighten feed lifting roller shaft set screw.
7. Fix the bed cover and close the top cover.





CORRECT SETTING:

When the needle starts to move in a horizontal direction the hight of the needle above the surface of needle plate should be in the range of 7.9 mm to 9.1 mm (5/16" to 23/64").

TO ADJUST:

1) Remove top cover (See p. 53)

2) Plug the machine into power supply and turn on power switch, then select the pattern 13 in Mode I.

3) Turn balance wheel slowly toward you and stop it when needle just starts moving horizontally.

   i) When needle point is higher than 9.1 mm (23/64") from the surface of needle plate, loosen screw and move upper shaft shield plate unit in the direction of "A".

   ii) When needle point is lower than 7.9 mm (5/16") from the surface of needle plate, loosen screw and move upper shaft shield plate unit in the direction of "B".

4) Tighten upper shaft shield plate set screw. The clearance between upper shaft sensor unit and upper shaft shield plate unit should be within (1 mm). They should not touch each other. (as shown in the diagram.)
   Easier checking:

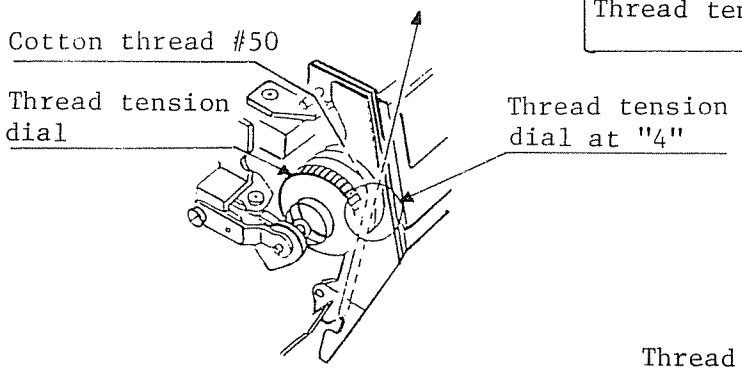
   Lift the presser bar lifter. Height between needle plate and the lowest part of foot holder should be 8.5 mm.

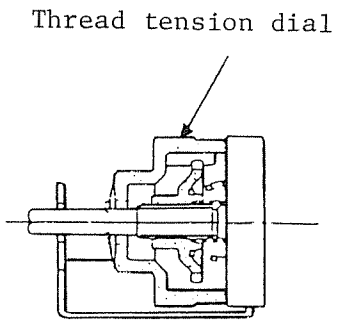
5) Fix top cover unit (See p. 53)

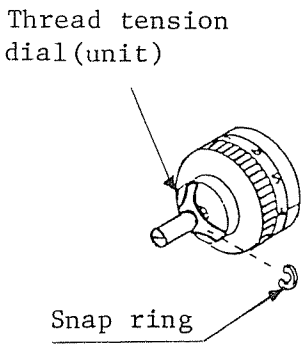
NOTE: 1. Use No. 14 needle
2. Turn the balance wheel toward you when you adjust timing.
3. Fix the top cover, then check the height 8.5 mm of presser foot holder.

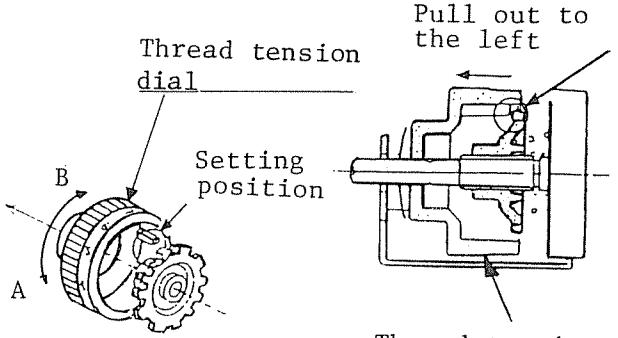
Machine setting

Thread tension dial "4"









CORRECT SETTING

When thread tension dial is set at "4", the thread should pass through check spring holder with tension of 65 to 95 g.

CHECKING CONDITION

- Use 50 mercerised cotton thread.
- Set thread tension dial at "4".
- Pull the thread up vertically at check spring holder.

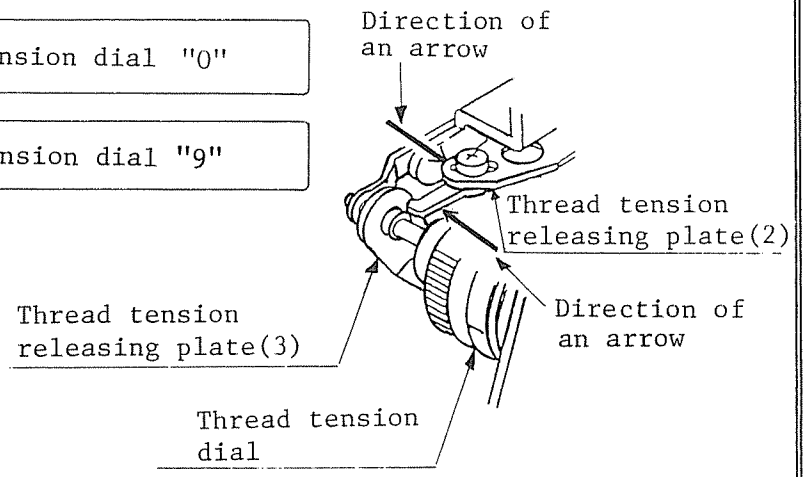
TO ADJUST

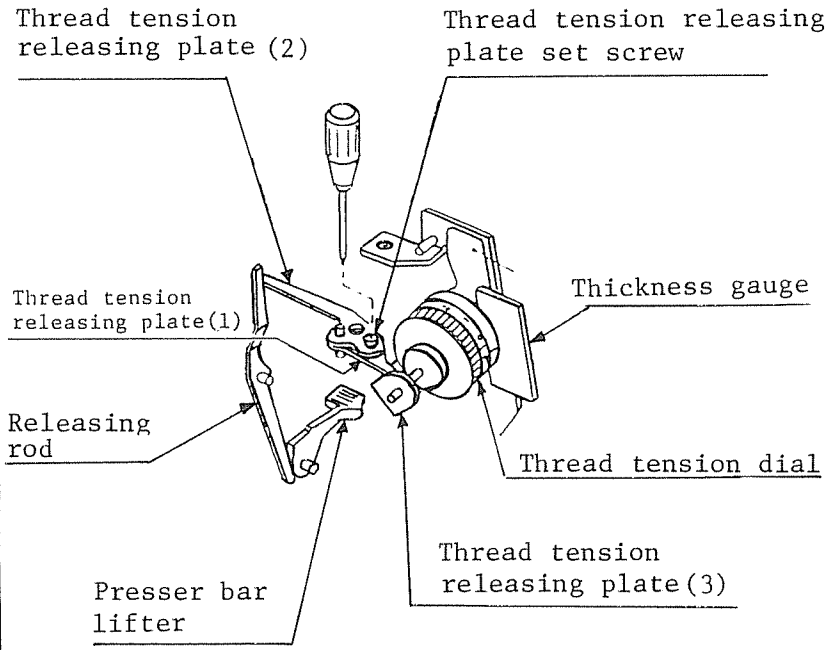
1. Draw the thread down into thread tension dial, then around check spring holder, with tension dial at "4".
2. Remove face plate and lower presser foot. (See p. 54)
3. Remove snap ring.
4. While pulling tension dial away from the machine as far as it will go, shift the fitting position of convex against concave portion with a slight swivelling movement.
   i) If thread tension is too tight, turn dial clockwise (in the direction of "A").
   ii) If thread tension is too loose, turn dial counter-clockwise (in the direction of "B").
5. Refit snap ring.
6. Refit face plate. (See p. 54)

Machine setting

Thread tension dial "0"

Thread tension dial "9"





When presser bar is raised and thread tension dial knob is set at "0", the thread tension releasing plate (3) should move 0.5 mm to the left side.

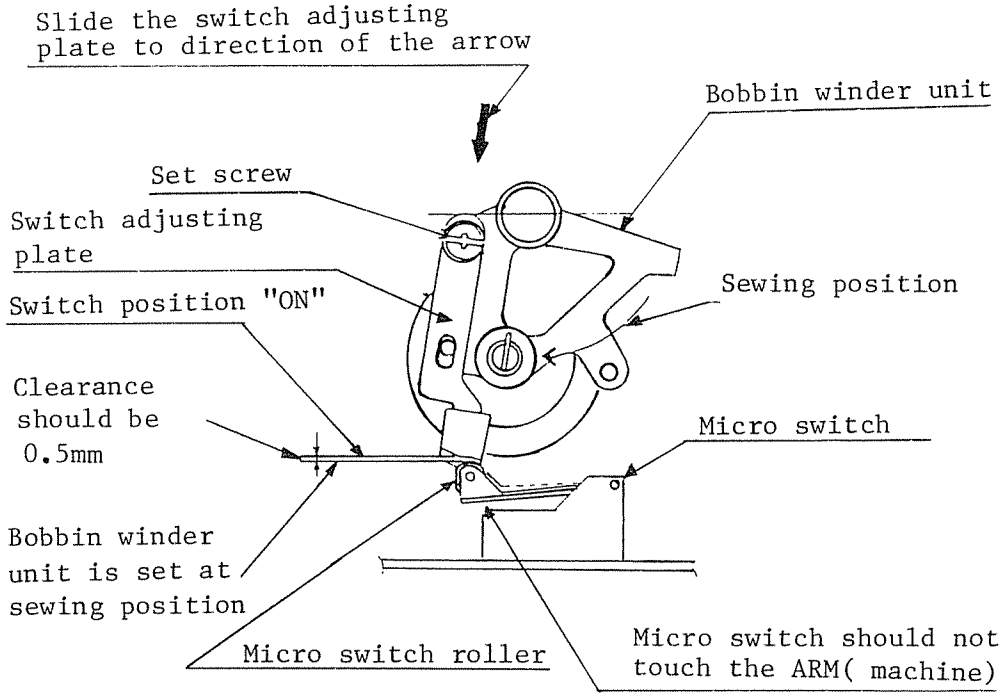
1. Raise the presser bar and remove the face plate.
2. Loosen set screw of thread releasing plate.
3. Set the tension dial at "0".
4. Insert the thickness gauge (0.6 mm) between tension disk and the thread separation plate.
5. Then, turn the thread tension dial from "0" to "9".
6. Butt the thread releasing plate (1) to (3) and (2) to thread releasing rod and tighten thread tension releasing plate set screw.

NOTE: Butt thread releasing plates (1) and (2) to the direction of the arrow as illustrated in the figure.

7. Take out thickness gauge.
   Make sure the thread releasing mechanism is correctly adjusted.

NOTE: Thread tension dial should be turned smoothly.

8. Fix face plate unit.

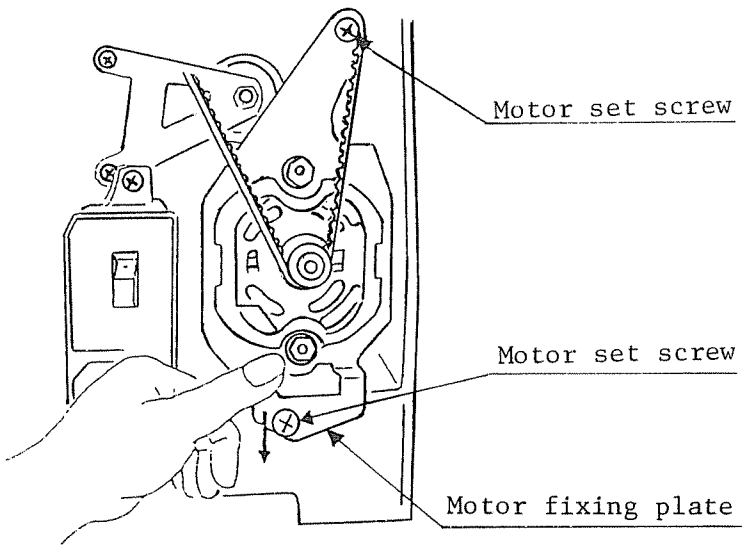


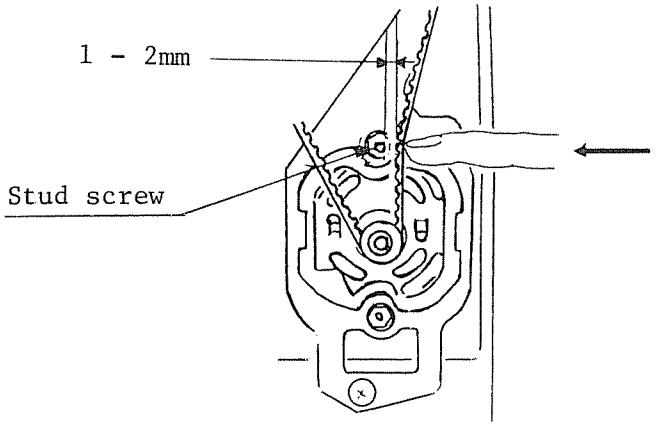
CORRECT CONDITION

When bobbin winder spindle is set at original position micro switch of bobbin winder should be set at "ON" and when bobbin winder spindle is set at bobbin winding position micro switch should be set at "OFF".

TO ADJUST

1. Remove the top cover.
2. Set the bobbin winder spindle at original sewing position.
3. Loosen set screw of switch adjusting plate and make it loose.
4. Shift the switch adjusting plate to touch the roller of micro-switch. Push it along the groove. When there is click sound it is the position of "ON". In order to get some allowance push the switch adjusting plate about 0.5 mm and tighten the screw. (make sure micro-switch lever should not touch the micro switch body.)
5. Bobbin winder spindle is still set at the original position. Switch on power and turn the balance wheel one turn counterclockwise. Make sure machine indicates pattern No. 10 and needle bar is automatically set at left needle position.
6. Power switch "OFF". Fix the top cover.





CORRECT SETTING

When motor belt is pushed taut by your finger, the clearance between belt and screw should be 1 to 2 mm.

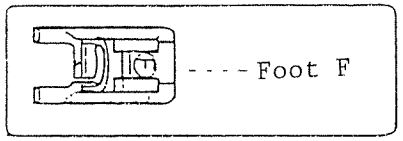
CHECKING CONDITION

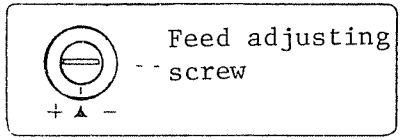
- Push belt by your finger until it becomes taut.

TO ADJUST

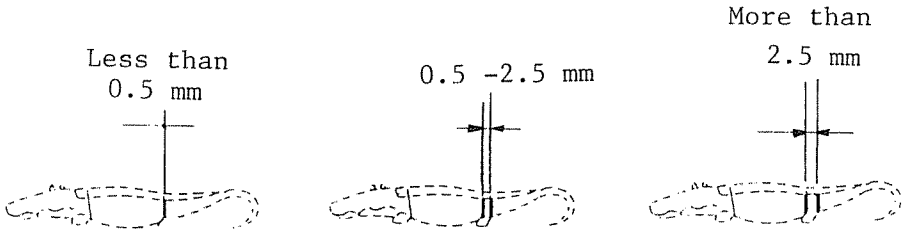
1. Remove belt cover. (See p. 55)
2. Loosen 2 pcs. of set screws.
3. Move motor set plate downward to adjust the clearance between belt and screw 1 to 2 mm when belt is pushed taut by your finger.
4. In the above mentioned condition, tighten screws.
5. Refit belt cover. (See p. 55)

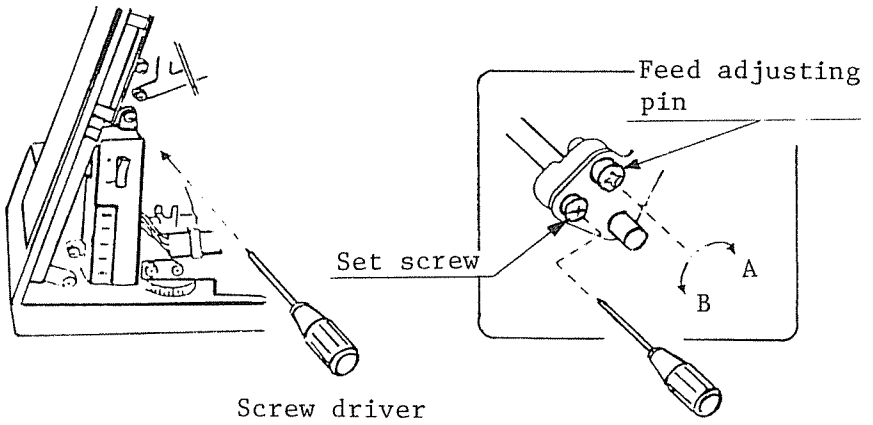
Machine setting





Pattern 41 in Mode III





CORRECT SETTING:

When pattern number 41 is set in Mode III the space between two lines in the center of crocodile pattern should be 0.5 to 2.5 mm as illustrated in the figure.

SETTING CONDITION:

Make sure that the setting mark of feed balance dial at left side of bed is set at standard position.

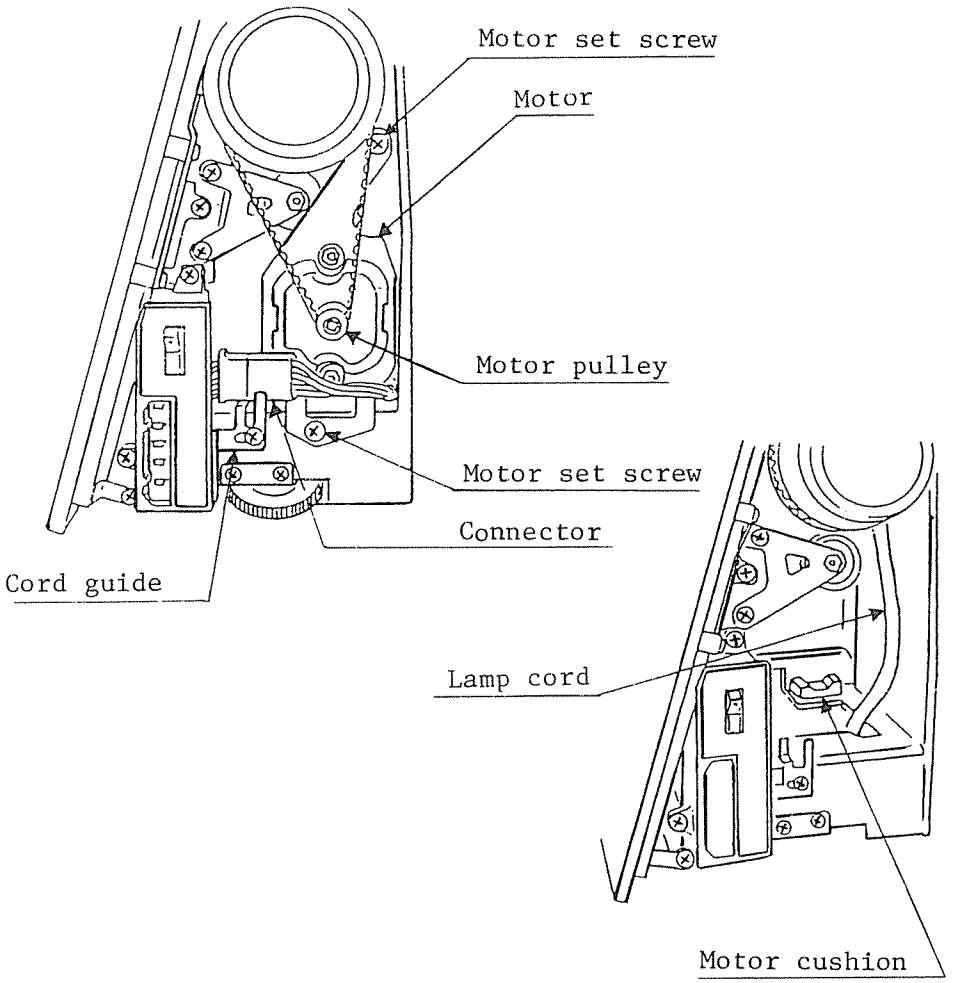
TO ADJUST:

1. Remove belt cover. (See p. 55)
2. Fix F foot.
3. Power switch "ON". Set mode key "III", pattern 41.
4. Check the sewing patterns.

5 Power switch "OFF".

6. Loosen feed arm plate set screw and turn the feed adjusting pin (Do not turn more than 90 degrees either clockwise or counter-clockwise)
   1) If pattern is (i) (pattern is compressed) ..... turn the pin to "B" direction counter-clockwise.
   2) If pattern is (ii) (pattern is drawn out) ..... turn the pin to "A" direction clockwise.
7. Tighten feed arm plate set screw.
8. Power switch "ON". Select pattern 41 in Mode III. (crocodile)
9. Check the pattern 41. Make sure the space between two lines in the center of crocodile is between 0.5 to 2.5 mm. If not, make adjustment from No. 2.

TO CHANGE DRIVE MOTOR



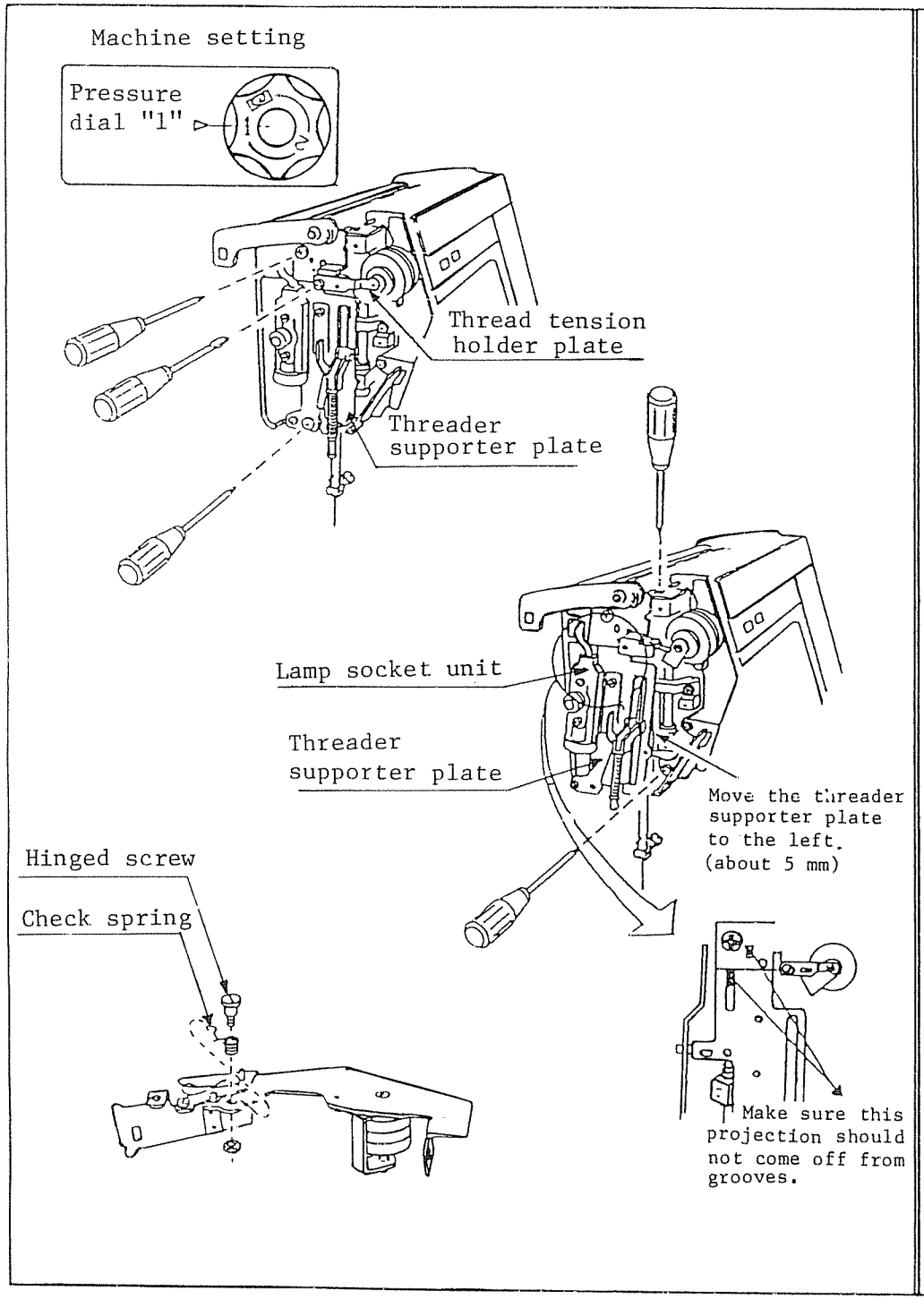
1. Remove the belt cover. (See p. 55)
2. Pull out the connector and take it out, then, remove the two set screws.
3. Remove the motor belt. Pull out the drive motor from the machine.
4. Exchange the motor.
5. Place the motor on the motor cushion in the machine, then tighten two set screws temporarily.

NOTE: 1) Make sure motor cushion should not be bent before fixing the motor.

2) Lamp cord should be placed between motor side and arm side.

6. Fix the motor belt on motor pulley and upper shaft belt gear.
7. Adjust the tension of motor belt. (See p. 46)
8. Joint the connector and insert to the cord guide.
9. Fix the belt cover. (See p. 55)

TO EXCHANGE THE CHECK SPRING



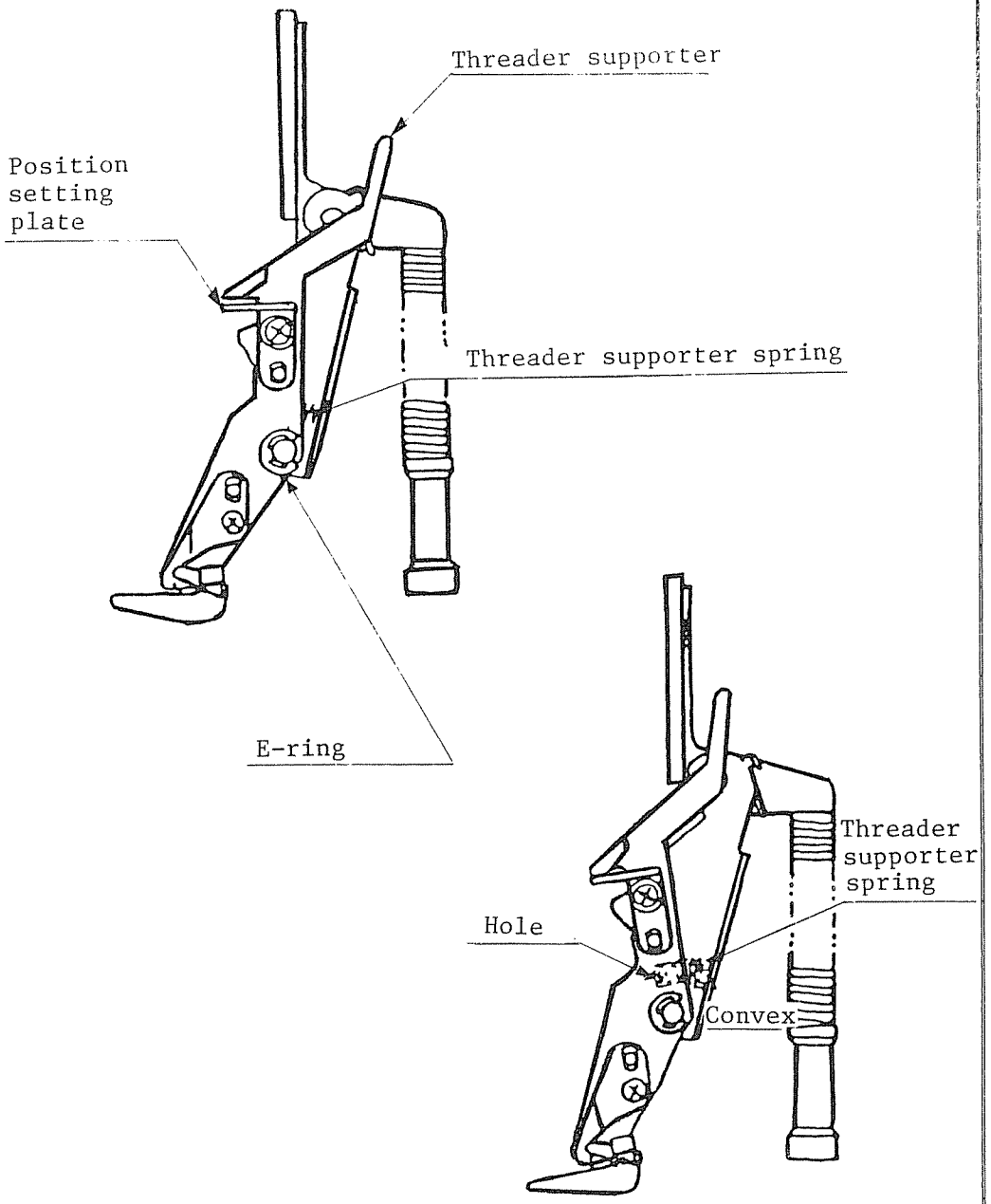
TO TAKE OUT

Set pressure dial at "I".

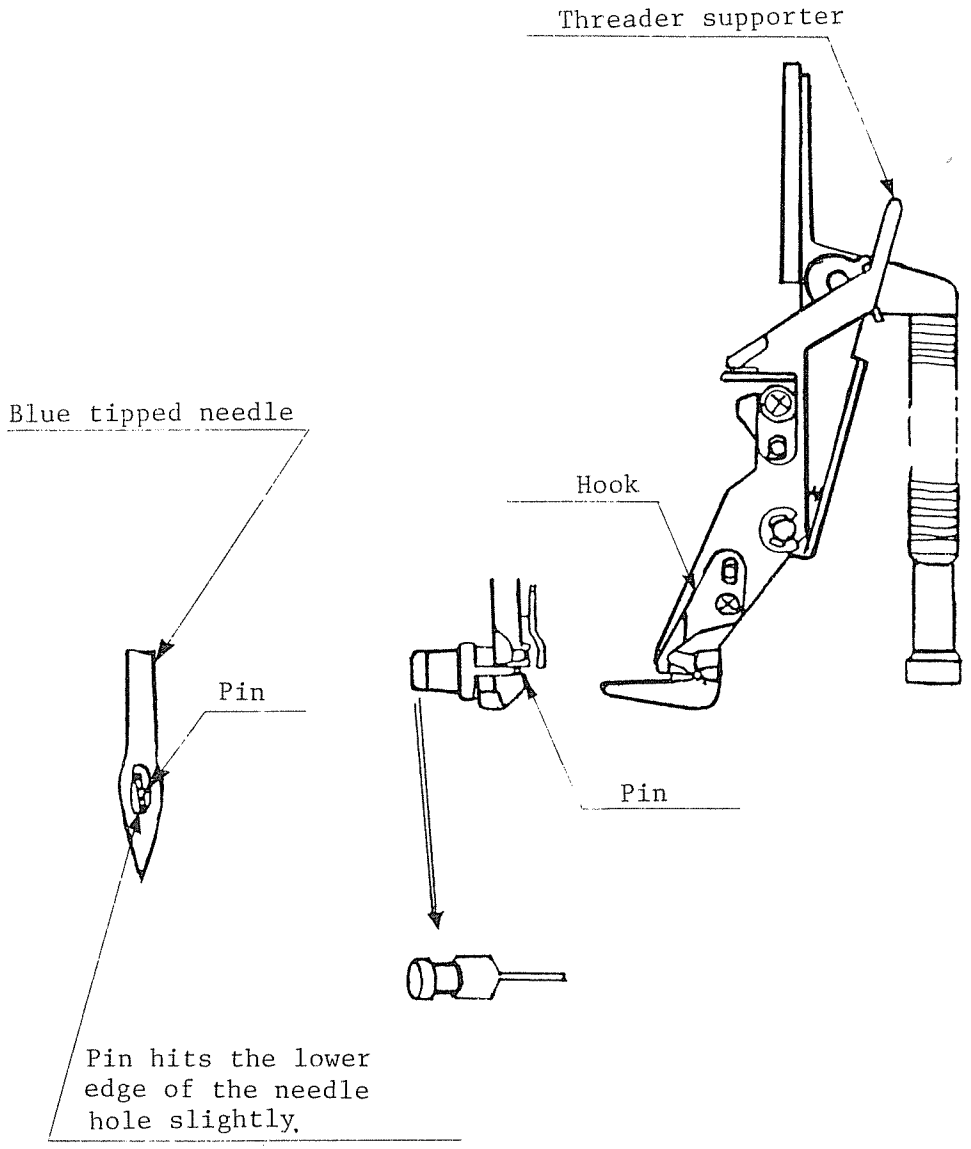
1. Remove top cover unit, face plate unit and sewing light bulb.
2. Loosen set screw of thread tension holding plate, and remove the thread tension holding plate from needle threader supporter plate.
3. Take out a lower side screw from needle threader supporter plate and loosen upper side screw then shift the needle plate supporter plate to the left.
4. Loosen two set screws of thread tension unit. Take out thread tension unit.
5. Take out hinged screw and check spring.

TO FIX

6. Fix check spring as shown in the diagram by tightening hinge screw.
7. Fix the thread tension unit with two screws to the machine.
8. Fix the needle threader supporter plate with two screws.
9. Tighten thread tension holding plate with screw to the needle threader supporter plate.
10. Fix lamp, face plate and top cover unit. See p. 53, p. 54.

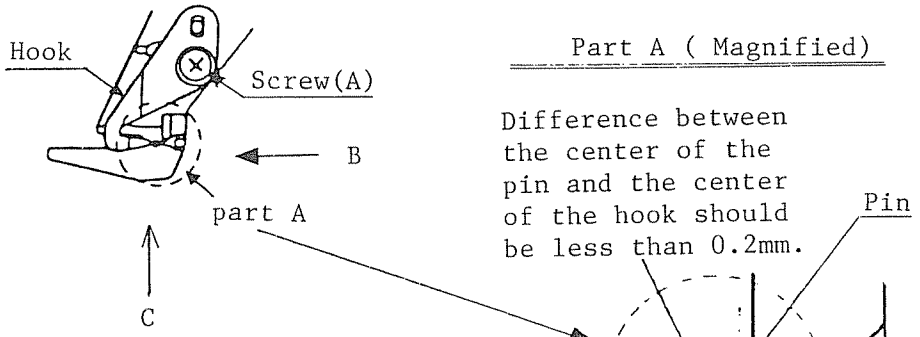


1. Detach the face plate. Remove the bulb.
2. Lift up the needle threader.
3. Remove the E-ring.
4. Detach the threader supporter. (Be careful that the threader supporter spring might not jump out.)
5. Attach the new threader supporter and fix it with the E-ring.
6. Place the threader supporter spring between the hole of the threader supporter and the convex of the thread supporter arm.
7. Check if the threader supporter moves smoothly.
8. Adjust the function of the needle threader according to the instruction of NEEDLE THREADER.
9. Attach the bulb and the face plate.



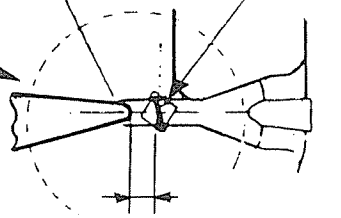
In case the pin of the threader hits needle, adjust as follows;

1. Attach the blue-tipped needle.
2. Turn the balance wheel counter-clockwise until the needle comes to its highest point.
3. Pull down the threader in order that the position setting plate touches the roll pin.
4. Pull out the threader as the illustrated fig. Insert the new threader.

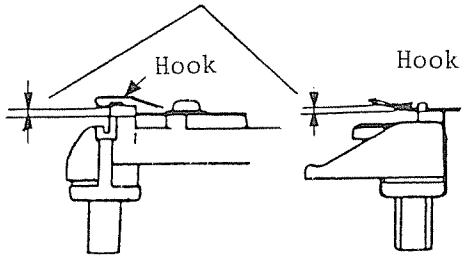


Part A (Magnified)

Difference between the center of the pin and the center of the hook should be less than 0.2mm.



Clearance should be 0.1-0.5 mm

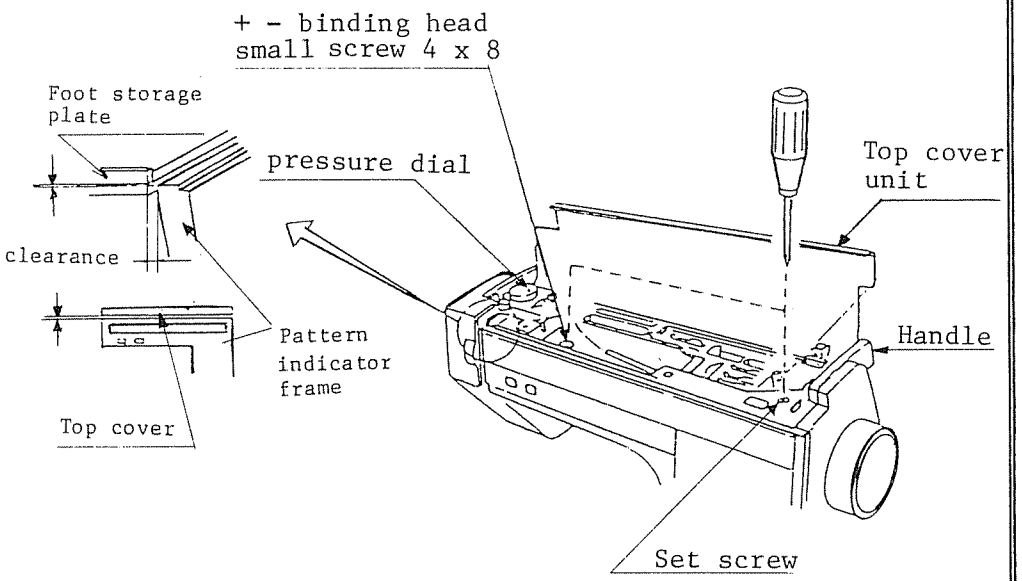


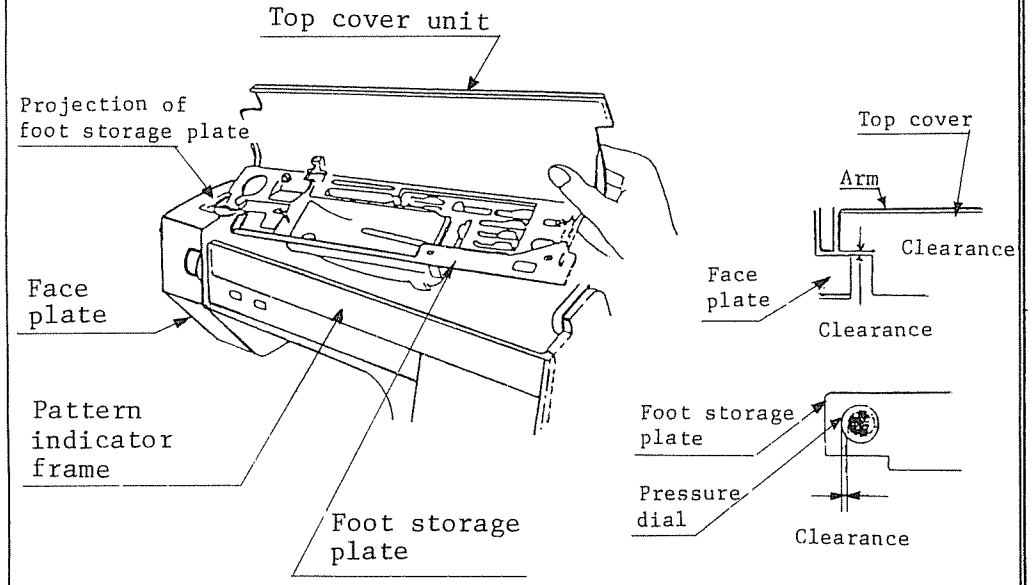
View from B View from C

In case the hook of the threader does not catch the thread, make adjustment as follows:

1. Use the blue-tipped needle and the embroidery thread#50.
2. Adjustment A.
   Loosen the screw (a). Make adjustment as shown in the diagram (A).
3. Adjustment B.
   Bend the tip of the hook to make adjustment as shown in the diagram (B).
4. After adjustment, check if adjustment is made correctly.

TO CHANGE TOP COVER





TO REMOVE

Before taking out, make sure power switch is "OFF".

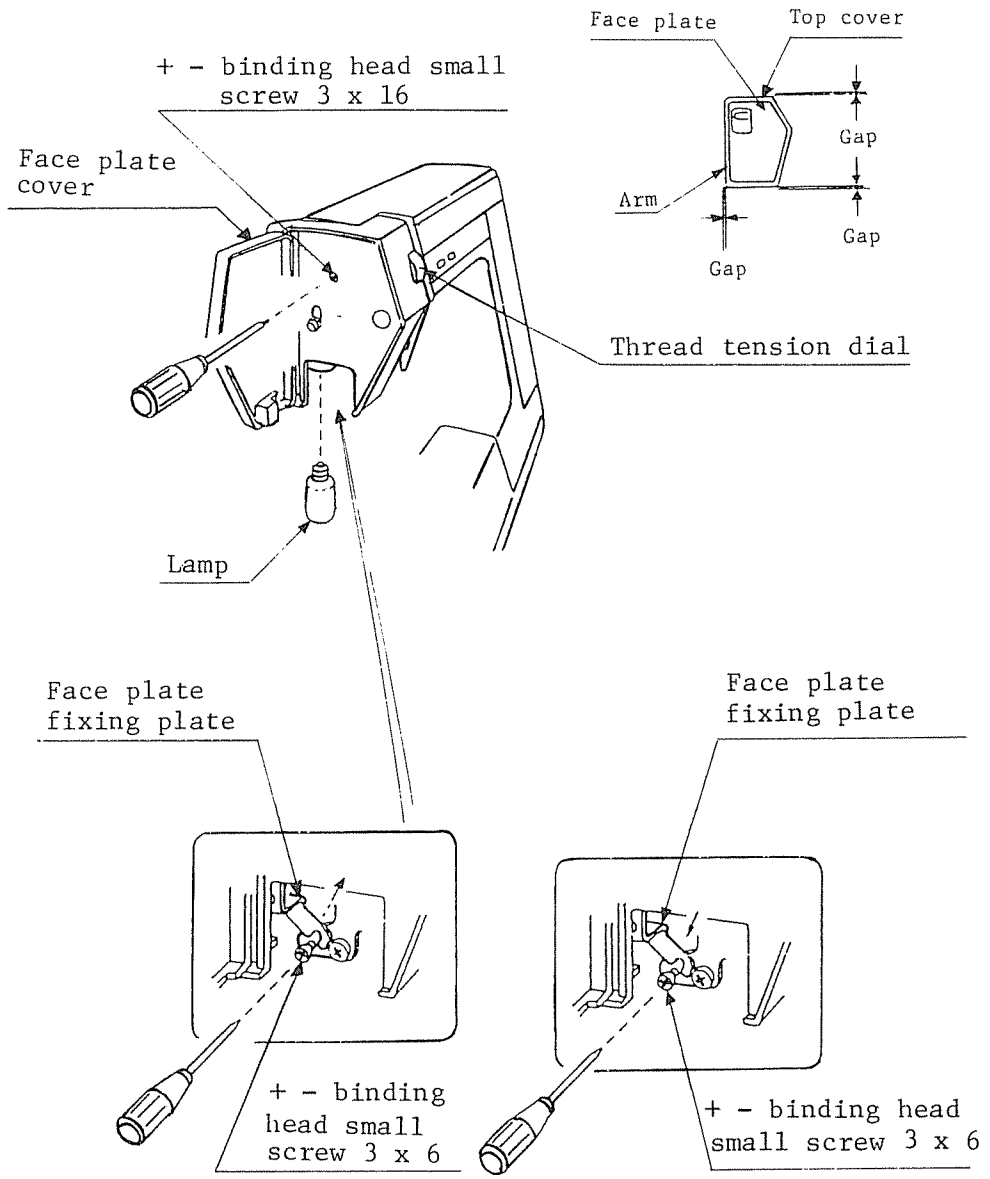
1. Open the top cover, loosen + - binding head small screw (left) then loosen right hand side screw.
2. Take out top cover as illustrated in the figure.

TO FIX

3. Slant the top cover as illustrated in the figure. A projection of front left side should be inserted under the face plate, then lower the right hand side of top cover.
4. If position of top cover is adjusted tighten left side set screw, and then right side screw. Close the top cover.

NOTE:
1) The clearance between top cover and pattern indicator, that between top cover plate and arm, that between foot storage plate and pattern indicator should not be large.
2) Top cover should not hit the handle when it is closed.
3) Bobbin winder spindle should not touch foot storage plate.
4) Face plate and top cover should not touch (clearance should be even).
5) Clearance between foot storage plate and pressure dial should be even.
6) Make sure power switch is "OFF".

TO CHANGE FACE PLATE



TO REMOVE

1. Make sure power switch is "OFF" before removing face plate.
   Open the face plate cover and remove the sewing light bulb.
2. Loosen lower set screw (+ - binding small screw 3 × 6), then loosen and remove the upper set screw (3 × 16).
3. Shift the face plate upward.

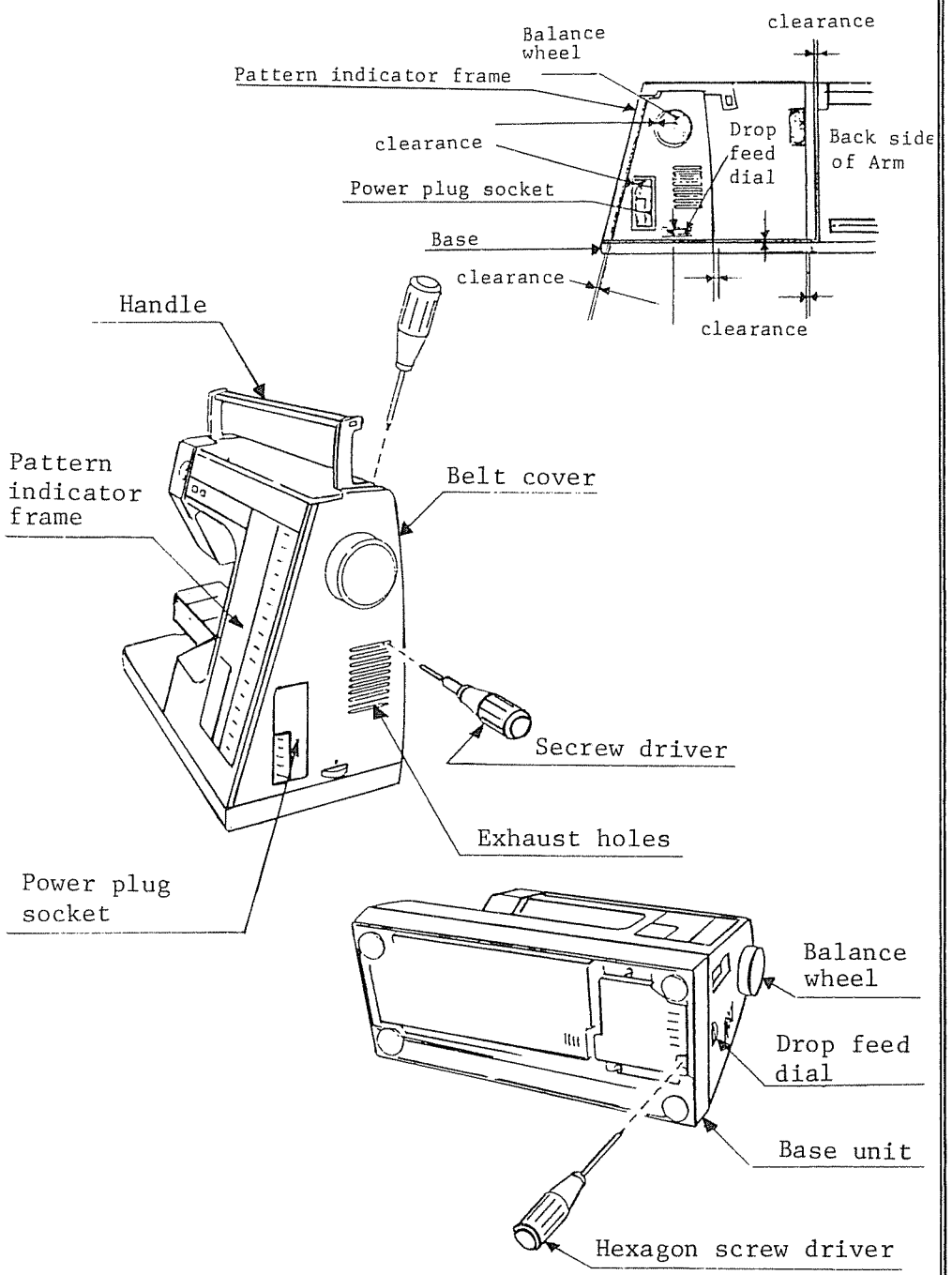
TO FIX

4. Set the groove of the face plate fixing plate to the set screw (3 × 6) and tighten with screw (3 × 16) temporarily.
5. Tighten two set screws after face plate position is adjusted.
6. Fix the bulb and close the face plate cover.

NOTE: 1) Clearance of face plate between top cover and arm should be even.

2) Face plate should not touch the tension unit.

TO CHANGE BELT COVER



TO TAKE OUT

1. Raise the handle. Loosen TP set screw 3 × 8. (Do not take out)
2. Insert the hexagon screw driver (2.5 mm) from the right side of top hole of motor exhaust and loosen hexagon bolt.
3. Loosen ± binding head small screw 4 × 8 at center of drop dial and pull out the belt cover toward you.

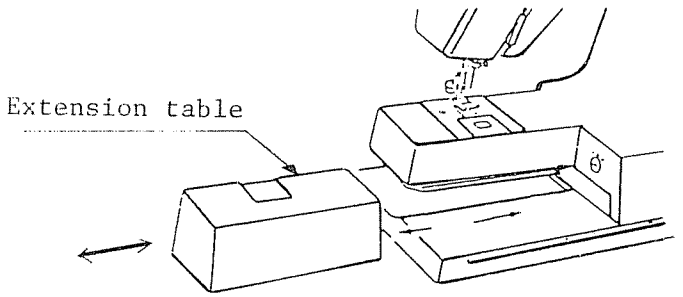
TO FIX

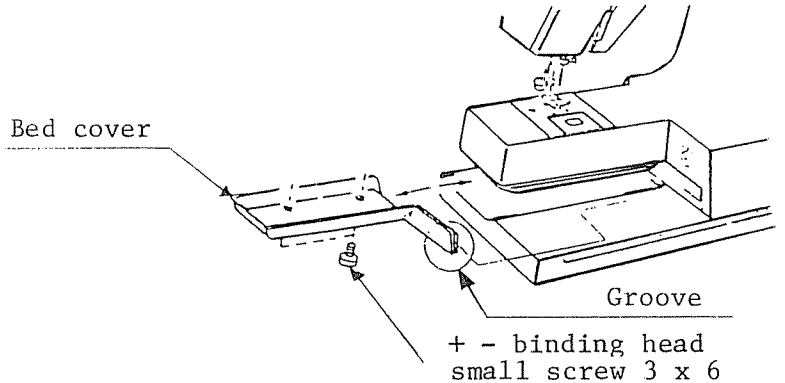
4. Set the projection on left side of the belt cover to groove of the stitch pattern indicator frame.
5. The fixing position of top side and bottom side of the belt cover should be set at each TP 3 × 8, 4 × 8 set screw.
6. When belt cover is positioned correctly, insert the hexagon screw driver from the right side of top hole of motor exhaust and tighten hexagon bolt and TP screw 3 × 8, screw 4 × 8.

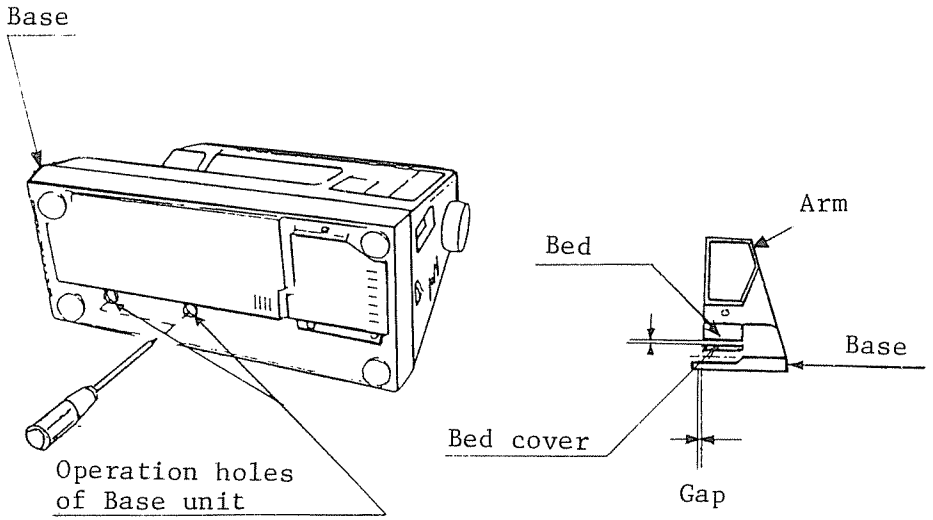
NOTE: 1) Clearance between belt cover arm, socket, foot storage plate, base, and pattern indicator frame is even.

2) Clearance between belt cover and drop dial is even.

3) Clearance between belt cover and balance wheel is even.







TO REMOVE

Before removing the bed cover, make sure power switch is "OFF".

1. Slide the accessory box unit to the left side.
2. Insert the screw driver into the operation hole of the base unit. and loosen two set screws.
3. Remove the bed cover to the left side.

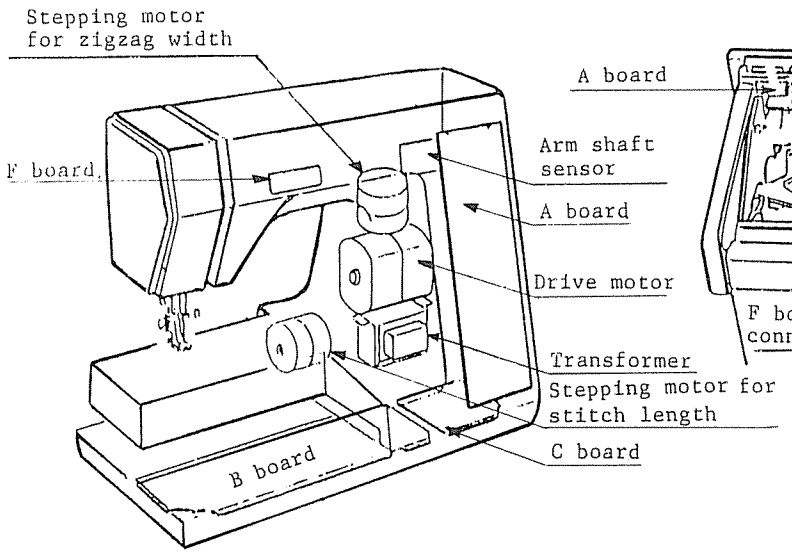
TO FIX

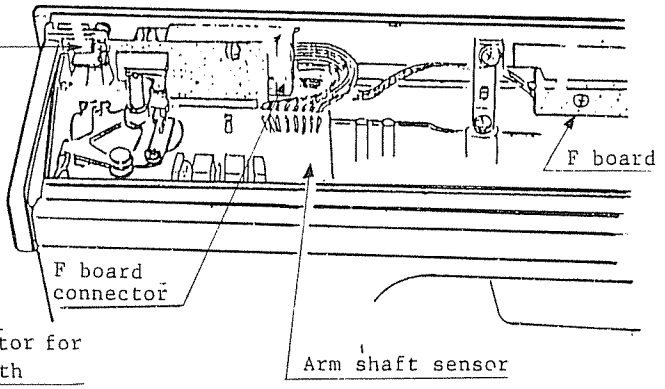
4. Insert the bed cover from left side, and adjust the groove of the bed cover to the bed as illustrated in the figure.
5. Insert the screw driver into the operation hole and tighten the two set screws.
6. Slide the accessory box unit from left to right.

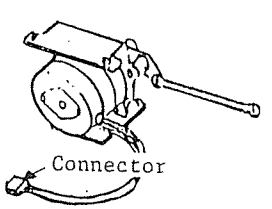
NOTE: 1) Clearance between bed cover and arm should be even.

2) Shift the bed cover to the side of accessory box if the accessory box is not stable.

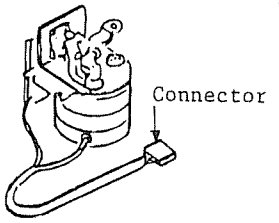
This Memory Craft (Sewing Machine) has 14 different connecting points. Full attention is necessitated because the machine will become out of order if there is any disconnected point. Make sure all of connectors are connected correctly when replacing the electronic and electrical parts (A,B,C,F,board, Arm shaft sensor and drive motor). (Wires should not be pinched with parts.)



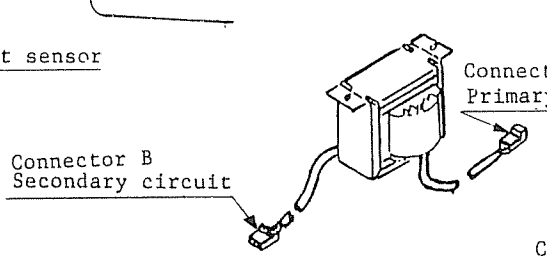




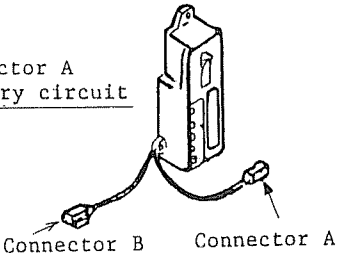
Stepping motor for stitch length



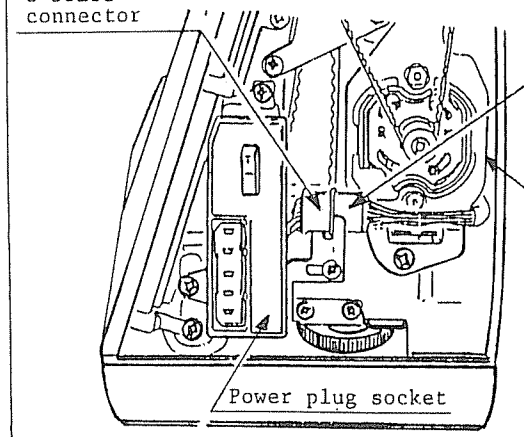
Stepping motor for zigzag width



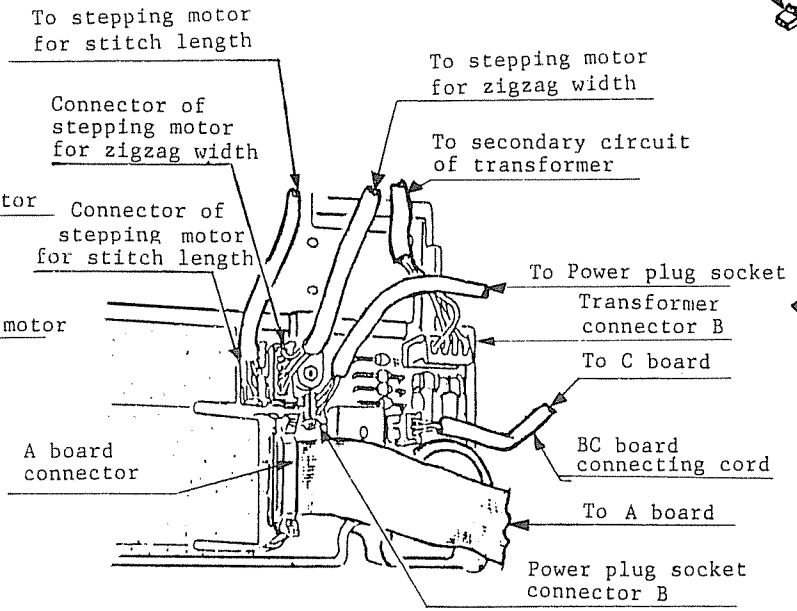
Transformer



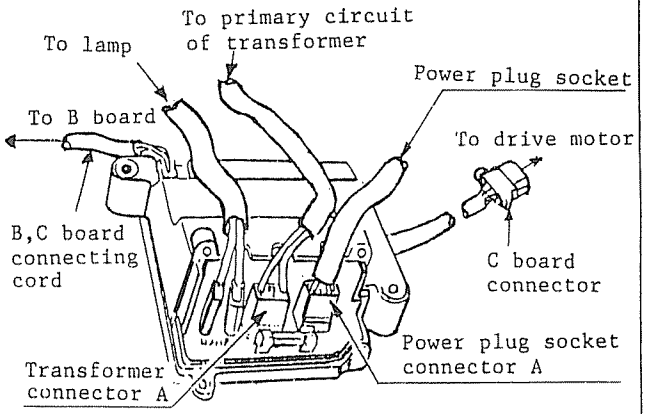
Power plug socket



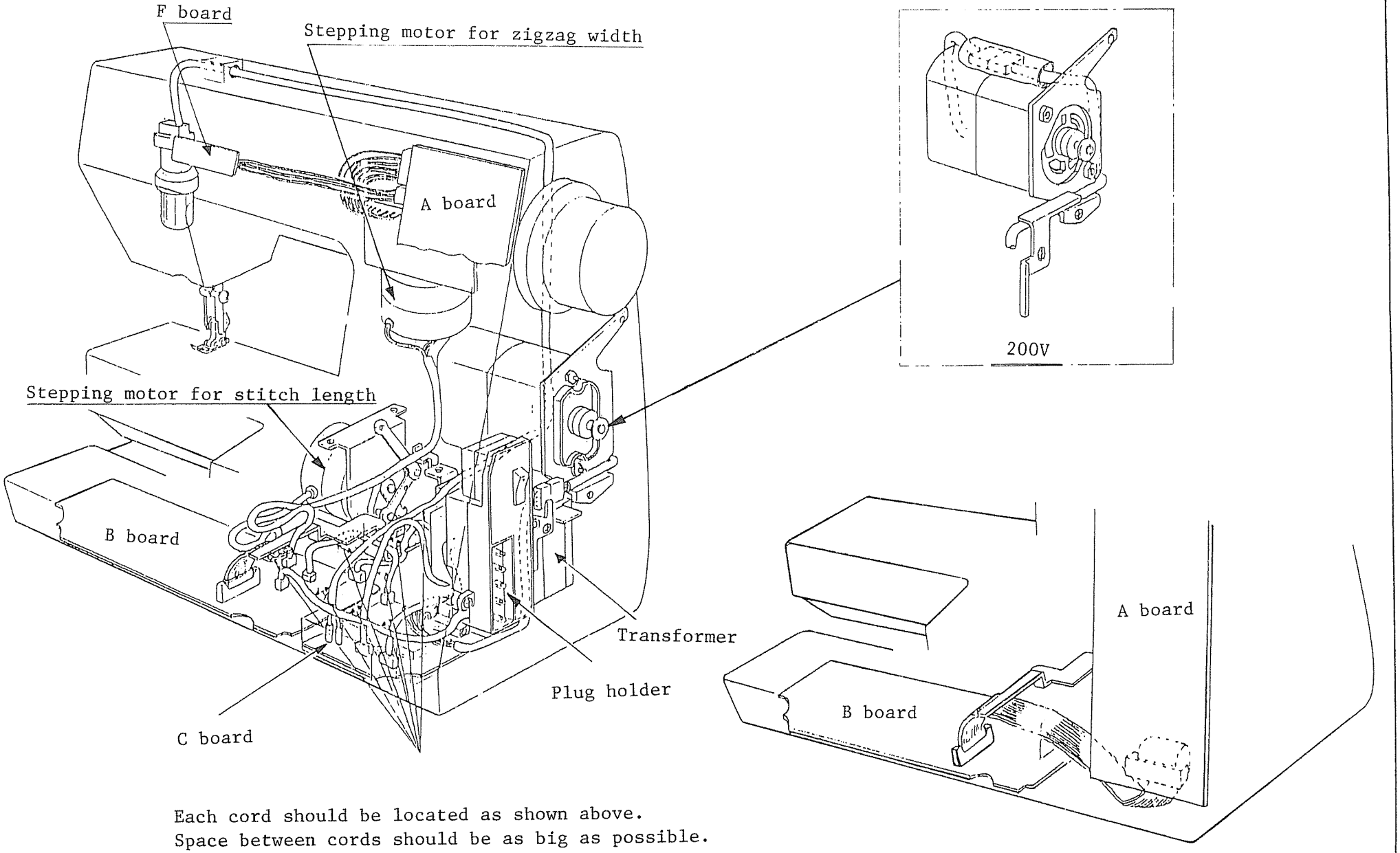
Power plug socket Motor 100V



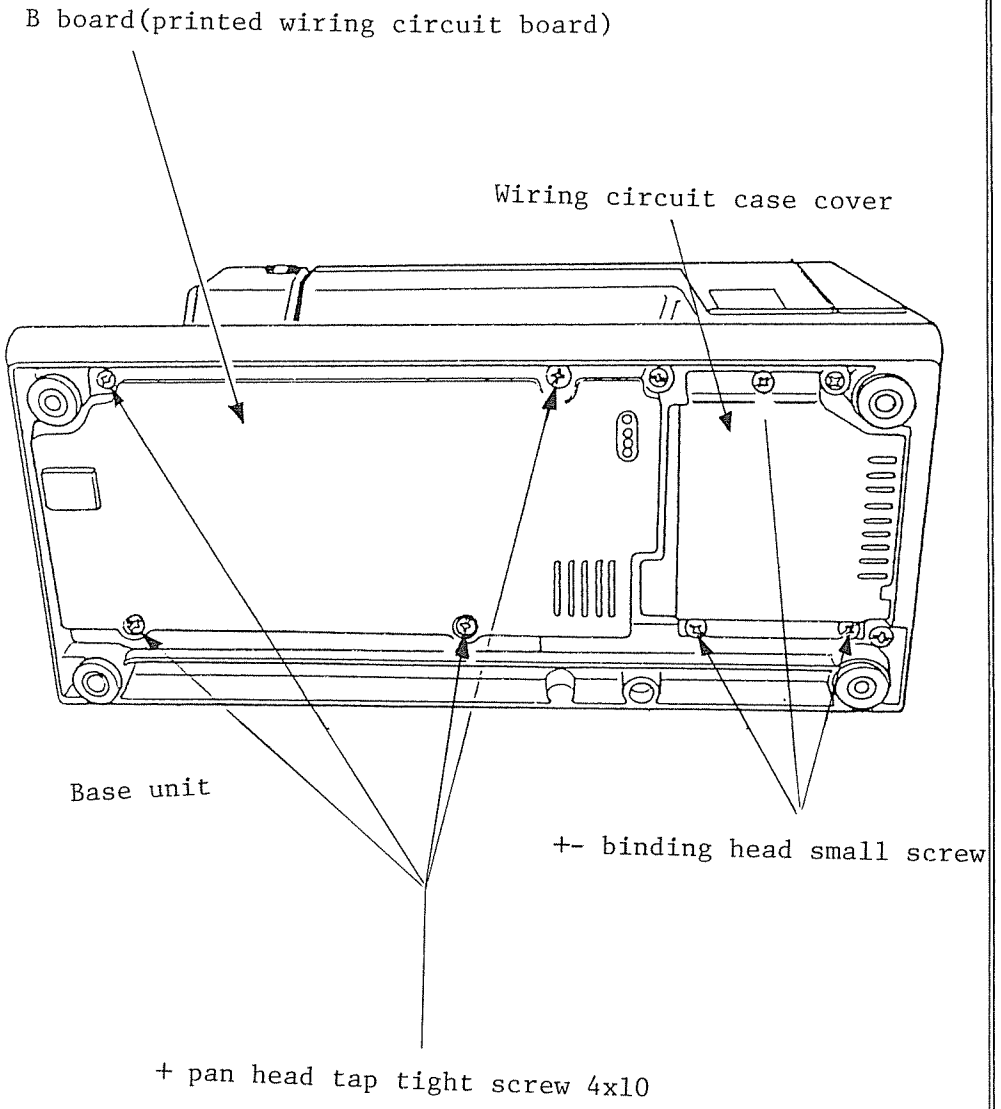
B board



C board



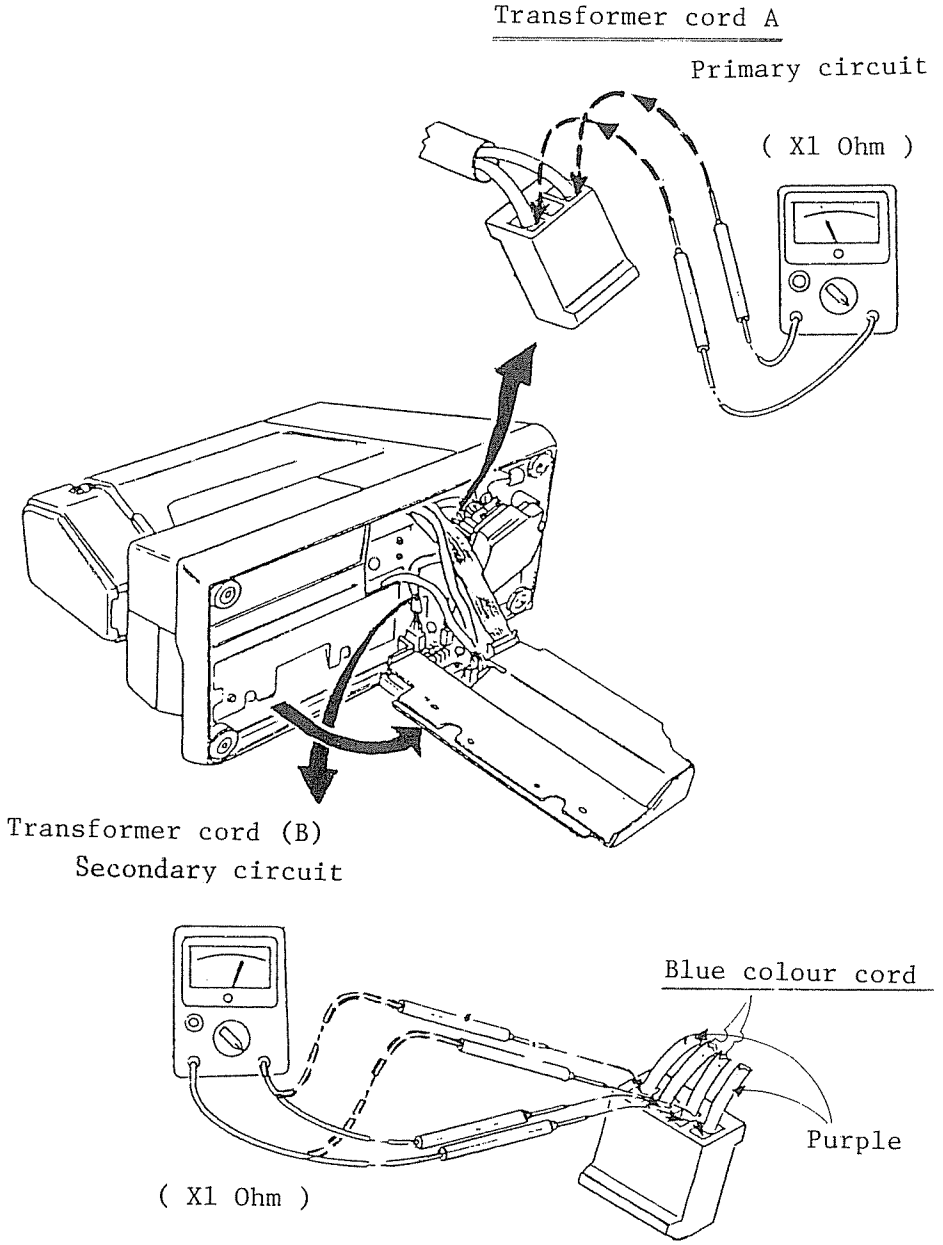
Each cord should be located as shown above.
Space between cords should be as big as possible.



TO PULL OUT THE TRANSFORMER CONNECTOR

Unplug the machine from power supply.

1) Remove the wire circuit case cover (Loosen 3 set screws).
2) Remove C board (Loosen 2 set screws).
3) Remove C board wiring circuit case (Loosen 3 set screws).
4) Pull out the transformer connector (A) from C board.
5) Remove B board from Base unit (Loosen 4 set screws).
6) Pull out the transformer connector (B) from B board.



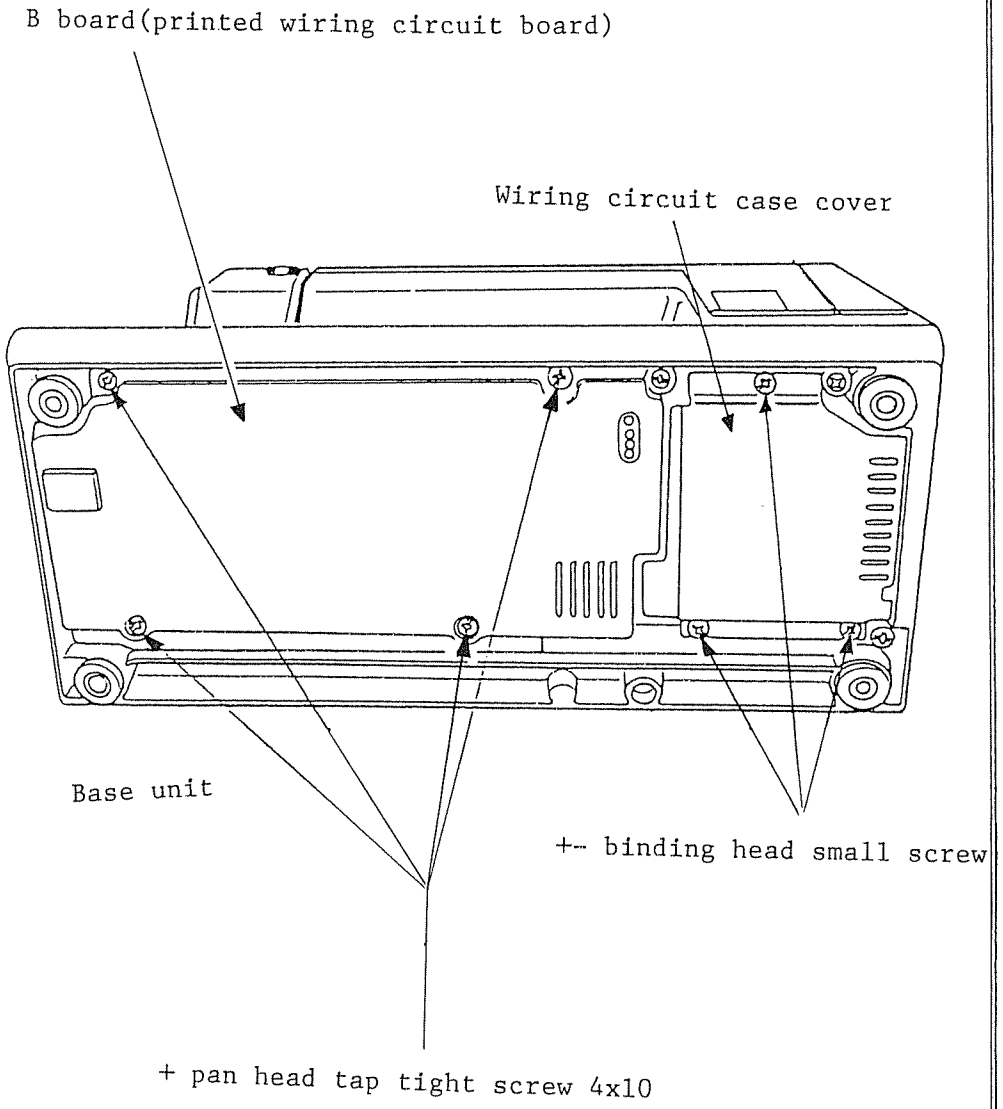
7) Measure the insulation resistance between terminals on connector A with electrical tester.

   100 V specification: the reading should be about 10 ohms.

   200 V specification: the reading should be about 55 ohms.

8) Measure each of the insulation resistance between terminals of "BLUE" wires and also between "PURPLE" wires on connector B with electrical tester. Each reading should be about 1 ohm.

If needle of electrical tester does not swing, change the transformer. (due to broken input winding coil).



TO FIX THE TRANSFORMER CONNECTORS

9) Insert the transformer connector (B) to B board.

10) Fix B board on the base unit
(Tighten 4 set screws).

11) Insert the transformer connector (A) to C board.

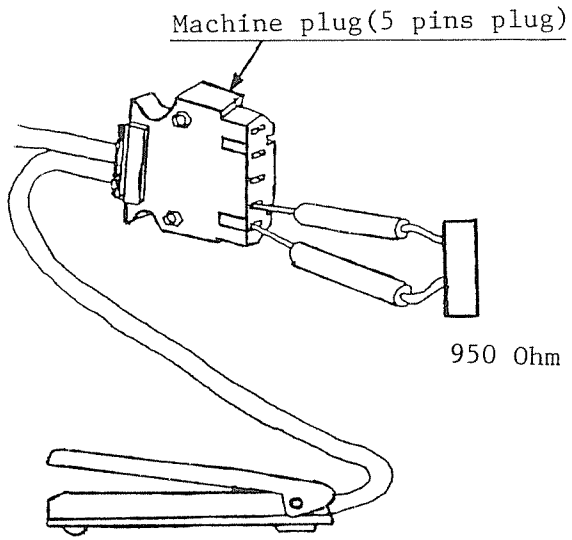
12) Fix C board wiring circuit case
(Tighten 3 set screws).

13) Fix C board (Tighten 2 set screws).

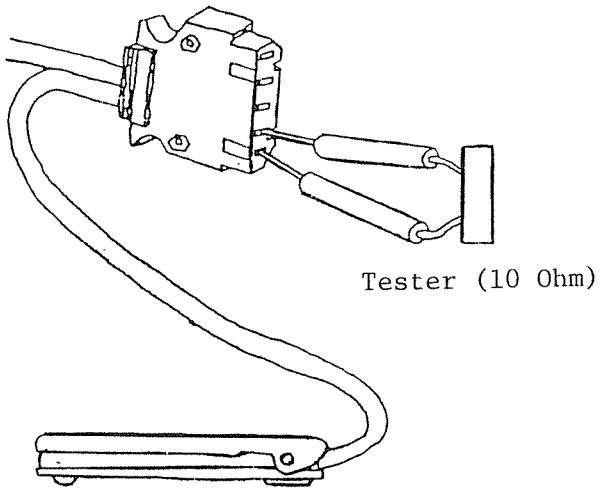
14) Fix the wiring circuit case cover
(Tighten 3 set screws).

TO CHECK FOOT CONTROL

Before pressing the foot control



After foot control is pressed

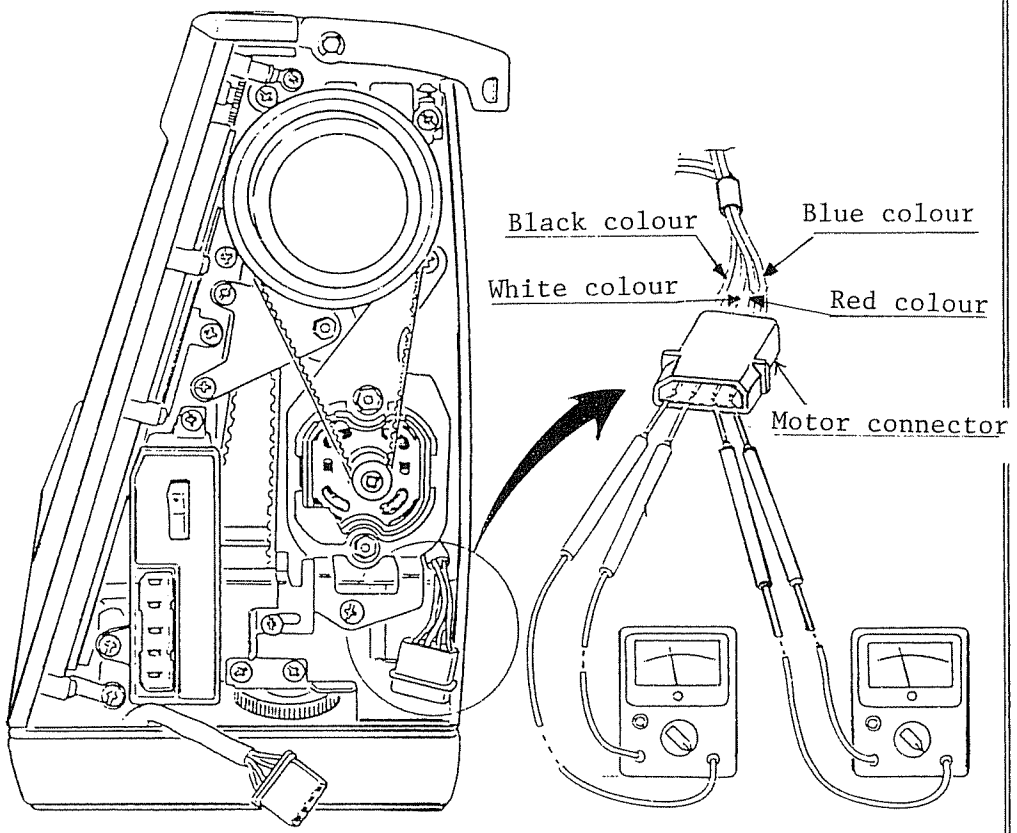


1) Unplug the machine from power supply.

2) Remove foot control plug from the machine.

3) Touch slightly two connecting terminals with fingers of electrical tester, as shown in the diagram and measure the insulation resistance of foot control, of which reading should be varied in the range of 950 Ohms to 10 Ohms when pressing fully and releasing foot control pedal.
If needle of electrical tester does not swing, change foot controller unit.

NOTE: Do not insert strongly the finger of electrical tester into the terminals of foot controller plug in order to prevent a damage of terminals.



Tester (Range of 1 Ohm)

1) Unplug the machine from power supply.

2) Unplug connectors.

NOTE: Color of lead wires; Connector: red, blue, black and white.

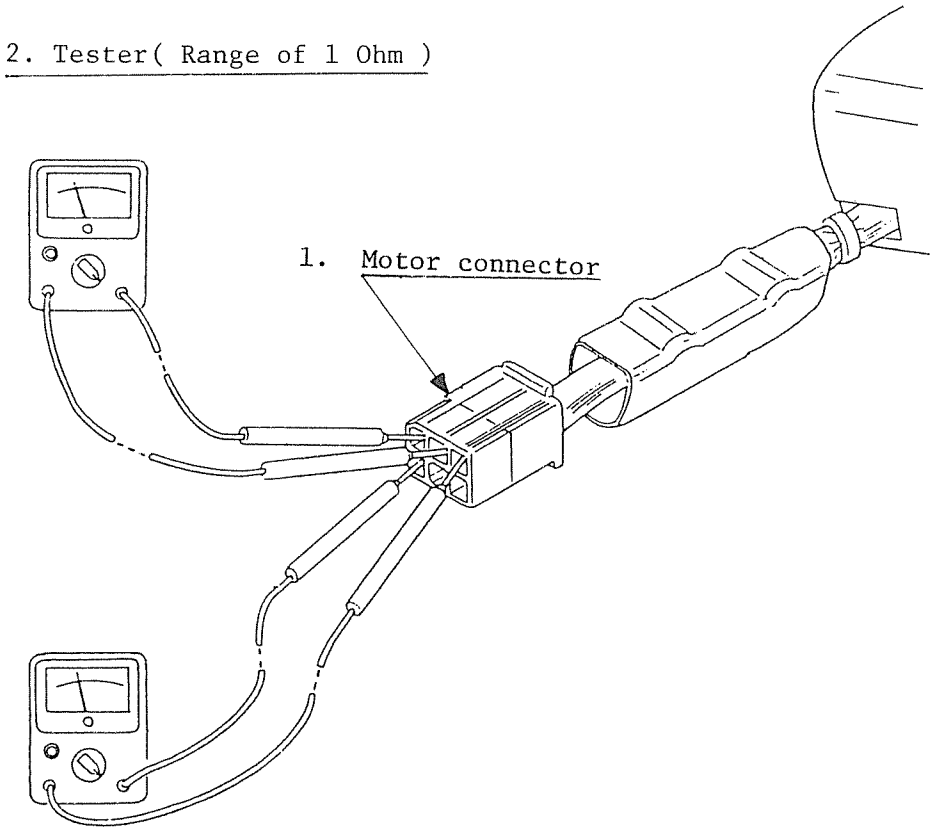
3) Remove the motor connector.

4) Measure the insulation resistance between both terminals of "RED" and "BLUE" wires with electrical tester, of which reading should be about 10 Ohms. If needle of electrical tester does not swing, change main drive motor (due to the broken armature coils or thermal cutoff fuse).

5) Measure the insulation resistance between both terminals of "WHITE" and "BLACK" wires by the same way as mentioned above, of which reading should be in the range of about 15 to 20 Ohms.
If needle of electrical tester does not swing, change main drive motor (due to broken armature coils).

If needle of electrical tester does not swing, change main drive motor (due to the broken armature coils or thermal cutoff fuse).

2. Tester(Range of 1 Ohm)



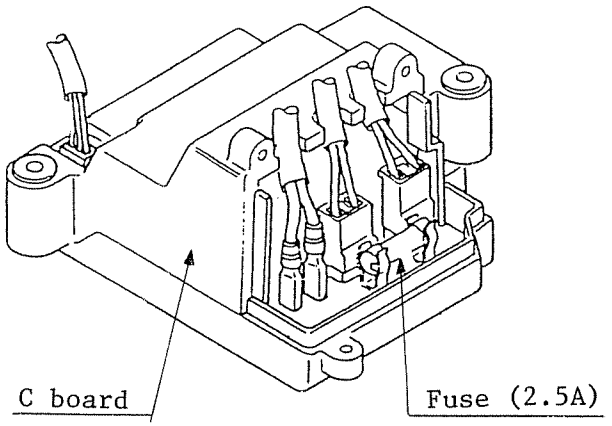
3. Tester (Range of 1 Ohm)

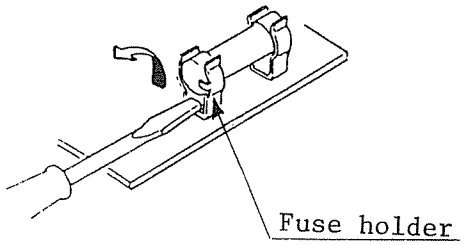
1) Unplug the machine from power supply.

2) Measure the insulation resistance between both terminals of "RED" and "BLUE" wires with electical tester, of which reading should be about 50 Ohms. If needle of electrical tester does not swing, change main drive motor (due to the broken armature coils or thermal cutoff fuse).

3) Measure the insulation resistance between both terminals of "WHITE" and "BLACK" wires by the same way as mentioned above, of which reading should be about 60 Ohms.
If needle of electrical tester does not swing, change main drive motor (due to broken armature coils).

REPLACEMENT OF THE FUSE (2.5 A) ON C BOARD





TO TAKE OUT

1) Unplug the machine from power supply.

2) Remove C board and pull out C board wiring circuit case.

3) Remove the fuse (2.5 A) from C board.

NOTE: To take out the fuse, Make sure the screw driver should be inserted from the side as illustrated.

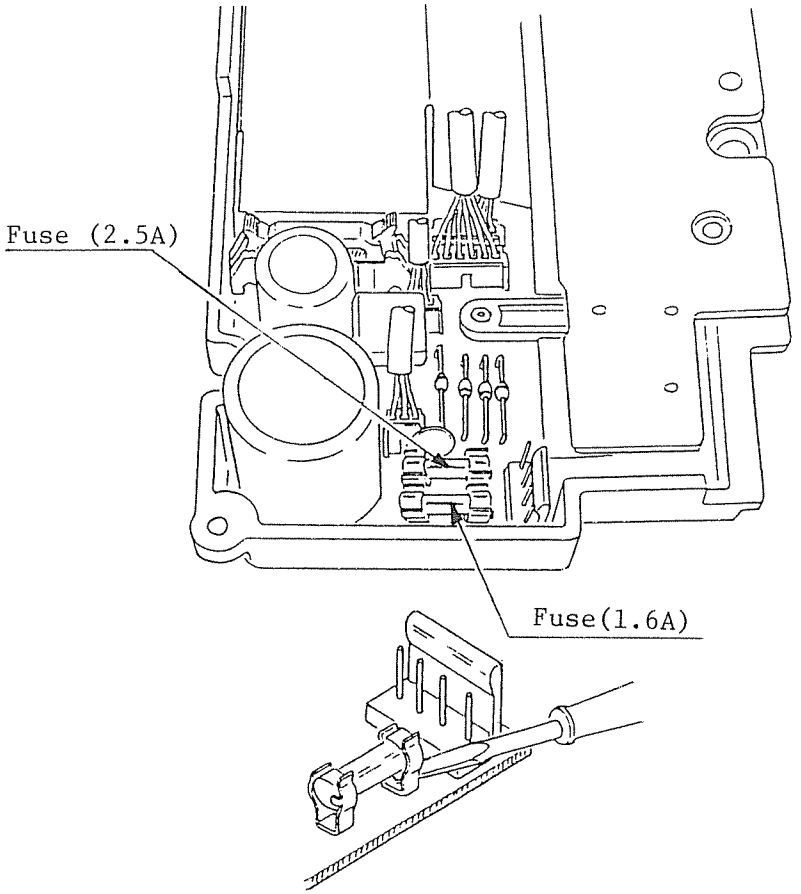
TO FIX

1) Fix the new fuse (2.5 A).

NOTE: Take out the connector in case the glass of the fuse is broken.

2) Fix C board wiring case and C board.

REPLACEMENT OF THE FUSE (1.6A, 2.5A) ON B BOARD



NOTE: Unplug the machine from power supply and leave it about a few minutes then replace the fuse on B board.

TO TAKE OUT

1) Remove the B board from the base unit and pull out the transformer connector.

2) Pull out the fuse (1.6 A, 2.5 A) from B board.

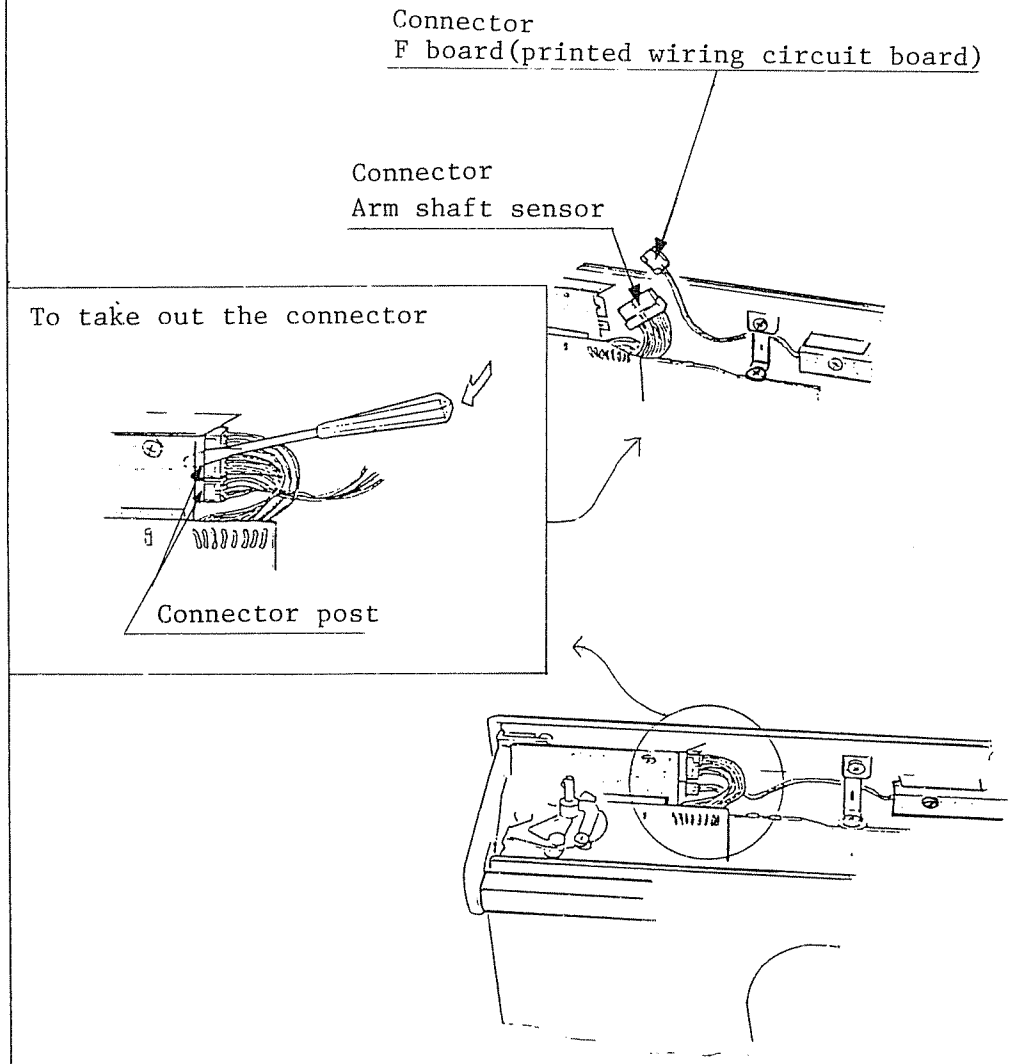
NOTE: To take out the fuse the screw driver should be inserted from the side as shown.

TO FIX

3) Replace the new fuse.

NOTE: Take out the connector in case the glass of the fuse is broken.

4) Insert the transformer connector and fix B board.



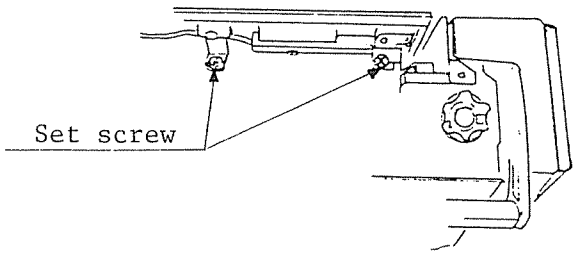
Drawing of the connector position

TO TAKE OUT

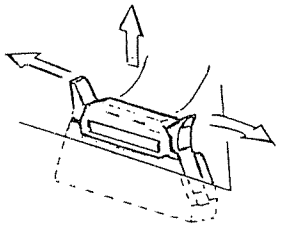
1) Remove the top cover unit.
2) Remove the belt cover.
3) Remove the bed cover.
4) Pull out connectors of F board (unit) and upper shaft sensor (unit).

NOTE: When taking out the connectors, do not pull the lead cords.

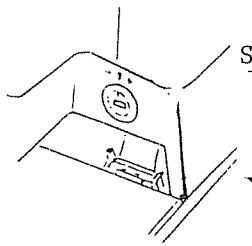
Drawing of screw positions

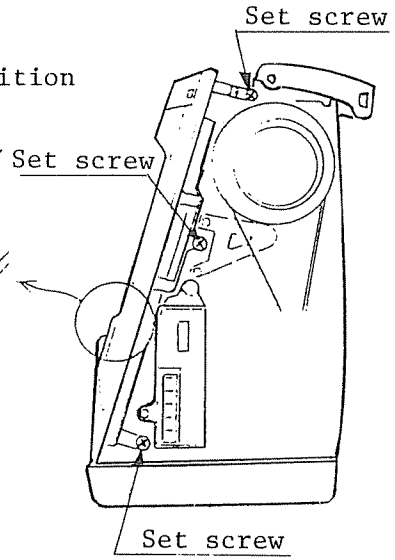


Open the both sides of the lock and pull out the connector.



Drawing of the connector position





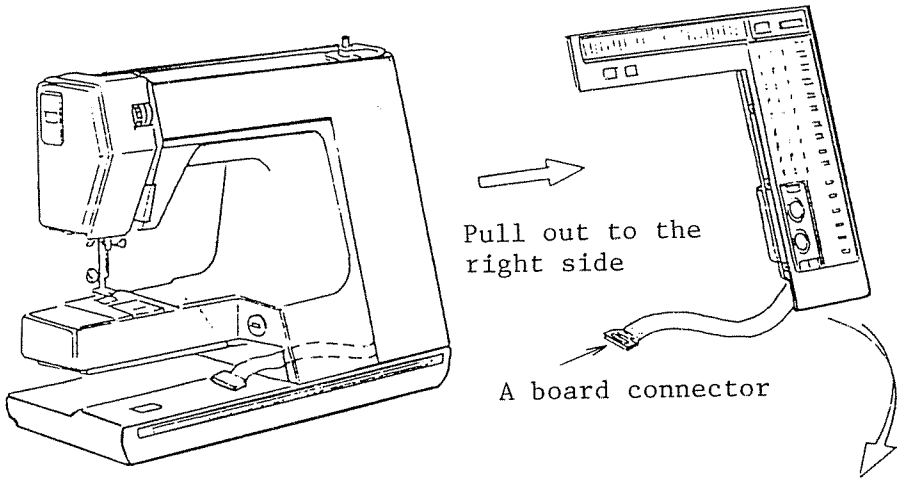
Drawing of screw positions

5) Loosen 5 set screws.

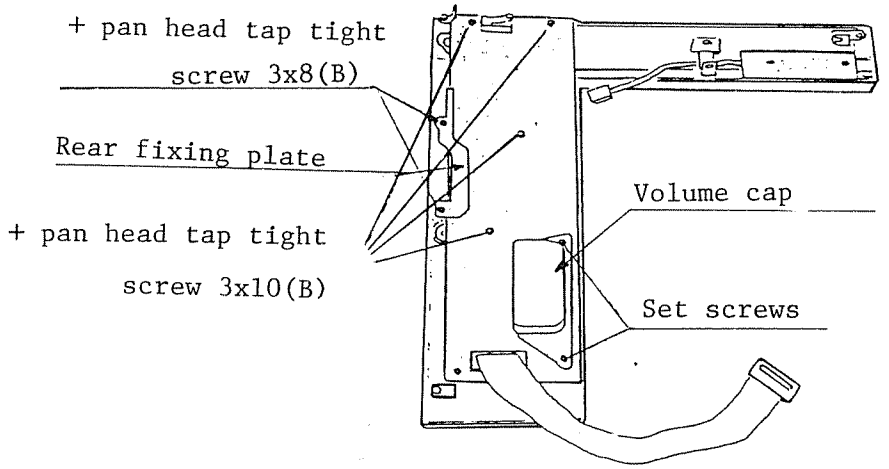
6) Remove A board connector.

Drawing

To take out the pattern indicator



Drawing of screw position



7) Move the pattern indicator frame unit to the right side and pull out.

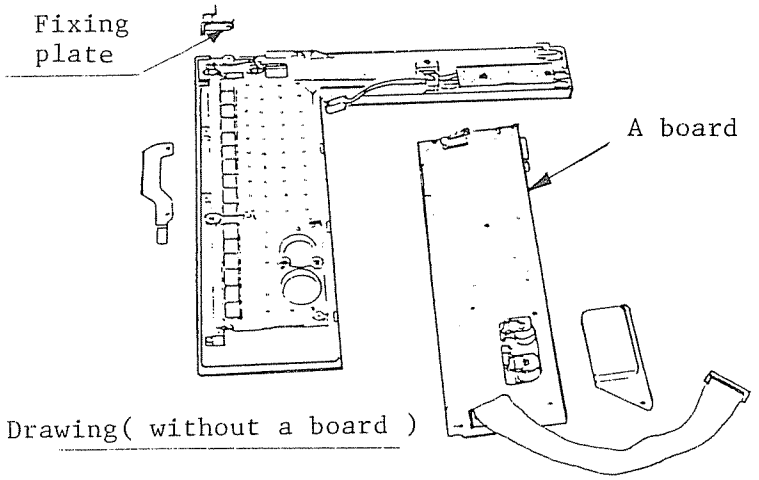
NOTE: When pulling out the pattern indicator frame unit, be careful not to catch other lead cords with A board connector.

8) Loosen 2 set screws, then remove the volume cap.

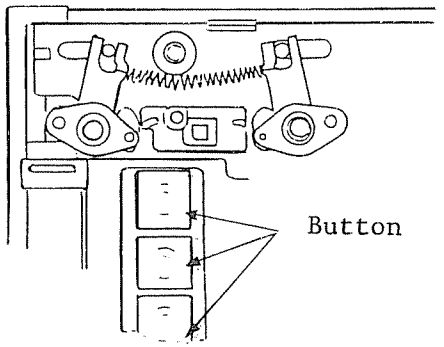
9) Loosen 2 set screws, then remove the rear fixing plate.

10) Loosen 5 set screws.

To take out the A board

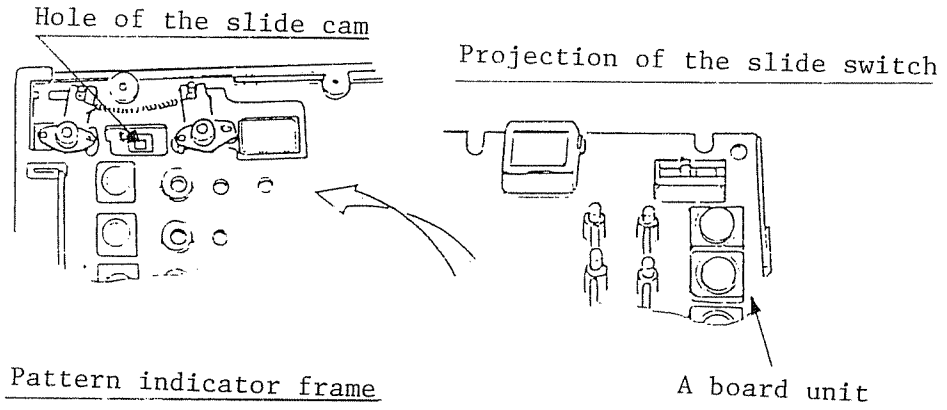


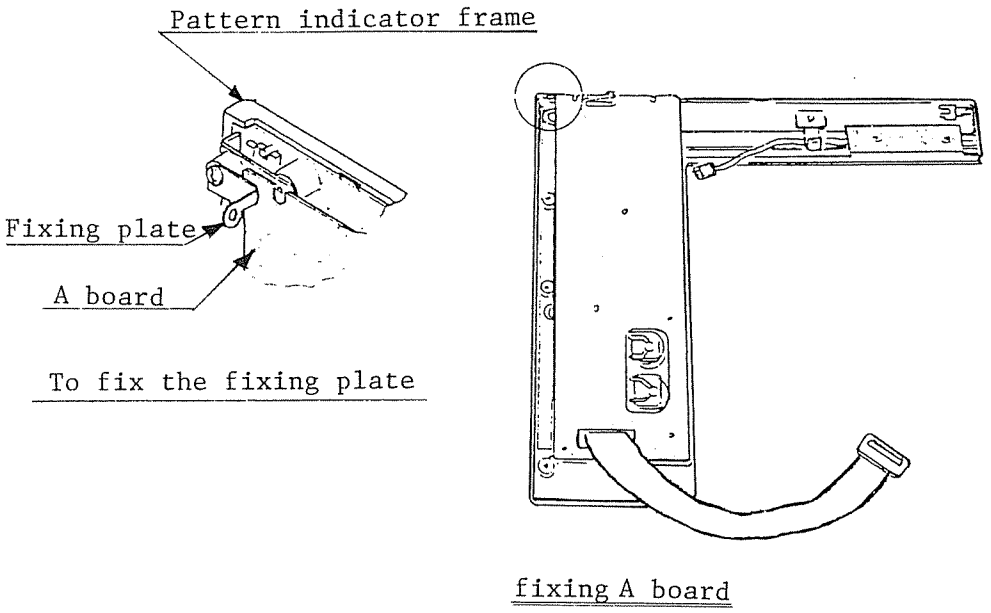
Drawing(without a board)



11) Remove the A board.

NOTE: Fixing plate can be taken out together when removing the A board from the machine. The pattern indicator frame unit should be turned over.



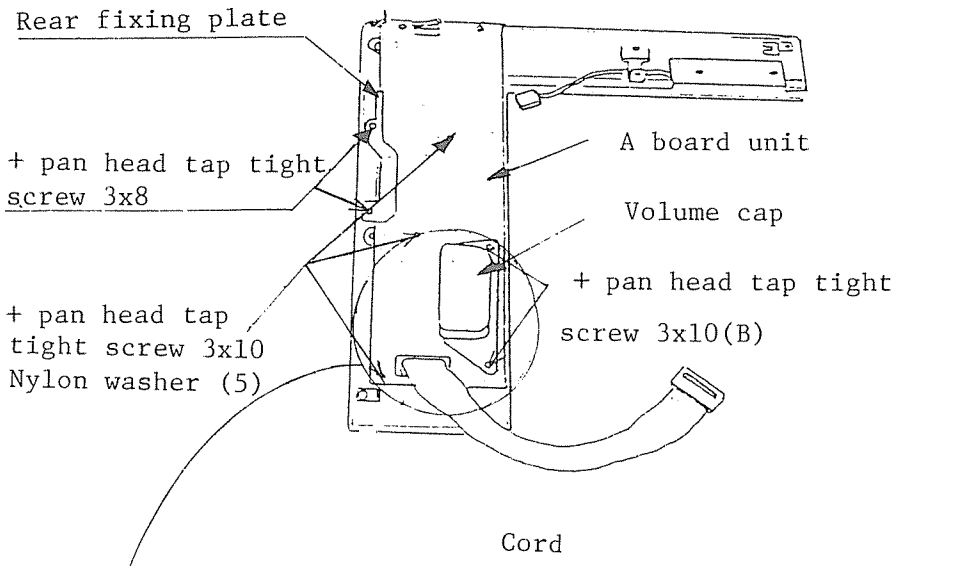


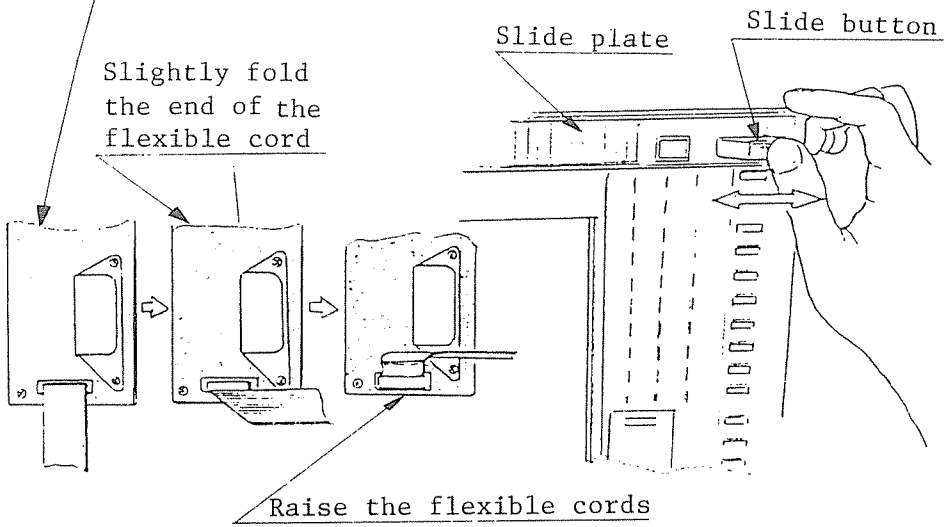
TO FIX A BOARD

12) Replace A board and insert the projection of the slide switch on the A board to the hole of the slide cam on the pattern indicator frame.
Set A board on the pattern indicator frame.

NOTE: The movable pieces (right and left) should be fixed properly, then fix the A board.

13) Insert the fixing plate in the space between the pattern indicator frame and the A board.



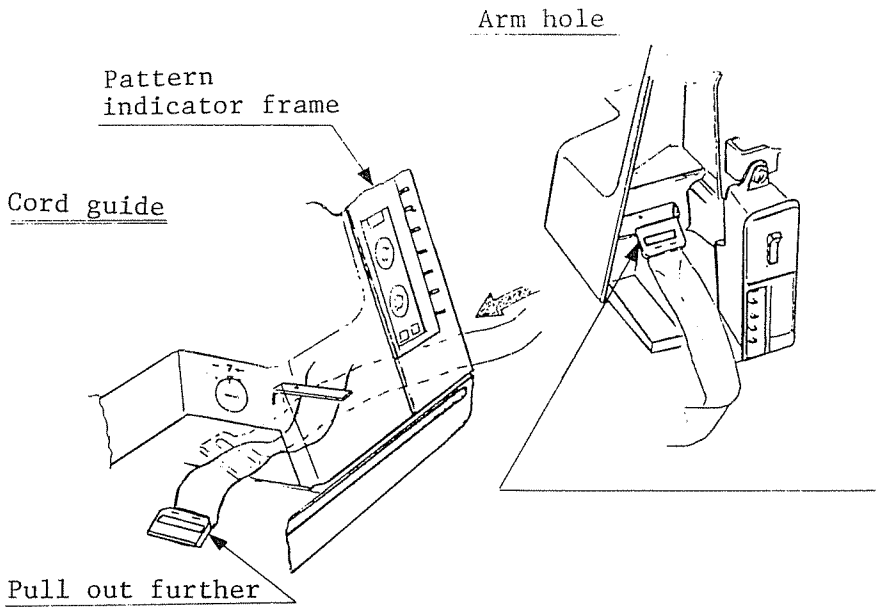


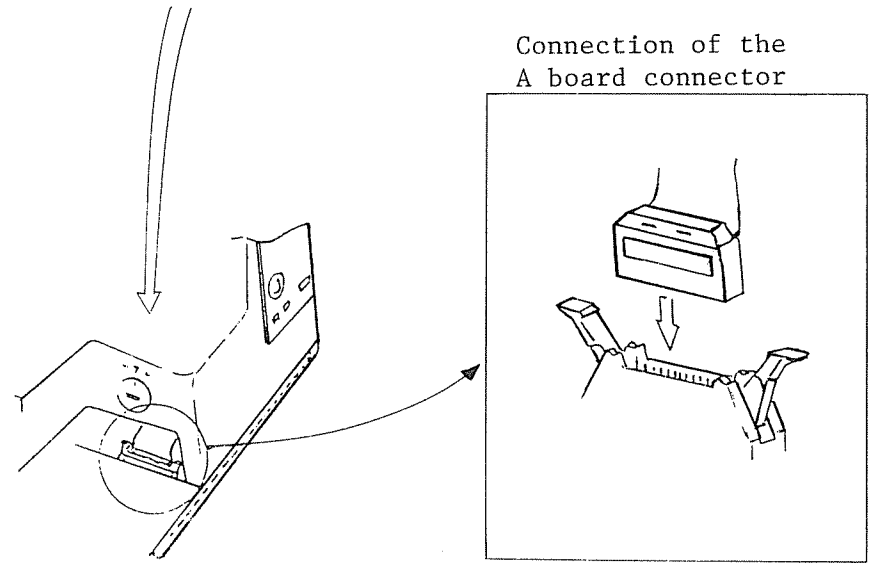
14) Fix A board with 5 set screws.

NOTE: After fixing A board, move the slide button to left and right. Check if the projection of the slide switch is moving together and the slide plate can change the position or not.
Do not lose the nylon washers (5).

15) Fix the volume cap with 2 set screws.

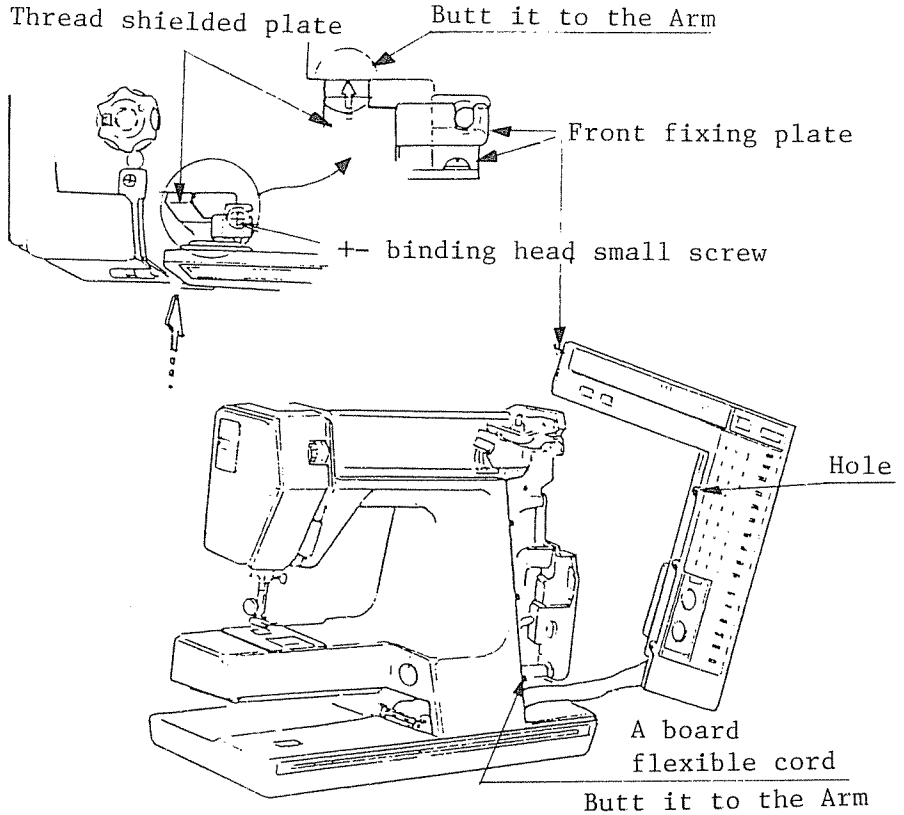
16) Tighten 2 set screws to fix the rear fixing plate and then bend the lead cord.

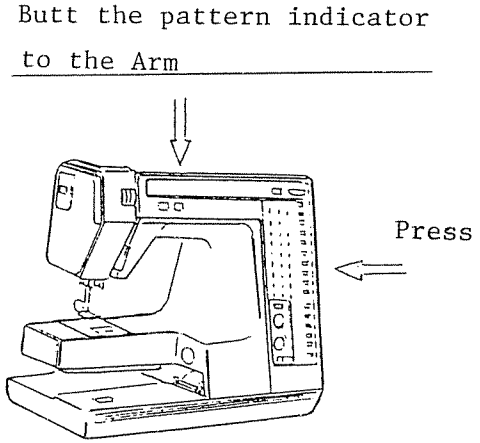


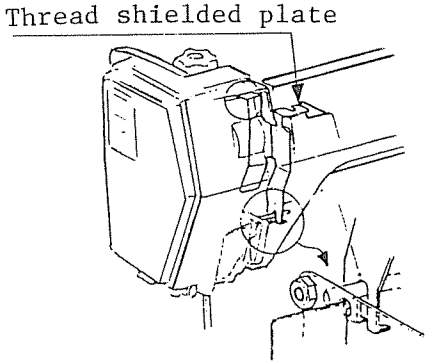


17) Insert A board connector to the arm hole and pass under the flexible cord guide and pull it out to the left.

18) Connect A board connector to the connector post.







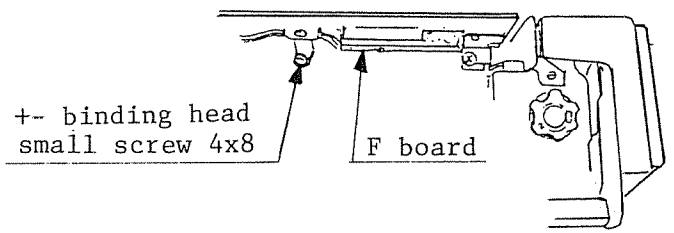
19) Insert the front fixing plate under the thread shield plate. Setting the hole of the pattern indication frame unit into the projections (3 pcs) of the arm, fix the pattern indicator frame unit on the arm.

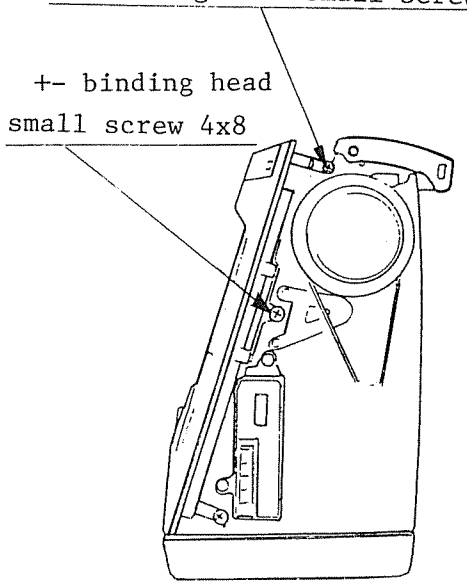
NOTE: When fixing the pattern indicator frame on the Arm, make sure there is no space between pattern indicator frame and arm.

20) Make sure the thread shield plate is fixed properly and fix the pattern indicator frame with screw.

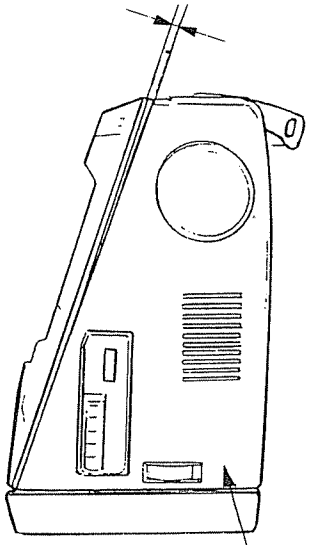
NOTE: The thread shield plate and thread take-up lever should not touch.

Drawing of
screw position





Drawing of
screw position

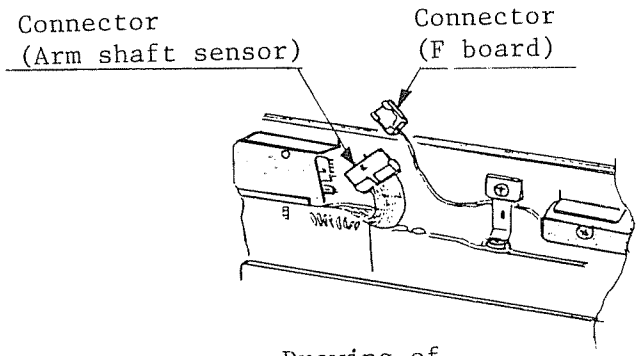


21) Pushing the pattern indicator frame to the Arm, tighten set screw.

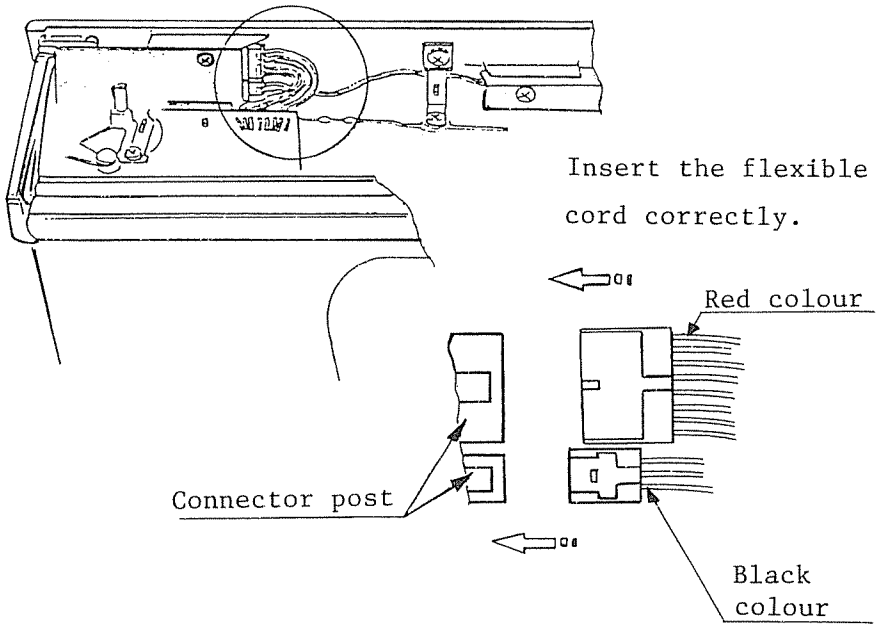
NOTE: Do not push pattern indicator frame too strongly.

22) Also tighten 3 set screws at rear side of the pattern indicator frame temporarily.

23) Make sure there is no space between belt cover and pattern indicator frame. Tighten 3 set screws.



Drawing of
connector position



24) Joint the connectors of F board and upper shaft sensor.

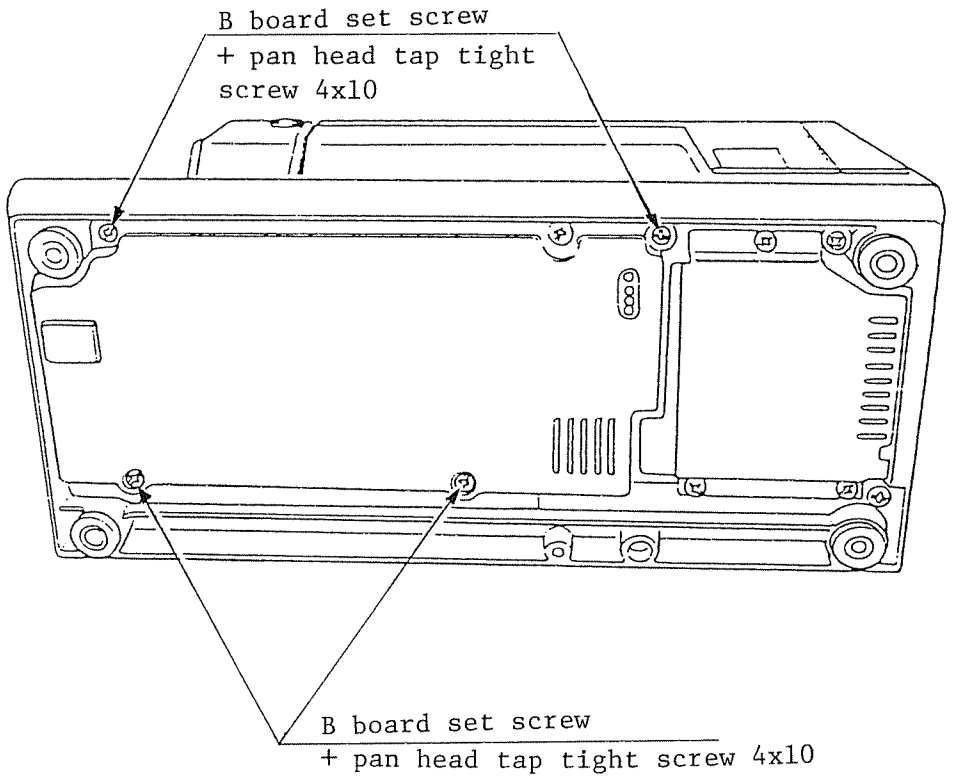
25) Shift the bobbin winder spindle from left to right, and check if the bobbin winder micro-switch works properly.

26) Fix the belt cover.

27) Fix the top cover.

28) Fix the bed cover.

NOTE: Insert the connectors correctly.

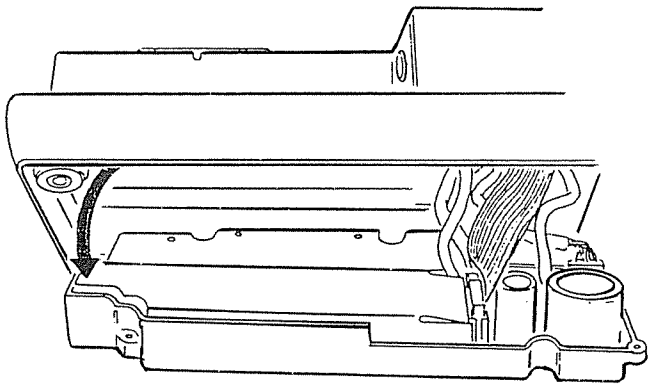


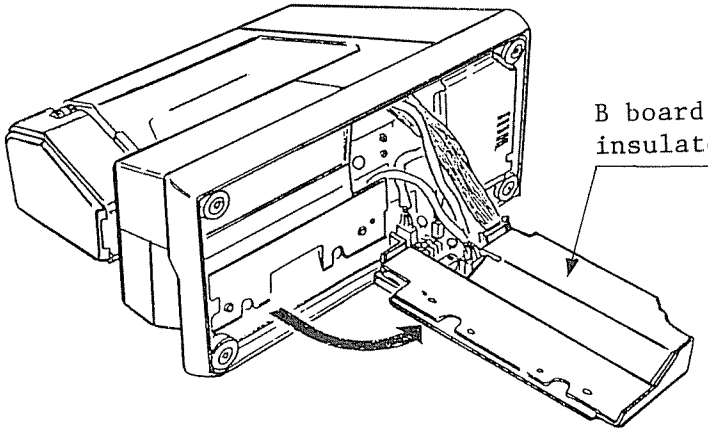
TO REMOVE

1) Unplug the machine from power supply.

2) Loosen B board set screws.

NOTE: The condensor has natural electrical discharge. Leave it a few minutes.

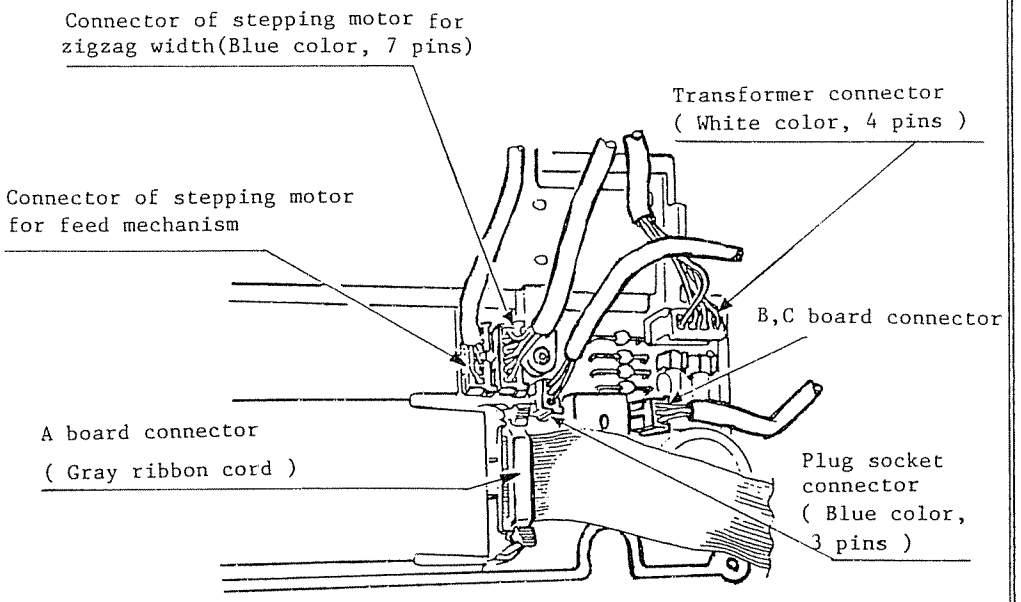


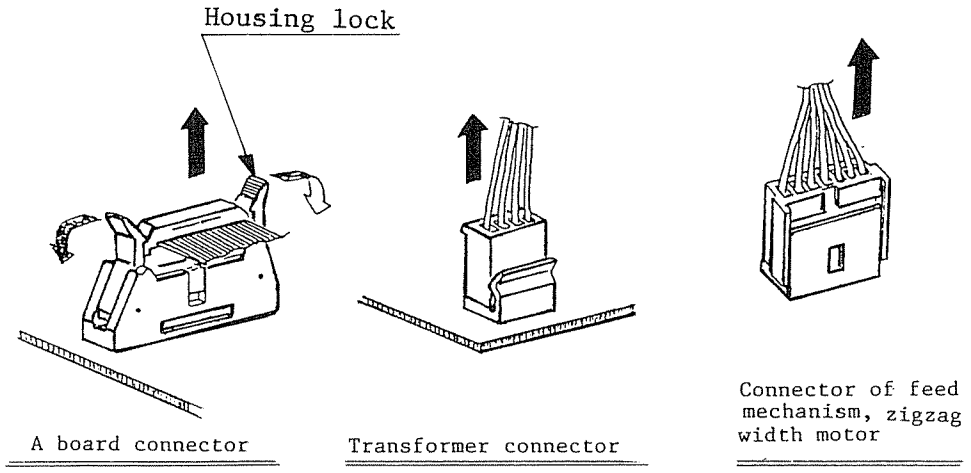


3) Remove the B board from the base unit.
(It is somewhat difficult to remove because silicone grease is spreaded on osculating surface between base and B board).

4) Set the B board horizontally as illustrated in the figure.

NOTE: Do not take out the insulated paper on the B board.





5) Open the housing locks to pull out A board connector.

6) Pull out the stepping motor (for zigzag width) connector (blue colour, 7 pins) and stepping motor (for feed mechanism) connector (for white colour, 7 pins).

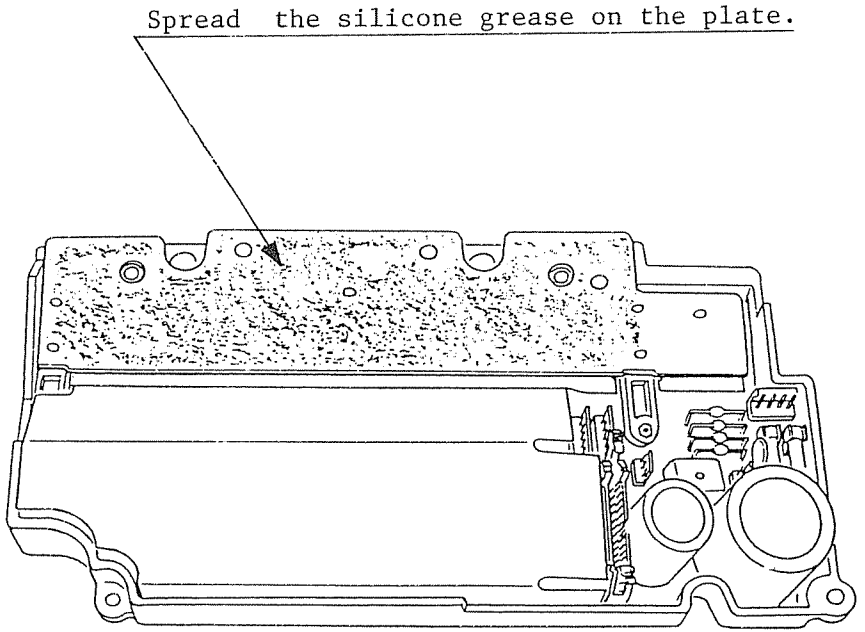
NOTE: Do not pull the cords.

7) Pull out the plug holder connector (blue colour, 3 pins) and the connector of B, C board (white colour, 3 pins).

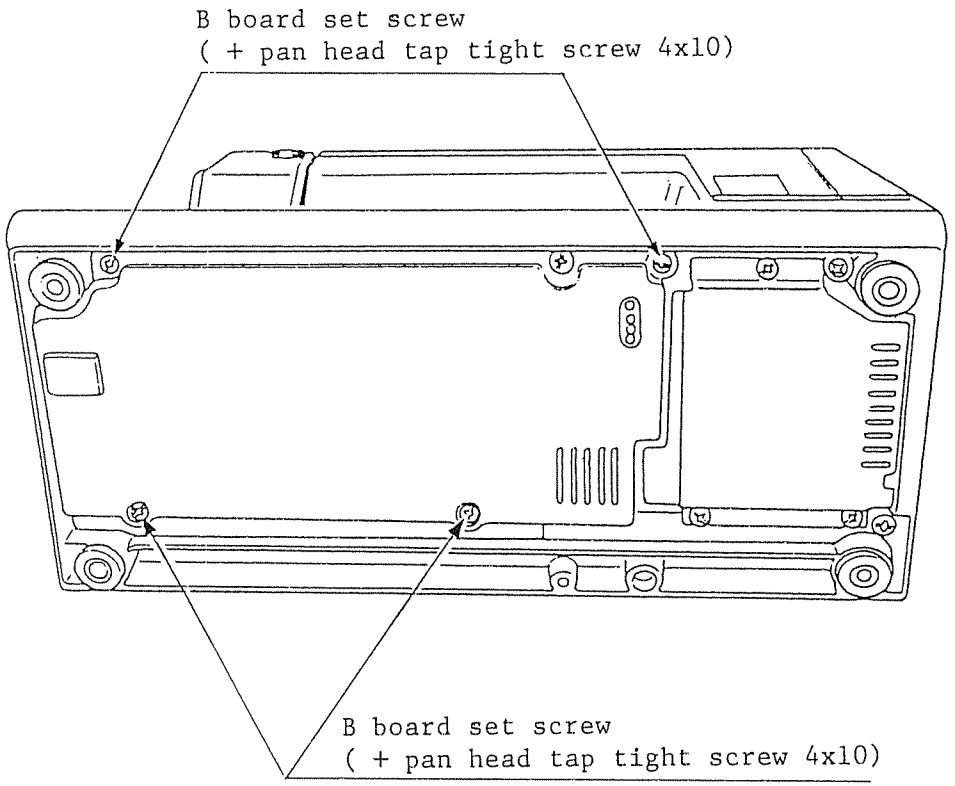
8) Pull out the transformer connector (white colour, 4 pins).

NOTE: Do not touch the diode or fuse when pulling out the connectors.

9) Replace B board. (B board should be held with the elastic band after the replacement to keep the insulated paper).



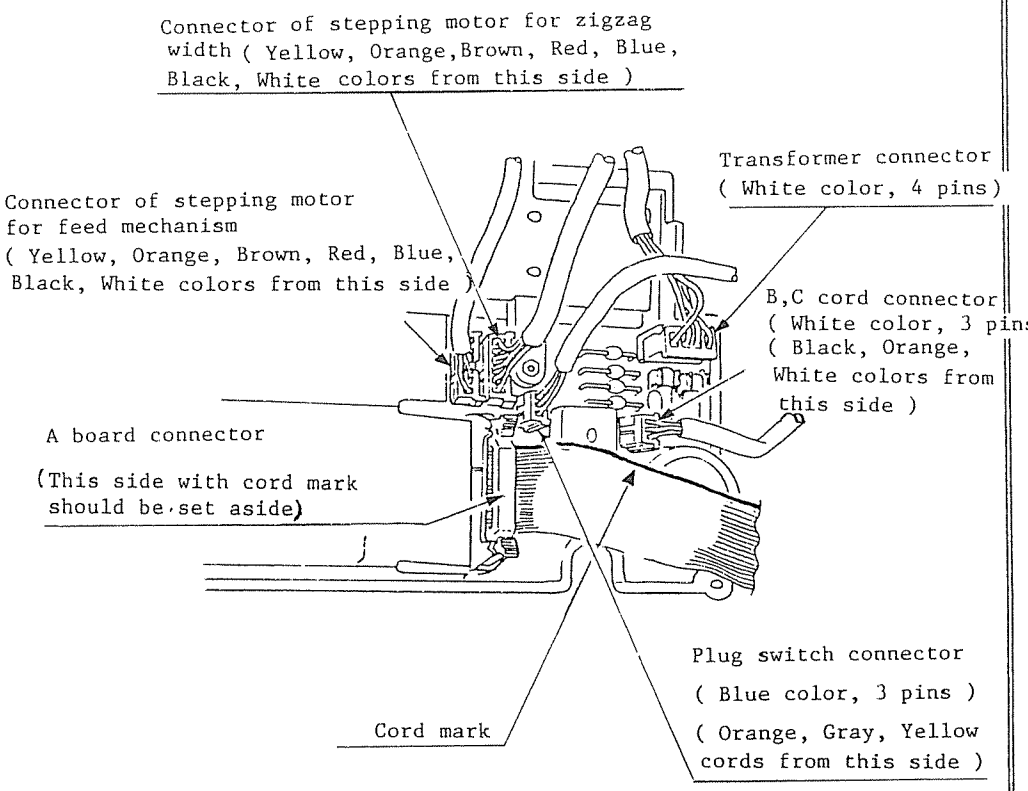
10) Spread the silicone grease on the radiator plate of new B board as illustrated in the figure.

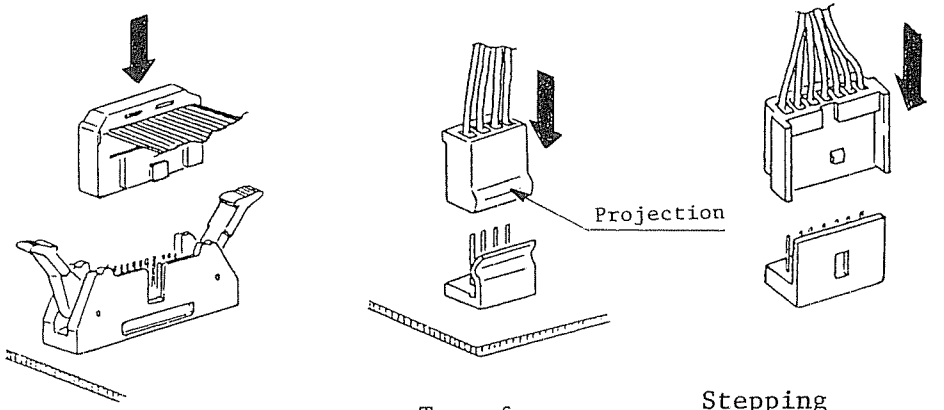


15) Set B board on the base unit, and tighten 4 set screws.

NOTE: The flexible cord of A board connector and plug holder cord should not touch.

NOTE: Each B, C board connecting cord, transformer cord and lamp cord should not touch.





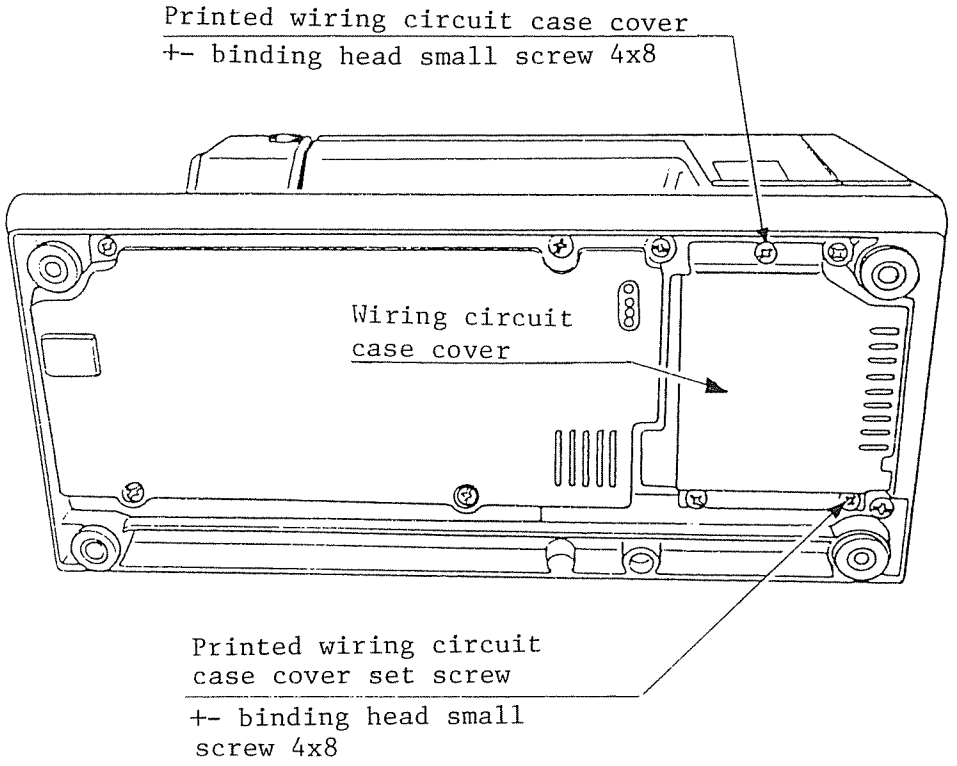
(Each Connector is not Reversible)

11) Insert A board connector (gray, flexible band).

12) Insert the transformer connector (white, 4 pins).

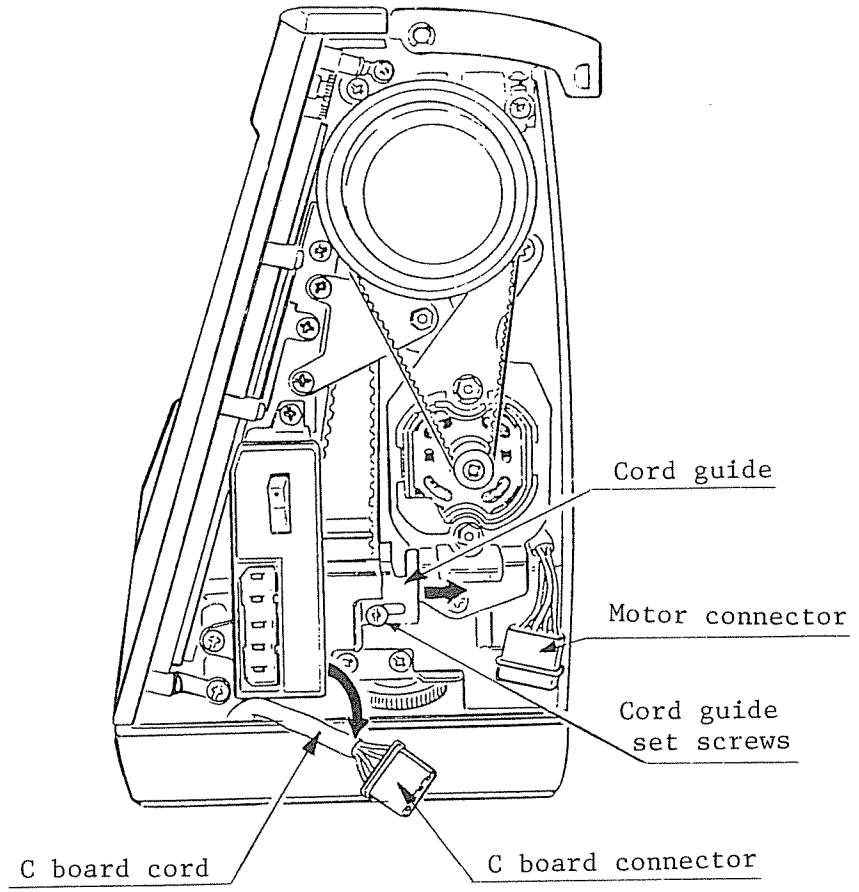
13) Plug the connector of the B, C board connecting cord (white colour, 3 pins) and plug holder connector (blue colour, 3 pins).

14) Plug the stepping motor (for zigzag width) connector (blue colour, 7 pins) and the stepping motor (for feed mechanism) connector (white colour, 7 pins).



5) Loosen set screws of wiring circuit case cover.

6) Remove the wiring circuit case cover.



TO REMOVE

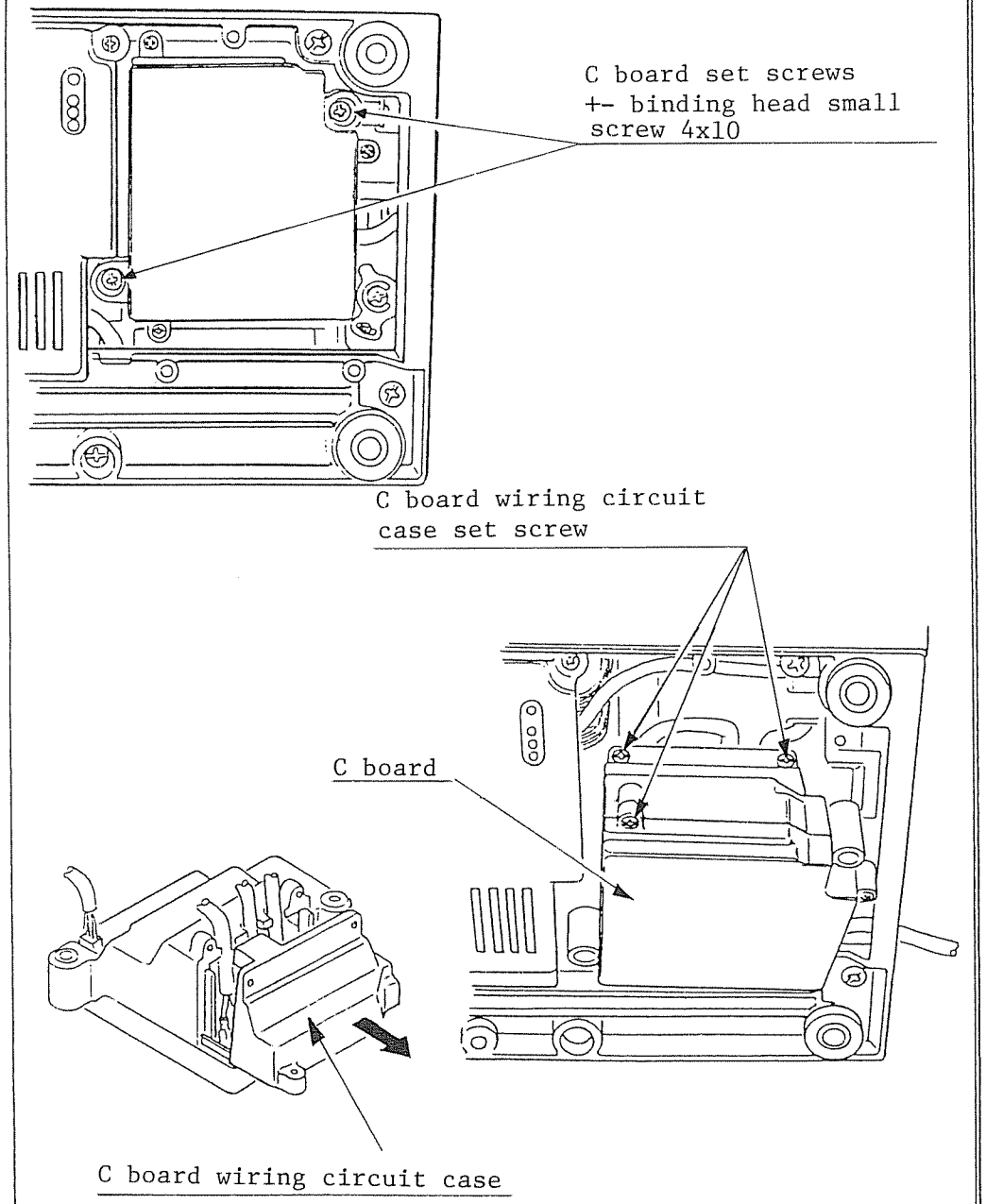
1) Remove the belt cover.

2) Pull out the motor connector and C board connector from the cord guide and then remove the C board connector.

NOTE: For the specification of 200 V, it is necessary to take out the motor.

3) Loosen the cord guide set screws and shift the cord guide to the direction of arrow as illustrated in the figure.

4) Take C board cord out of the machine.

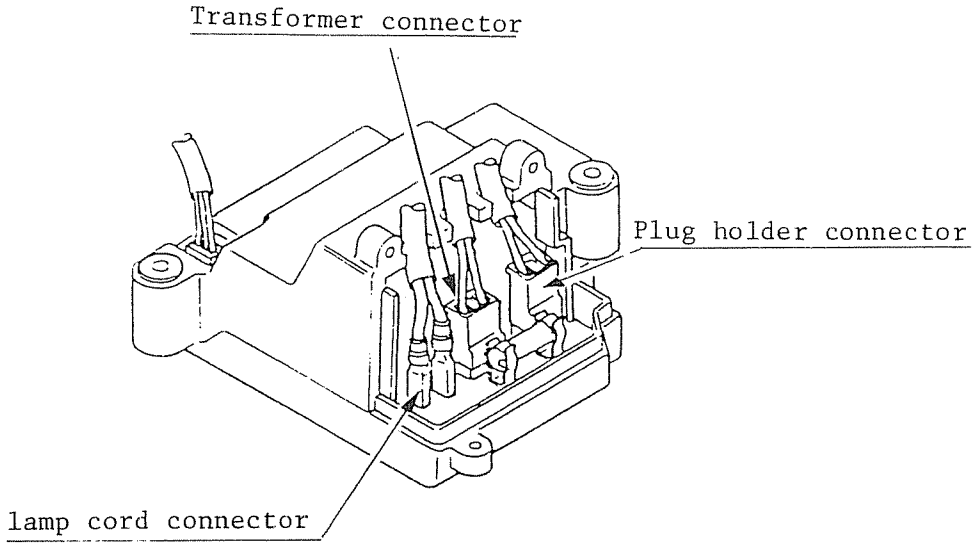


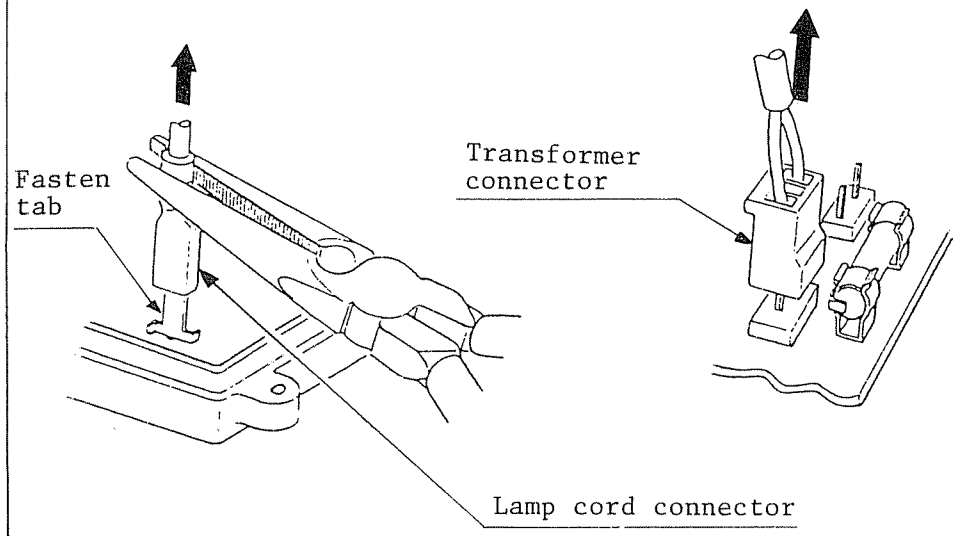
7) Loosen the C board set screws.

8) Pull out C board and remove the set screws of C board wiring circuit case cover.

9) Remove C board wiring circuit case cover.

NOTE: C board wiring circuit case cover can be used after C board is replaced.





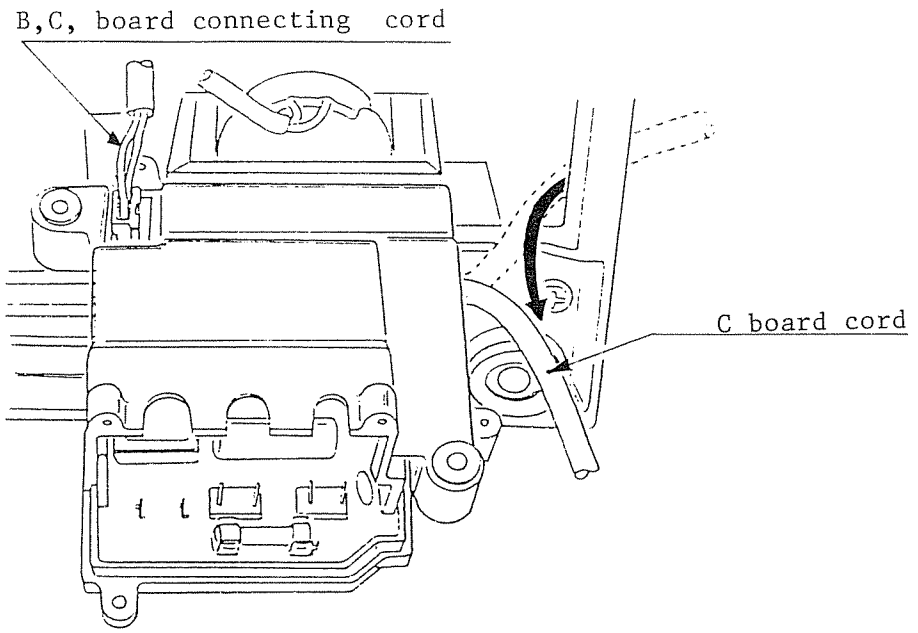
10) Grasp the lamp cord connector, and pull it out.

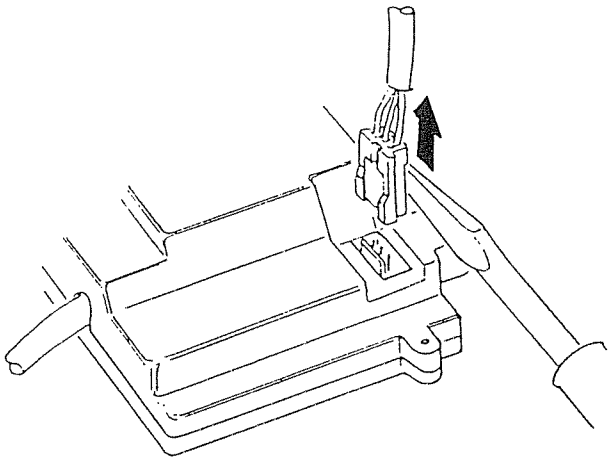
NOTE: Do not bend the fasten tabs.

11) Pull out the transformer connector.

12) Pull out the plug holder cord the same way as No. 11.

NOTE: Do not pull the cord when pulling out the connector.



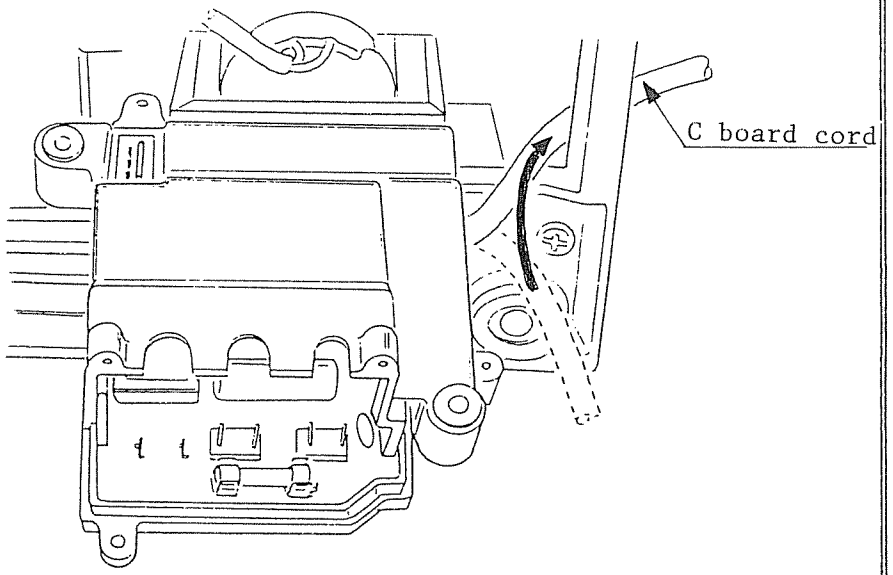


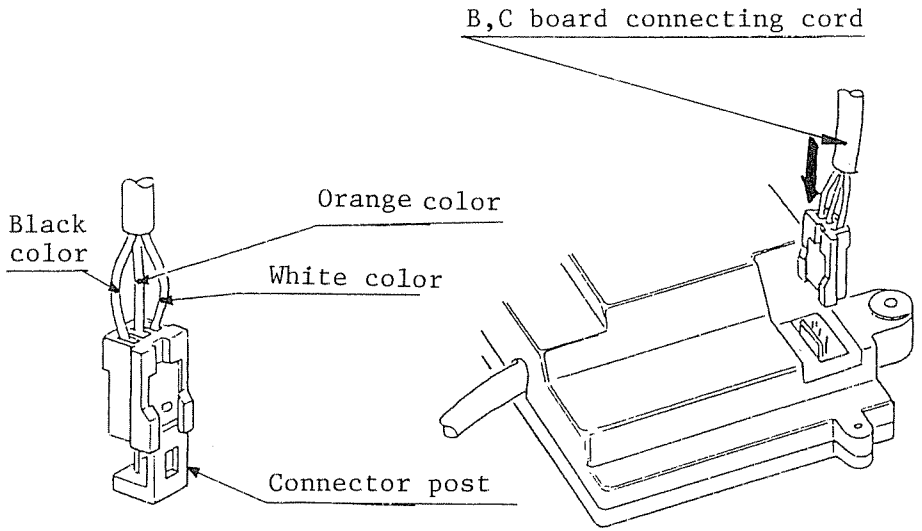
13) Move C board cord from rear side to the bottom side of the machine.

14) Remove the connector of the B, C board connecting cord.

NOTE: Do not pull the cord. Use the screw driver to pull out the connector.

15) Replace C board.



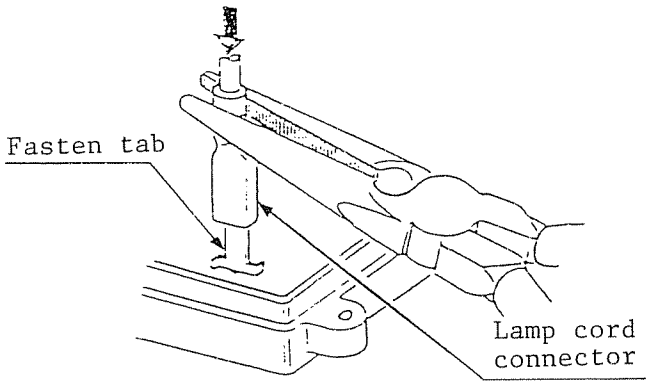


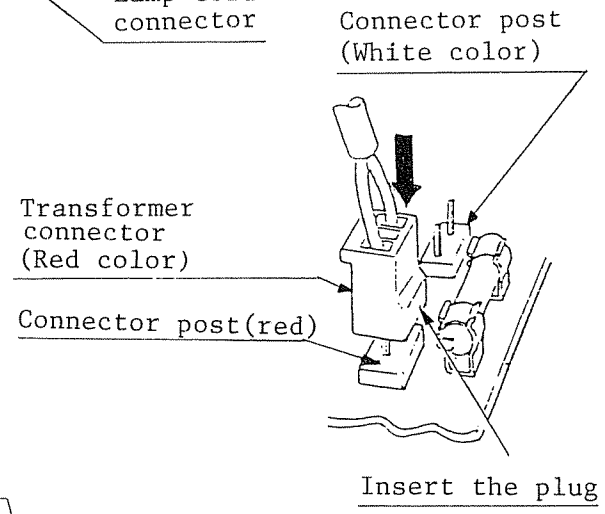
TO FIX C BOARD

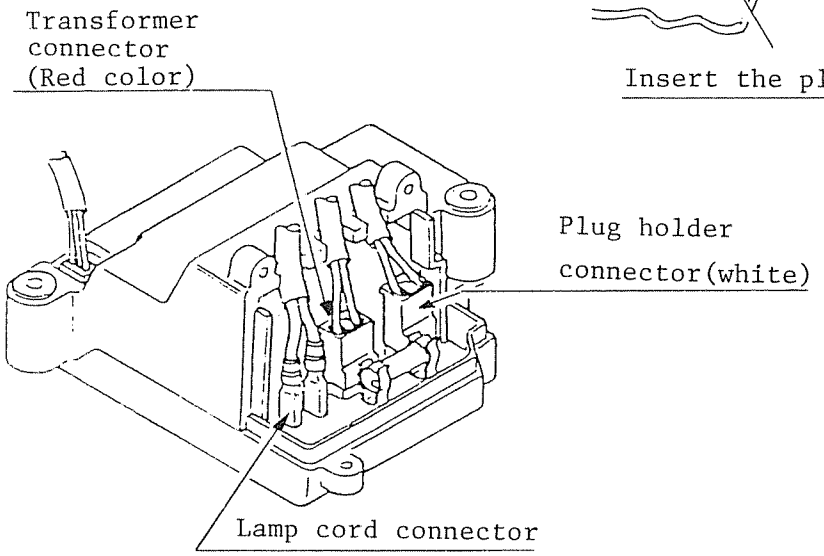
16) Pass the C board cord from bottom side of the base to rear side of the machine.

17) Plug the connector (white colour) of the B, C board connecting cord to the C board (connector is not reversible).

NOTE: Insert the tab of the connector post to the groove of the connector correctly.







18) Grasp the neck part of lamp cord connector with radio pliers and insert the connector.

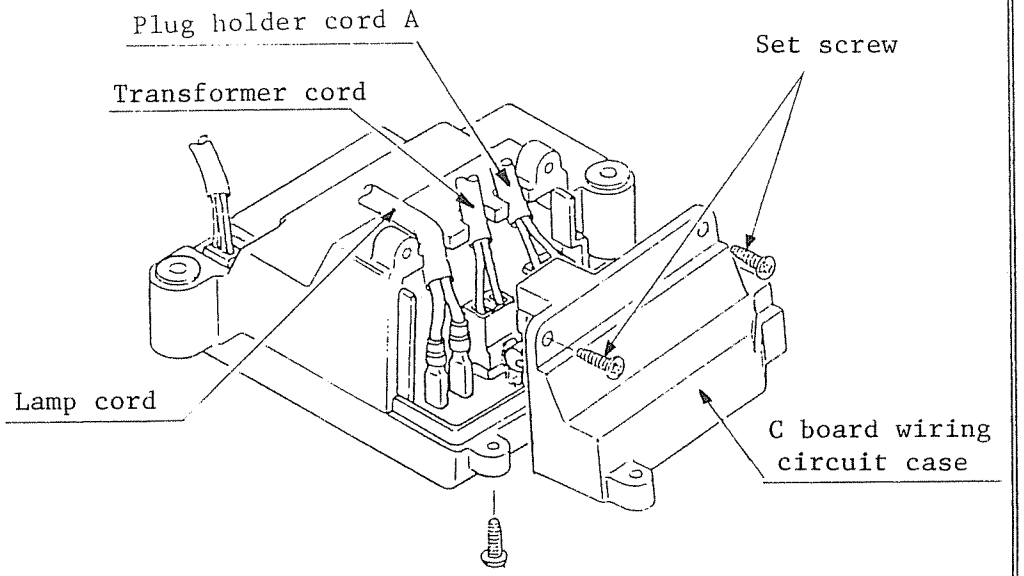
NOTE: Do not bend the fasten tabs.
Insert the connector correctly and the fasten tab should not enter the space between connector and sleeve.

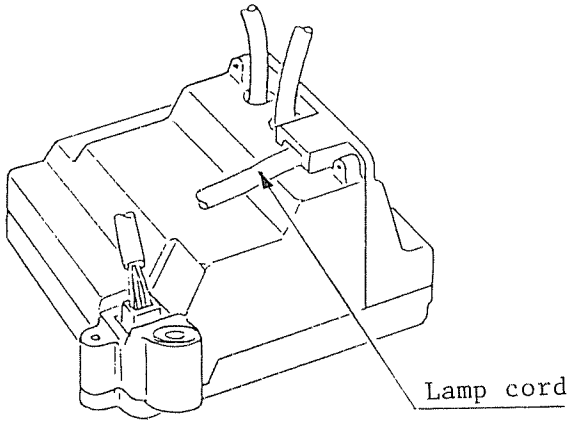
19) Insert the transfomrer connector (red colour) to the connector post (red colour).

NOTE: The projection on the connector should face this side.

20) Insert the plug holder connector (white colour) to the connector post (white colour) as same way as No. 19.

NOTE: The projection on the connector should face this side.

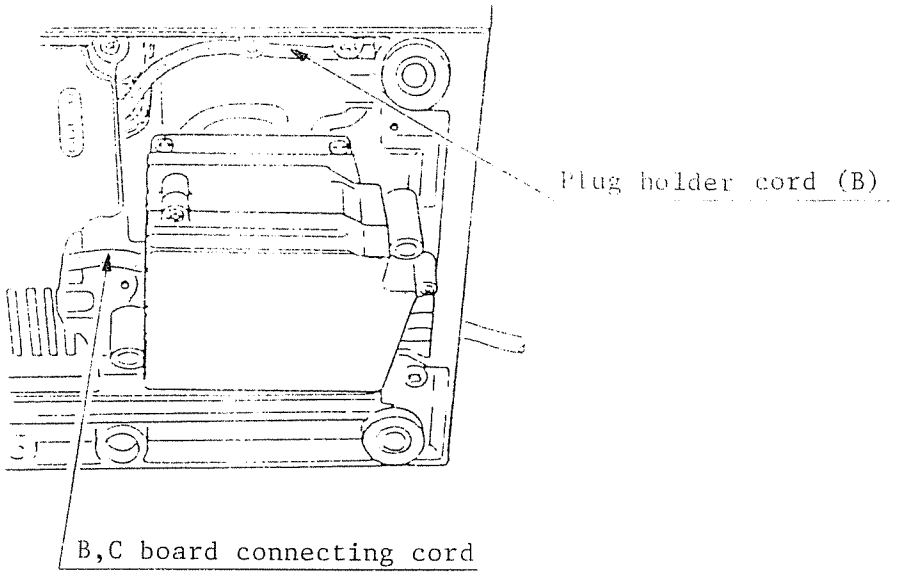


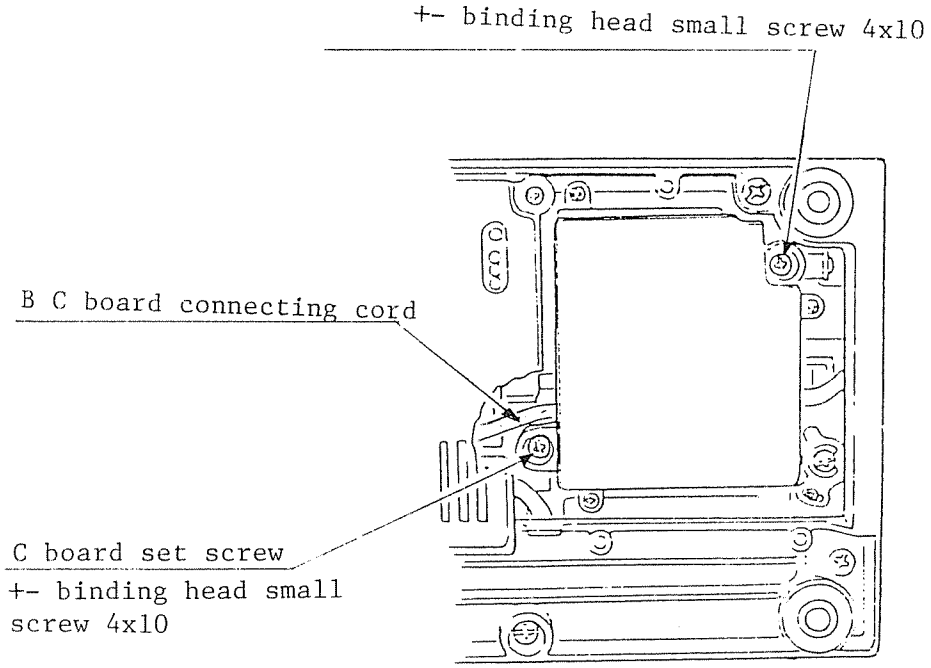


21) Accomodate the lamp cord, transformer cord, plug holder cord (A) to the groove of the C board wiring circuit case.

22) Fix C board wiring circuit case unit and tighten set screws (3).

NOTE: Lamp cord should be fixed at groove of the cord holder on C board wiring circuit case.

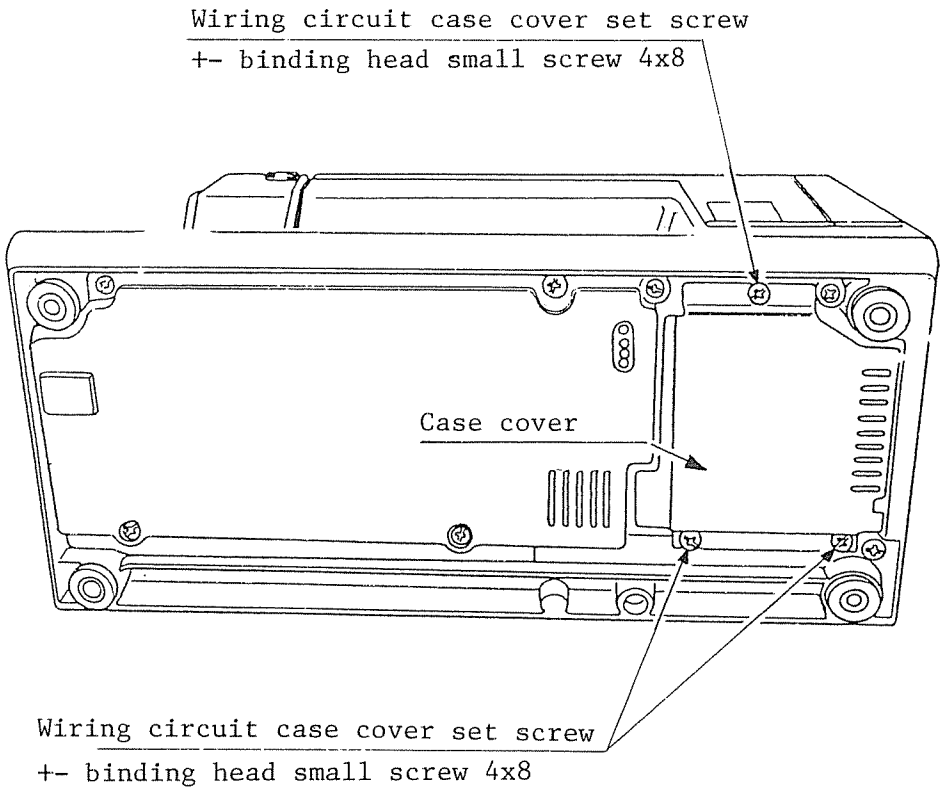




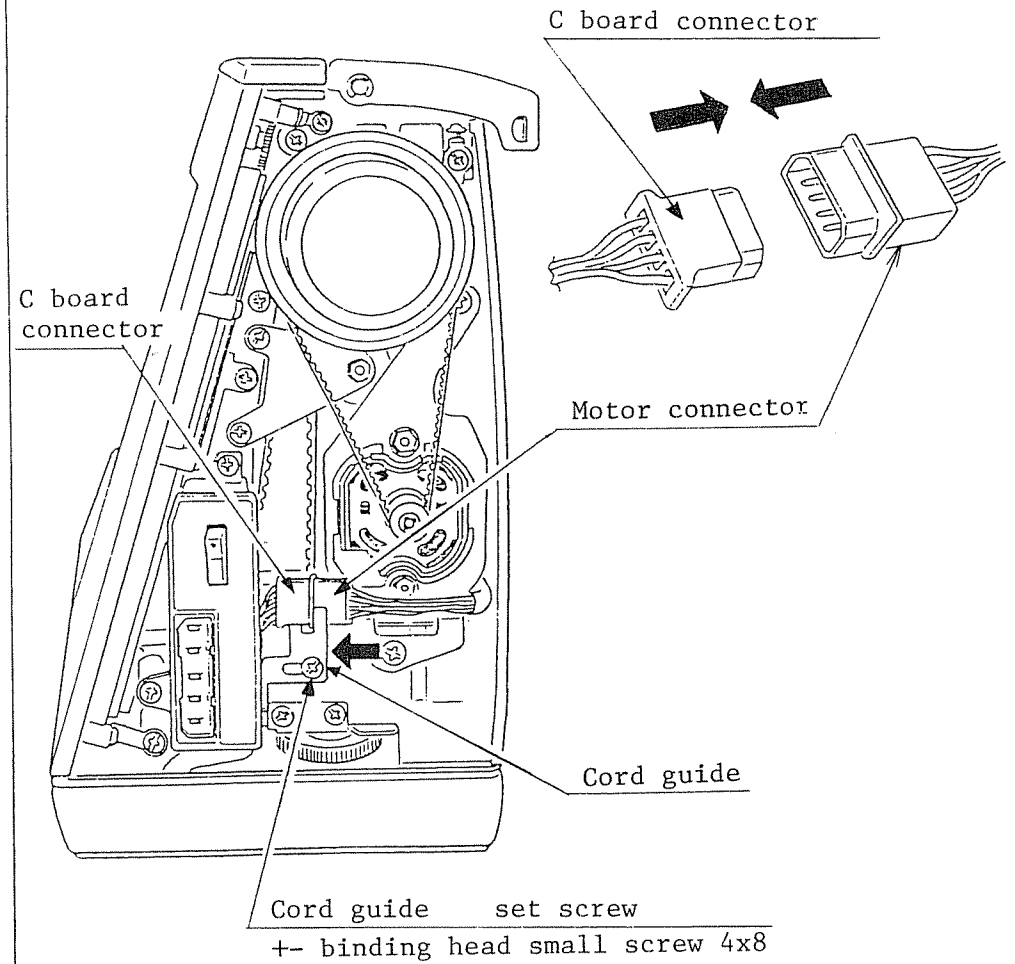
23) Tighten C board set screws to fix the C board.

NOTE: Do not pinch the plug holder cord (B) with arm and C board when fixing C board.

NOTE: Pass the B, C board connecting cord on the boss of C board set screw, and it should not touch the lamp cord.



24) Tighten the case cover set screws to fix the case cover unit.



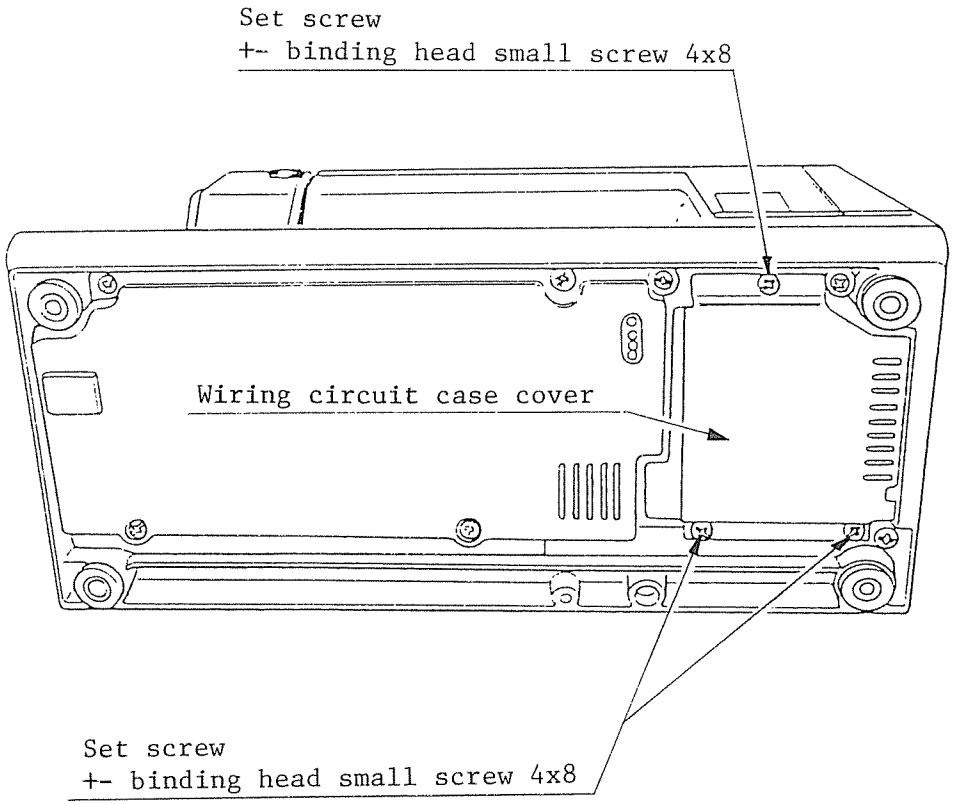
25) Connect the motor connector and the C board connector.

26) Set the C board cord on the side of the plug holder and shift the cord guide to the arrow direction.

27) Tighten the cord guide set screws.

28) After the connection, accomodate the connector in the forked position of the cord guide.

29) Fix the belt cover.

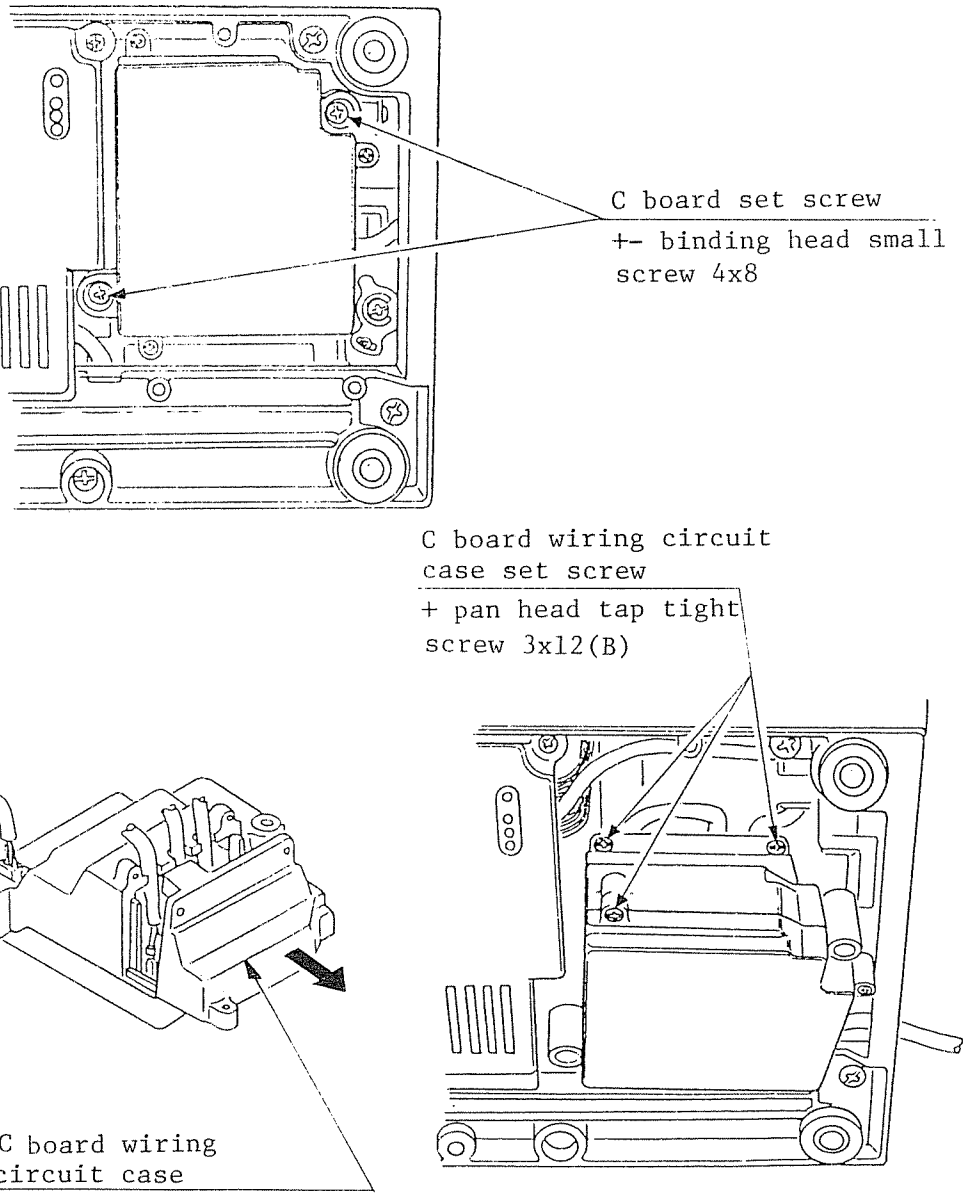


TO REMOVE

1) Switch off the power supply and unplug the machine from power supply.

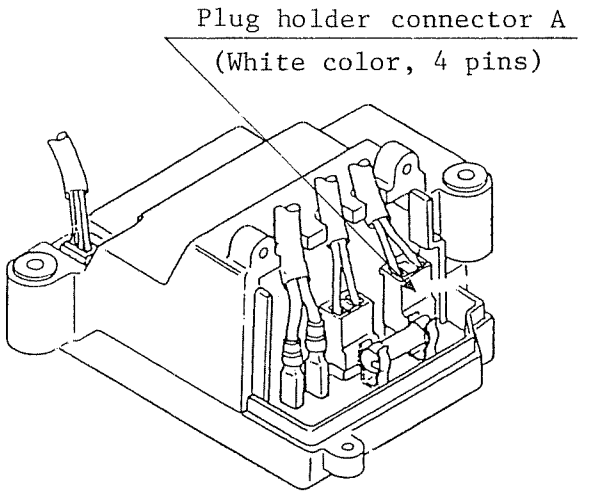
2) Remove the belt cover.

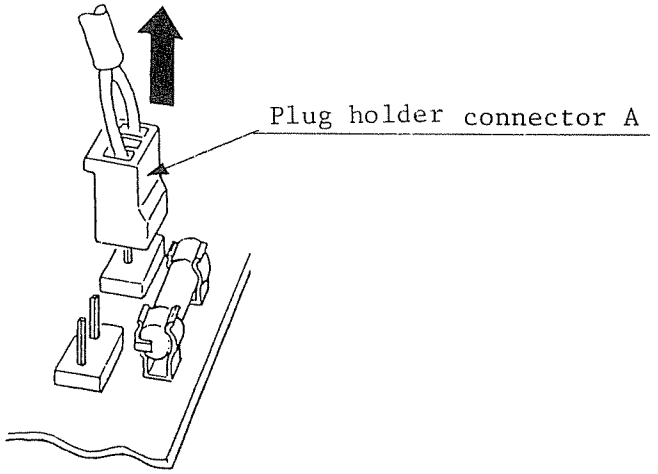
3) Remove the wiring circuit case cover by loosening the set screws.



4) Loosen the C board set screws and pull out the C board from the base unit.

5) Pull out the C board wiring circuit case by loosening set screws.

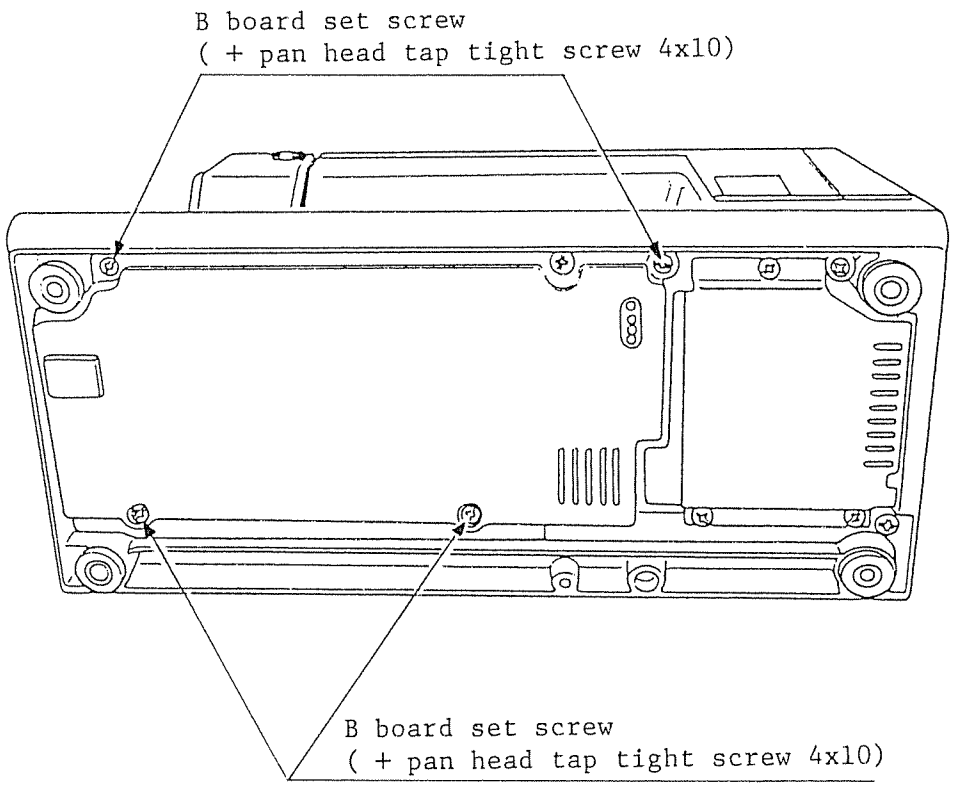




6) Pull out the plug holder connector (A) (white colour, 2 pins) from the C board.

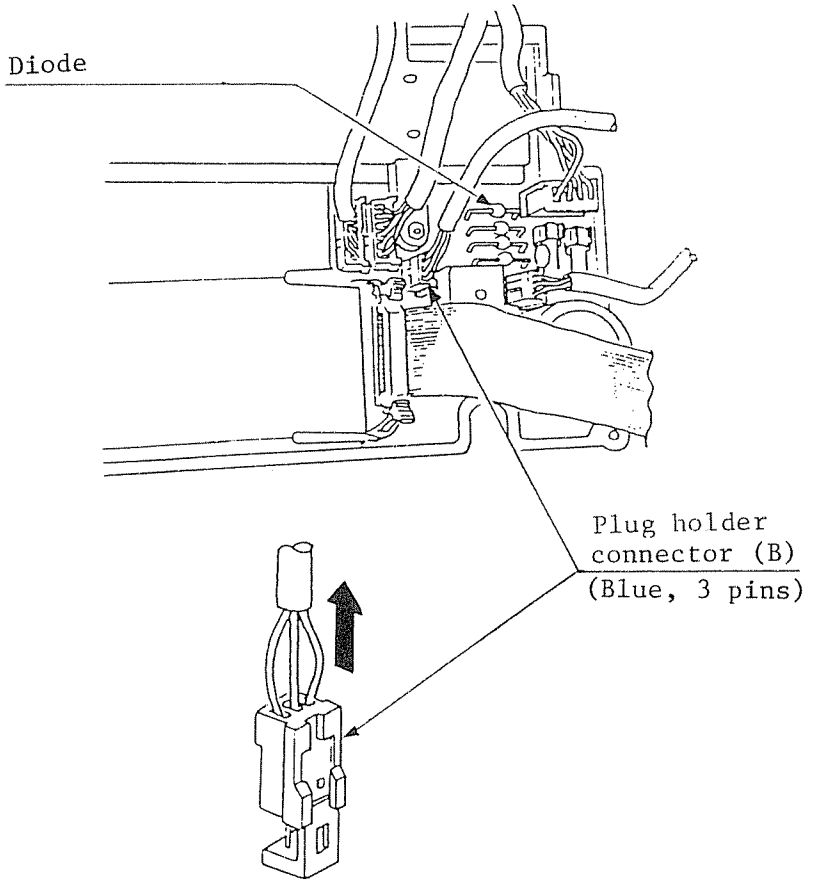
NOTE: Do not pull the cords.

NOTE: If it is not convenient, pull out other connectors.



7) Loosen the B board set screws.

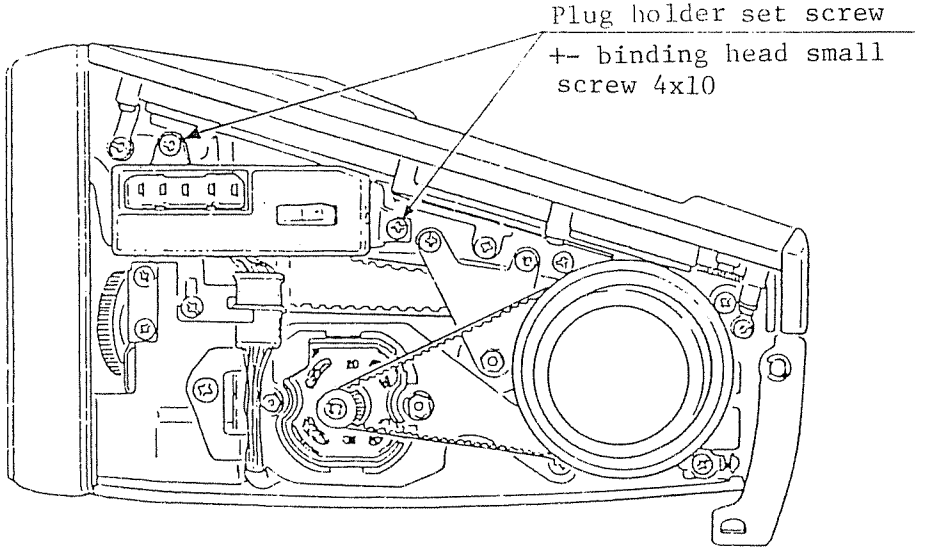
8) Remove the B board from base unit.

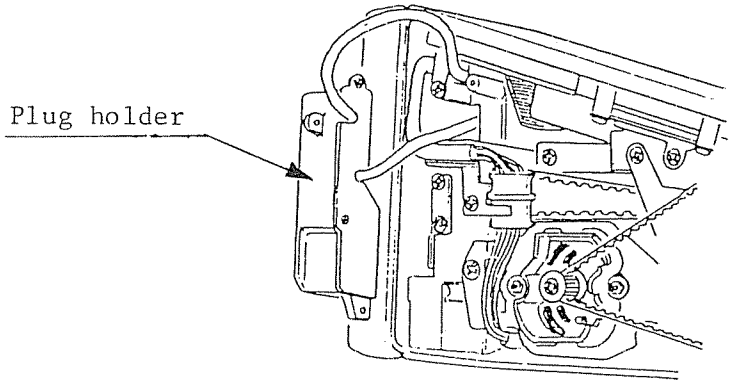


9) Grasp the connector of the plug holder (blue, 3 pins) by radio pliers and pull it out from the B board.

NOTE: Grasp the connector to pull it out and do not pull the cords.

NOTE: Make sure each cord or radio pliers should not touch the diode.

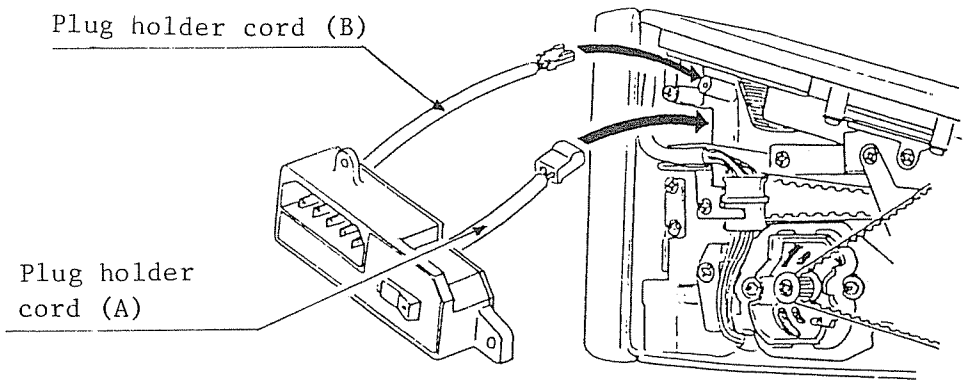


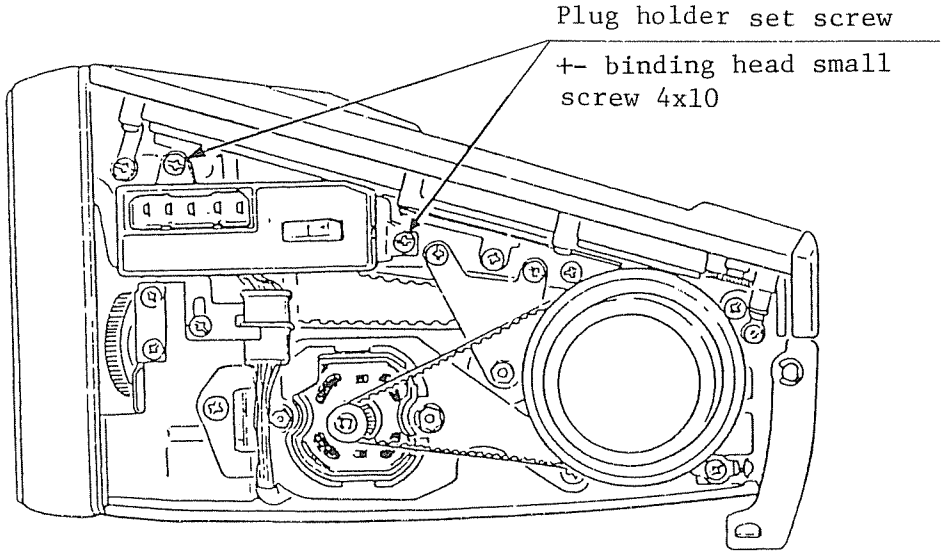


10) Loosen the plug holder set screws.

11) Remove the plug holder from the machine.

12) Replace the plug holder.





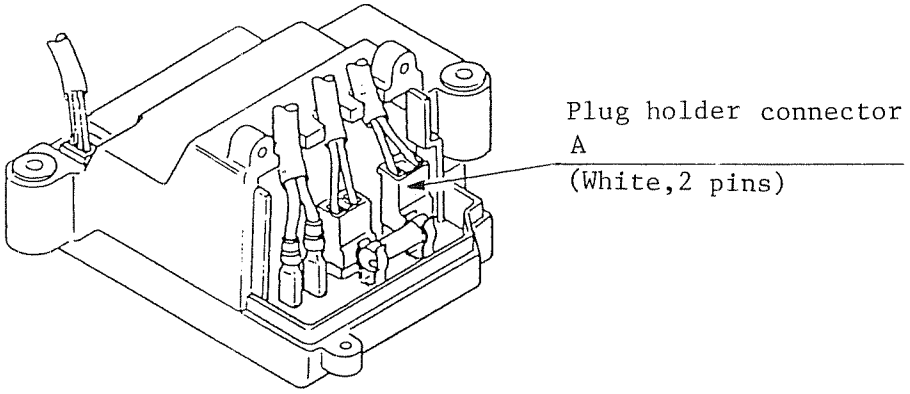
TO FIX

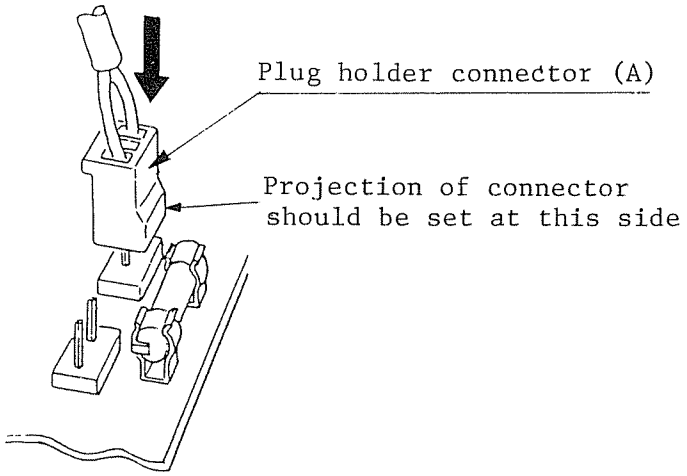
13) Take out the plug holder cord (B) to the base side, passing it to the inside of the pattern indicator fixing plate.

14) Take out the plug holder cord (A) to the base side.

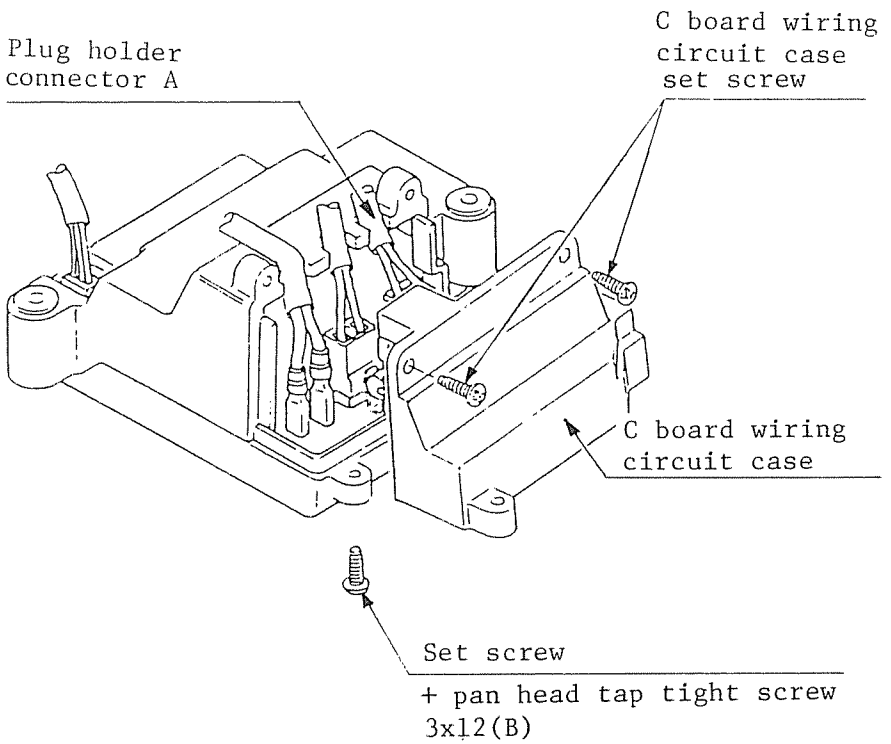
15) Fix the plug holder and tighten it with 2 set screws.

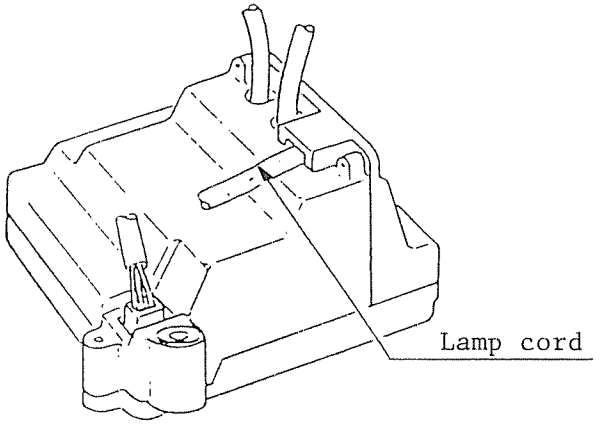
NOTE: Do not grasp the cord.





16) Insert the connector (A) (white colour, 2 pins) of the plug holder to the C board with convex surface of the connector facing this side.

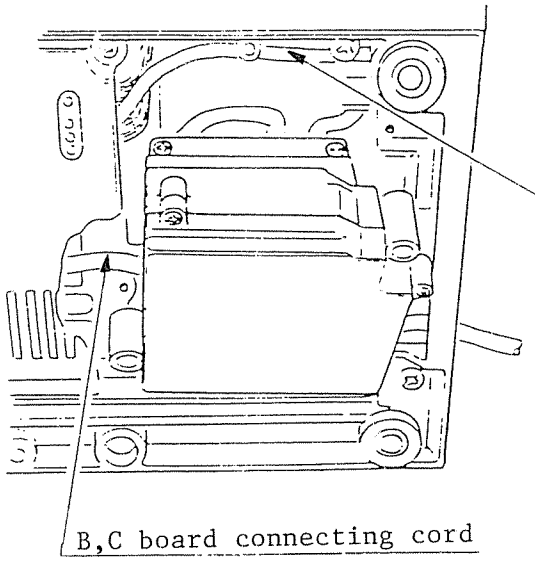


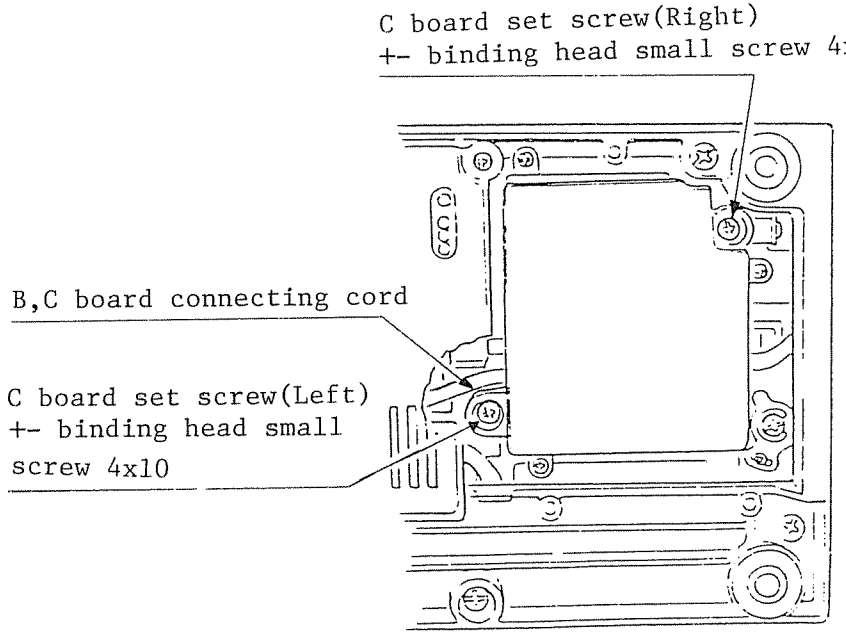


17) Accomodate the plug holder cord (A) in the groove of the C board wiring circuit case.

18) Fix the C board wiring circuit case and tighten set screws.

NOTE: Lamp cord should be accomodated in the groove of cord holder of the C board wiring circuit case.

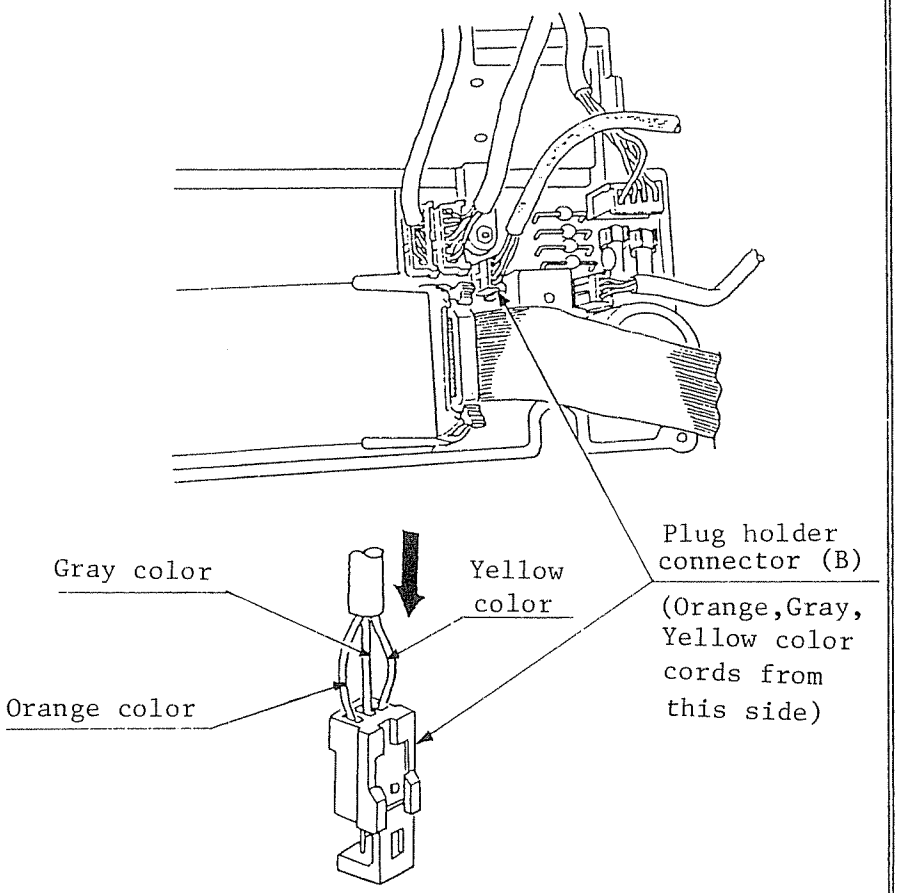




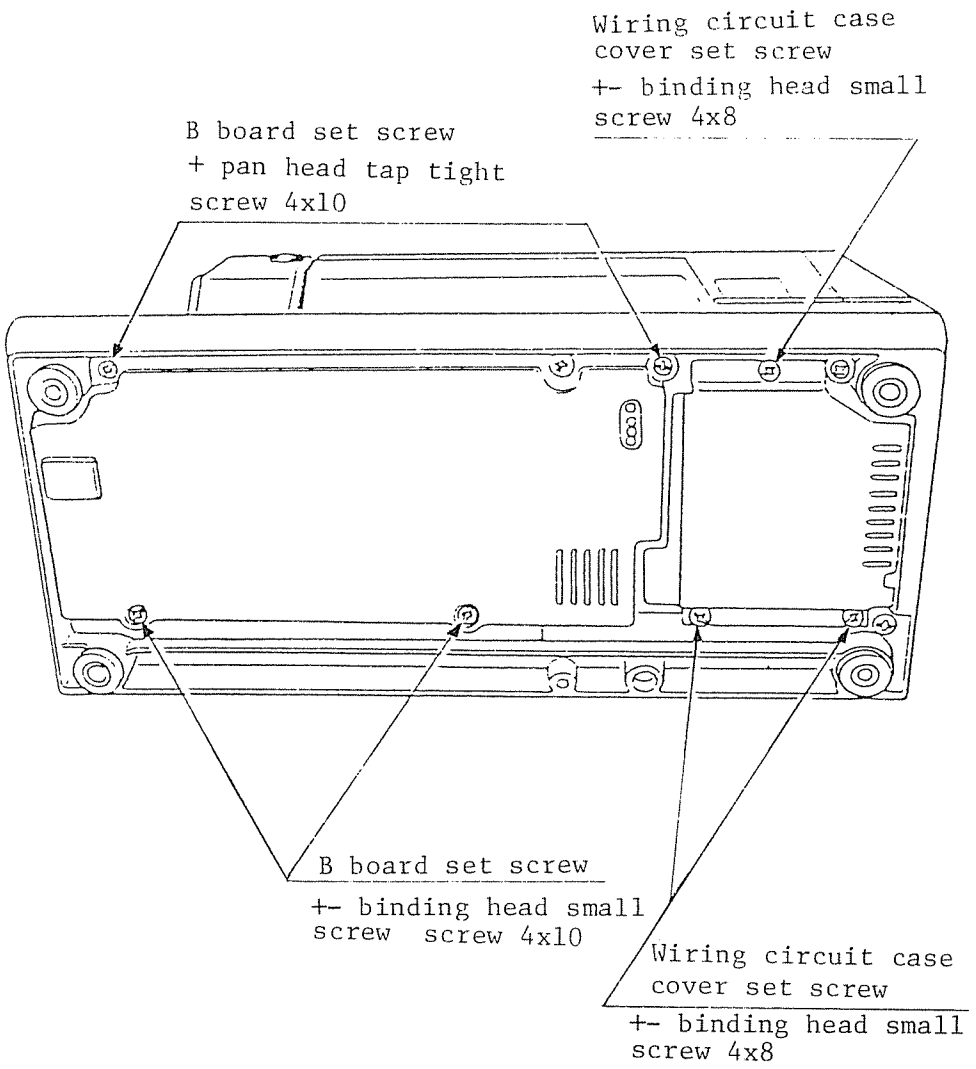
19) Tighten set screws to fix C board.

NOTE: When fixing C board, do not pinch the plug holder cord (B) with Arm and C board.

NOTE: B, C board connecting cord should not touch the lamp cord, passing on the boss of the screw.



20) Insert the connector (B) (blue, 3 pins) of the plug holder to the B board.
(connector is not reversible).

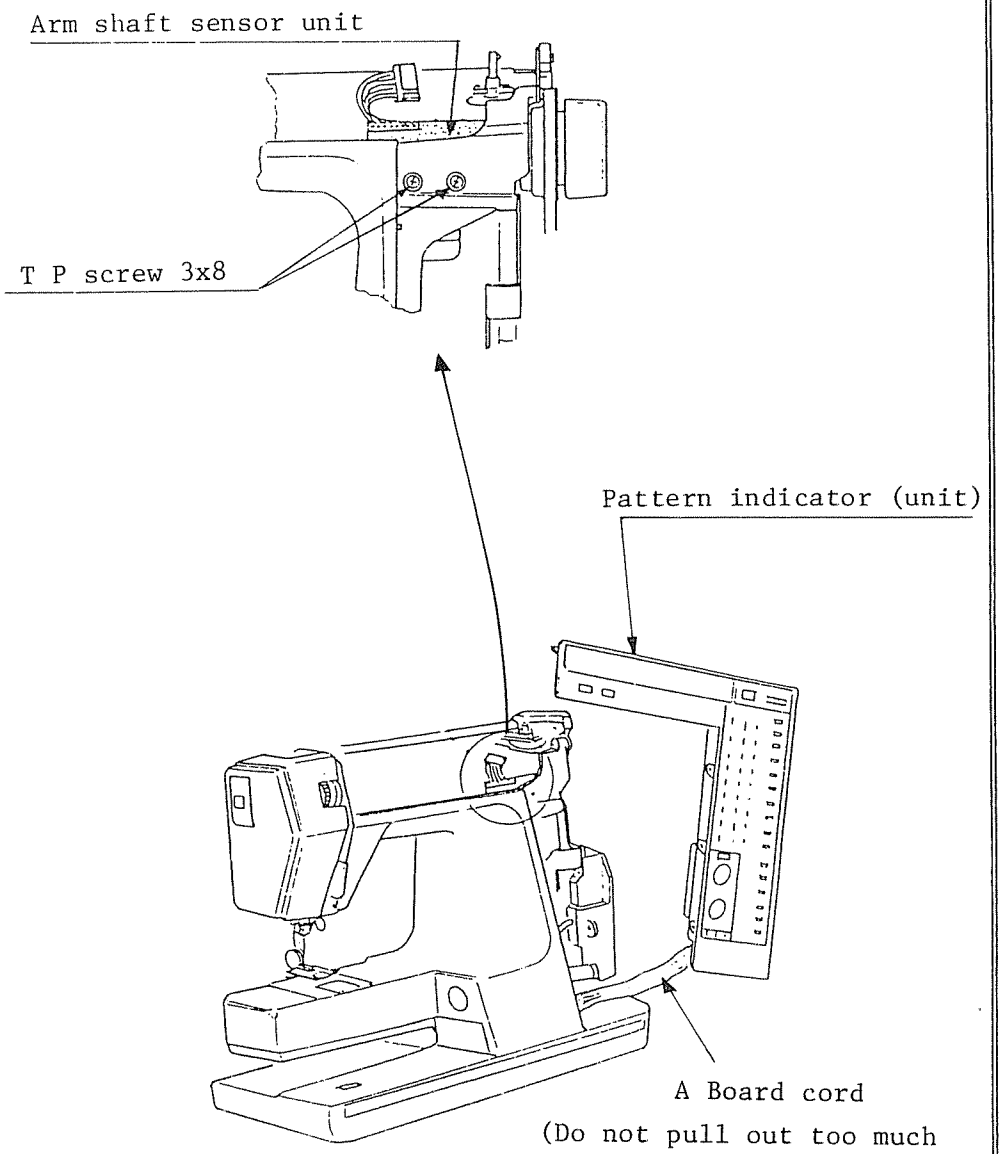


21) Fix the B board and tighten set screws.

22) Fix the printed wiring circuit base cover and tighten set screws.

23) Fix the belt cover.

To remove the arm shaft sensor



TO REMOVE

1) Remove top cover. (See p. 53)
2) Remove belt cover. (See p. 55)
3) Unplug connector of arm shaft sensor. (See p. 67)
4) Remove pattern indicator unit.
5) Remove screws (2 pcs) and arm shaft sensor unit. (See p. 68, p. 69. Do not pull out A board cord too much. Do not remove A board connector.)

Fig 2

Fix arm shaft sensor

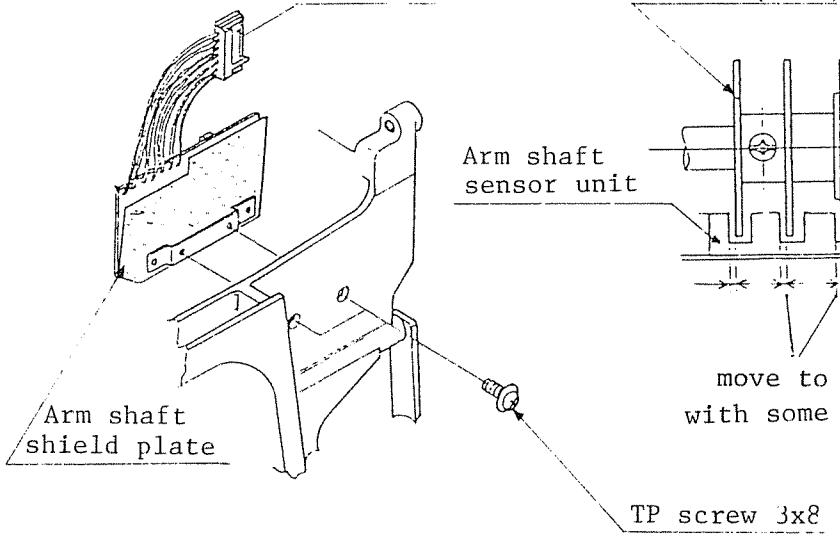
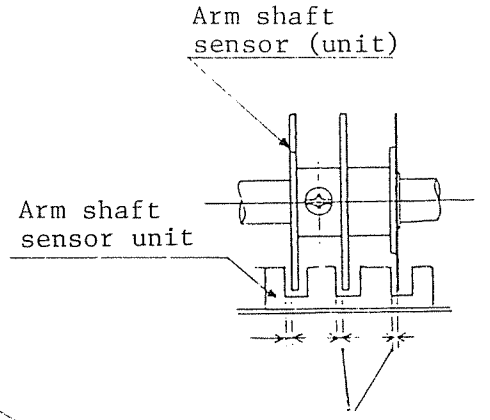


Fig 3



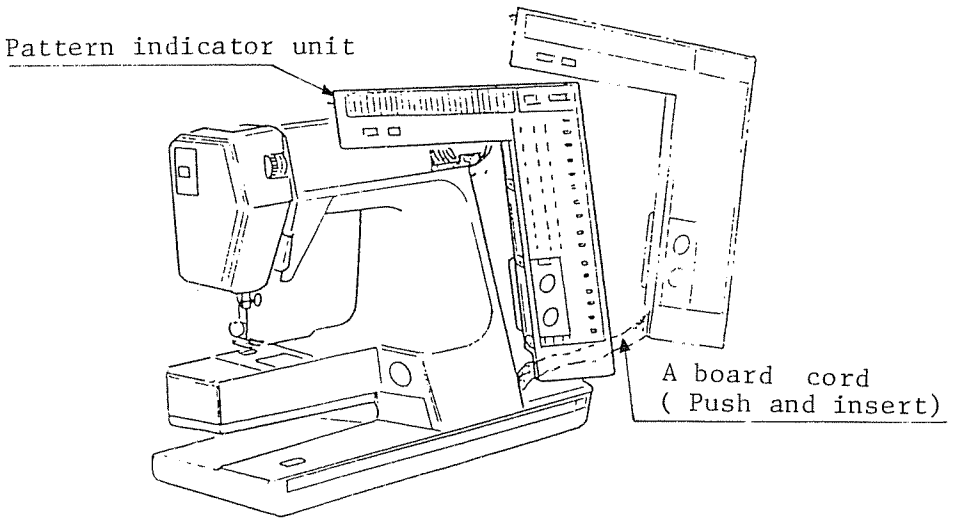


Fig 4. fix pattern indicator unit

6) Change arm shaft sensor unit and fix by tightening 2 screws. (See figs. 2 and 3. Arm shaft sensor unit should not touch arm shaft shield plate.)

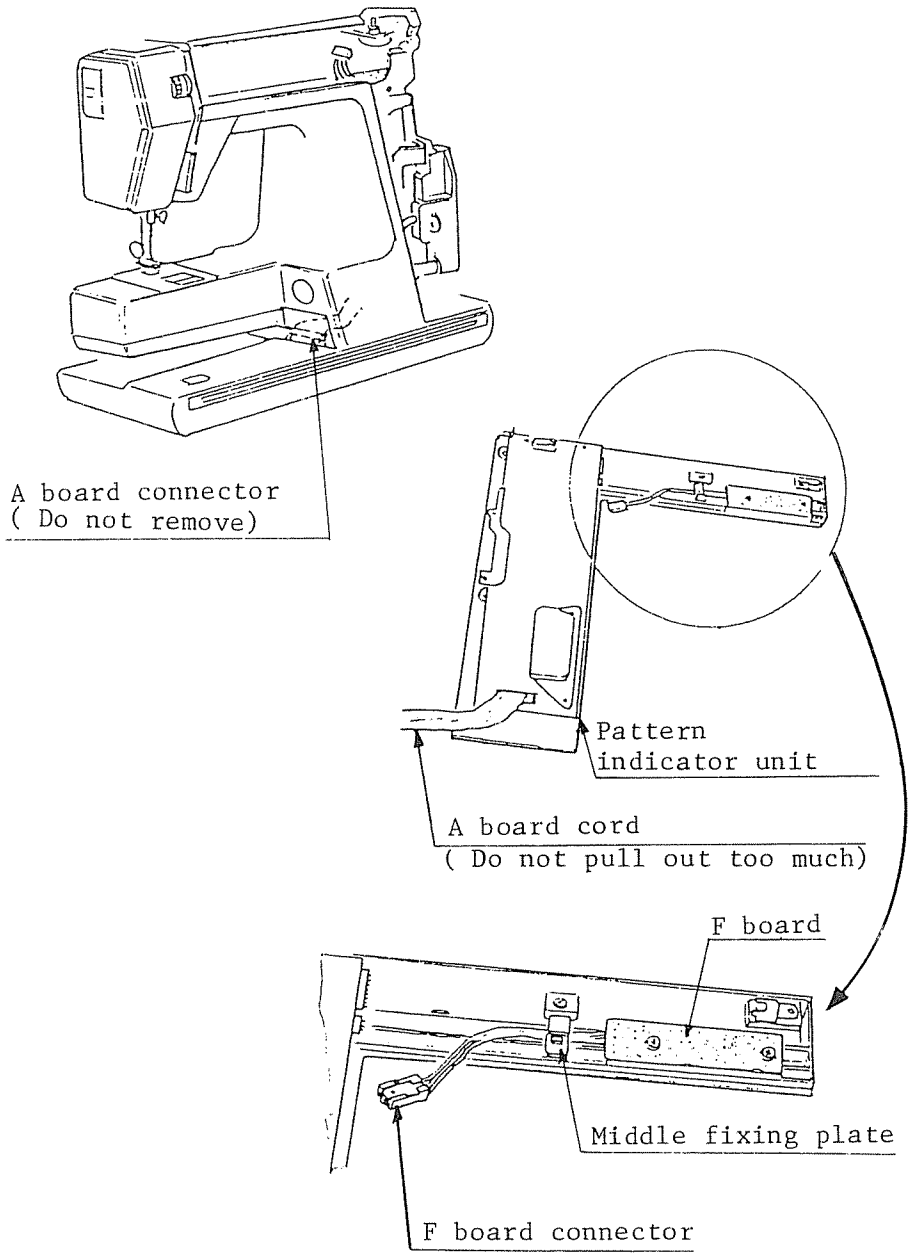
7) Fix pattern indicator unit. (See fig. 4. Fix it by pushing and inserting A board cord by hand. See p. 74, p. 75.)

8) Plug connector. (Connector must surely be inserted. See p. 76.)

9) Fix belt cover. (See p. 55.)

10) Fix top cover. (See p. 53.)

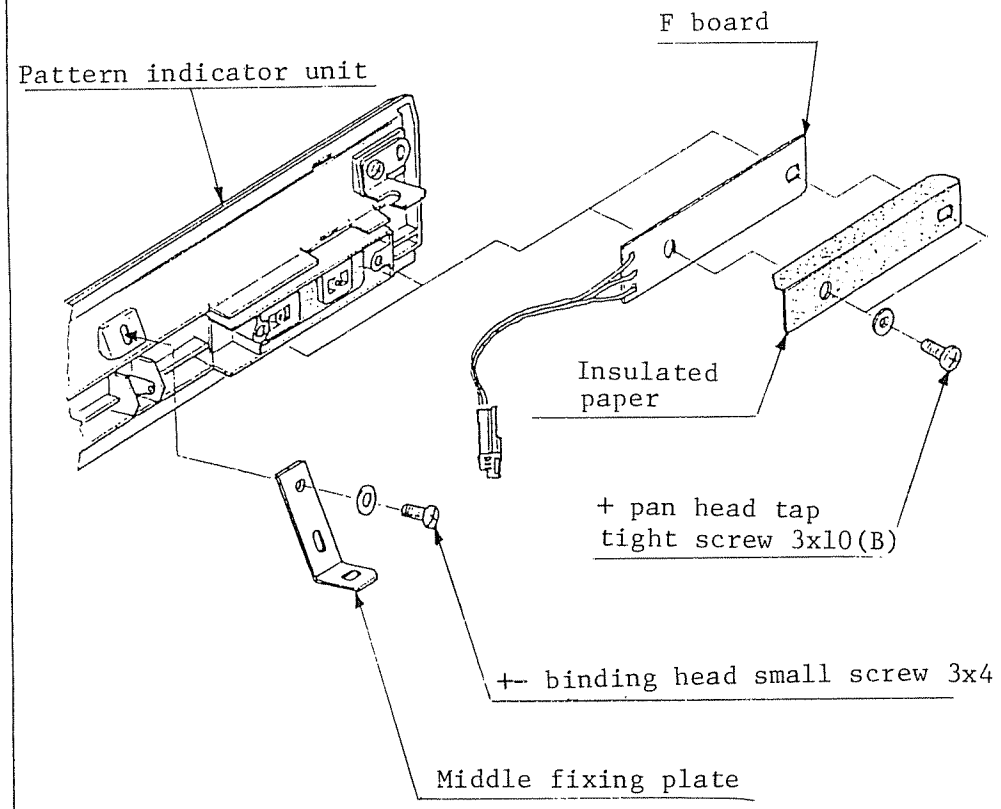
(Fig.1) Fix and remove pattern indicator unit



TO REMOVE:

1) Remove top cover. (See p. 53)
2) Remove belt cover. (See p. 55)
3) Remove pattern indicator unit.
(See fig. 1. See p. 67, p. 68, p. 69. Do not remove A board connector. Do not pull out A board cord too much.)

Fig 2 Fix and remove F board



4) Remove set screw and middle fixing plate. (See fig. 2)

5) Remove set screws (2 pcs) and printed wiring board F unit and insulated paper. (See fig. 2)

Fig 4. fix insulated paper of F board

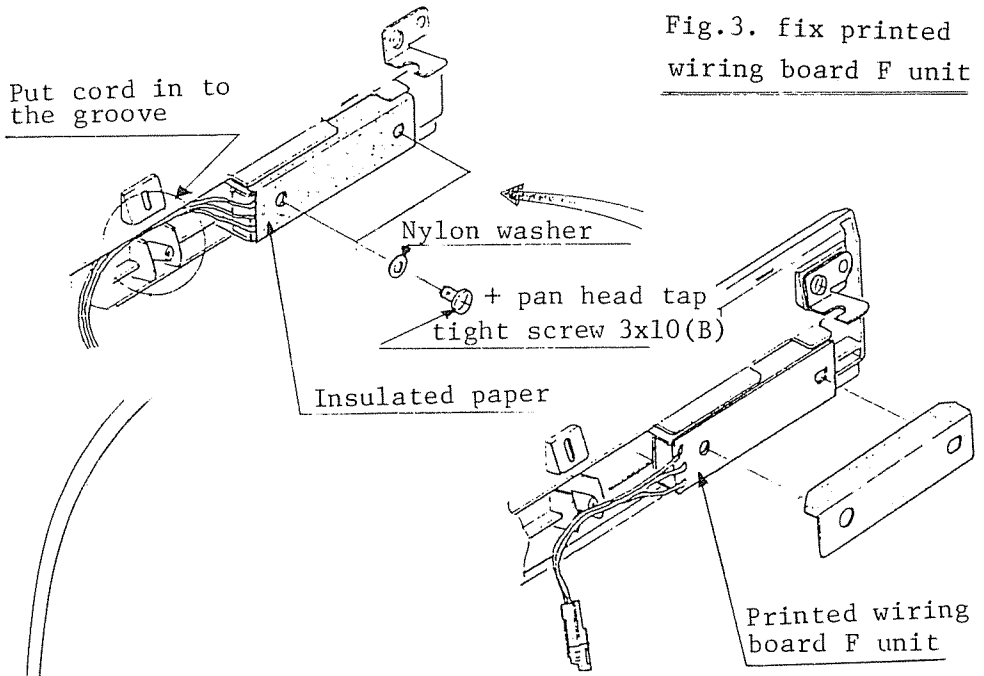


Fig.3. fix printed wiring board F unit

Fig. 5

Fix the middle fixing plate

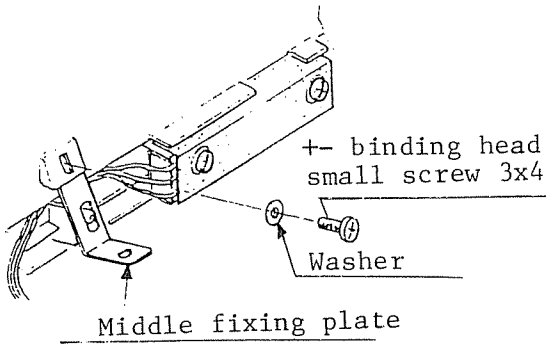
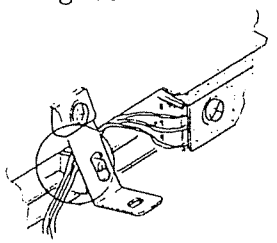


Fig.6.



Do not pinch cord with middle fixing plate.

TO FIX

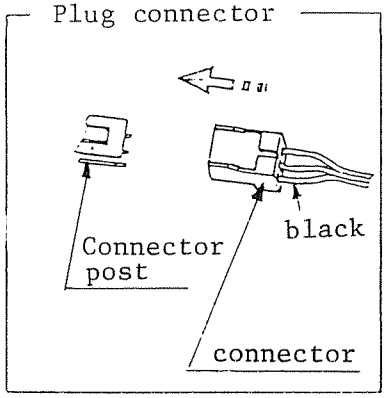
6) Change printed wiring board F unit and cover it with insulated paper. (See Fig. 3 and 4)

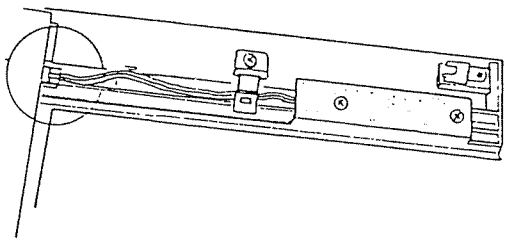
7) Tighten set screw. (See Fig. 4)

8) Put cord in groove and fix middle fixing plate. (See Fig. 4 and 5)

9) Tighten set screw. (See Fig. 5 and 6. Do not pinch cord with middle fixing plate.)

Fig 7





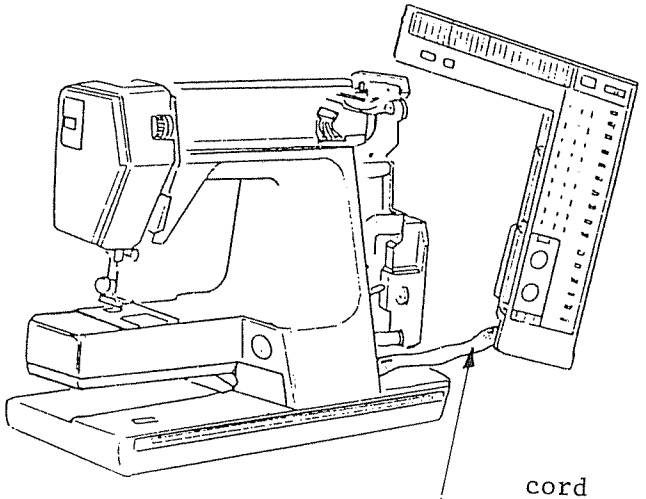


Fig 8

Fix the indicator unit

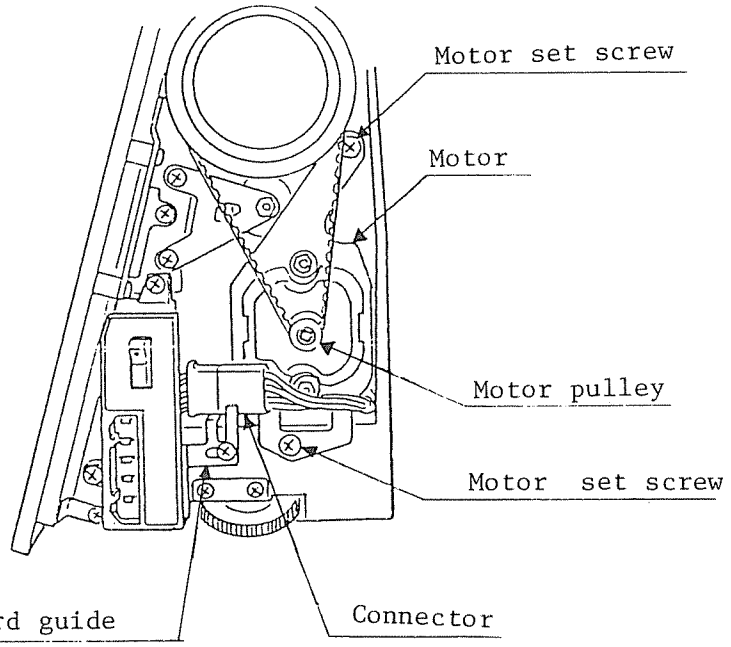
10) Plug connector. (See Fig. 7)

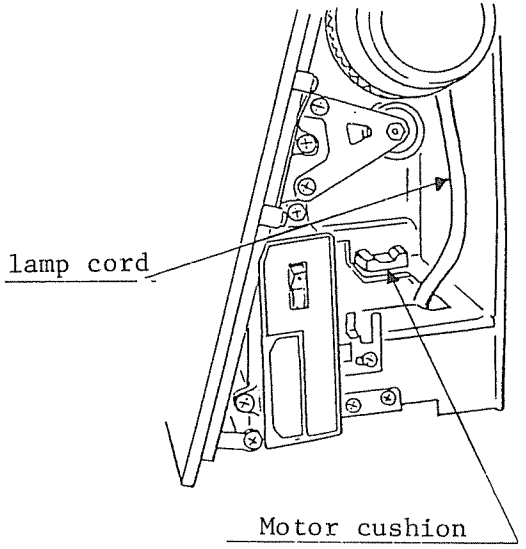
11) Fix pattern indicator unit.
(See Fig. 8. See p. 74, p. 75, p. 76. Fix it by pushing and inserting A board cord by hand.

12) Fix belt cover.

13) Fix top cover.

TO CHANGE MOTOR (100~125 V)





1) Remove belt cover. (See p. 55)
2) Take out and remove connector. Remove 2 set screws.
3) Remove motor belt and take motor out of arm.
4) Change motor.
5) Fix motor by putting it on motor cushion. Tighten two screws temporarily. (make sure motor cushion is not bent before fixing motor. Accomodate lamp cord in the space between the motor and arm.)
6) Fix motor belt and motor pulley on the arm shaft belt wheel.
7) Adjust belt tension. (See p. 46)
8) Plug connector and accomodate it in the cord guide.
9) Fix belt cover. (See p. 55)

TO CHANGE MOTOR (200~240 V)

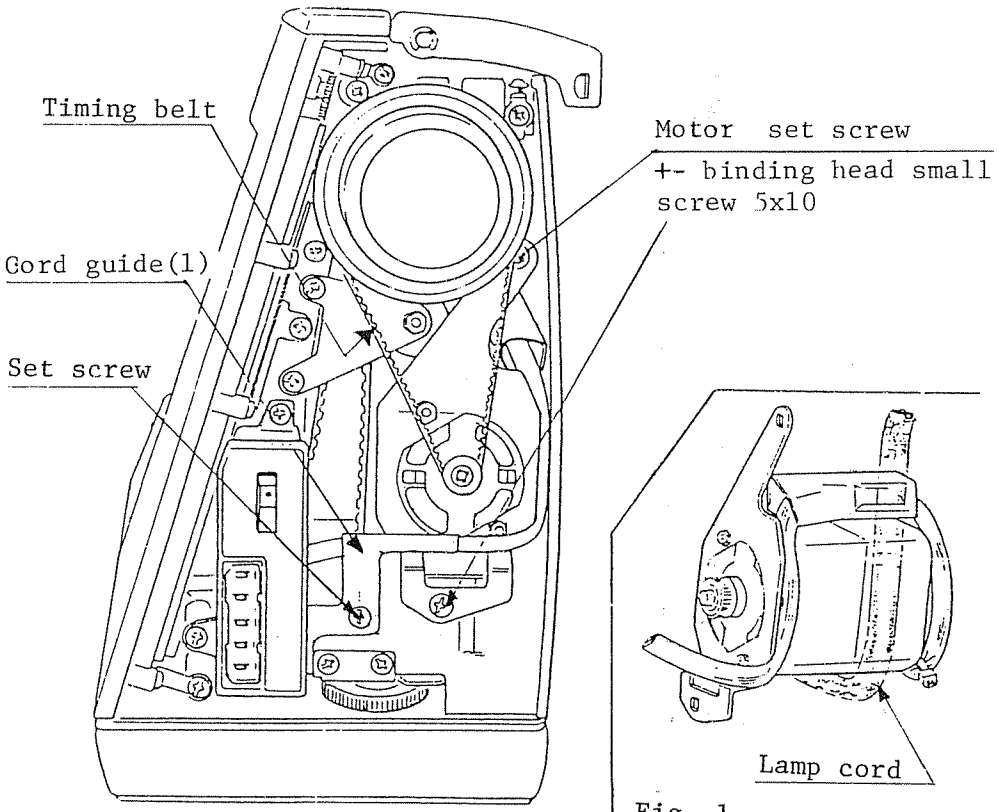


Fig. 1

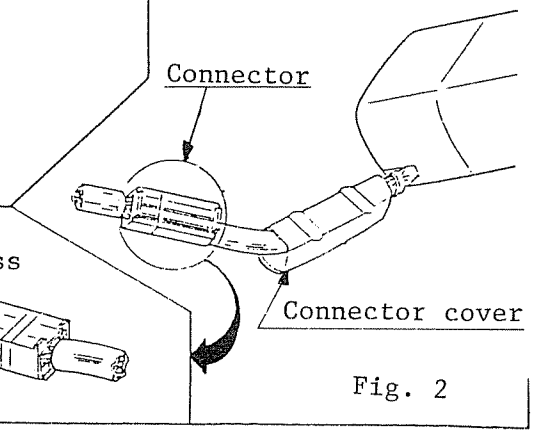


Fig. 2

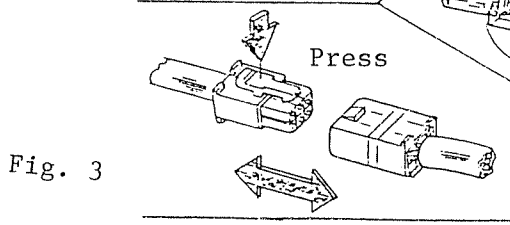


Fig. 3

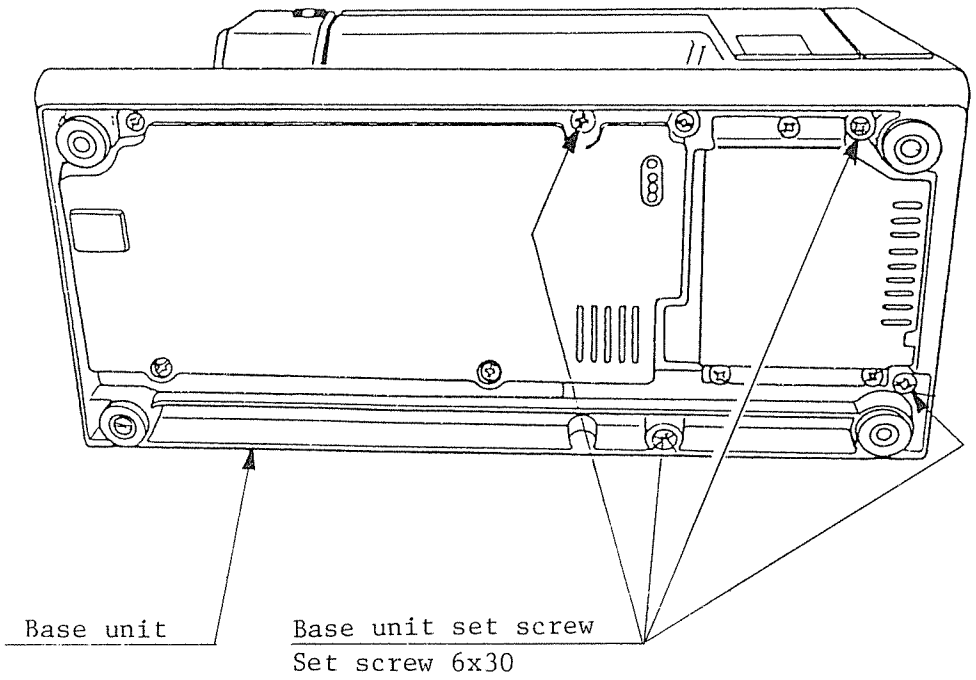
TO REMOVE

1) Remove belt cover.
2) Remove cord holder plate.
3) Remove 2 set screws.
4) Remove timing belt.
5) Take motor out of arm.
6) Move connector cover to motor.
7) Separate the connector and change the motor.

TO REFIT

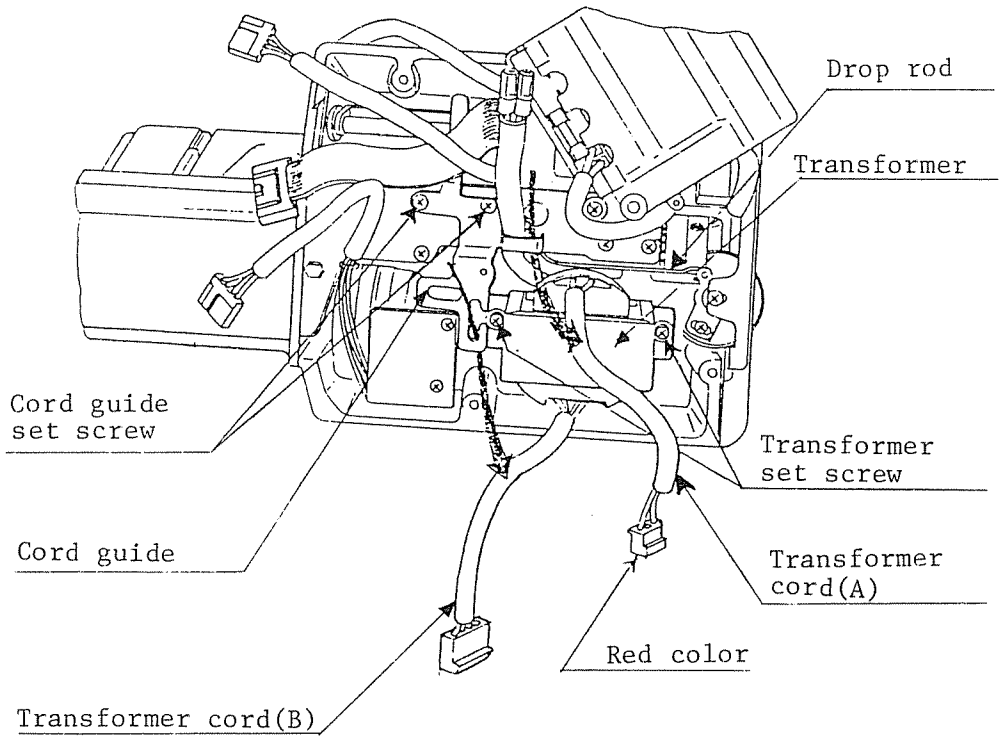
8) Plug the connector.
9) Fix the connector cover.
10) Fix the motor temporarily.
11) Fix timing belt and after adjusting the tension, fix motor.
12) Fix cord holder.
13) Fix belt cover.

TO CHANGE TRANSFORMER



TO REMOVE

1) Remove base unit. (Be sure not to put screws etc. in B board.)
2) Remove connectors (6 pcs.) from B board. (See p. 79).
3) Remove set screws (2 pcs.) of C board. (See p. 85).
4) Pull forward C board and remove set screws (3 pcs.)
5) Remove C board circuit case.
6) Remove transformer connector and lamp cord connector. (See p. 86)



In order to make transformer change easier it is better to place C board at the right side of the transformer (or above).

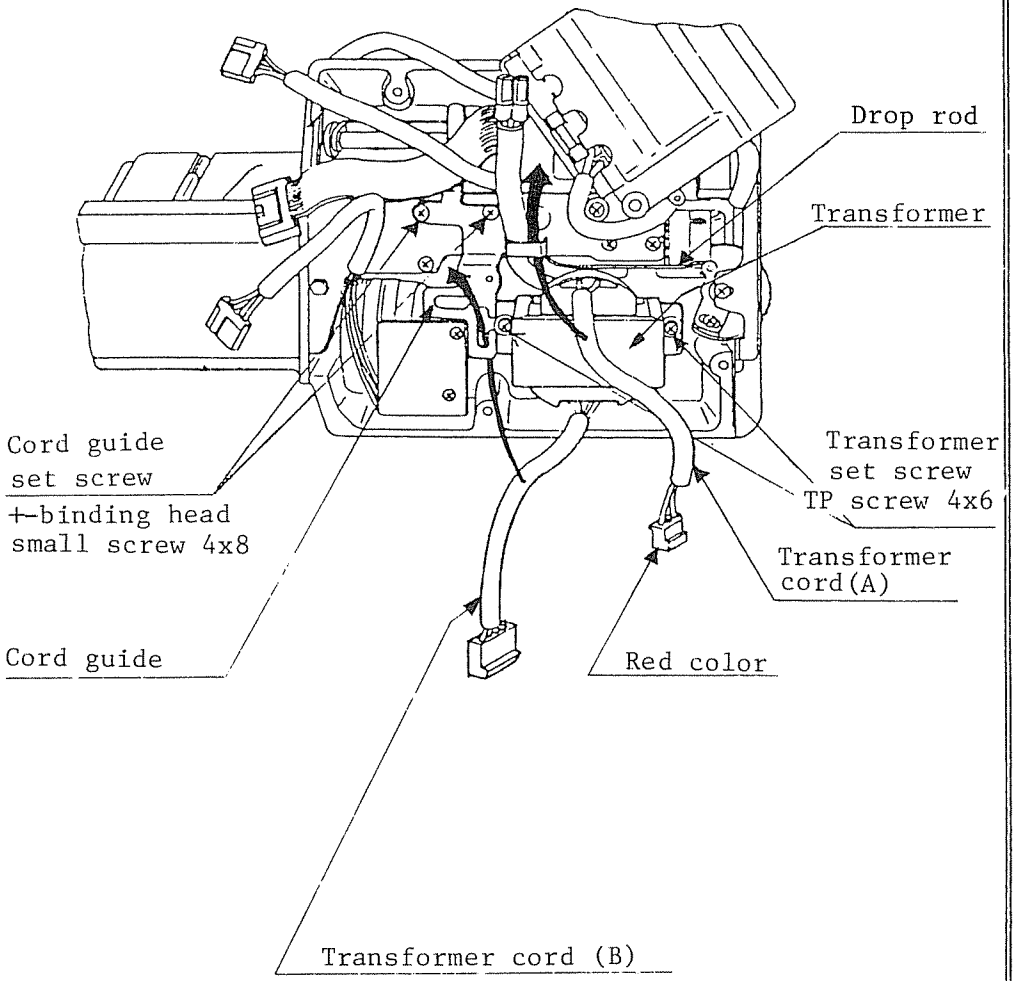
7) Loosen cord guide set screws (2 pcs.)

8) Remove transformer cord (A) from cord guide.

9) Remove transformer cord (B) from cord guide. (Be careful not to change the shape of drop rod when transformer is removed.)

10) Remove transformer set screws. (2 pcs).

11) Change transformer.



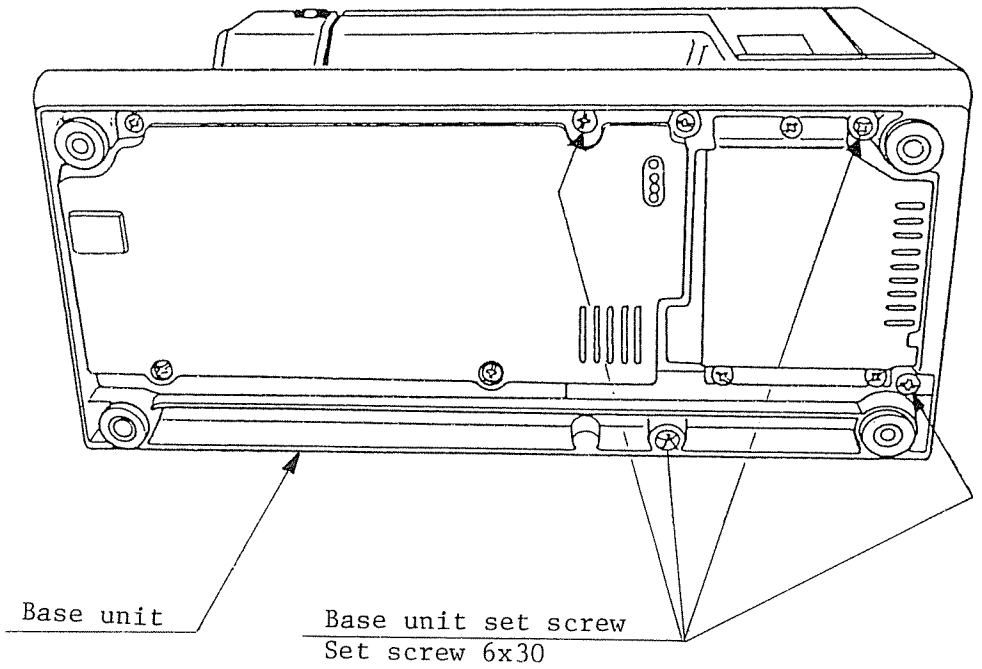
TO FIX

12) Fix transformer with 2 set screws.
(Be careful not to change the shape of drop rod.)

13) Place transformer cord (A) in cord guide.

14) Tighten 2 cord guide set screws.
(Transformer set screw should be tightened strongly.
Standard torque is 15 to 22 kg·cm)

15) Place transformer cord (B) in cord guide.



16) Insert transformer connector and lamp cord connector.
(See p. 89)

17) Fix C board circuit case with 3 set screws.
(See p. 90)

18) Fix C board with 2 set screws.
(See p. 91)

19) Insert connectors (6 pcs) into B board.
(See p. 81)

20) Fix base unit with 4 set screws.

21) Check needle drop position and needle clearance.

NOTE: Do not pinch cords with parts.

SECTION III MECHANICAL ADJUSTMENT

SECTION IV TROUBLE-SHOOTING OF ELECTRONIC AND ELECTRICAL COMPONENTS