

**SERVICE MANUAL
&
PARTS CATALOGUE**

E-100

E-100P

E-100M

GENERAL INFORMATION

This service manual has been compiled for explaining repair procedures of this model.
This was produced based on up-to-date product specifications at the time of issue, but there may have been changes of specifications for the purpose of improvements.
Contact manufacturer or local sales company for information concerning such changes.

Brother Industries, Ltd.
Nagoya, Japan

CONTENTS

I . PRINCIPAL MECHANISMS.....	1-0
II . DISASSEMBLY/REASSEMBLY AND INSPECTION PROCEDURES.....	2-0
III . HOW TO ADJUST ELECTRONIC ELEMENTS	3-0
IV . PARTS CATALOGUE.....	4-0

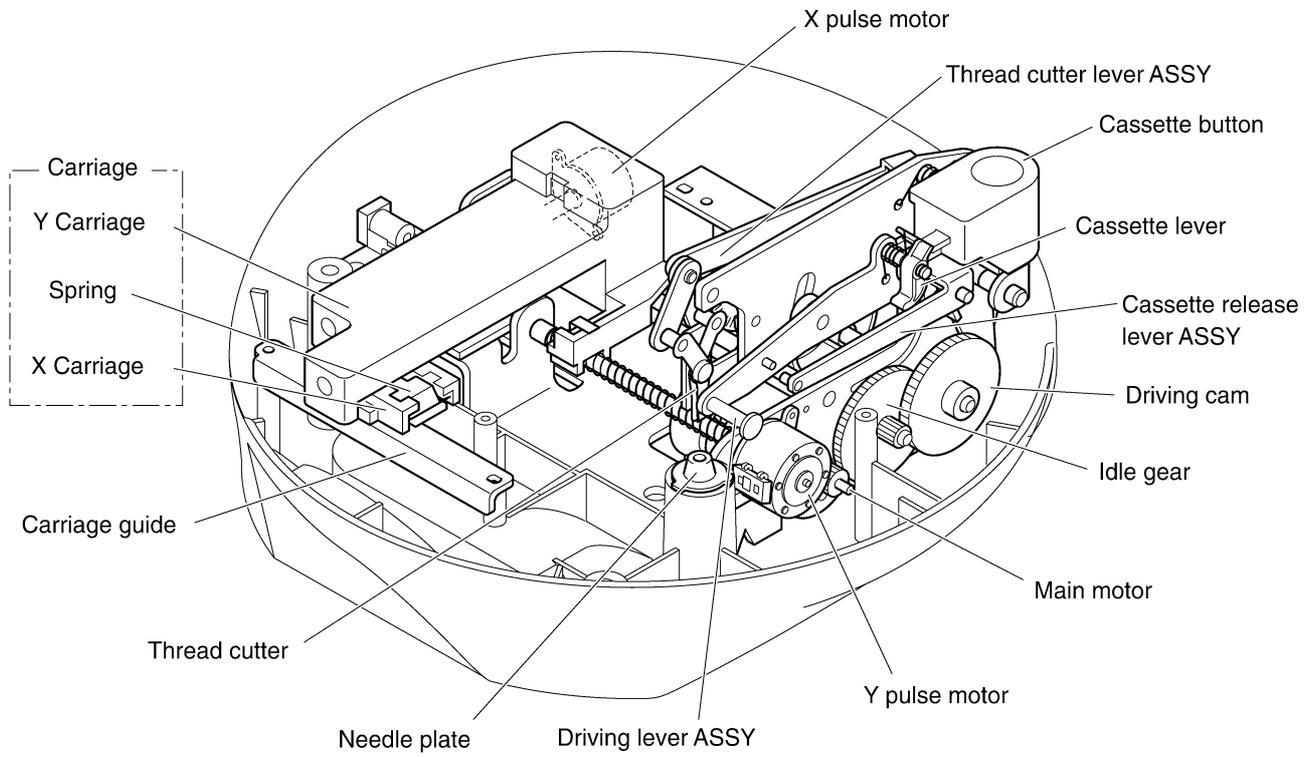
CAUTION

1. Always use rubber gloves when handling printed circuit boards and never touch the metal portion of a printed circuit board with bare hands.
2. Keep your body earthed in order to avoid generating static electricity.
3. Pack printed circuit boards in aluminum foil and avoid subjecting them to any form of impact during storage or transportation.
4. Do not touch or damage the metal portion of a printed circuit board with a screwdriver or any other tool while making repairs or the like.

I. PRINCIPAL MECHANISMS

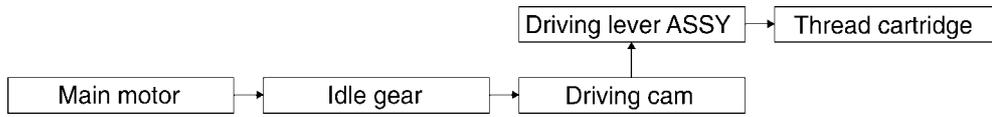
1. TECHNICAL DIAGRAMS.....	1-1
2. POWER TRANSMISSION CHART	1-2
3. WIRING DIAGRAM OF ELECTRONIC COMPONENTS	1-2
4. CONTROL SYSTEM BLOCK DIAGRAM	1-3
5. FUNCTIONS OF ELECTRONIC COMPONENTS.....	1-4

1. TECHNICAL DIAGRAMS

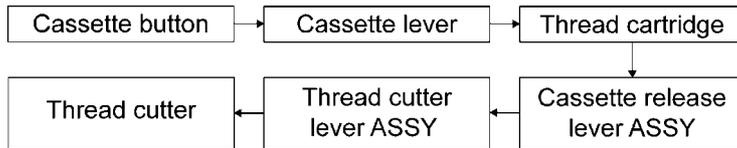


2. POWER TRANSMISSION CHART

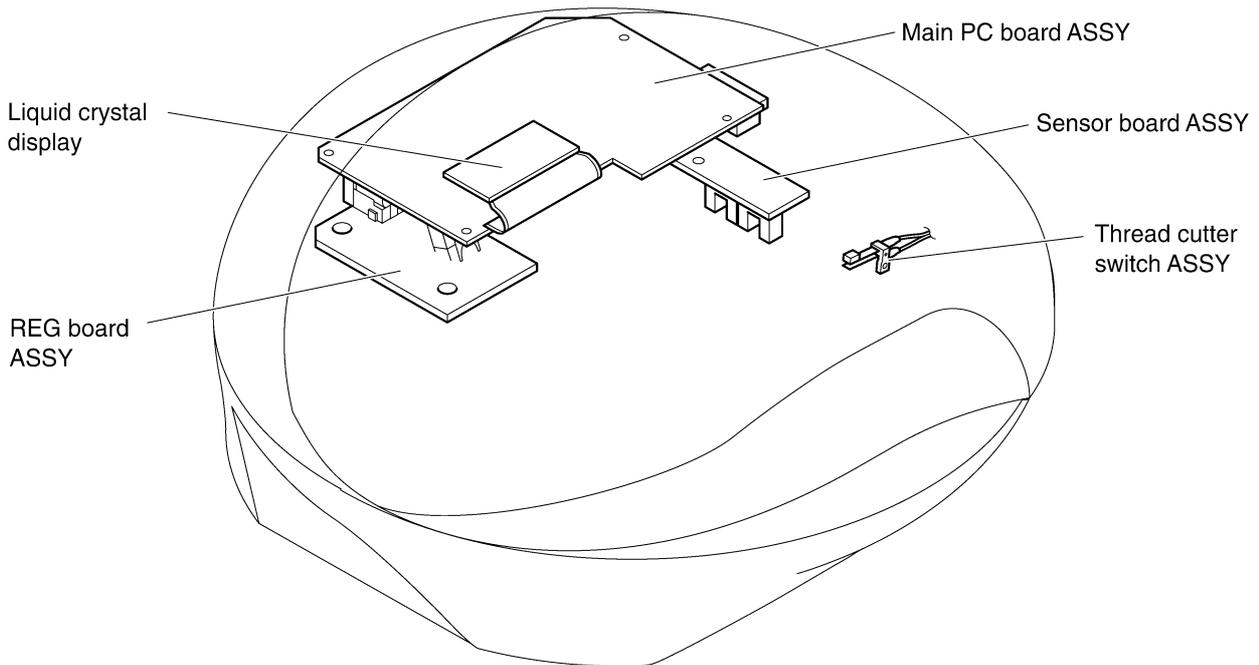
(A) Generating mechanism for the needle (thread cartridge)



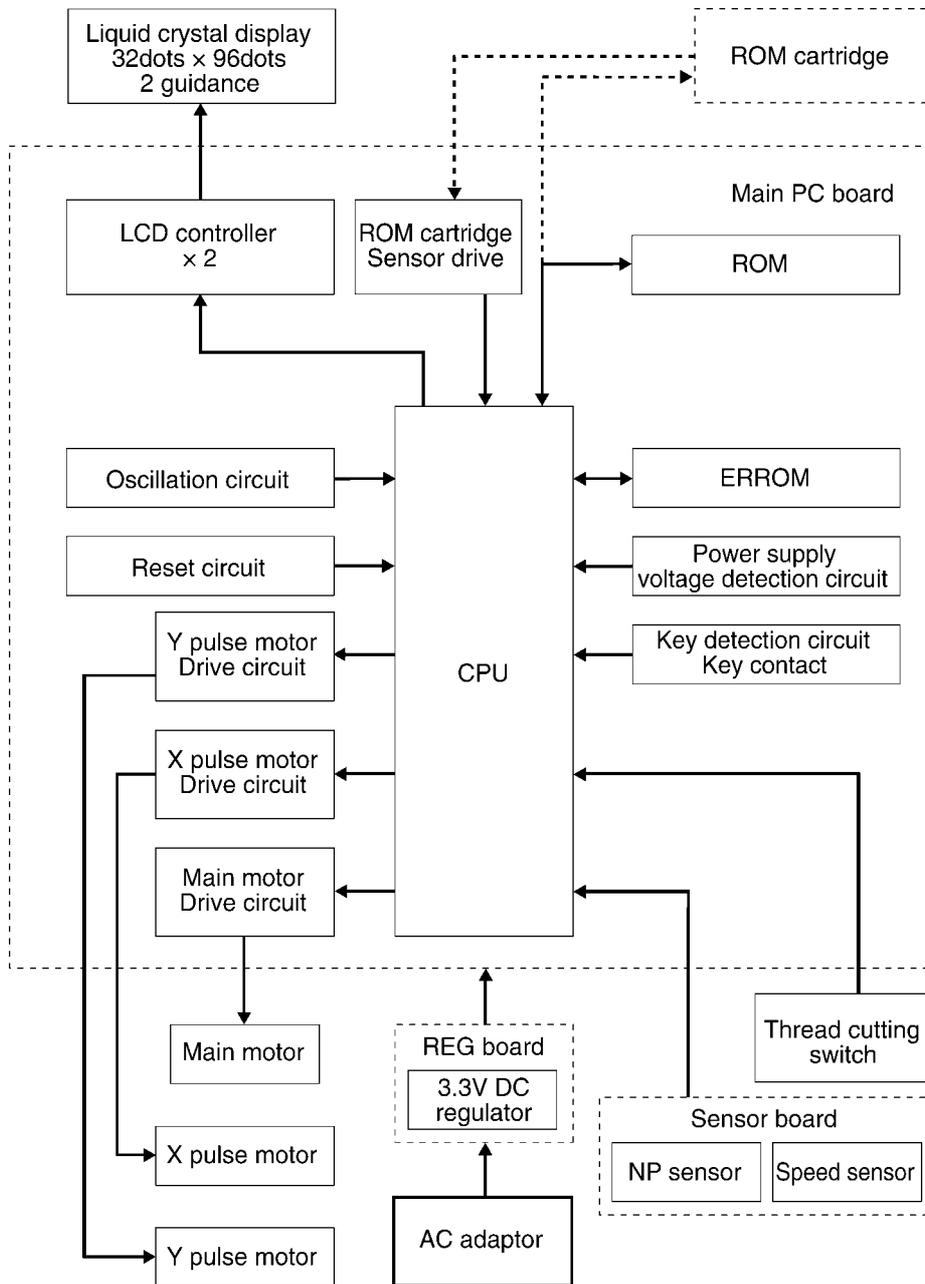
(B) Thread cartridge installation/removal and thread-cutting mechanism



3. WIRING DIAGRAM OF ELECTRONIC COMPONENTS



4. CONTROL SYSTEM BLOCK DIAGRAM



5. FUNCTIONS OF ELECTRONIC COMPONENTS

- AC adaptorUsed to supply power to the unit.
Be sure to use the specially designed AC adaptor
-  (Power) keyUsed to turn the unit on and off.
When the power supplied to the unit is cut, unplug the AC adaptor from the electrical outlet.
-  (Remove the embroidery frame) key.....Moves the embroidery frame to a position from where it can be removed.
-  (Start/Stop) key.....Used to start and stop embroidering.
-  (Cursor) keysPress these keys to make a choice (for example, to find the pattern or letter that you want).
-  (OK) keyPress this key to confirm the choice (for example, to select the chosen pattern or letter).
-  (Return) keyPress this key to return to the previous screen.
- Thread cutting switchDetects if a thread cartridge is installed, since there is a mechanism that cuts the thread when the thread cartridge is removed.
- NP sensor.....Detects the timing for moving the embroidery frame and the stop position of the needle in the thread cartridge.
- Speed sensorDetects the rotational speed of the main motor.
- Main motorDrives the thread cartridge and forms the stitches.
Determines the sewing speed according to the stitch length.
- X,Y pulse motor.....Drives the embroidery frame.
- REG PC boardProduces circuit power from power supplied by the AC adaptor.
- LCD (Liquid crystal display).....Displays the machine status, operating procedures and the embroidery pattern.

II. **DISASSEMBLY/REASSEMBLY AND INSPECTION PROCEDURES**

1. DISASSEMBLING THE OUTER PARTS AND MAIN PARTS..... 2-1
2. ASSEMBLING THE OUTER PARTS AND MAIN PARTS..... 2-8
3. LEAD WIRE ARRANGEMENT
(For details, refer to the instructions of wiring.)..... 2-15
4. POST-REPAIRS INSPECTION PROCEDURES..... 2-16

1. DISASSEMBLING THE OUTER PARTS AND MAIN PARTS

1. With test mode 2, move the carriage to its removal position.

Selecting test mode 2

(1) Enter the test mode by holding down and while pressing , then releasing and .

(2) Press (to initialize).

T-1
MESH PTN

 appears.

(3) Press .

T-2
DECOMPOSE POSS

 appears.

(4) Press .

DECOMPOSE POSS

 appears.

(5) Press to move the carriage to its removal position (innermost position).

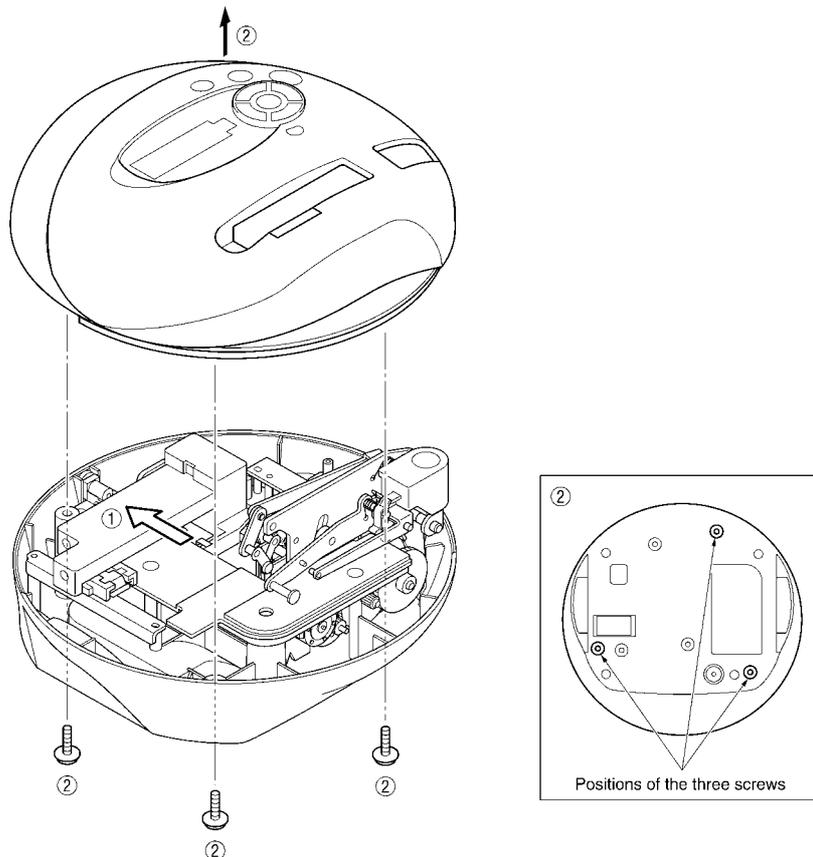
(6) Press to turn off the unit.

2. Remove the three screws securing the under cover assy (refer to the bottom-view diagram below), and then lift off the upper cover assy.

3. Disconnect the six connectors, and then remove the upper cover assy.

Note

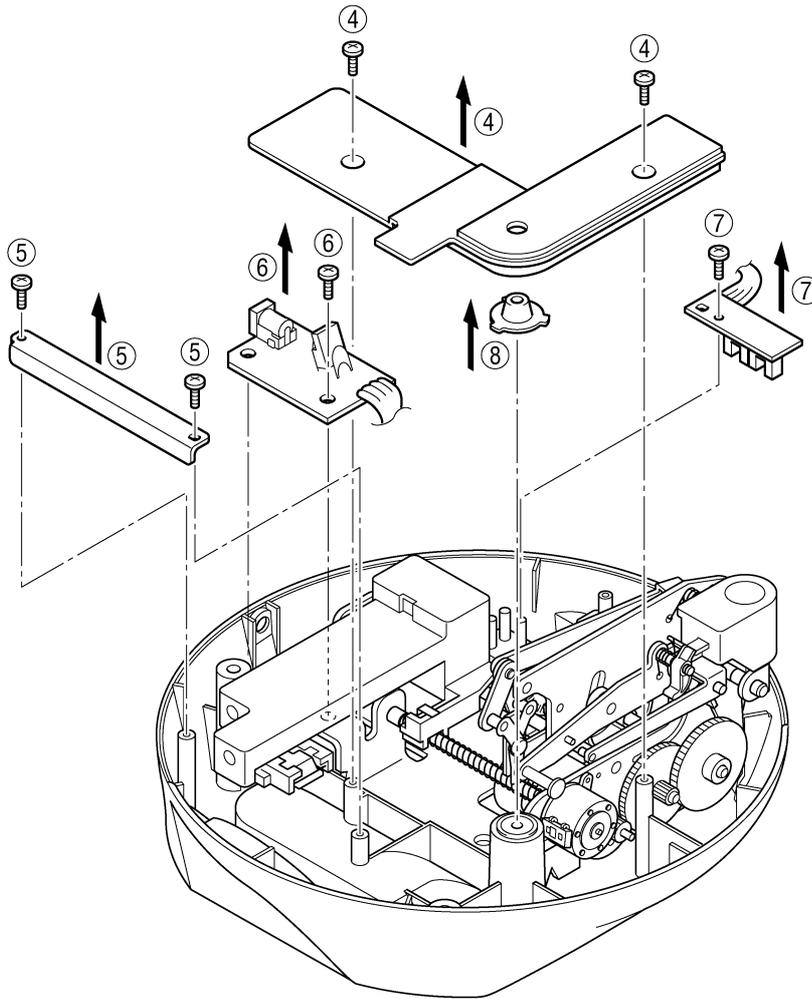
1. If the carriage is not moved to its removal position, the upper cover assy cannot be removed



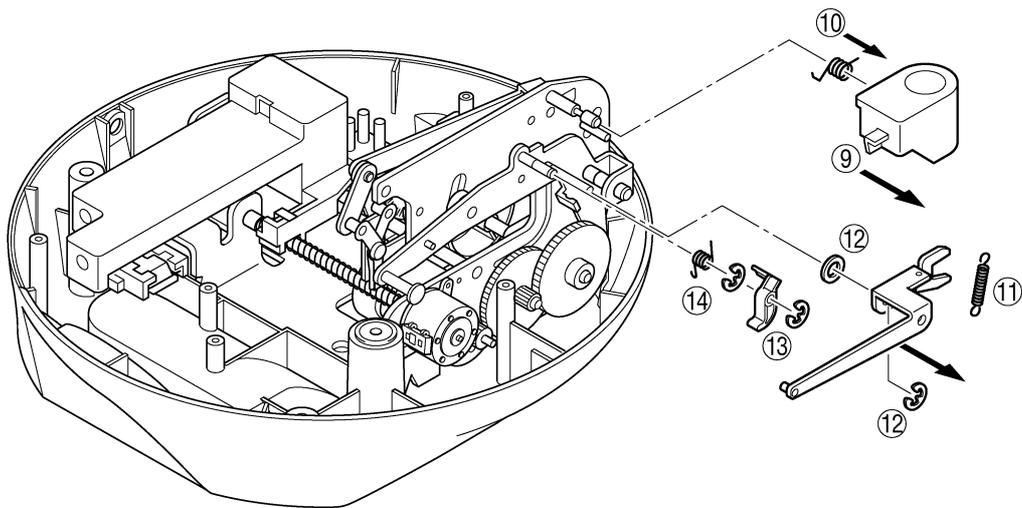
4. Remove the two screws securing the needle plate cover, and then remove the needle plate cover.
5. Remove the two screws securing the carriage guide, and then remove the carriage guide.
6. Remove the screw securing the REG board assy, and then remove the REG board assy.
7. Remove the screw securing the sensor board assy, and then remove the sensor board assy.
8. Remove the needle plate.

Disassembly Points

6. Since the carriage can freely be moved as soon as the carriage guide is removed, moving the carriage so the screw for the REG board assy can be seen allows the REG board assy to be removed easily.



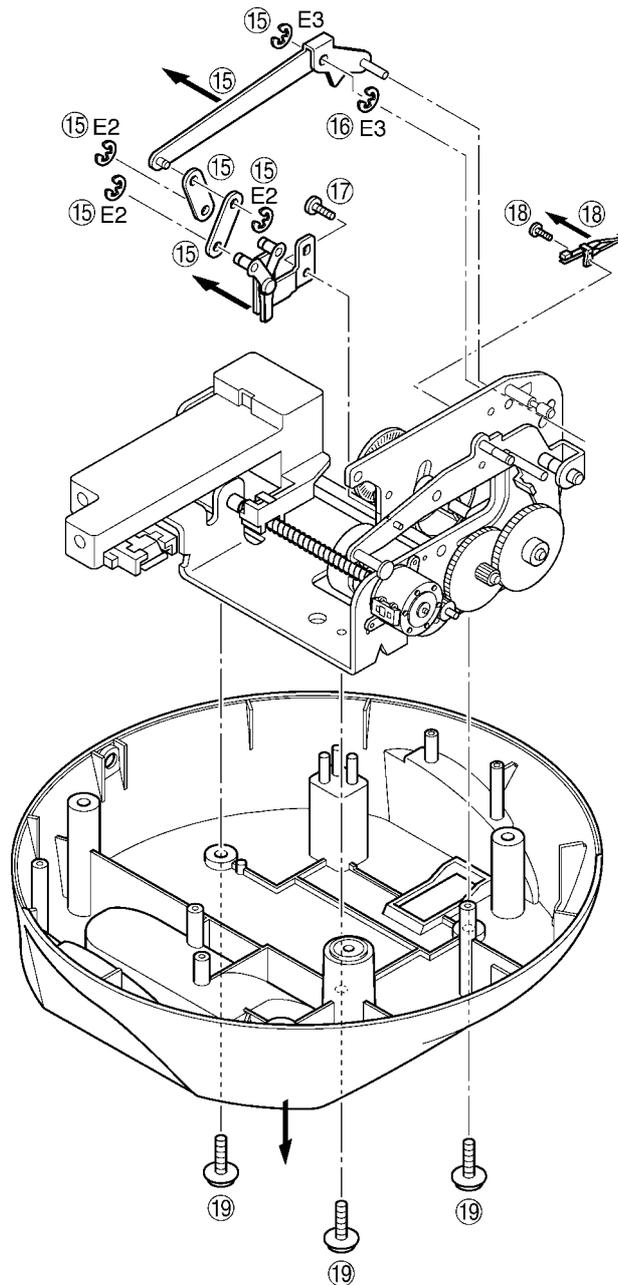
9. Pull the cassette button forward, and when it is partially removed, turn it counterclockwise to remove it from the cassette button spring.
10. Remove the cassette button spring.
11. Remove the cassette release lever spring.
12. Remove the retaining ring, and then remove the cassette release lever assy and the washer.
13. Remove the retaining ring, and then remove the cassette lever.
14. Remove the retaining ring, and then remove the cassette lever spring.



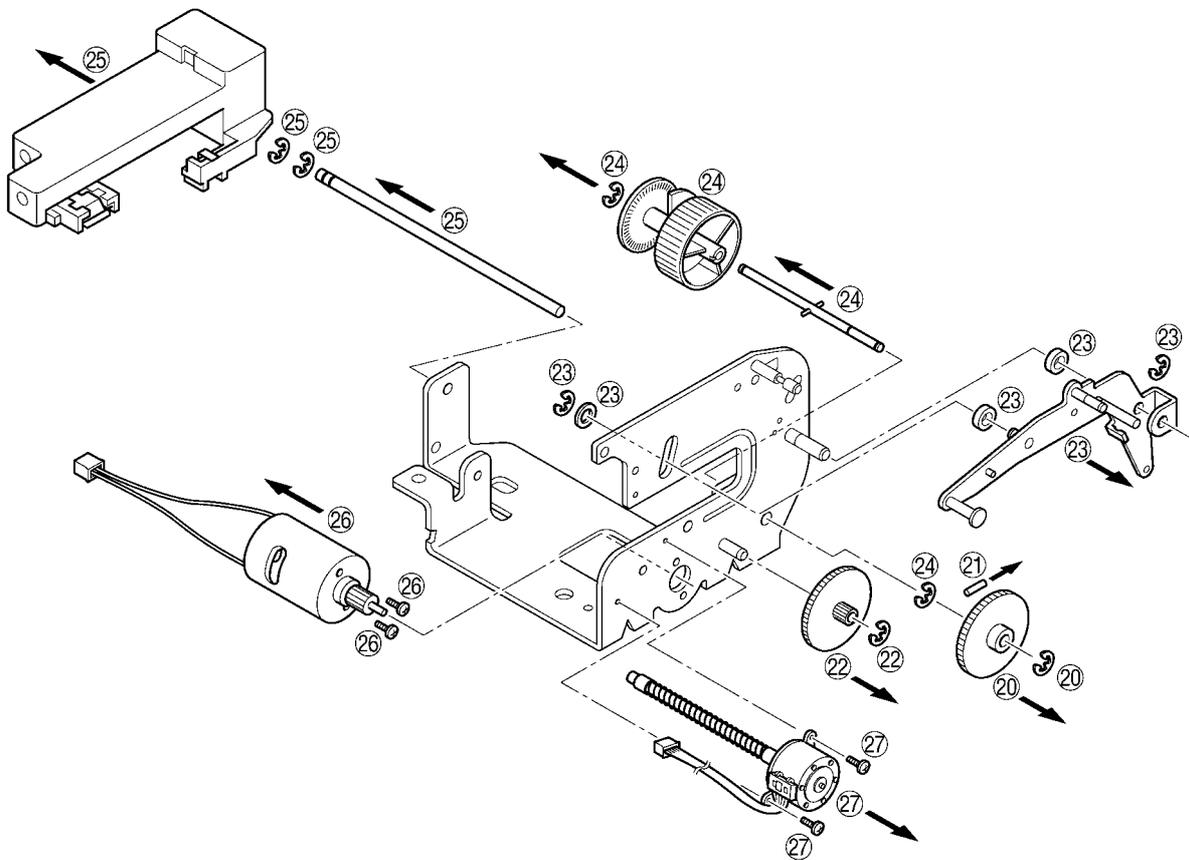
15. Remove the three E2 retaining rings and the E3 retaining ring, and then remove the thread cutter lever assy, and the two thread cutter links.
16. Remove the E3 retaining ring.
17. Remove the screw, and then remove the thread cutter assy.
18. Remove the screw, and then remove the thread cutter switch assy.
19. Remove the three screws from the bottom of the under cover assy, and then remove the under cover assy.

Disassembly Points

16. Since the E3 retaining ring is only used to position the thread cutter lever assy, not removing the retaining ring does not prevent other parts from being removed.



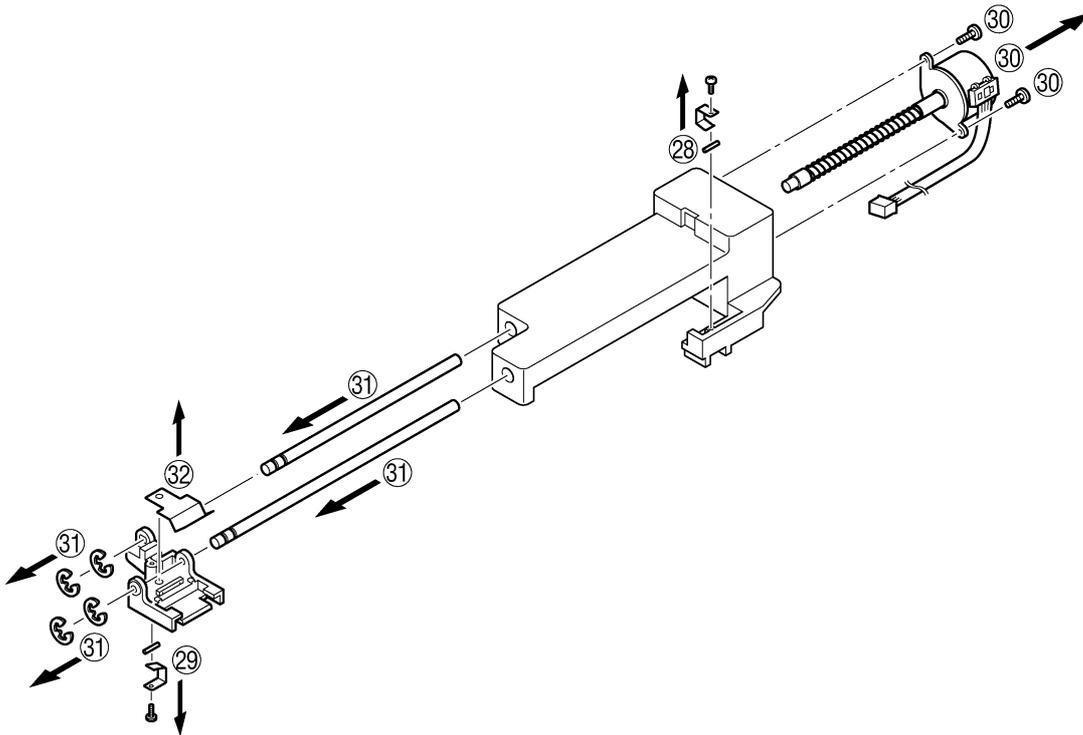
20. Remove the retaining ring, and then remove the driving cam.
21. Pull the pin from the shaft.
22. Remove the retaining ring, and then remove the idle gear.
23. Remove the two retaining rings, and then remove the driving lever assy, the two collars, and the polyester slider.
24. Remove the two retaining rings, and then remove the driving cam shaft assy and the shutter.
25. Remove the two retaining rings, and then remove the Y guide shaft and the carriage.
26. Remove (cut) the band, remove the two screws, and then remove the main motor assy.
27. Remove the two screws, and then remove the Y pulse motor assy.



28. Remove the screw, and then remove the spring and the pin (for the Y pulse motor assy).
29. Remove the screw, and then remove the spring and the pin (for the X pulse motor assy).
30. Remove the two screws, and then remove the X pulse motor assy.
31. Remove the four retaining rings, and then remove the X guide shaft L and the X guide shaft S.
32. Remove the spring from the X carriage.

Note

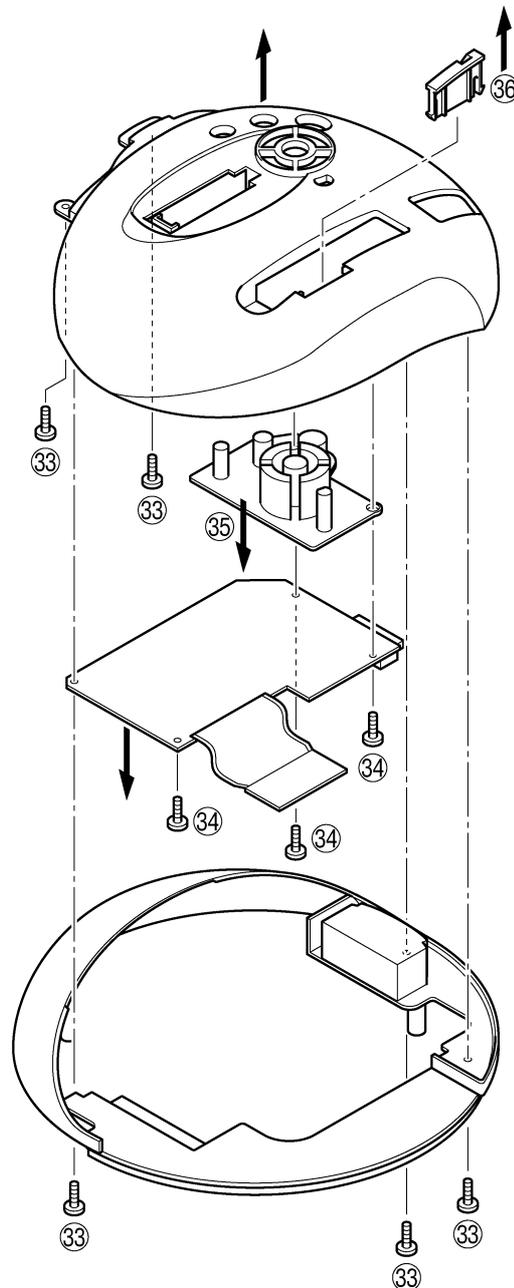
32. The spring fits onto the tab on the X carriage. Be careful not to deform the spring while removing it.



33. Remove the four screws and the main PC board assy screw, and then remove the middle cover.
34. Remove the three screws, and then while pressing on the composite spring section of the upper cover assy, remove the liquid crystal display. Next, remove the main PC board assy.
35. Remove the operation keys.
36. Remove the cassette guide from the upper cover assy.

Disassembly Points

36. Since the cassette guide is snapped into place, release the hooks on the guide to remove it.

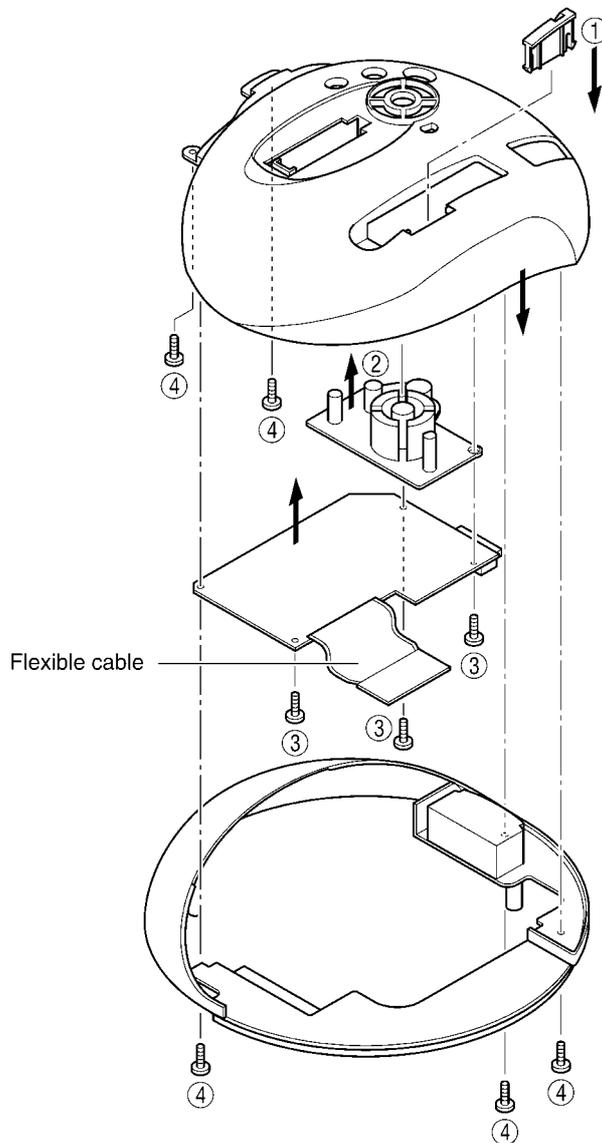


2. ASSEMBLING THE OUTER PARTS AND MAIN PARTS

1. Attach the cassette guide to the upper cover assy.
2. Install the operation keys.
3. While pressing on the composite spring section of the upper cover assy, attach the liquid crystal display, and then secure the main PC board assy with the three screws.
4. Secure the middle cover with the four screws and the main PC board assy screw.

Note

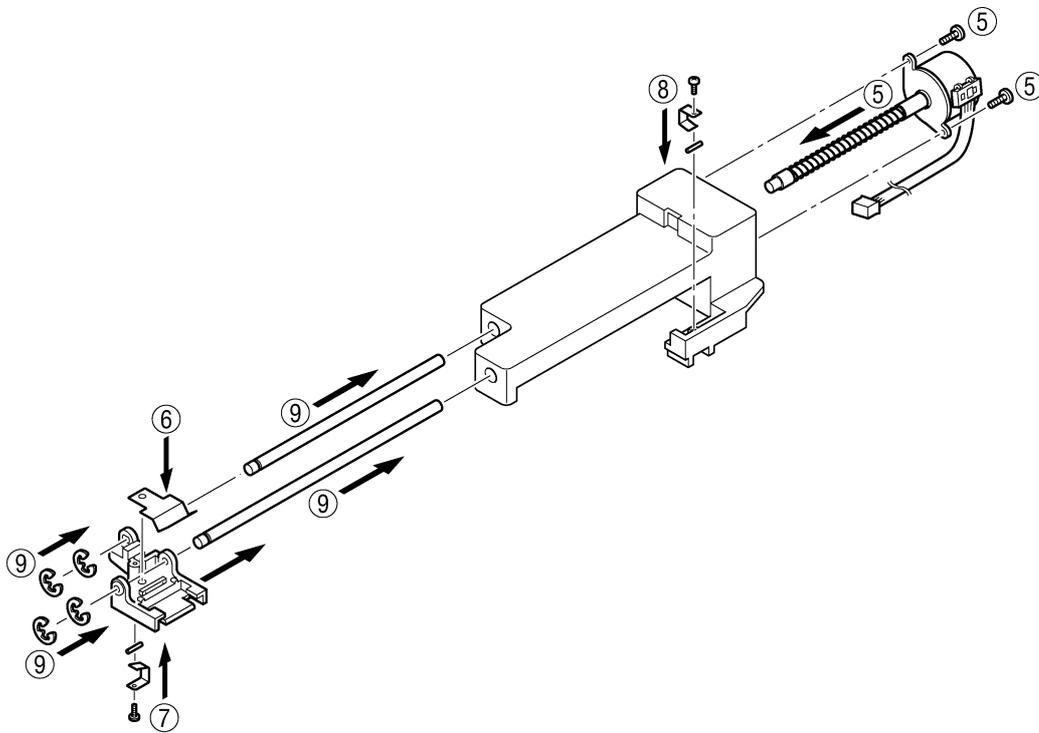
2. Make sure that each button correctly fits into its hole in the upper cover assy. Make sure that the keys are not inserted into bosses for the screws of the main PC board assy and be sure not to push too strongly.
2. Since the black parts of the operation keys are the contact points, make sure that it is not covered with dust or grease.
3. Since the flexible cable breaks easily, be extremely careful when handling it.
- 3.4. The main PC board assy screw and the middle cover screws have different lengths, so be sure to install them in their correct locations.
4. After installation, check that each switch clicks.



5. Install the X pulse motor assy and secure it with the two screws.
6. Attach the spring to the X carriage.
7. Install the spring and the pin, and then secure them with the screw (for the X pulse motor assy).
8. Install the spring and the pin, and then secure them with the screw (for the Y pulse motor assy).
9. Pass the X guide shaft L and the X guide shaft S through the holes in the X carriage, and then secure the guide shafts with the four retaining rings.

Note

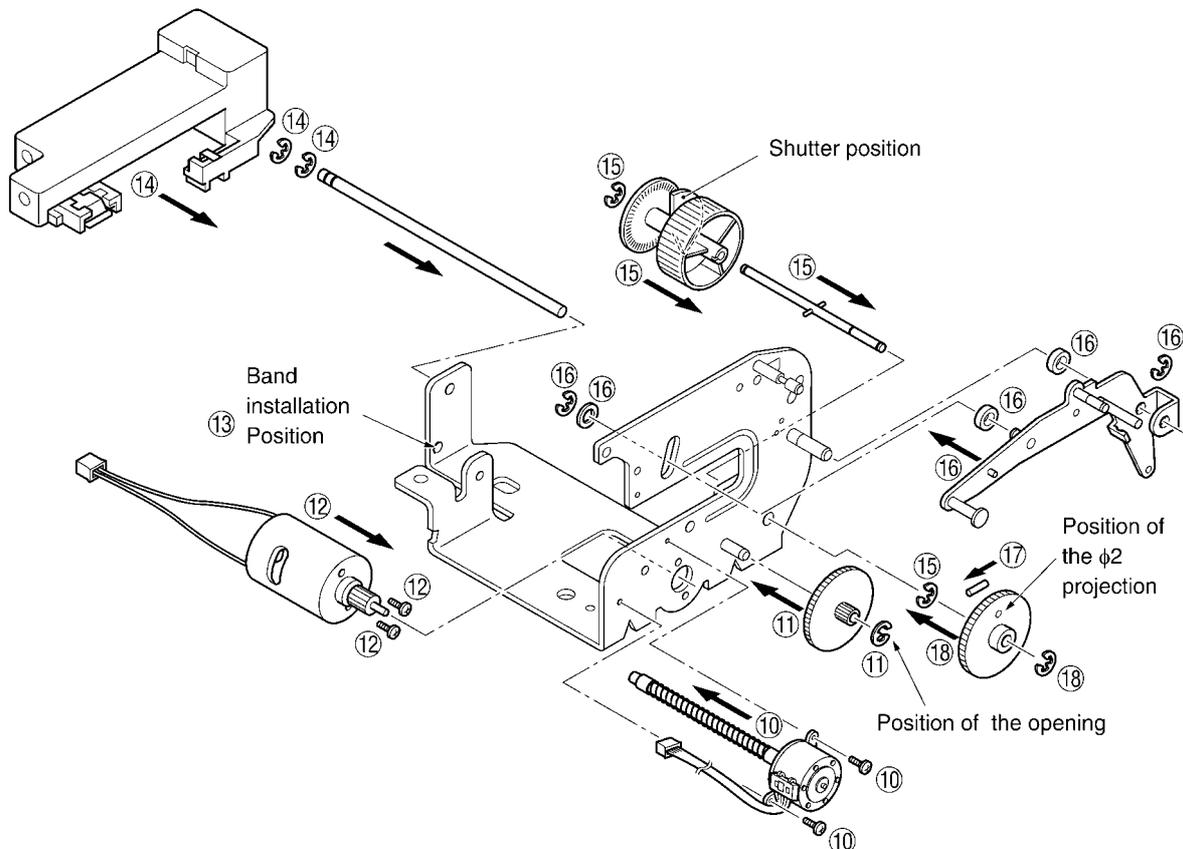
6. The spring fits onto the tab on the X carriage. Be careful not to deform the spring while installing it.



10. Secure the Y pulse motor assy with the two screws.
11. Secure the idle gear with the retaining ring.
12. Secure the main motor assy with the two screws. (Position the main motor assy so that the red lead wire is almost at the top.)
13. Secure the lead wires for the main motor assy and the Y pulse motor assy with the band. (LEAD WIRE ARRANGEMENT (page 2-15); For details, refer to the instructions of wiring.)
14. Pass the Y guide shaft through the hole in the Y carriage, and then secure the guide shaft with the two retaining rings.
15. Secure the shutter to the driving cam shaft assy with the retaining ring, and then secure the driving cam shaft assy to the base plate assy with the retaining ring.
16. Secure the driving lever assy, the two collars, and the polyester slider to the base plate assy with the two retaining rings. (The driving lever assy should be moved carefully.)
17. Insert the pin into the driving cam shaft.
18. Secure the driving cam to the driving cam shaft with the retaining ring.

Assembly Points

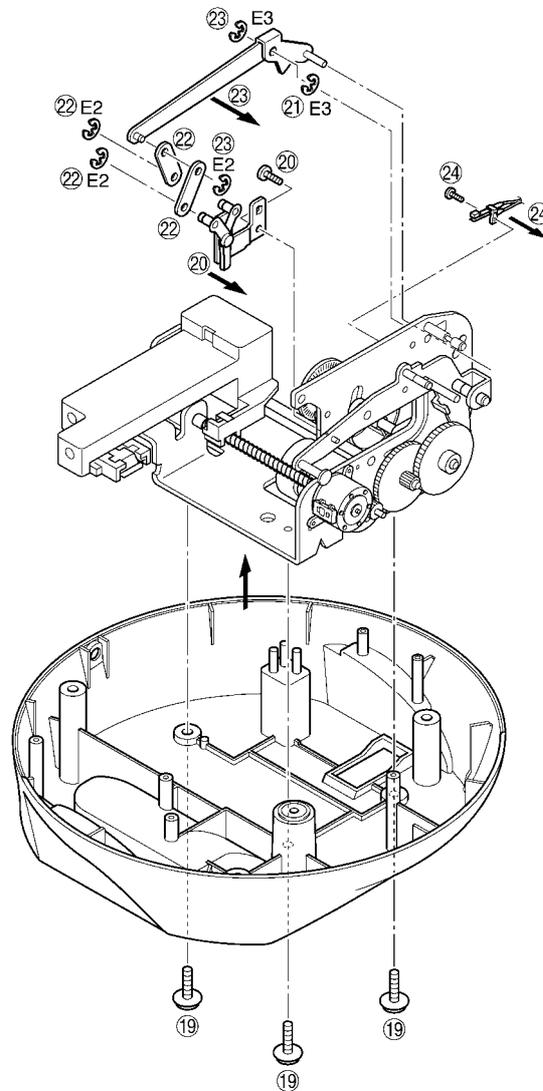
11. If the driving cam that is installed next does not fit because of the position of the retaining ring, move the opening of the retaining ring toward the driving cam.
12. Using the screws, move the position of the main motor assy to adjust the backlash between the motor gear and the idle gear. (backlash of 0.1 to 0.2 mm)
18. When installing the driving cam, position the shutter at the right, and then align the $\phi 2$ projection on the driving cam at the top as shown in the illustration.



19. From the bottom of the under cover assy, secure the base plate assy with the three screws.
20. Secure the thread cutter assy to the base plate assy with the screw.
21. Attach the E3 retaining ring to the thread cutter lever shaft of the base plate assy.
22. Secure the two thread cutter links to the thread cutter assy with the two E2 retaining rings.
23. Secure the thread cutter lever assy to the thread cutter links with the E2 retaining ring, and then secure it to the thread cutter lever shaft with the E3 retaining ring.
24. Secure the thread cutter switch assy to the base plate assy with the screw.

Assembly Points

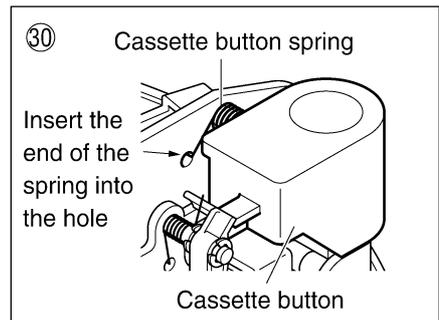
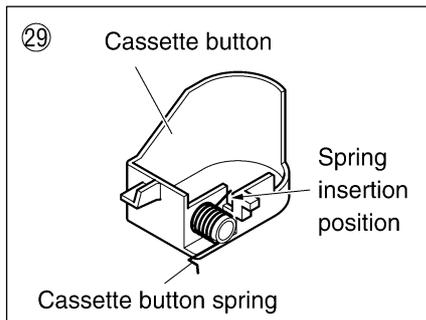
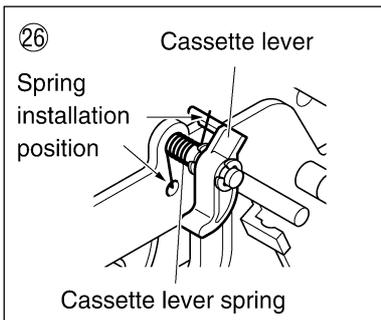
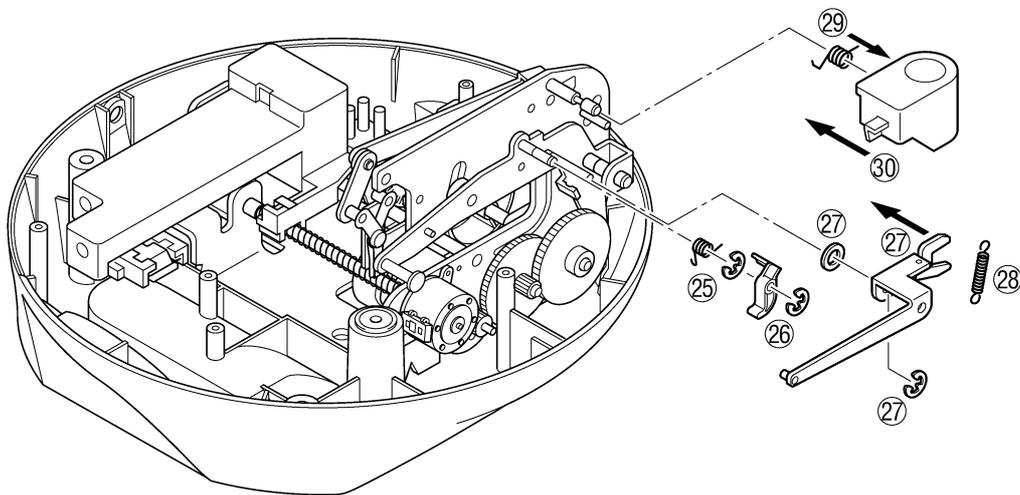
24. It is necessary to adjust the installation angle of the thread cutter switch assy. Adjust it so that the switch is off when the thread cutter lever is lowered, and the switch is on when the lever is slowly brought back up. (The amount that it is pressed after the switch is turned on is 1 to 2 mm.)



25. Pass the cassette lever spring over the lever shaft, and then attach it with the retaining ring.
26. Pass the cassette lever over the lever shaft, hook the cassette lever spring onto the cassette lever (as shown in the illustration below), and then attach it with the retaining ring.
27. Secure the washer and the cassette release lever assy to the driving lever assy with the retaining ring.
28. Install the cassette release lever spring.
29. Fit the cassette button spring into the notch in the cassette button. (Refer to the illustration below).
30. Turn the wheel of the shutter to move the driving lever assy and cassette release lever assy to their lowest points. Attach the cassette button (with cassette button spring attached). (Refer to the illustration below.)

Assembly Points

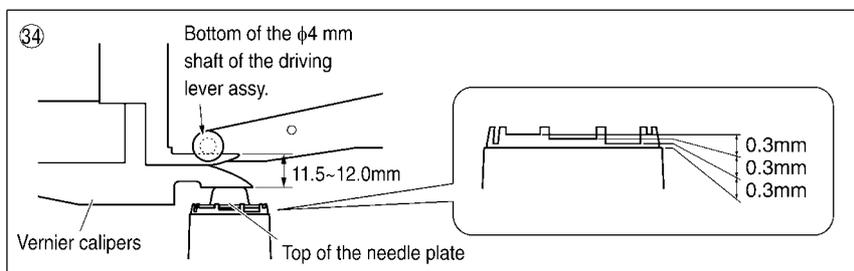
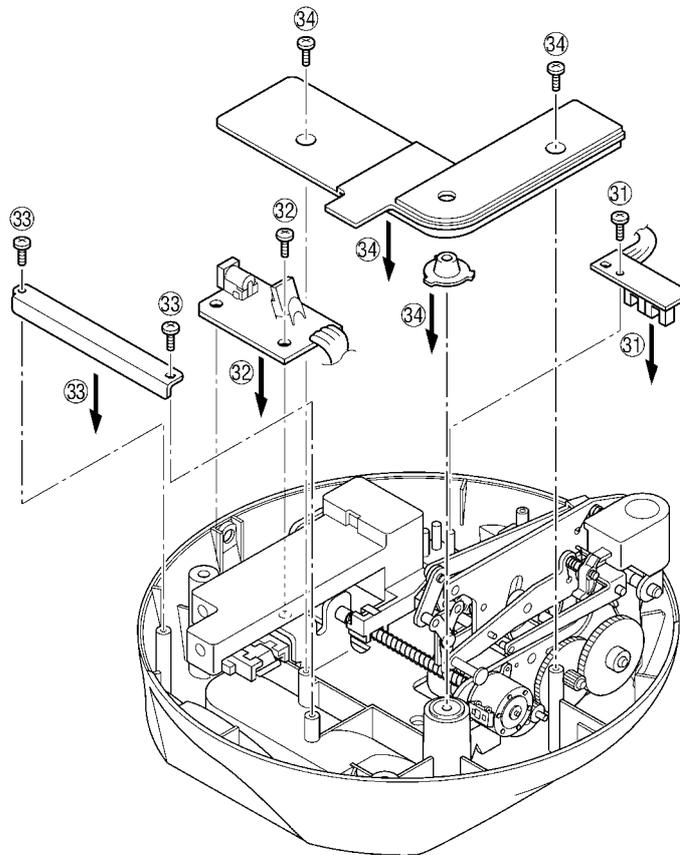
28. When the cassette release lever is lowered and released, it should return to its previous position under the force of the spring. At that time, check that the thread cutter operates smoothly.
30. Check that the cassette lever assy operates smoothly when the wheel of the shutter is turned and the cassette button is pressed when the driving lever assy and cassette release lever assy are raised.



31. Secure the sensor board assy with the screw.
32. Secure the REG board assy with the screw. (LEAD WIRE ARRANGEMENT (page 2-15); For details, refer to the instructions of wiring.)
33. Position the Y carriage at the innermost position, and then secure the carriage guide with the two screws.
34. Secure the needle plate cover (with the needle plate attached) with the two screws.

Assembly Points

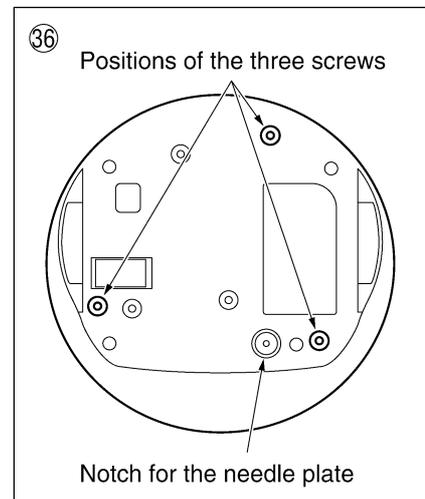
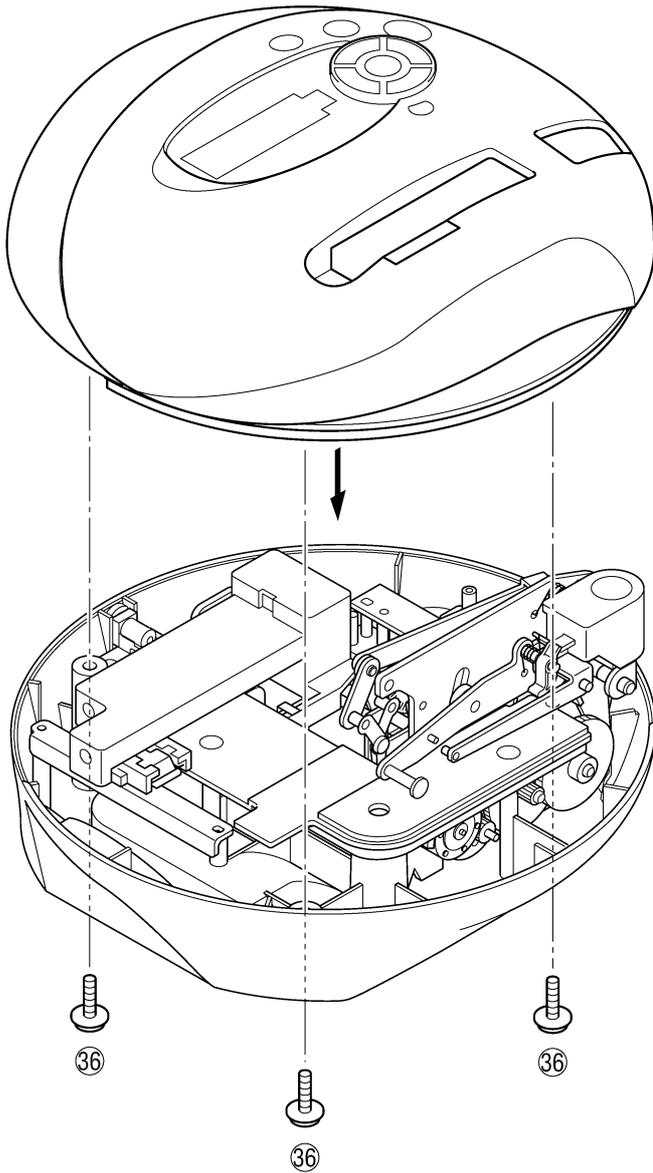
34. When installing the needle plate, the height must be adjusted. Using the notches on the bottom of the needle plate, the height can be adjusted to one of three levels, each at 0.3 mm. Turn the wheel, and then with the driving lever assy at its lowest position, adjust the height of the needle plate so that the clearance between the top of the needle plate and the bottom of the $\phi 4$ mm shaft of the driving lever assy is between 11.5 and 12.0 mm when measured with vernier calipers. (Refer to the illustration below.)



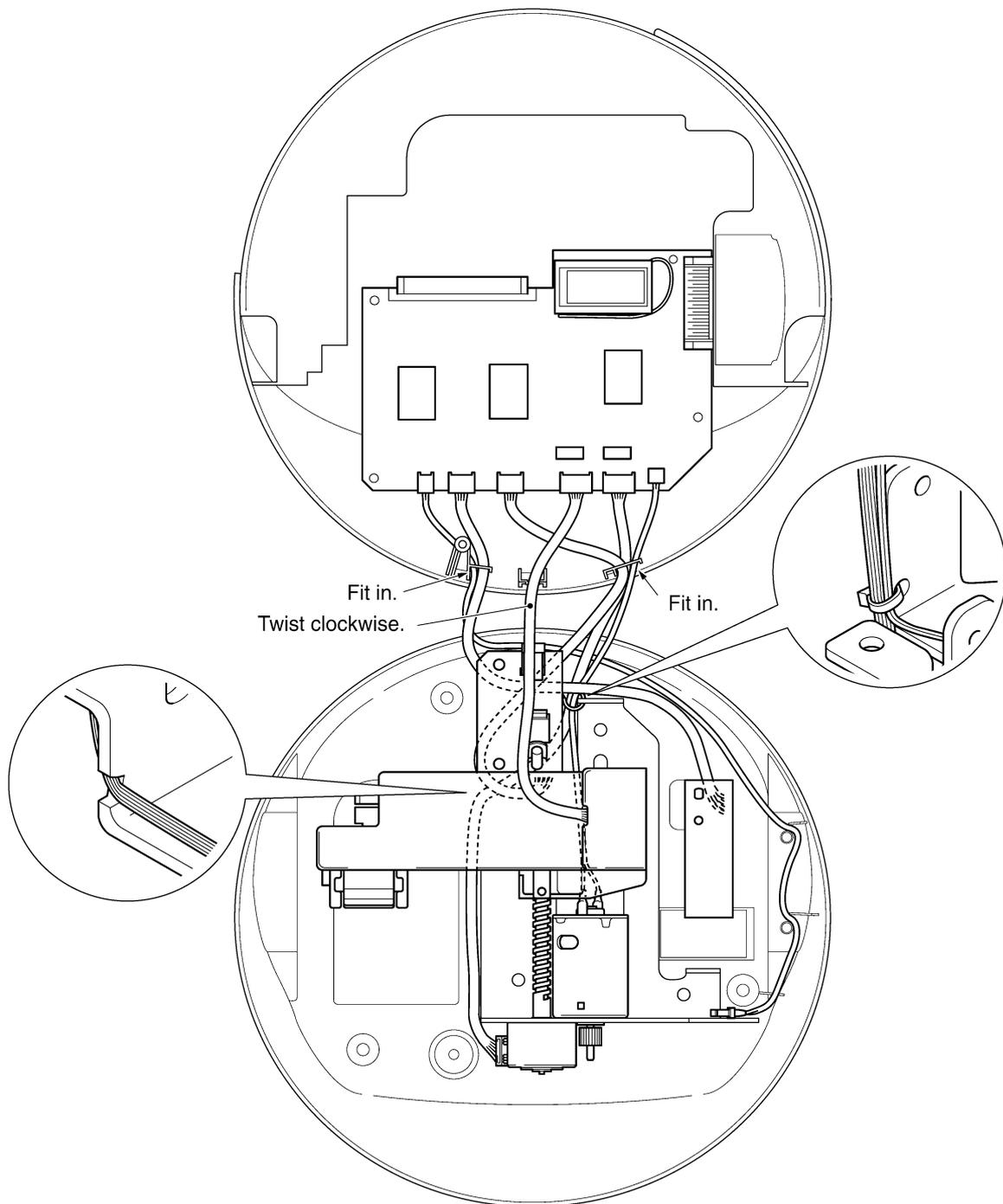
35. Insert the 6 connectors into the upper cover assy.
36. Secure the upper cover assy to the under cover assy with the three screws. Refer to the bottom-view diagram below. (LEAD WIRE ARRANGEMENT (page 2-15); For details, refer to the instructions of wiring.)

Note

36. Do not insert a screw into the notch for the needle plate.



3. LEAD WIRE ARRANGEMENT (For details, refer to the instructions of wiring.)



4. POST-REPAIRS INSPECTION PROCEDURES

(1) Selecting a test mode

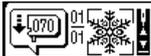
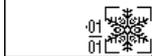
- 1) Enter the test mode by holding down  and  while pressing , then releasing  and .
- 2) Press  (to initialize).
- 3)  appears.
- 4) Use  and  to select the test mode.

(2) Checking the LCD (liquid crystal display)

- 1) Select test mode 4 .
- 2) Press .
- 3) Vertical lines appear and the pile indicator lights up .
- 4) Press .
- 5) Horizontal lines appear and the ROM cassette indicator lights up .
- 6) Press .
- 7) A mesh pattern appears .
- 8) Press .
- 9) A solid pattern appears and both the pile indicator and the ROM cassette indicator light up .
- 10) Press  to return to each pattern.
- 11) Press  to return to the beginning of test mode 4  .(test mode selection).

(3) Checking each button

- 1) Press , and then check that  appears.
- 2) Press , and then check that the embroidery frame moves to a position from where it can be removed, and the left side of the display is highlighted  after the animation is displayed.
- 3) Press , and then check that the right side of the display is highlighted .
- 4) Press , and then check that the left side of the display is highlighted again .
- 5) Press , and then check that pattern 01 is highlighted .

- 6) Press , and then check that the screen for inserting the thread cartridge  appears after the animation is displayed.
 - 7) Press , and then check that the screen indicating that the needle can be moved  appears.
 - 8) Press , and then check that  appears again.
 - 9) Press , and then check that the screen allowing you to select an embroidery pattern or a stored pattern  appears.
 - 10) Press , and then check that the screen for inserting the thread cartridge  appears again.
 - 11) Insert a thread cartridge, and then check that  appears.
 - 12) Press , and then check that embroidering starts and  appears.
 - 13) Press  at anytime to stop embroidering.
 - 14) Press the cassette button to eject the thread cartridge.
 - 15) Press  to move the embroidery frame to a position from where it can be removed.
 - 16) Press  to clear the display and turn off the unit.
- * Since the preset patterns differ according to the model, the displayed icons and icon order shown here may differ from those displayed by the machine.

(4) Checking the SP sensor, the NP sensor and the thread cutter switch

- 1) The SP sensor and the NP sensor are working properly if sewing starts up smoothly when  is pressed in step 12 of section (3) (If sewing stops and an error appears, the speed sensor or NP sensor is malfunctioning.) and if the needle stays within the thread cartridge when sewing is stopped by pressing  in step 13 of section (3)
- 2) The thread cutter switch is OK if  appears after a thread cartridge is inserted in step 11 of section (3).
(If the display does not change, the thread cutter is malfunctioning.)

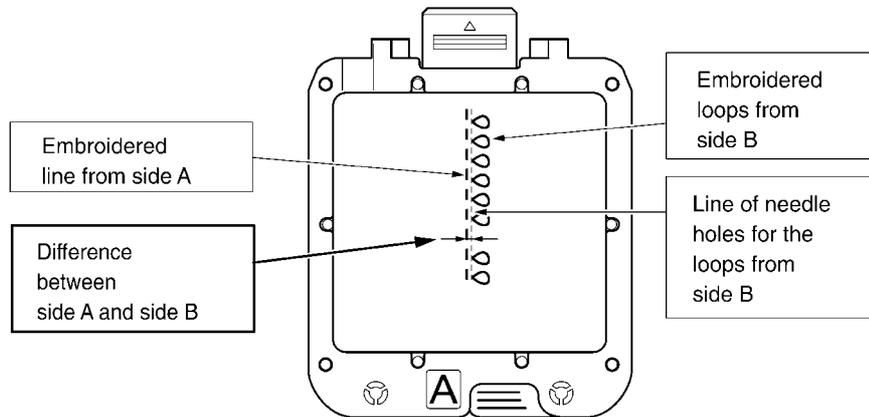
(5) Checking the embroidering positions of side A and side B of the embroidery frame

- 1) Select test mode 7 .
- 2) Press . (The carriage moves to its standard position.)
- 3) Insert a thread cartridge.
- 4) Place a pre-cut design fabric in the embroidery frame, and then insert the embroidery frame with side B facing up.
- 5) Press . (The needle makes one stitch.)
- 6) Press  once. (The embroidery frame is moved 1 pitch inside.)
- 7) Repeat steps 5 and 6 to sew about 15 stitches.
- 8) Press  a number of times to move the embroidery frame to the innermost position, so that the thread can be cut.
- 9) Press the cassette button to cut the thread.
- 10) Press  20 times to move the embroidery frame fully to the front, and then remove the embroidery frame.
- 11) Insert the embroidery frame with side A facing up.

- 12) Install a different thread cartridge.
- 13) Repeat steps 5 through 10, and then check the embroidering position of sides A and B of the design fabric in the embroidery frame.
- 14) Press  to return to test mode 7

T-7
A-B POS SET

.
- 15) Check by moving the embroidery frame mount to the inside, then looking at side A to see the difference in the embroidered lines for sides A and B.



- 16) The line from side A should be within 1 mm to the left of the line of needle holes for the loops for side B.
If the difference does not meet this specification, it will have to be adjusted as described below.

(6) Adjusting the embroidering positions of side A and side B of the embroidery frame

- 1) Perform this procedure only if the difference between side A and side B does not meet the specification checked in (5).
- 2) If the line from side A is more than 1 mm to the left of the line of needle holes for the loops for side B, measure that difference, and then perform adjustment steps 3 through 11. If the line from side A is to the right of the line of needle holes for the loops for side B, measure that difference, and then perform adjustment steps 11 through 20.
- 3) If the line from side A is more than 1 mm to the left of the line of needle holes for the loops for side B, subtract 0.5 mm from that difference, and then divide the result by 2 to get the correction value. (For example, if the difference is 1.5, the correction value is $(1.5 \text{ mm} - 0.5 \text{ mm})/2=0.5 \text{ mm}$.)

- 4) Select test mode 7

T-7
A-B POS SET

.

- 5) Press .

- 6) The value previously adjusted appears (for example, 00

A-B POS SET
00

).
- (The carriage moves to its standard position.)

- 7) Since the embroidered position for side A is too far to the left and must be moved to the right, press  to adjust the position. For each press of , the position is moved 0.1 mm and the displayed value changes in steps of 01.
(For example, for a correction value of 0.5 mm, press  five times so that

A-B POS SET
05

 appears.)

- 8) Press .

A-B POS SET SET OK?

 appears.
 - 9) Press .

A-B POS SET 05

 appears .
 - 10) Press  to return to test mode 7

T-7 A-B POS SET

 .
 - 11) Perform procedure (5) again to check the embroidering positions of side A and side B of the embroidery frame.
 - 12) If the line from side A is to the right of the line of needle holes for the loops for side B, add 0.5 mm to that difference, and then divide the sum by 2 to get the correction value.
(For example, if the difference is 0.7, the correction value is $(0.7 \text{ mm} + 0.5 \text{ mm})/2=0.6 \text{ mm}.$)
 - 13) Select test mode 7

T-7 A-B POS SET

 .
 - 14) Press .
 - 15) The value previously adjusted appears (for example, 00

A-B POS SET 00

).
(The carriage moves to its standard position.)
 - 16) Since the embroidered position for side A is too far to the right and must be moved to the left, press  to adjust the position. For each press of , the position is moved 0.1 mm and the displayed value changes in steps of 01 .

(For example, for a correction value of 0.6 mm, press  six times so that

A-B POS SET -06

 appears.)
 - 17) Press .

A-B POS SET SET OK

 appears.
 - 18) Press .

A-B POS SET -06

 appears.
 - 19) Press  to return to test mode 7

T-7 A-B POS SET

 .
 - 20) Perform procedure (5) again to check the embroidering positions of side A and side B of the embroidery frame.
- (7) Check the embroidering and thread-cutting
- 1) Turn on the machine in the normal condition.
 - 2) Press .
 - 3) Select the apple pattern (domestic) or the rose pattern (overseas) from the flower patterns.
 - 4) Insert the embroidery frame, and press  to begin embroidering.
 - 5) After embroidering is finished, press the cassette button to remove the thread cartridge. (Make sure that the thread is cut.)
 - 6) Follow the instructions that appear on the display of the machine to finish the embroidery.
(After embroidering each color, check that the thread is cut when the cassette button is pressed.)
 - 7) After embroidering is finished, press the cassette button to remove the thread cartridge.
(Make sure that the thread is cut and that the embroidery frame moves to a position from where it can be removed.)
 - 8) Remove the embroidery frame and check that there is no upper thread looping, skipped stitching or shifted patterns.

III. HOW TO ADJUST ELECTRONIC ELEMENTS

1. The machine does not come on, even after  is pressed 3-1
2. When the unit is turned on, a system error is displayed 3-1
3. The embroidery frame does not move..... 3-1
4. A pattern cannot be selected..... 3-1
5. Embroidering does not start..... 3-1
6. The pattern is shifted or the embroidery frame does not move correctly 3-2
7. Nothing appears on the LCD (liquid crystal display).
Otherwise, the density is too uneven 3-2
8. After the  is pressed or embroidering is finished and the thread cartridge is removed, the thread is cut, but the embroidery frame does not move to a position from where it can be removed 3-2
9. Even if a ROM cassette is installed, a pattern from the ROM cassette cannot be selected (The patterns are not displayed)..... 3-2

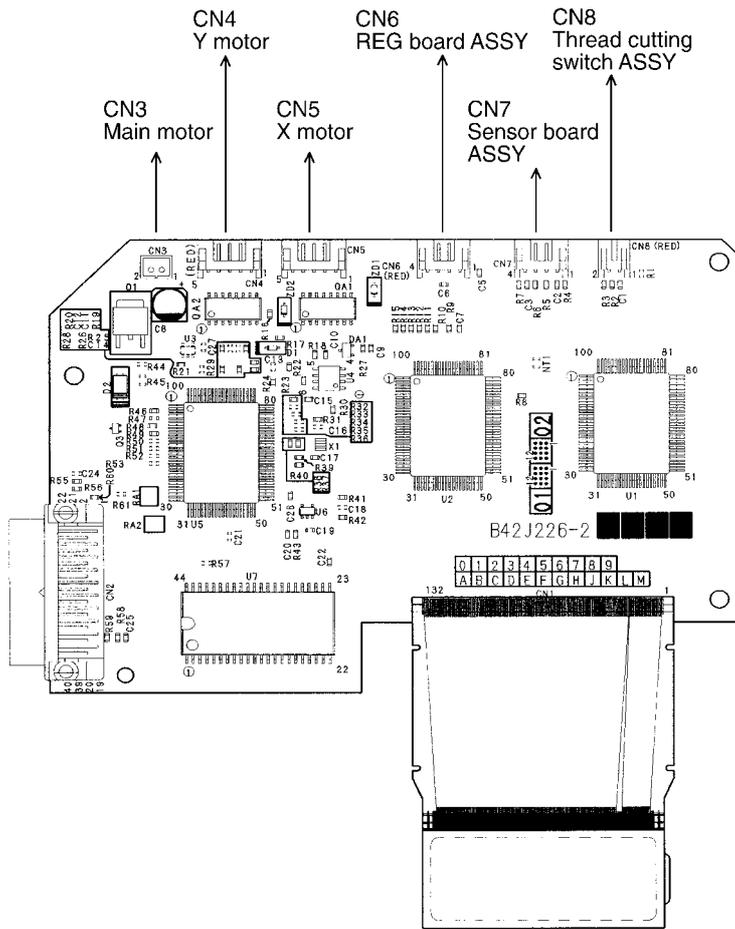
* Before measuring the resistance, be sure to unplug the AC adaptor from the unit and disconnect the connector being measured from the main PC board assy.

* For points to be checked, refer to the diagrams of the PC boards.

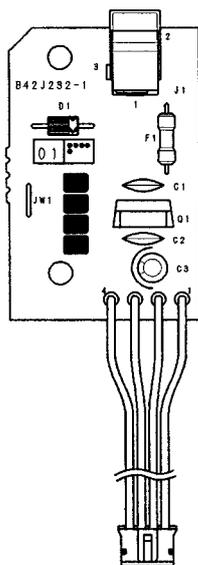
PROBLEM	CHECK	REMEDY
1. The machine does not come on, even after  is pressed.	1) Is the specially designed AC adaptor being used? 2) With the AC adaptor plugged into an electrical outlet and unplugged from the unit, is the voltage between the inside and the outside of the plug between DC 10.5 V and 14 V? 3) Is the resistance between both ends of F1 on the REG board assy less than 1Ω? 4) After disconnecting the lead wire connector (CN6) for the REG board assy from the main PC board assy, is the voltage between pins 2 and 3 DC 3.3 V? 5) Is there no dust or other foreign matter on the contact points for the  operation key and the contact points for the main PC board? 6) Others	1) Use the specially designed AC adaptor. 2) Replace the specially designed AC adaptor. 3) Replace the REG board assy. (However, since F1 is a fuse, correct the defect that caused the fuse to blow, and then replace the PC board.) 4) Replace the REG board assy. 5) Remove the dust and other foreign matter from the contact points. (Be sure not to damage the contact points while removing the dust and other foreign matter.) 6) Replace the main PC board assy.
2. When the unit is turned on, a system error is displayed.		1) Replace the main PC board assy.
3. The embroidery frame does not move.	1) With the AC adaptor plugged into an electrical outlet and unplugged from the unit, is the voltage between the inside and the outside of the plug between DC 10.5 V and 14 V? 2) After disconnecting the lead wire connector (CN6) for the REG board assy. from the main PC board assy, is the voltage between pins 1 and 4 between DC 10.5 V and 14 V? 3) Others	1) Replace the specially designed AC adaptor. 2) Replace the REG board assy. 3) Replace the main PC board assy.
4. A pattern cannot be selected.	1) After checking the function of each operation key with test mode 5, is there no dust or other foreign matter on the contact points for any operation key that is not functioning and on the contact points for the keys at the main PC board? 2) Others	1) Remove the dust and other foreign matter from the contact points. (Be sure not to damage the contact points while removing the dust and other foreign matter.) 2) Replace the main PC board assy.
5. Embroidering does not start.	1) After checking the function of  with test mode 5, is there no dust or other foreign matter on the contact point for that key and on the key's contact point of the main PC board? 2) Is the resistance between the terminals of the lead wire connector (CN3) of the main motor between 3Ω and 12Ω? 3) With the AC adaptor plugged into an electrical outlet and unplugged from the unit, is the voltage between the inside and the outside of the plug between DC 10.5 V and 14 V? 4) After disconnecting the lead wire connector (CN6) for the REG board assy from the main PC board assy, is the voltage between pins 1 and 4 between DC 10.5 V and 14 V? 5) Is the resistance between the terminals of the lead wire connector for the thread cutter assy ∞ when the thread cutter lever is pressed (when a thread cartridge is installed)?	1) Remove the dust and other foreign matter from the contact points. (Be sure not to damage the contact points while removing the dust and other foreign matter.) 2) Replace the main motor assy. 3) Replace the specially designed AC adaptor. 4) Replace the REG board assy. 5) Replace the thread cutter assy or correct its installation.

5. Embroidering does not start.	6) With the unit turned on, manually turn the wheel slowly, and then check that each potential between pins 2 and 4 and between pins 3 and 4 of CN7 on the main PC board alternately changes between 0 V \leftarrow \rightarrow 3.3 V. 7) Others	6) Replace the sensor board assy. 7) Replace the main PC board assy.
6. The pattern is shifted or the embroidery frame does not move correctly.	1) Is the resistance between pin 5 of the lead wire connector (CN4 or CN5) of the X pulse motor or the Y pulse motor and any other pin between 27 Ω and 33 Ω ? 2) With the AC adaptor plugged into an electrical outlet and unplugged from the unit, is the voltage between the inside and the outside of the plug between DC 10.5 V and 14 V? 3) After disconnecting the lead wire connector (CN6) for the REG board assy from the main PC board assy, is the voltage between pins 1 and 4 between DC 10.5 V and 14 V? 4) Others	1) Replace either the X pulse motor or the Y pulse motor. 2) Replace the specially designed AC adaptor. 3) Replace the REG board assy. 4) Replace the main PC board assy.
7. Nothing appears on the LCD (liquid crystal display). Otherwise, the density is too uneven.		1) Replace the main PC board assy.
8. After the  key is pressed or embroidering is finished and the thread cartridge is removed, the thread is cut, but the embroidery frame does not move to a position from where it can be removed.	1) Is the resistance between the terminals of the lead wire connector (CN8) for the thread cutter 0 Ω when the thread cutter lever is returned to its original position (when a thread cartridge is ejected)? 2) Others	1) Replace the thread cutter assy or correct its installation. 2) Replace the main PC board assy.
9. Even if a ROM cassette is installed, a pattern from the ROM cassette cannot be selected. (The patterns are not displayed.)	1) Can a different ROM cassette be installed, and can a pattern from it be selected correctly? 2) Others	1) Replace the main PC board assy. 2) Replace the ROM cassette.

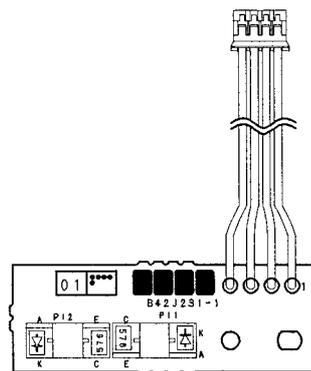
Main PC board ASSY



REG board ASSY



Sensor board ASSY

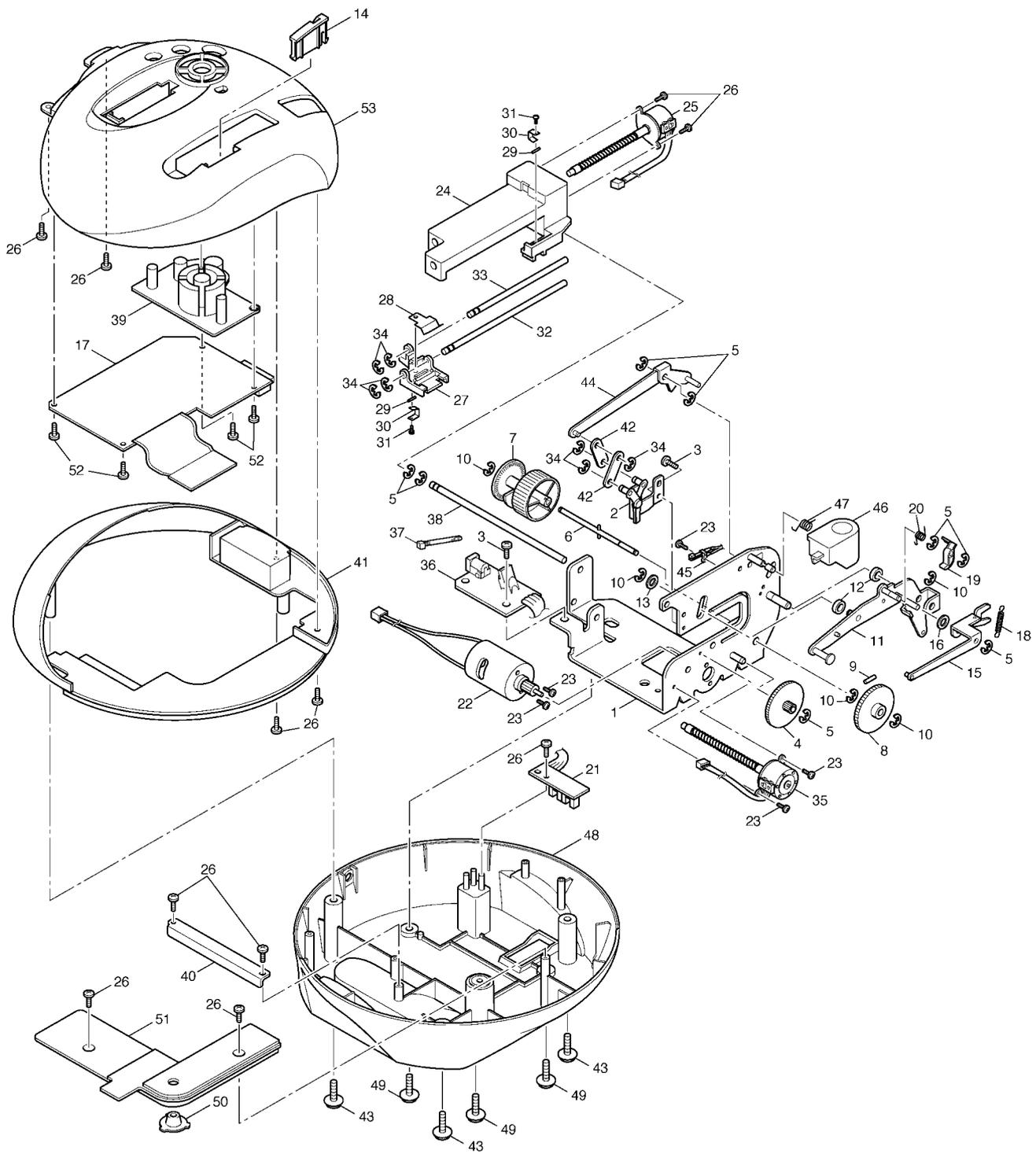


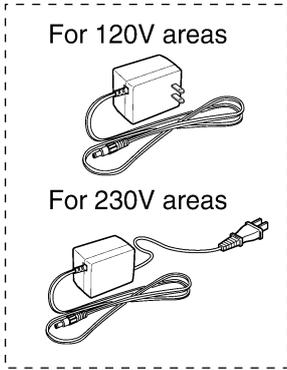
IV. PARTS CATALOGUE

1. PARTS CATALOGUE	4-1
2. OTHER PARTS	4-3

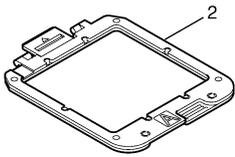
1. PARTS CATALOGUE

No.	CODE	PARTS NAME	REMARKS	No.	CODE	PARTS NAME	REMARKS
1		Base plate ASSY	DEL	34	048020346	Retaining ring, E2	
2	XC1718021	Thread cutter ASSY	R	35	XC1760121	Y pulse motor ASSY	CHG R
3	060300516	Screw, Bind M3 x 5			XC2258121	Y pulse motor ASSY (Europe)	ADD
4	XC1726020	Idle gear		36	XC1831021	REG board ASSY	R
5	048030346	Retaining ring, E3		37	X53169020	Band	
6	XC1727021	Driving cam shaft ASSY		38	XC1761021	Y guide shaft	
7	XC1729021	Shutter	R	39	XC1825022	Key	R
8	XC1730020	Driving cam		40	XC1762021	Carriage guide	
9	XC1731020	Pin2		41	XC1777021	Middle cover	R
10	048040346	Retaining ring, E4		42	XC1767021	Thread cutter link	
11	XC1732021	Driving lever ASSY		43	087411416	Taptite, Cup B M4 x 14	
12	XC1740020	Collar		44	XC1763021	Thread cutter lever ASSY	
13	137713020	Polyester slider		45	XC1864021	Thread cutter switch ASSY	R
14	XC1778021	Cassette guide	R	46	XC1768021	Cassette button	R
15	XC1741021	Cassette release lever ASSY		47	XC1769021	Spring	
16	026040235	Washer, plain S 4		48	XC1770021	Under cover ASSY	R
17	XC2716021	Main PC board ASSY (E-100:U.S.A., Canada)	R	49	0A4400806	Screw, Pan (S/P Washer) M4 x 8	
	XC2717021	Main PC board ASSY (E-100:Europe)	R	50	XC1772021	Needle plate	R
	XC2718021	Main PC board ASSY (E-100P:U.S.A., Canada)	R	51	XC1773021	Needle plate cover	R
	XC2719021	Main PC board ASSY (E-100P:Europe)	R	52	083310615	Taptite, B3 x 6	
	XC2720021	Main PC board ASSY (E-100M:U.S.A., Canada)	R		XC1774026	Upper cover ASSY (E-100:U.S.A.)	R
	XC3026021	Main PC board ASSY (E-100M:Europe)	R		XC1774021	Upper cover ASSY (E-	R
			XC1774027		Upper cover ASSY (E-100P: U.S.A.)	R	
			XC1774022		Upper cover ASSY (E-100P: Europe)S	R	
18	XC1744021	Spring		XC1774028	Upper cover ASSY (E-100M: U.S.A.)	R	
19	XC1745021	Cassette lever		XC1774023	Upper cover ASSY (E-100M: Europe)	R	
20	XC1746021	Spring		54	XC3149021	YPM spring	ADD
21	XC1829021	Sensor board ASSY	R	55	XC1757121	SPRING	ADD
22	XC1747021	Main motor ASSY	R	56	X53330020	WASHER	ADD
23	062260516	Screw, Pan M2.6 x 5					
24	XC1750020	Y CARRIAGE	CHG R				
25	XC1751121	X pulse motor ASSY	CHG R				
26	085300815	Taptite, Bind P M3 x 8					
27	XC1754021	X carriage	R				
28	XC1755021	Spring					
29	XC1756021	Pin					
30	XC1757121	Spring	CHG				
31	085200815	Taptite, Bind P M2 x 8					
32	XC1758021	X guide shaft L					
33	XC1759021	X guide shaft S					

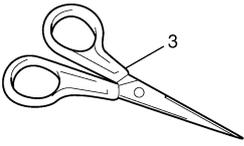




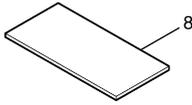
1



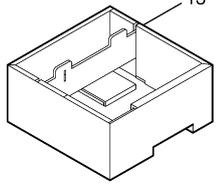
2



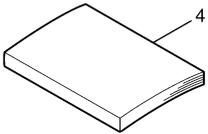
3



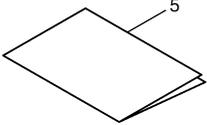
8



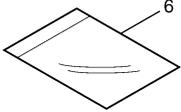
13



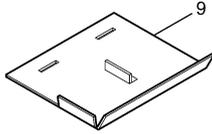
4



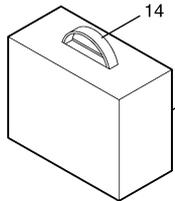
5



6

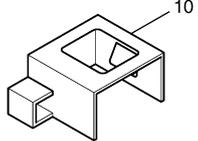


9

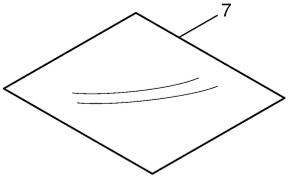


14

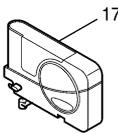
15



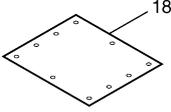
10



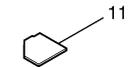
7



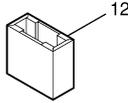
17



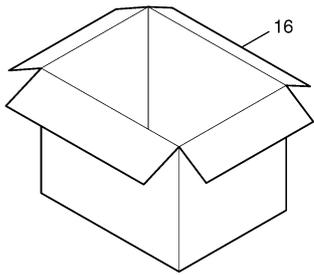
18



11



12



16

E-100
E-100P
E-100M
XXXXXXX