

CHAPTER 5

DISASSEMBLY AND REASSEMBLY

5.1	Precautions for Disassembly and Reassembly	5- 1
5.2	Disassembly and Reassembly of HX-20 into Units	5- 2
5.2.1	Case Cover	5- 2
5.2.2	Keyboard	5- 3
5.2.3	Control Circuit Board.....	5- 4
5.2.4	LCD Unit.....	5- 5
5.2.5	Batteries	5- 6
5.2.6	Micro Printer	5- 6
5.3	Disassembly and Reassembly of Units	5- 9
5.3.1	Keyboard Switches	5- 9
5.3.2	Micro Printer (Model-160)	5-11
5.3.2.1	Reassembly Stage A (Ribbon Feed Gear, Motor, Lead Cam Assy)....	5-11
5.3.2.2	Reassembly Stage B (Print Head, Print Head Carriage).....	5-13
5.3.2.3	Reassembly Stage C (Paper Feed Mechanism, Timing Detector Assembly, Circuit Board).....	5-15
5.3.2.4	Reassembly Stage D (Cover, Ribbon Cassette).....	5-18
5.4	Disassembly and Reassembly of Options	5-19
5.4.1	ROM Cartridge.....	5-19
5.4.2	Microcassette.....	5-21
5.4.2.1	Case Cover	5-21
5.4.2.2	Microcassette Mechanism (Belt, Motor, C Wheel/Idler, PE Switch, HP Switch, HP Motor, Pinch Rollers, P Lever Assembly, Pocket)	5-23

5.1 Precautions for Disassembly and Reassembly

Pay attention to the following precautions when disassembling or reassembling the HX-20.

- (1) Make sure that the power switch on the HX-20 is off.
- (2) Disconnect the options and cables from the HX-20.
- (3) If programs are stored in the RMAs, transfer them onto a cassette tape or the like to save them.
- (4) After removing the upper and lower cases, disconnect the cable from the battery connector (CN9) to prevent electrical circuits from shorting.
- (5) Avoid directly placing the circuit boards that use ICs (for example, the MOSU circuit board and LCD panel circuit board) on a work bench. If it is necessary to do so, the component side must be down (to protect the circuit boards from static effect).
- (6) Be careful not to pinch the cables with the cases.
- (7) Be careful of screw length when using screws.
- (8) If screw lock is used, be sure to apply the specified screw lock after tightening the screws.

* Unless otherwise specified, reassemble in the reverse order of disassembly.

5.2 Precautions for Disassembly and Reassembly

5.2.1 Case Cover

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none"> 1. Turn the HX-20 upside down, and remove the 7 screws indicated by arrows in the sketch below. 2. Turn the HX-20 back up, and slightly raise the LCD side of the upper case as shown below. 3. Disconnect the cable set No. 701 which connects the upper case to the connector CN8 on the MOSU circuit board. 4. Slowly open the upper case until the key tops face down. 	<ul style="list-style-type: none"> ● When turning the HX-20 back up, hold the upper and lower cases together by hand so they won't open. ● CN8 is a lock type connector so first grip the connector, slightly pull it up to unlock, and disconnect the cable.

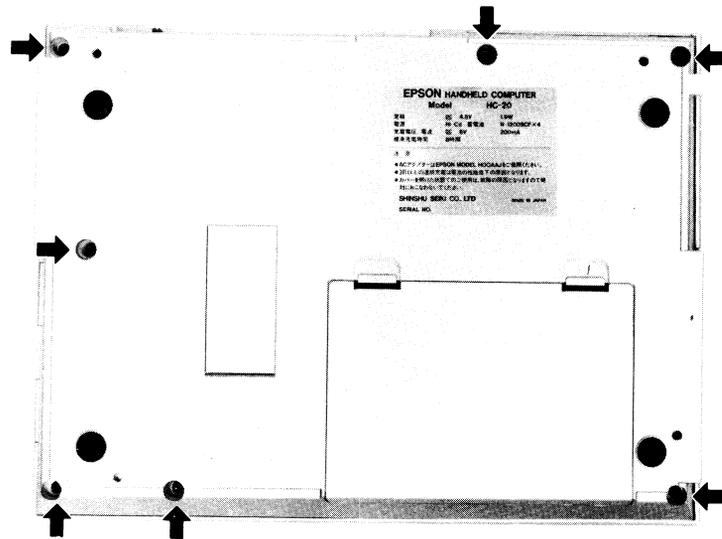


Fig. 5-1

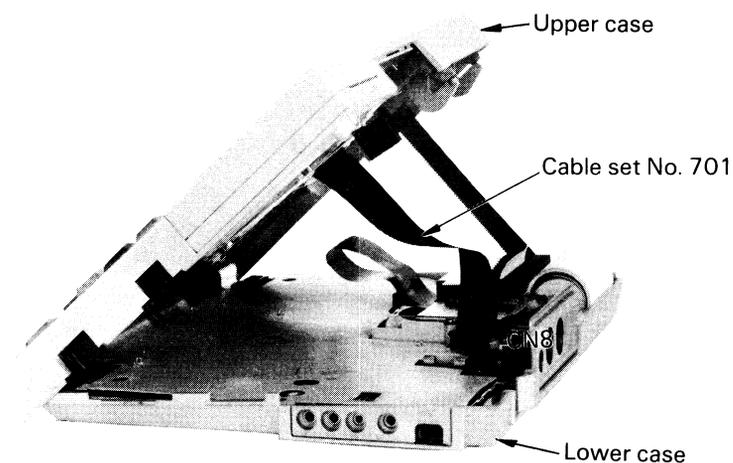


Fig. 5-2

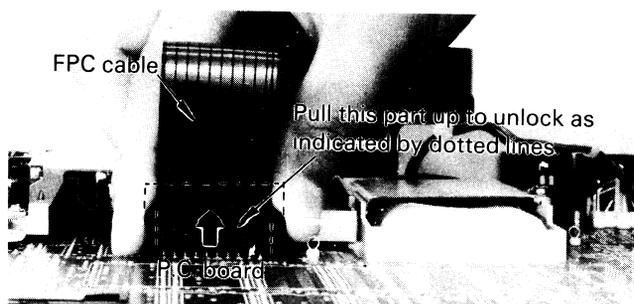


Fig. 5-3

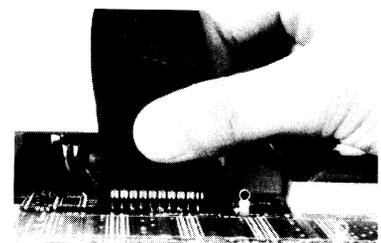
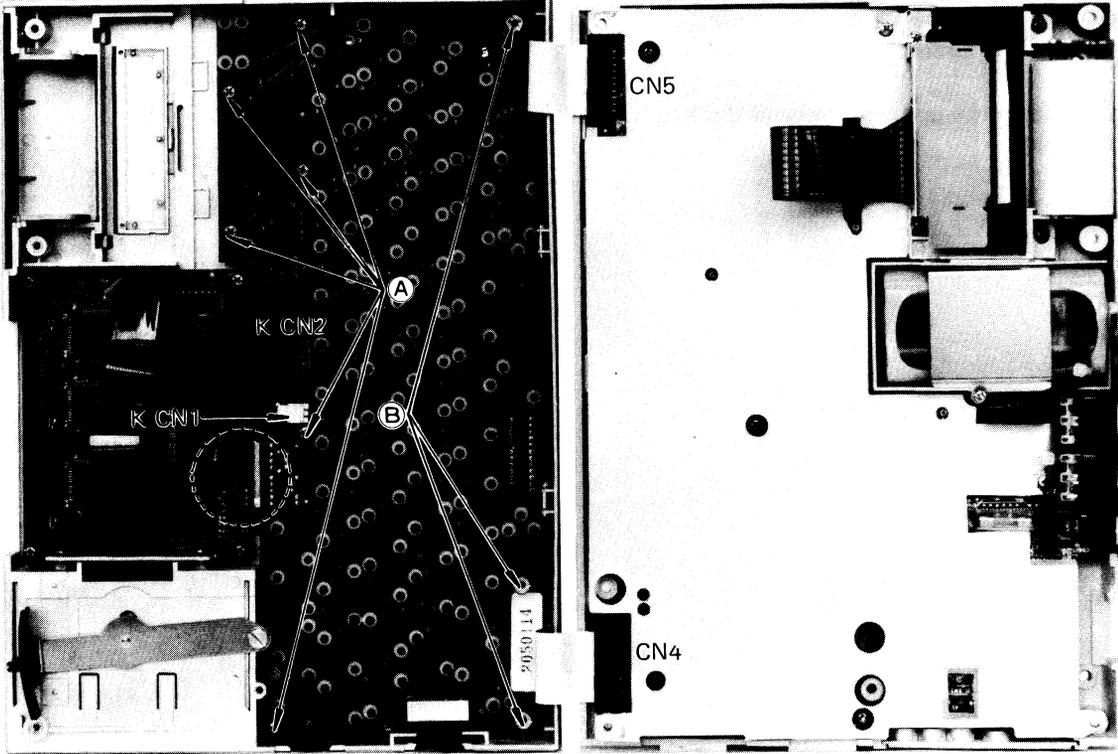
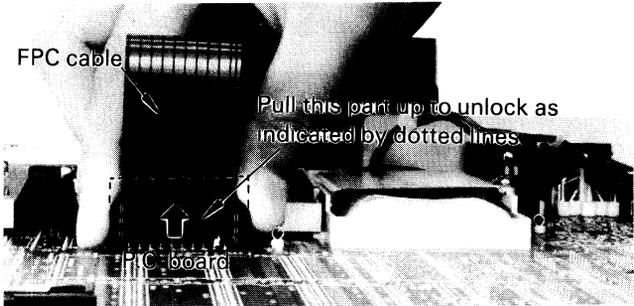


Fig. 5-4

5.2.2 Keyboard

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Disconnect the FPC cables from connectors CN4, CN5 and KCN2.2. Disconnect the piezo-electric buzzer connector from connector KCN1.3. Remove the screws from Parts (A) and (B).4. Slowly raise the keyboard.	<ul style="list-style-type: none">● Unlock the connectors before disconnecting the FPC cables. Slide this part in the arrow direction to the position indicated by dotted lines to unlock.
	
<p style="text-align: center;">Fig. 5-5</p>	
	

5.2.3 Control Circuit Board

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Disconnect the battery cable from the battery connector CN9.2. Disconnect the printer FPC cables from CN4, CN5 and CN6.3. Remove the three screws from Part (A), and take off the printer together with its mount.4. Remove the four screws from Part (B), and take off the shielding plate.5. Remove the circuit board, exercising care that connector CN7 is not hit by the case.	<ul style="list-style-type: none">● The connector is a lock type, and must be unlocked before disconnecting the battery cable.● Connectors CN4 and CN5 are also a lock type, and must be unlocked before disconnecting the FPC cables.

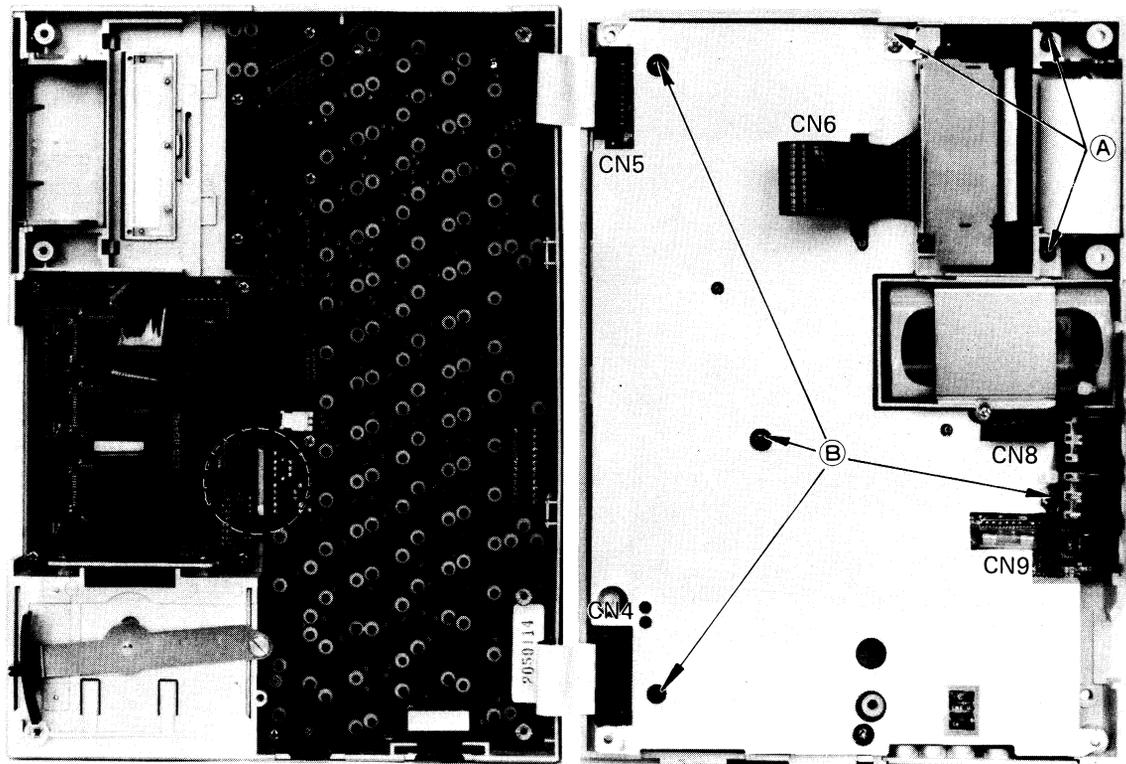
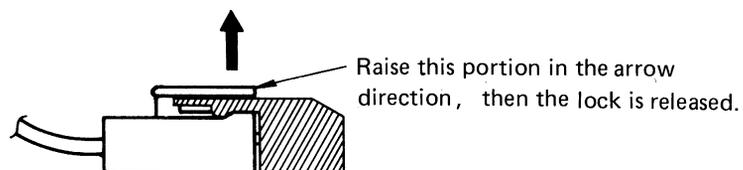


Fig. 5-6



5.2.4 LCD Unit

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Disconnect the FPC cable from connector KCN2.2. Remove the four screws indicated by arrows in the sketch below.3. Raise the liquid crystal display.	<ul style="list-style-type: none">● Unlock the connector before disconnecting the FPC cable.

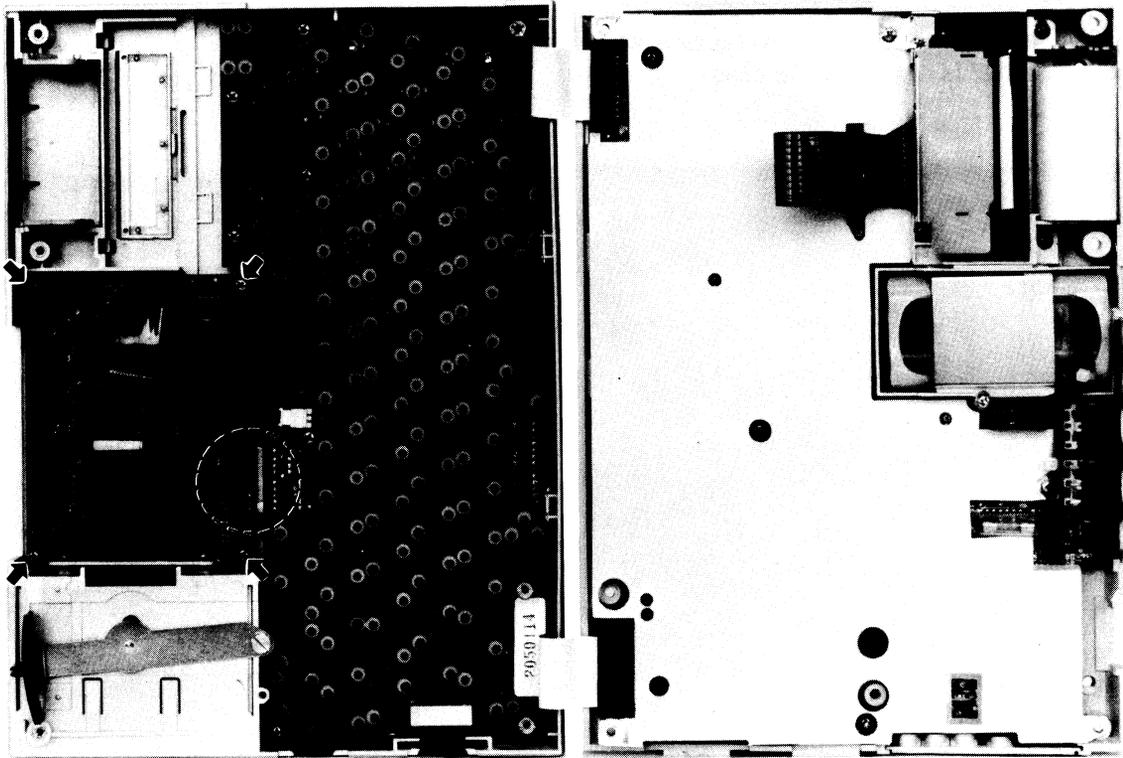
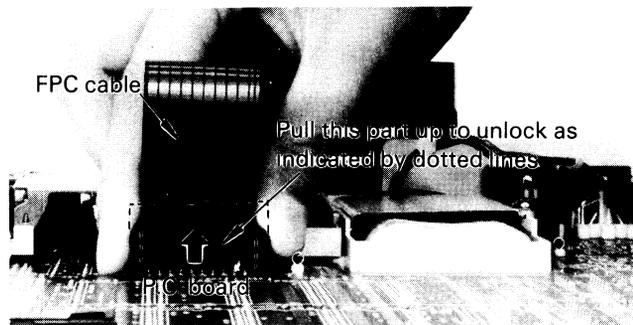
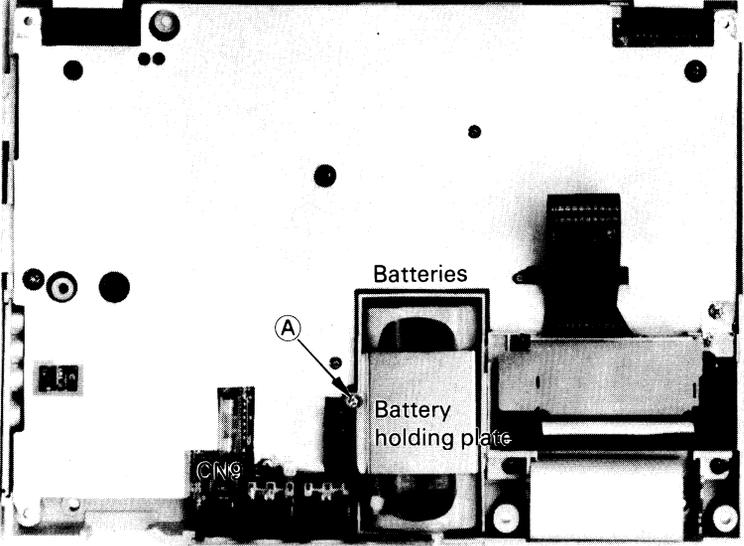


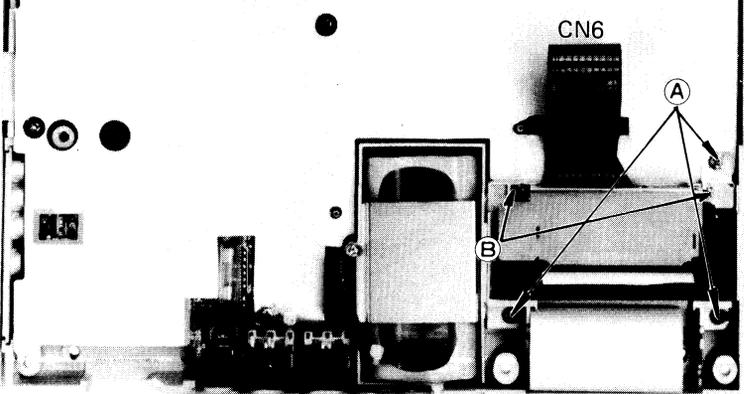
Fig. 5-7



5.2.5 Batteries

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Open the case cover of the HX-20.2. Disconnect the battery cable from connector CN9.3. Remove the screw from Part A, the battery holding plate, and the batteries.	<ul style="list-style-type: none">● Unlock the connector before disconnecting the battery cable.
 <p data-bbox="1270 1026 1379 1059">Fig. 5-8</p>	

5.2.6 Micro Printer

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Open the case cover of the HX-20.2. Disconnect the FPC cable from connector CN6.3. To remove the printer mechanism alone, remove the two screws from Part B. When removing the printer together with the printer mount, remove the three screws from Part A.4. Raise the printer and pull it out.	<ul style="list-style-type: none">● Unlock the connector before disconnecting the cable.
 <p data-bbox="1270 2031 1379 2063">Fig. 5-9</p>	

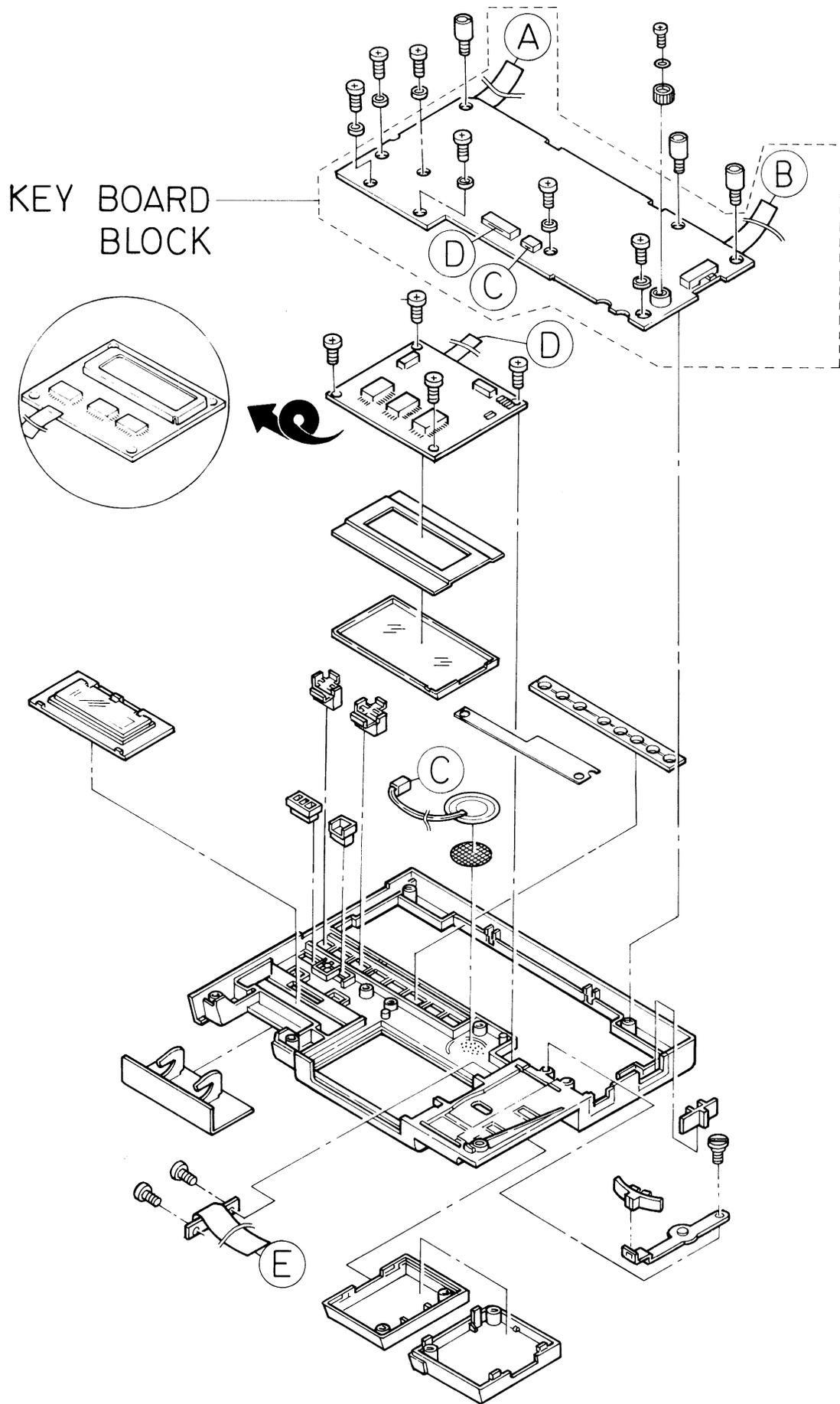


Fig. 5-10

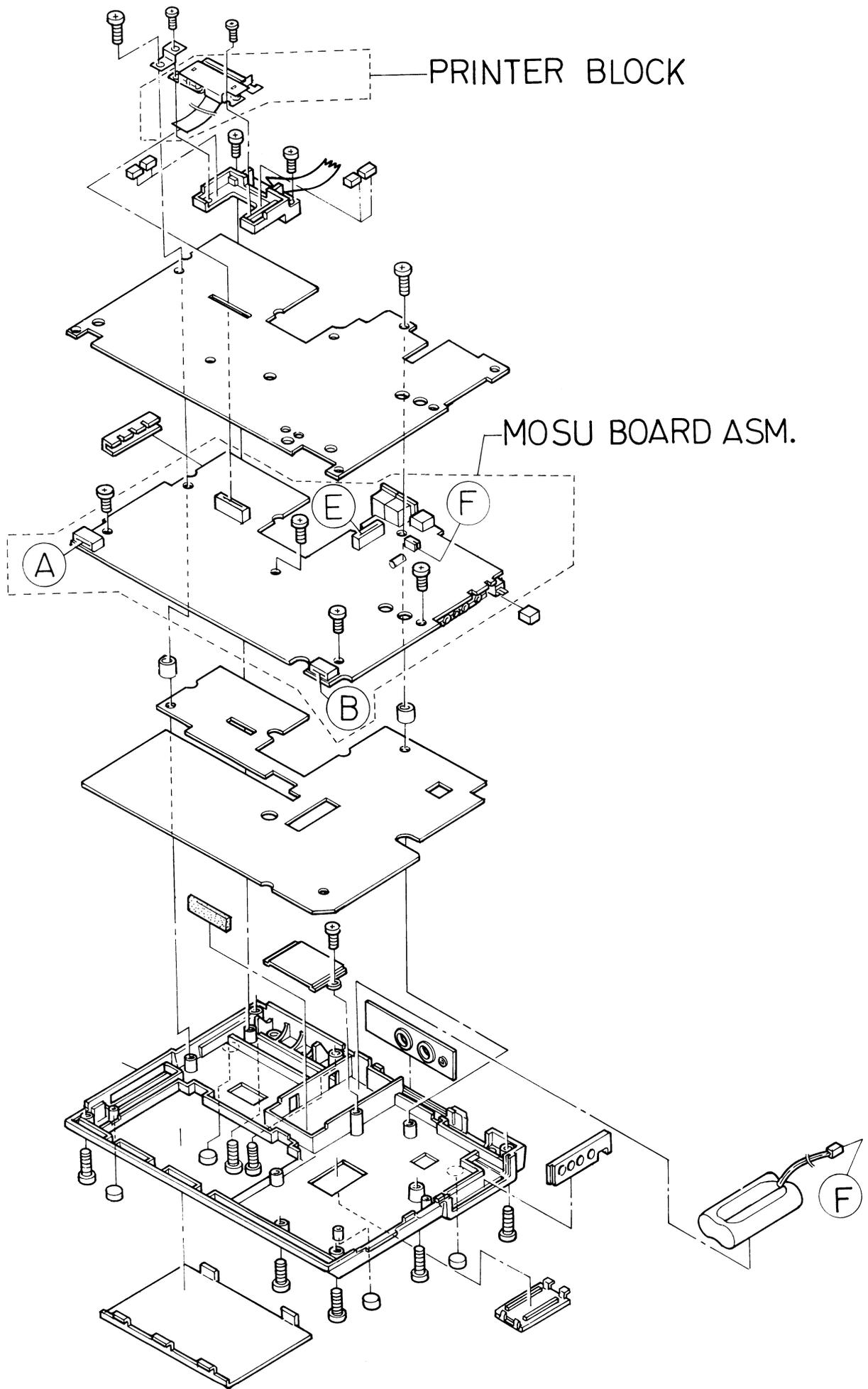
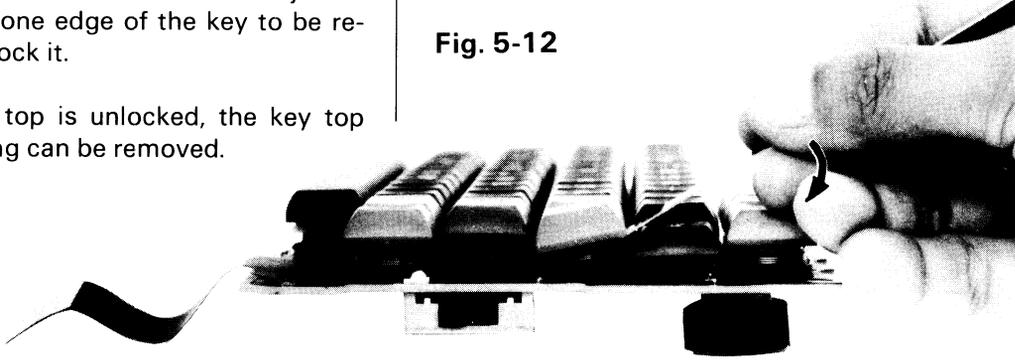
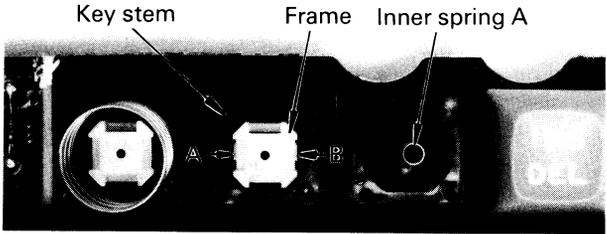
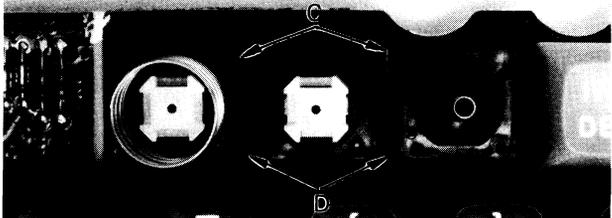
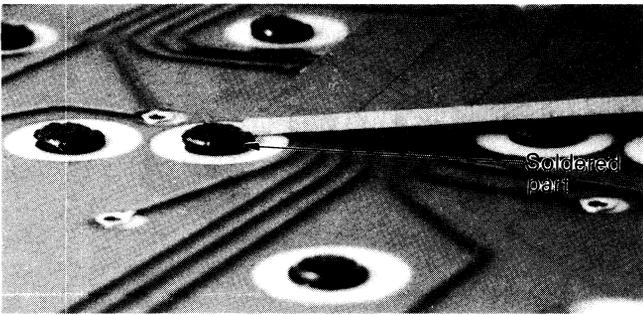
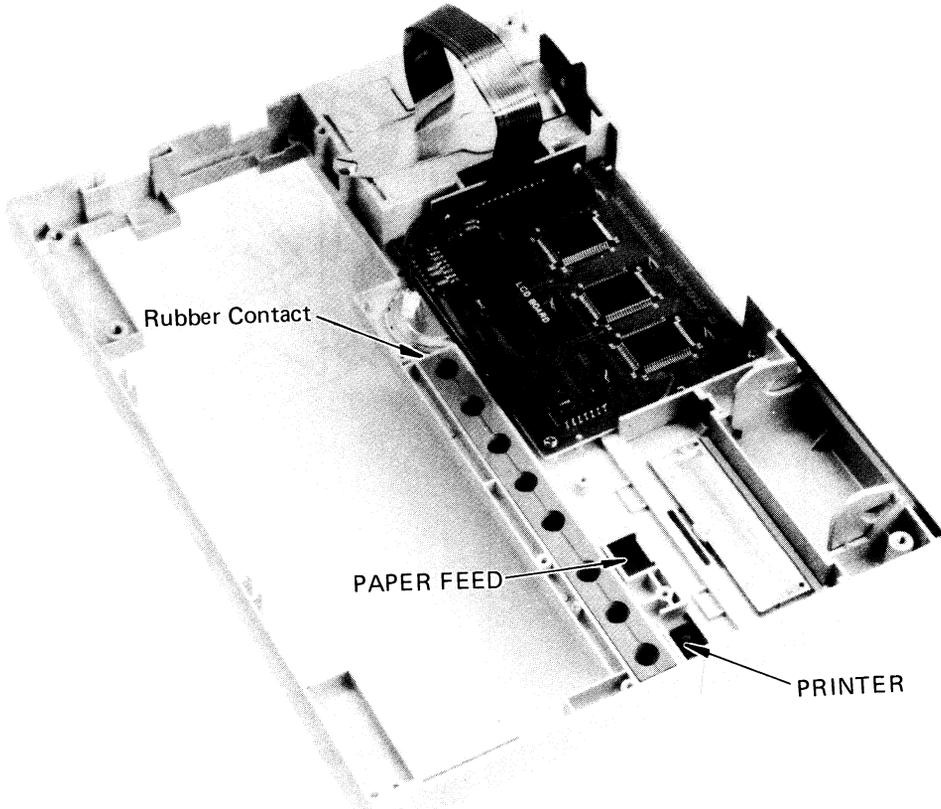
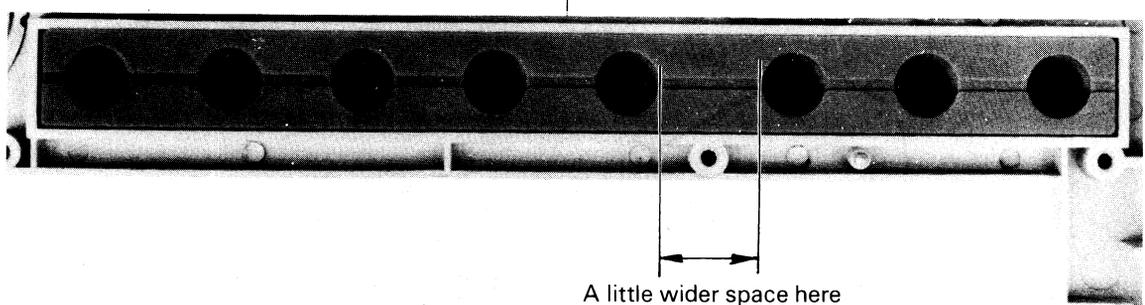
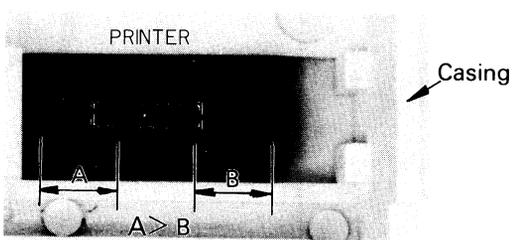


Fig. 5-11

5.3 Disassembly and Reassembly of Units

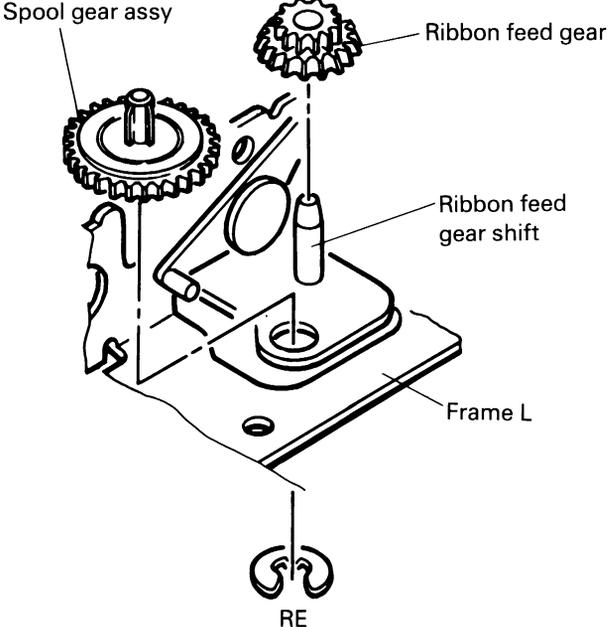
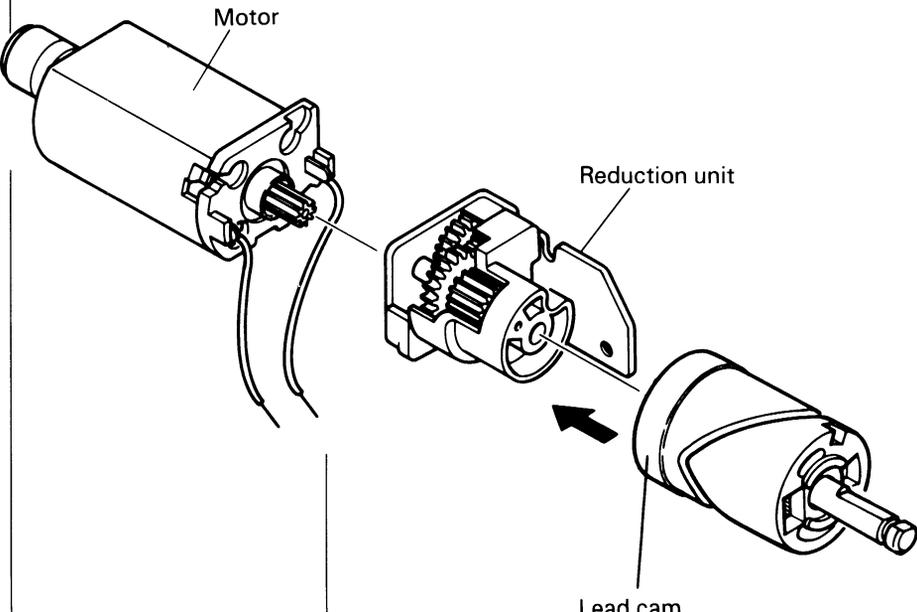
5.3.1 Keyboard Switches

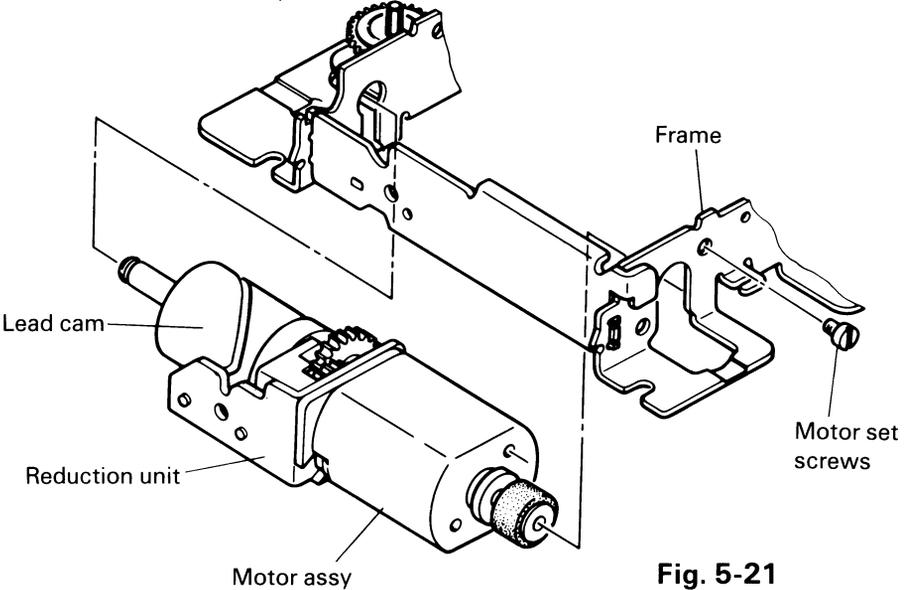
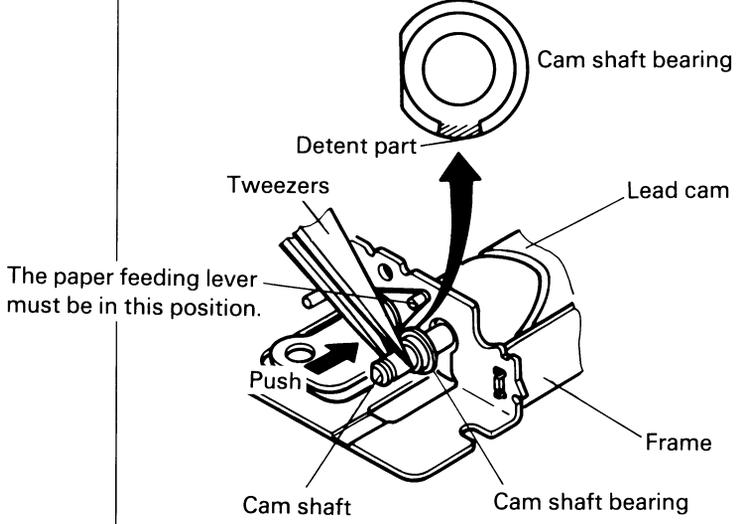
Disassembly Procedure	Disassembly Precautions
<p>* Data Keys</p> <p>Key Top Removal</p> <ol style="list-style-type: none"> 1. Insert a thin screwdriver between adjacent key tops, raise one edge of the key to be removed, and unlock it. 2. When the key top is unlocked, the key top and return spring can be removed. 	<ul style="list-style-type: none"> ● Be careful not to damage the key tops in front and back. <p>Fig. 5-12</p> 
<p>Key Stem or Inner Spring A Removal</p> <ol style="list-style-type: none"> 1. After removing the key top, insert a thin precision screwdriver into Part A or B of the key stem, and unlock it. 2. Pull out the key stem, and the inner spring A can be taken out. 	<ul style="list-style-type: none"> ● Be careful not to damage the frame.  <p>Fig. 5-13</p>
<p>Key Stem or Inner Spring A Removal</p> <ol style="list-style-type: none"> 1. Remove the key top, check if the switch is connected to other switch. If so, cut off Parts C and D. 2. Scrape off the soldered parts on the back, completely using a cutter or the like; and slowly pull out the frame. (When installing, fasten with solder using a soldering iron or the like. Do not use an adhesive.) 	<ul style="list-style-type: none"> ● Be careful not to damage the FPC pattern when scraping off Parts C and D.  <p>Fig. 5-14</p> <ul style="list-style-type: none"> ● Completely scrape off the soldered parts, and do not forcibly pull out the frame.
 <p>Fig. 5-15</p>	

Disassembly Procedure	Disassembly Precautions
<p>* Function Keys</p> <p>When the keyboard is removed from the casing, the rubber contact points are exposed. Function key tops are mounted under these rubber contact points (8 in a row).</p>  <p>Fig. 5-16</p> <p>Be careful of the direction of the rubber-contact switches which have their own direction.</p>  <p>Fig. 5-17</p> <p>* Printer Key</p> <p>Exercise care about the installation procedure when installing or replacing the printer ON/OFF key.</p>  <p>Fig. 5-18</p>	<ul style="list-style-type: none"> ● Keep the conductive parts of the rubber contacts free of dust. ● When installing the keyboard, make sure that the rubber contacts are in position.

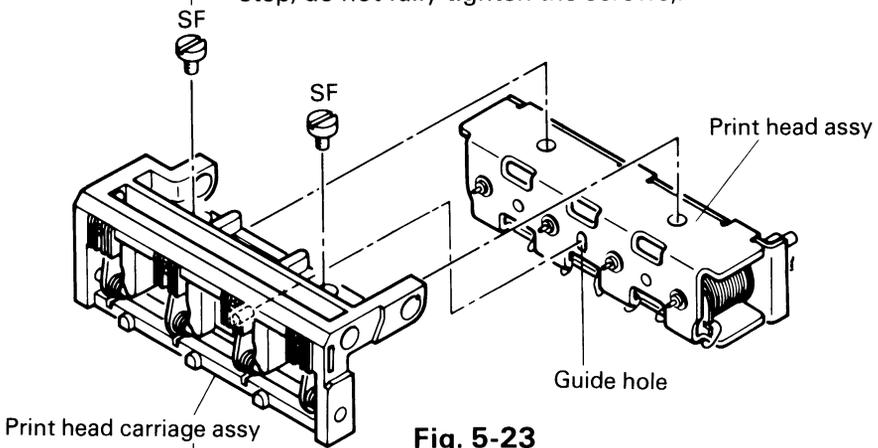
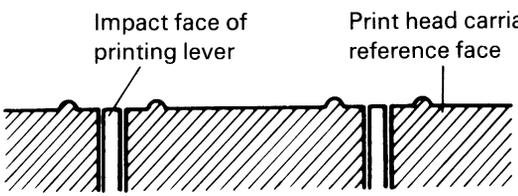
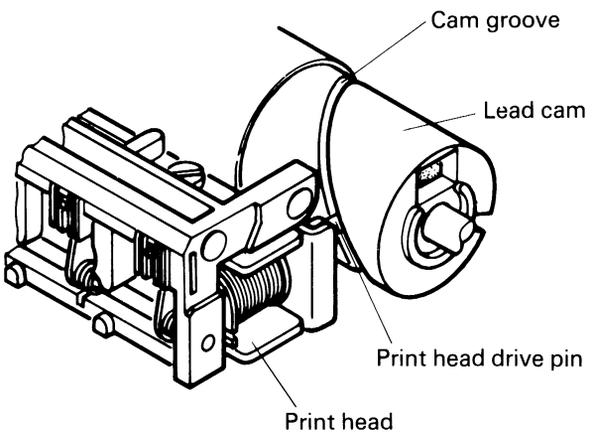
5.3.2 Micro Printer (Model – 160)

5.3.2.1 Reassembly Stage A (Ribbon Feed Gear, Motor, Lead Cam Assy etc.)

REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
1	1-1	Frame assy	● Lubrication (L-1).
2	3-6	Ribbon feed gear	
3	7-1	Spool gear assy	
	RE	Retaining TYPE-E (2)	
 <p style="text-align: center;">Fig. 5-19</p>			<p data-bbox="707 1168 1387 1201">● Lubrication (L-22, L-23)</p> <p data-bbox="707 1233 1387 1299">● Lubrication (L-4, L-5) Set to reduction unit (3-7)</p>
4	3-7	Reduction unit	
5	3-1	Lead cam assy	
 <p style="text-align: center;">Fig. 5-20</p>			

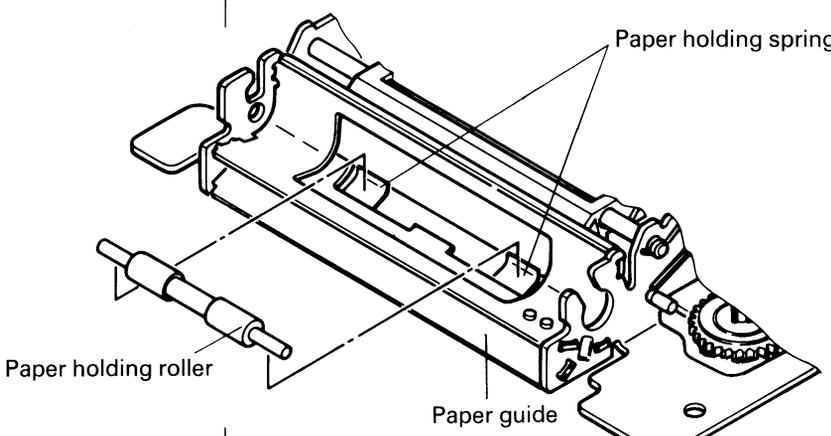
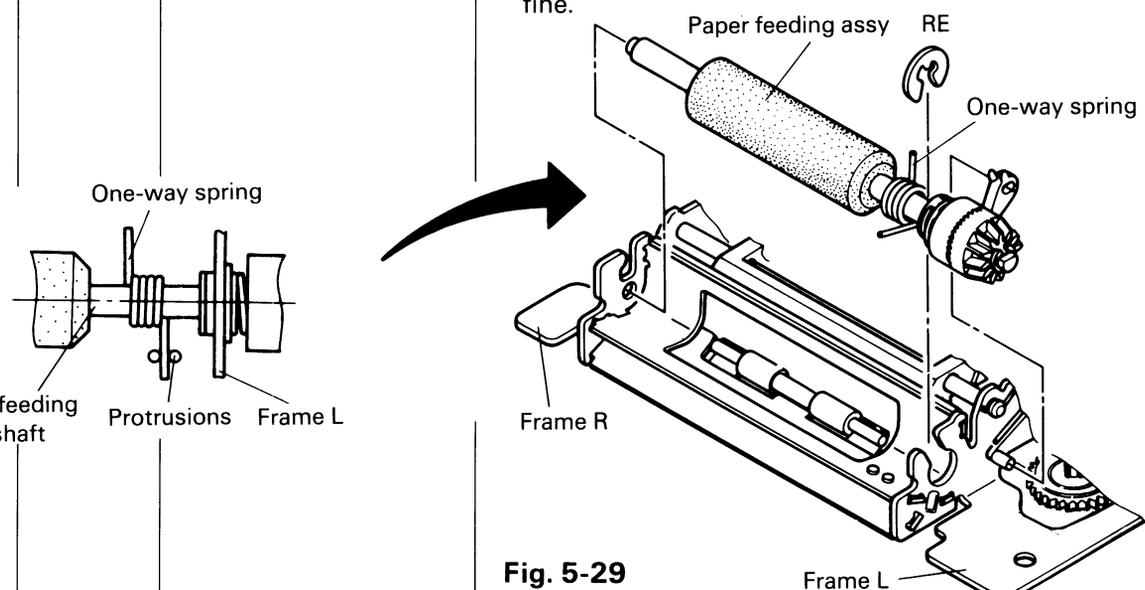
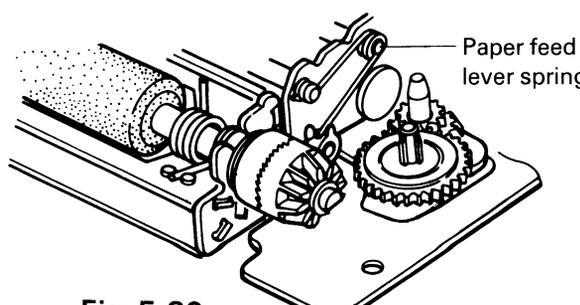
REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
6	2-1 SF	Motor assy Slotted flat head machine screw (1 pcs.) (M1.6 × 2)	<ul style="list-style-type: none"> ● Reassembly motor unit, reduction unit and lead cam assy, then set the assembly in the frame and secure the motor to the frame by means of screws. Lubrication (L-24)  <p style="text-align: right;">Fig. 5-21</p>
7	3-2	Cam shaft bearing	<ul style="list-style-type: none"> ● Lubrication (L-6). ● Push the bearing paying attention to the position of its detent part with respect to the corresponding notch in the frame.  <p style="text-align: center;">Fig. 5-22</p>

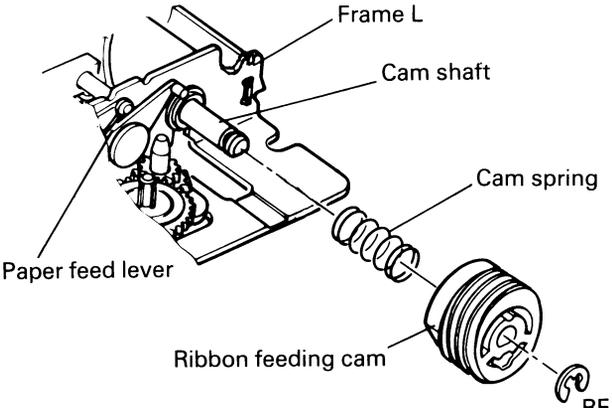
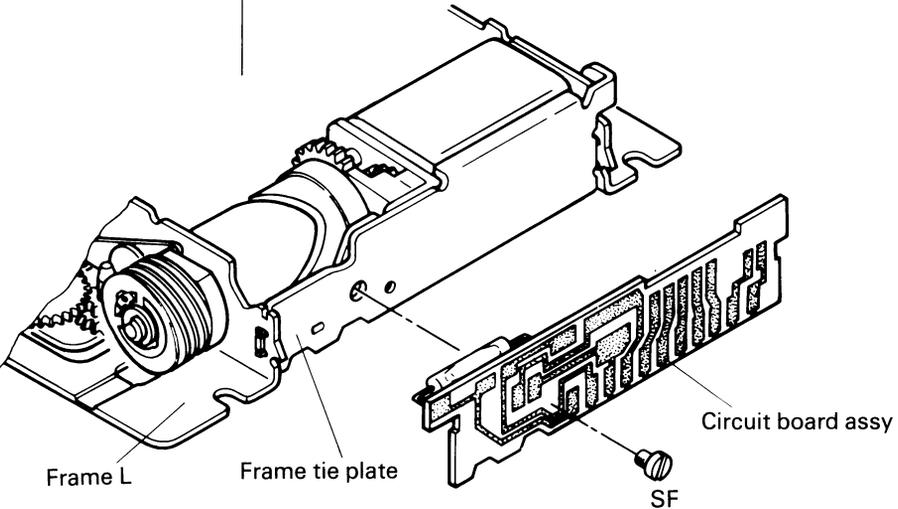
5.3.2.2 Reassembly Stage B (Print Head, Print Head Carriage, etc.)

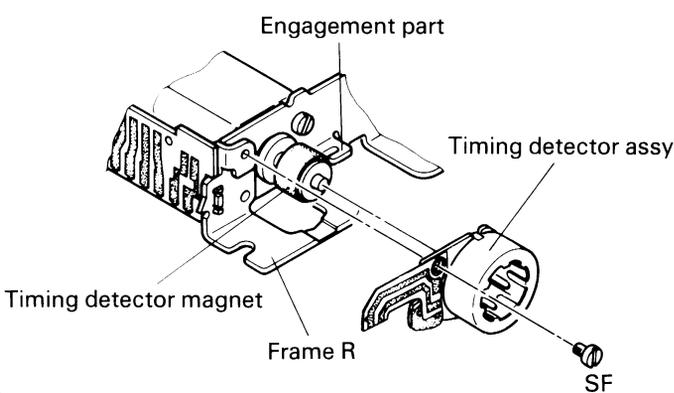
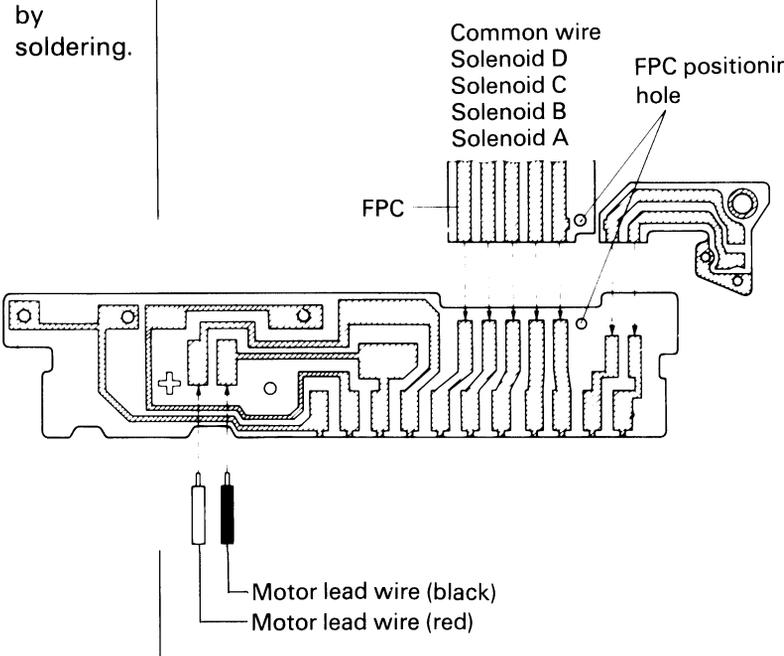
REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
8	5-1 5-3 SF	Print head assy Print head carriage assy Slotted flat head machine screw (2 pcs.) (M1.6 × 3)	<ul style="list-style-type: none"> ● Lubrication (L-7, L-8). ● Lubrication (L-9, L-10) ● Align the carriage guide pins with the guide holes in the print head, and temporarily reassemble the carriage and the print head by means of screw (at this step, do not fully tighten the screws).  <p style="text-align: center;">Fig. 5-23</p>
9		Adjustment of print head position	<ol style="list-style-type: none"> ① Adjust the position of the print head so that the impact face of printing lever becomes flush with the reference face of print head carriage, as illustrated below. ② Now tighten the screws fully.  <p style="text-align: center;">Fig. 5-24</p>
10	5-4 5-5 RE	Print head guide shafts (2 pcs.) Return support spring Retaining ring TYPE-E (2 pcs.) (1, 2)	Lubrication (L-11, L-12) <ul style="list-style-type: none"> ● Engage the print head drive pin in the lead cam groove, then put into position the print head guide shafts from frame L side.  <p style="text-align: center;">Fig. 5-25</p>

REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
11	5-2 SF	FPC Slotted flat head machine screw (2 pcs.) (M1 x 2)	<div data-bbox="608 227 1389 901" data-label="Image"> </div> <p data-bbox="871 891 994 923">Fig. 5-26</p> <ul data-bbox="840 1050 1505 1365" style="list-style-type: none"> ● Solder FPC as follows: <ol style="list-style-type: none"> ① Secure FPC to the back of the print head by means of screws. ② Cut the two wires of print solenoid A to the same length, and so with solenoids B, C and D. (Solenoid A is the solenoid to be located nearest to frame L.) ③ Solder the wires of solenoids A, B, C and D in this order. <p data-bbox="871 1371 1056 1399">PRECAUTIONS</p> <ul style="list-style-type: none"> * ● Do not apply the iron to FPC for too long a time. ● Be careful that solenoid wires be not broken. <div data-bbox="435 1622 1364 1865" data-label="Image"> </div> <p data-bbox="856 1891 978 1924">Fig. 5-27</p>

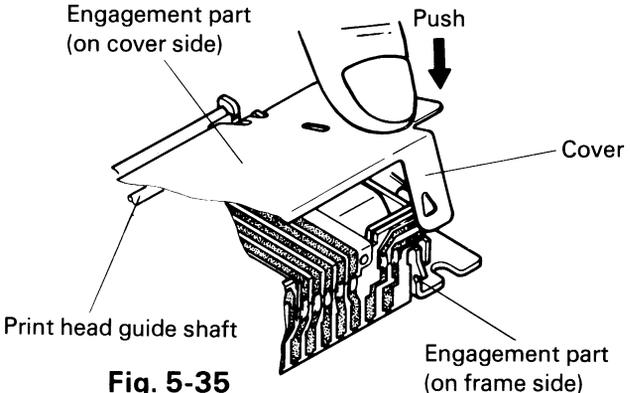
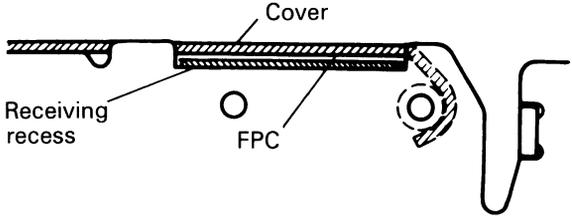
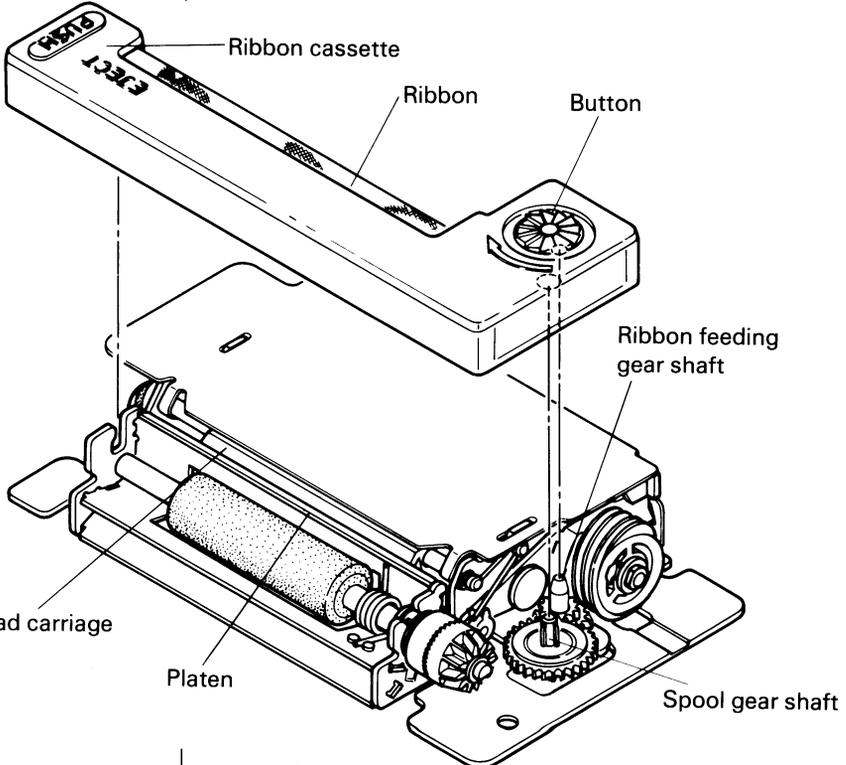
5.3.2.3 Reassembly Stage C (Paper Feed Mechanism, Timing Detector Assy, Circuit Board etc.)

REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
12	6-3	Paper holding roller	<ul style="list-style-type: none"> ● Lubrication (L-13). ● Set the roller on the paper holding spring. 
13	6-1 RE 6-2	Paper feed assy Retaining ring TYPE-E (2) One-way spring	<ul style="list-style-type: none"> ● Lubrication (L-14 to L-18). ● Place the one-way spring on the paper feed assembly, then set the assembly in the frame, as illustrated below. ● Put the detent part of the plane bearing in the corresponding notch in the frame. ● Be careful not to damage gear teeth, which are very fine. 
14	6-4	Paper feed lever spring.	<ul style="list-style-type: none"> ● Set this spring as illustrated below. 

REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
15	3-4	Ribbon feed cam	<ul style="list-style-type: none"> ● Lubrication (L-19 to L-21).
	3-5	Cam spring	<ul style="list-style-type: none"> ● Place the ribbon feed cam in position as follows:
	RE	Retaining ring TYPE-E (1.5)	<ol style="list-style-type: none"> ① Turn the timing detector magnet until the D-groove of the cam shaft faces toward the frame bottom. ② Place on the cam shaft the plain washer, cam spring and ribbon feed cam, in this order. ③ Place the retaining ring TYPE-E in position.
			 <p style="text-align: center;">Fig. 5-31</p>
16	4-2	Circuit board assy	<ul style="list-style-type: none"> ● Press the circuit board against the frame tie plate, then against frame L. After that, push it down and finally secure to the tie plate by means of screws.
	SF	Slotted flat head machine screw (1 pcs.) (M1.6 × 3)	
			 <p style="text-align: center;">Fig. 5-32</p>

REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
6	4-1 SF	Timing detector assy Slotted flat head machine screw (M1.4 x 1.8)	<ul style="list-style-type: none"> ● Place the timing detector assy on the timing detector magnet, and secure with screw. ● Clearance between the timing detector assy and the timing detector magnet must be uniform.  <p>The diagram shows a perspective view of the timing detector assembly. It consists of a rectangular metal housing with an 'Engagement part' on top. A 'Timing detector magnet' is mounted on the front face. A 'Timing detector assy' is mounted on top of the magnet. A 'Frame R' is attached to the side. A slotted flat head machine screw, labeled 'SF', is used to secure the timing detector assy to the magnet.</p> <p style="text-align: center;">Fig. 5-33</p>
18		FPC Timing detector assy Motor lead wires <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> } Connect by soldering. </div>	 <p>The diagram illustrates the connection of the FPC (Flexible Printed Circuit) to the circuit board. The FPC has a 'Common wire' and four solenoid wires labeled 'Solenoid D', 'Solenoid C', 'Solenoid B', and 'Solenoid A'. A 'FPC positioning hole' is shown on the FPC. The circuit board has a corresponding hole and traces. Two motor lead wires are shown: a black one and a red one.</p> <p style="text-align: center;">Fig. 5-34</p> <ul style="list-style-type: none"> ● Align the positioning hole in the FPC with that in the circuit board, then solder these elements. ● Do not apply the iron to the FPC for too long a time.

5.3.2.4 Reassembly Stage D (Cover and Ribbon Cassette)

REASSEMBLY STEP	REF. NO.	NAME OF PART or REASSEMBLY	POINTS OF REASSEMBLY WORK
19	8-1	Cover.	 <p>Engagement part (on cover side)</p> <p>Push</p> <p>Cover</p> <p>Print head guide shaft</p> <p>Engagement part (on frame side)</p> <p>Fig. 5-35</p> <ul style="list-style-type: none"> ● Engage the engagement part of the cover on the print head guide shaft, and push the cover to lock it on the frame. (Carry out this operation on both ends of the cover.) ● Check if the FPC is in the FPC receiving recess on frame R side.  <p>Cover</p> <p>Receiving recess</p> <p>FPC</p> <p>Fig. 5-36</p>
20	7-2	Ribbon cassette	<ul style="list-style-type: none"> ● Set the ribbon cassette in position as illustrated below.  <p>Ribbon cassette</p> <p>Ribbon</p> <p>Button</p> <p>Ribbon feeding gear shaft</p> <p>Print head carriage</p> <p>Platen</p> <p>Spool gear shaft</p> <p>Fig. 5-37</p>

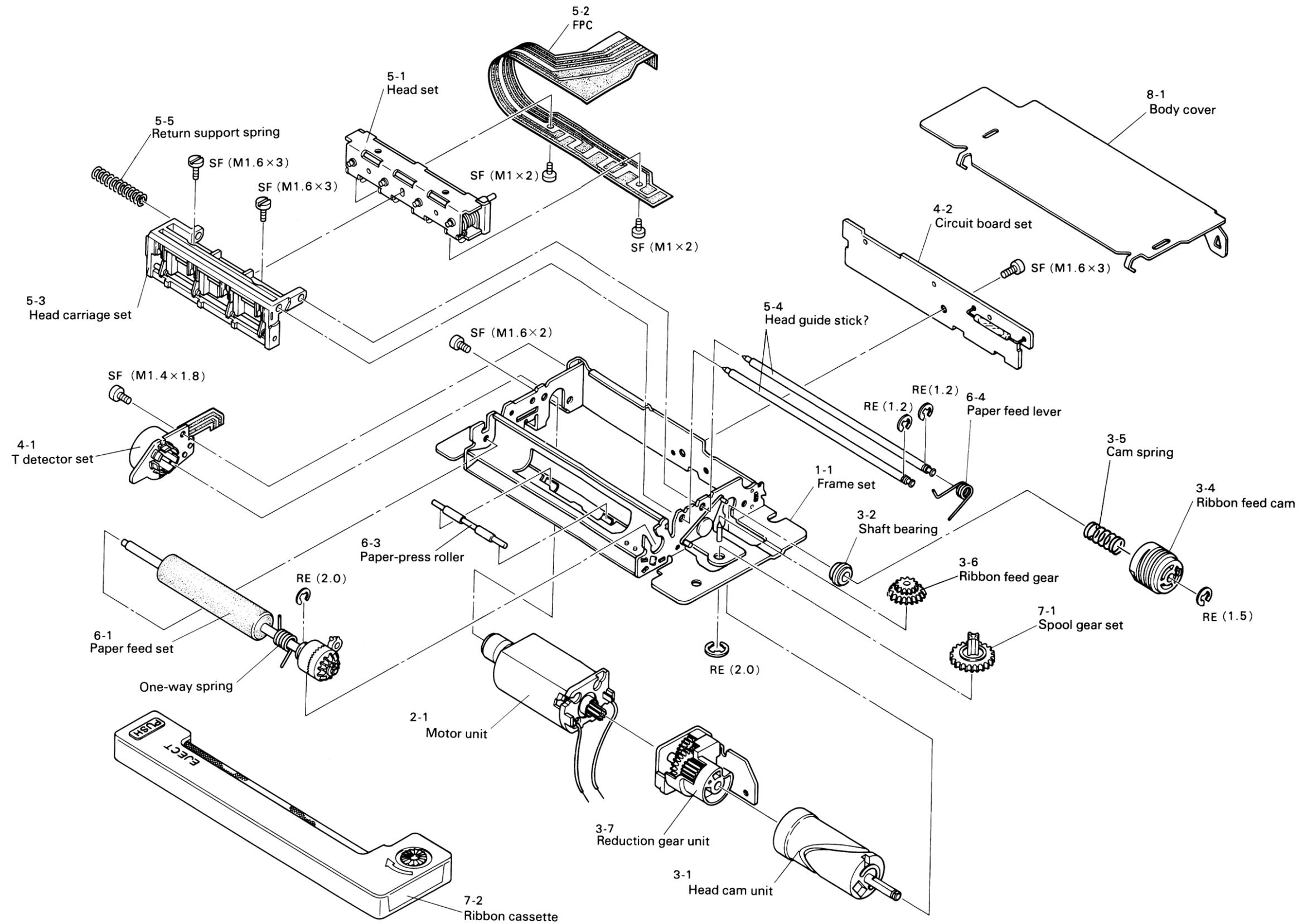
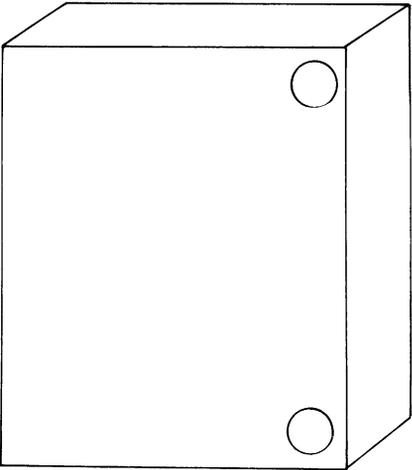


Fig. 5-38 Model-160 Exploded View

5.4 Disassembly and Reassembly of Options

5.4.1. ROM Cartridge

Disassembly Procedure	Disassembly Precautions
1. Remove the two screws on the back of the cartridge case.	

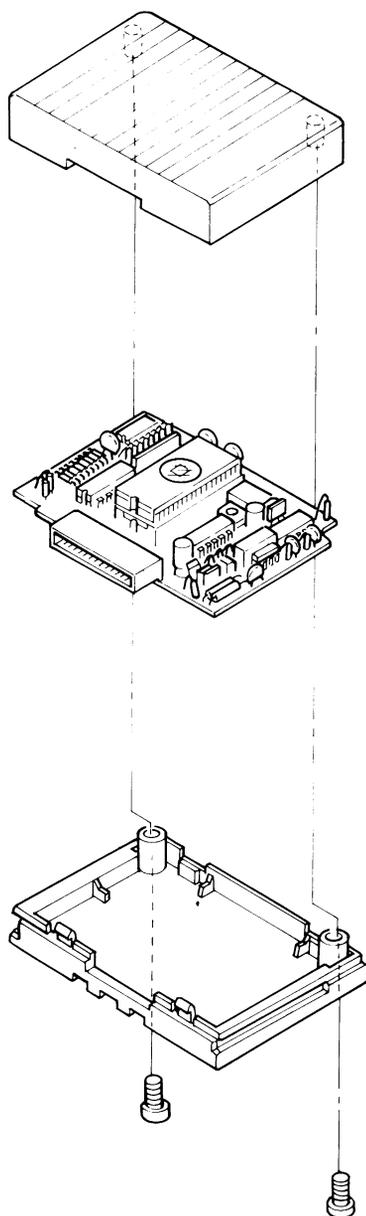
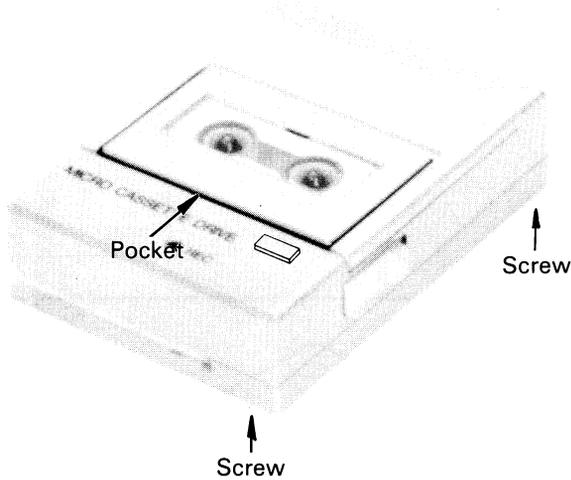
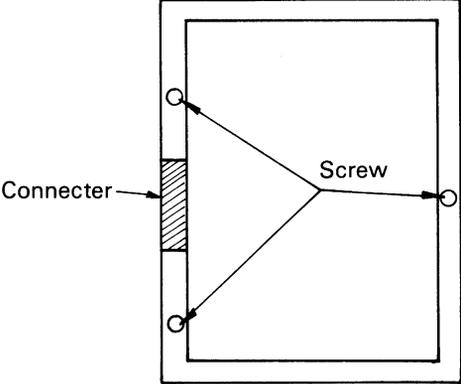


Fig. 5-39

5.4.2 Microcassette

5.4.2.1 Case Cover

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Slowly peel the cover off from the cassette pocket.2. Remove the two screws on the underside of the cartridge.	<ul style="list-style-type: none">● Be careful not to bend the cassette pocket cover.
<ol style="list-style-type: none">3. Remove the cartridge lower case.4. Remove the three screws that fasten the cassette mechanism.5. With the cassette mechanism on the circuit board, slowly remove it from the upper case. <p>* When separating the mechanism from the circuit board, remove all the wires that are connected to the circuit board and all the mounting screws.</p>	 <p>Fig. 5-40</p>  <p>Be careful not to hitch the cassette pocket cover.</p> <p>Fig. 5-41</p>

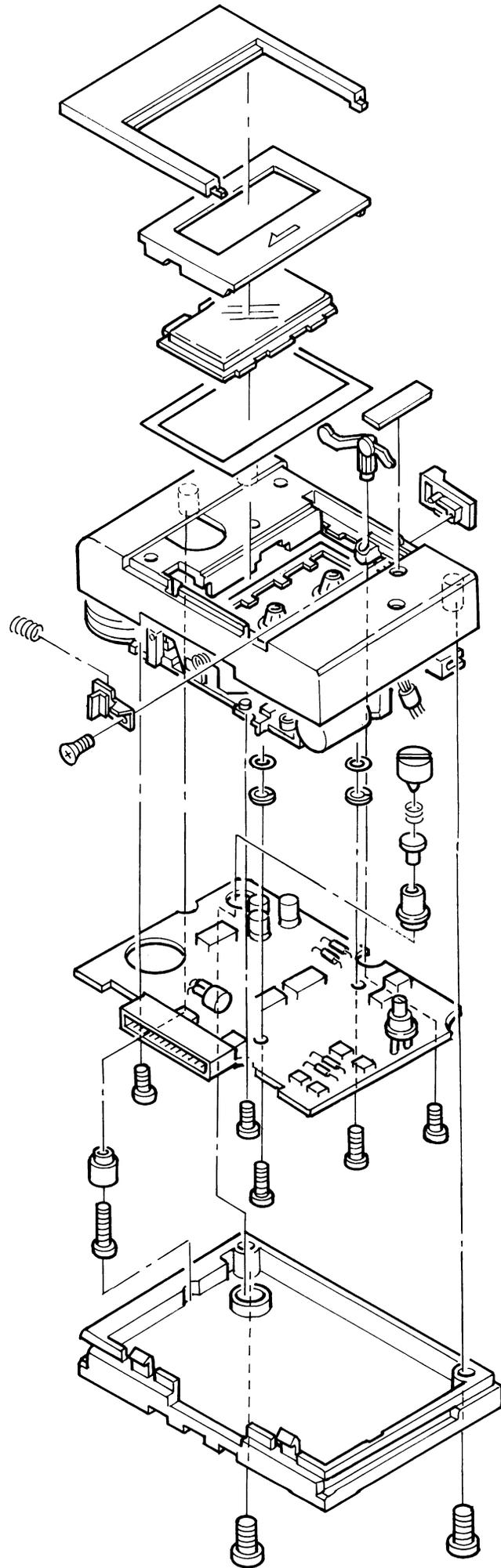
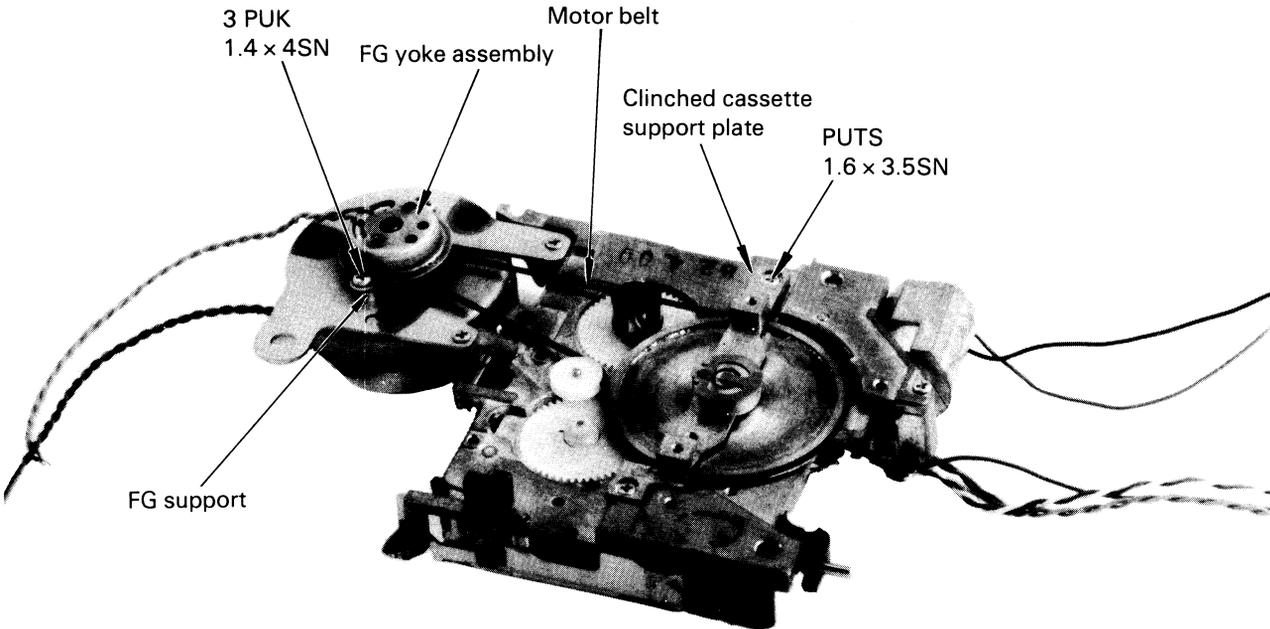


Fig. 5-42

5.4.2.2 Microcassette Mechanism

1 Microcassette Assy

1-1 Disassembly Procedure

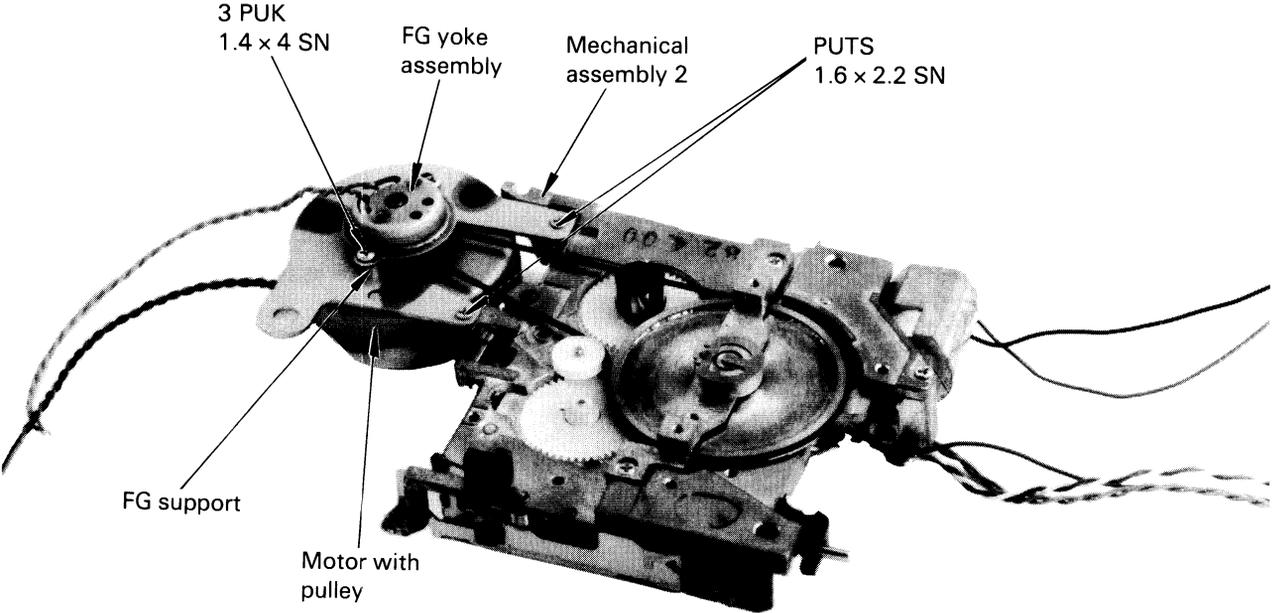
Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Place the microcassette mechanism backside up.2. Remove the FG yoke assembly (tachogenerator). PUTS1.6 × 4SN × 2 FG support × M3. Remove the clinched cassette support plate. PUTS1.6 × 3.5SN × 24. Remove the motor belt.	
 <p>The diagram shows a microcassette mechanism with various components labeled. On the left, three PUK 1.4 x 4SN screws are indicated. The FG yoke assembly is shown at the top left. A motor belt is located at the top center. The clinched cassette support plate is at the top right. A PUTS 1.6 x 3.5SN screw is also labeled at the top right. The FG support is at the bottom left. The mechanism includes gears and a central motor assembly.</p>	
<p style="text-align: center;">Fig. 5-43</p>	

1-2 Reassembly Procedure

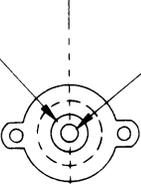
Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<ol style="list-style-type: none"> 1. Check if the cassette shaft, idler, and motor are installed. If not, install them. 2. Place the motor belt around the motor shaft, pulley, and the V-groove of the cassette wheel. 3. Correct the belt if twisted, and check if the belt turns smoothly. 4. Clinch the cassette support plate in place. PUTS 1.6 × 3.5 SN × 2 5. Install the FG yoke assembly. 3 PUTS 1.4 × 4 SN × 2 FG support × 2 6. Apply a screw lock to the mounting screws for the FG yoke assembly. 	<ul style="list-style-type: none"> ● Be careful not to stain the belt with adhesive, oil, or grease.
<p style="text-align: right; margin-right: 100px;">Washer 1630A</p> <p style="margin-left: 100px;">Main body</p> <p style="margin-left: 100px;">Install motor pulley</p> <p style="margin-left: 100px;">PE switch</p> <p style="margin-left: 100px;">Pulley</p> <p style="margin-left: 100px;">Cross recessed screw 1.2</p> <p style="margin-left: 100px;">Washer 1630F</p> <p style="margin-left: 100px;">Pressure-fitted cassette wheel</p> <p style="margin-left: 100px;">Motor belt</p> <p style="margin-left: 100px;">Clinched cassette support plate</p> <p style="margin-left: 100px;">Cross recessed screw 3.5</p> <p style="margin-left: 100px;">FG support</p> <p style="margin-left: 100px;">FG yoke assembly</p> <p style="margin-left: 100px;">Screw 4.0</p>	
<p>Fig. 5-44</p>	

2. Motor

2-1 Disassembly Procedure

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Remove the FG yoke assembly. 3 PUK 1.4 × 4 SN × 2 FG support × 22. Remove the motor belt from the motor pulley on the motor.3. Remove the motor pulley. PUTS 1.6 × 2.2 SN × 2	
	
<p data-bbox="702 1496 824 1530">Fig. 5-45</p>	

2-2 Reassembly Procedure

Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<ol style="list-style-type: none">1. Install the motor. PUTS 1.6 × 2.2 SN × 2 Apply a screw lock to the tips of the screws before tightening them.2. Place the motor belt in the V-groove around the motor pulley. Straighten the motor belt if twisted.3. Install the FG yoke assembly. 3 PUK1.4 × 4 SN × 2 FG support × 24. Apply screw lock K-SM to the two screws that fasten the FG yoke assembly. PUTS 1.6 × 3.5 SN × 2	<ul style="list-style-type: none">● Make sure that the FG yoke assembly is concentric with the motor shaft. (Check that the clearance between the motor shaft and tachogenerator opening is uniform.) <div data-bbox="874 753 1497 1081" style="text-align: center;"><p>The diagram shows a cross-sectional view of a tachogenerator opening and a motor shaft. A vertical dashed line represents the axis of the motor shaft. The tachogenerator opening is a circular component with two small circular features on its left and right sides. Two arrows point from the labels 'Tachogenerator opening' and 'Motor shaft' to their respective parts in the diagram.</p></div> <p style="text-align: center;">Fig. 5-46</p>

3. Cassette Wheel, Idler

3-1 Disassembly Procedure

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Remove the cassette support plate. PUTS 1.6 × 3.5 SN × 22. Remove the motor belt.3. Remove the pressure-fitted cassette wheel.	<ul style="list-style-type: none">● Be careful not to bend the cassette wheel shaft.

The diagram shows a top-down view of a cassette deck's internal mechanism. A large circular pressure-fitted cassette wheel is the central component. It is held in place by a metal support plate that is clinched to the deck's frame. Two small, rectangular plastic parts, labeled as PUTS 1.6 x 3.5 SN, are positioned to secure the support plate. A motor belt is visible on the left side, connected to a pulley system. Various gears and other mechanical parts are also visible within the assembly.

Fig. 5-47

3-2 Reassembly Procedure

Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<ol style="list-style-type: none"> 1. Pressure-fit the cassette wheel in place. 2. Place the motor belt around the cassette wheel. 3. Clinch the cassette support plate in place. PUTS 1.6 × 3.5SN × 2 4. Wipe the cassette wheel shaft to remove oil. 	<ul style="list-style-type: none"> ● The gear in the mechanical assembly is thin and not so rigid, and must be carefully turned into mesh. ● Make sure that the gear is in mesh. Turn it clockwise and counterclockwise 2 or 3 times, and see if the gear (reel) turns one way only. ● Carefully handle the shaft because it can easily bend. (Neither drop nor strain the shaft.) ● Check that the front washer hasn't come up. (The washer is transparent, and is not easy to see.)
<p>The diagram shows an exploded view of a mechanical assembly. The components are labeled as follows:</p> <ul style="list-style-type: none"> Mechanical assembly 2 Motor with pulley PE switch Idler PUTS 1.6 × 2.2 SN Washer FG support Pressure-fitted cassette wheel Motor belt Grease Clinched cassette support plate Cross recessed screw 3.5 	
<p>Fig. 5-48</p>	

4. PE Switch

4-1 Disassembly Procedure

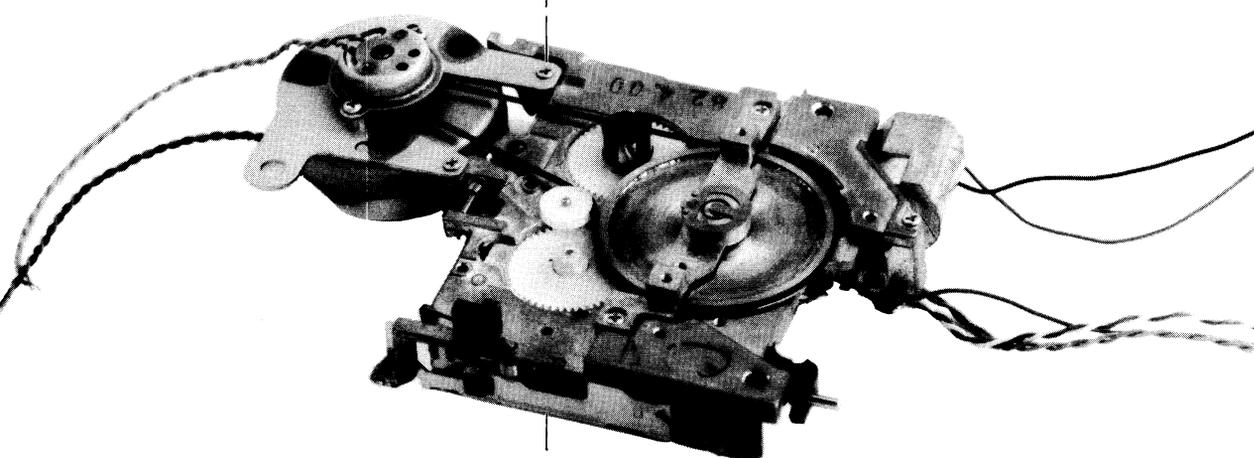
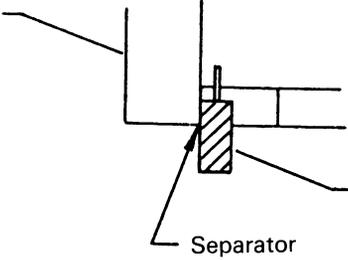
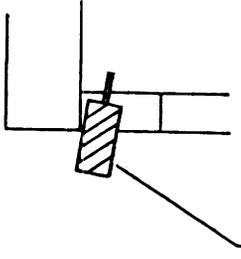
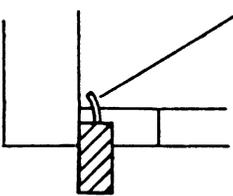
Disassembly Procedure	Disassembly Precautions
<p>1. Open the cassette pocket.</p> <p>2. Remove the pocket lever and spring. ER 0.8 UO × 1</p> <p>3. Remove the PE switch. Cut off the pressure-fitted part on the top with nippers, and pull downward.</p>  <p>PE switch DQ2114</p>  <p>Spring</p> <p>E button leaf switch ZK174700</p>	

Fig. 5-49

4-2 Reassembly Procedure

Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<p>1. Install the PE switch. Bond the pressure-fitted part with an instant adhesive.</p> <p>2. Install the pocket lever. ERO 0.8 UO x 1 Hook the spring.</p> <p>3. Adjust the installed position.</p>  <p>The separator must be in close contact with the base.</p> <p>Separator</p>  <p>If tilted, correct to parallel.</p>  <p>If the cut piece is bent, straighten it.</p> <p>Fig. 5-50</p>	

Disassembly Procedure

Disassembly Precautions

4. Checking method.

- a) When a MIN cassette is inserted into place.

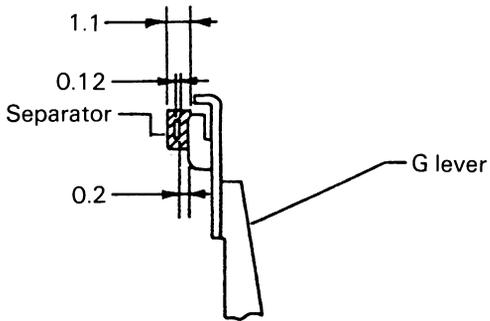


Fig. 5-51

The separator must be in contact with the base, and there must be a clearance of more than 0.2 mm between the G lever and cut piece. (About 2 cut pieces, each 0.12 mm thick)

- b) When a cassette with a folded lug is inserted into place.

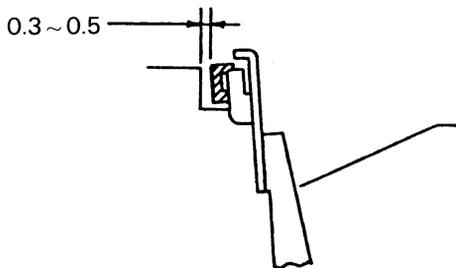


Fig. 5-52

There must be a clearance of 0.3 to 0.5 mm between the separator and base (about one half to one third of the separator thickness).

5. HP Switch

5-1 Disassembly Procedure

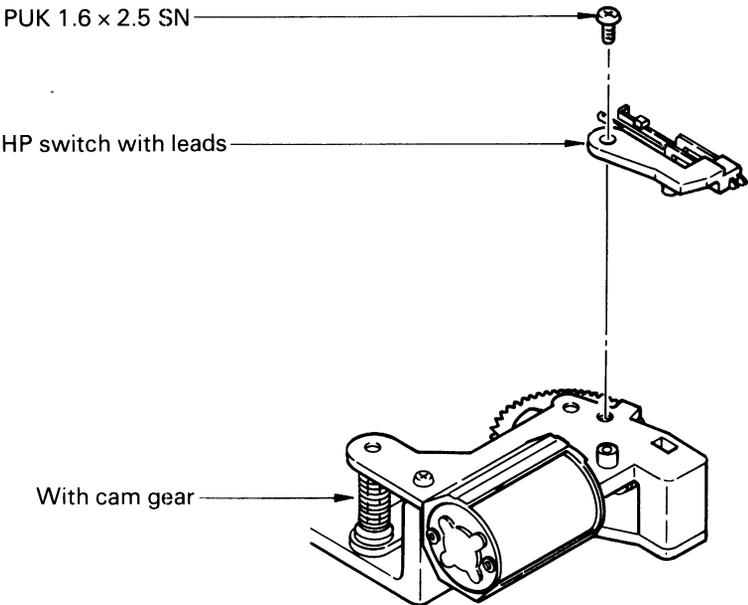
Disassembly Procedure	Disassembly Precautions
<p>1. Remove the HP switch. PUK 1.6 × 2.5 SN × 1 Disconnect the brown leads.</p>  <p>PUK 1.6 × 2.5 SN</p> <p>HP switch with leads</p> <p>With cam gear</p>	

Fig. 5-53

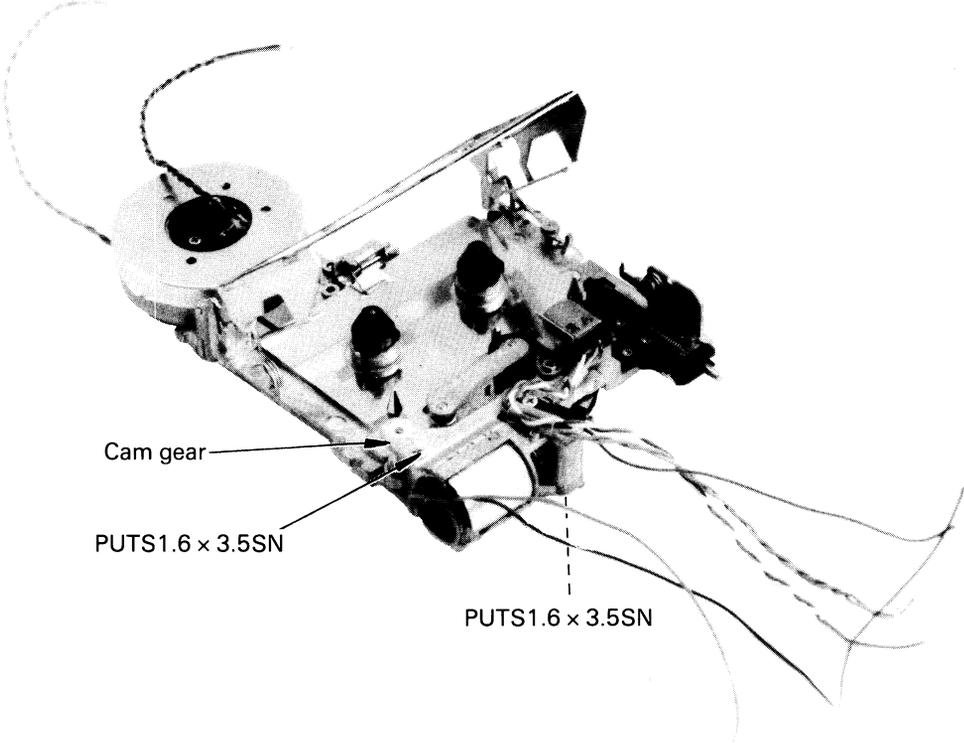
5-2 Reassembly Procedure

Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<p>1. Install the HP switch. Connect the 2 brown leads to the HP motor. Pass them through transparent clamp tube. PUK 1.6 × 2.5 SN × 1</p> <p>2. Adjust the HP switch.</p> <div data-bbox="137 644 713 1102"> <p>0.35 ± 0.1</p> <p>Movable piece</p> <p>Fixed piece</p> <p>Visually confirm that it is at right angles.</p> </div> <p>Fig. 5-54</p>	<div data-bbox="705 644 995 687" style="border: 1px solid black; padding: 2px; text-align: center;">Shape before installation</div> <div data-bbox="705 1113 980 1168" style="border: 1px solid black; padding: 2px; text-align: center;">Shape after installation</div> <div data-bbox="337 1288 1254 1769"> <p>Cam</p> <p>The movable piece must be in contact with the cam.</p> <p>The separator must be in contact with the boss.</p> </div> <p>Fig. 5-55</p>

6. HP Motor (with Cam Gear)

6-1 Disassembly Procedure

Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. Disconnect the cable from the cam gear. Remove the transparent tube.2. Remove the HP switch. PUK 1.6 × 2.5 SN × 13. Remove the cam gear. PUTS 1.6 × 3.5 SN × 2 (One on the front, the other on the back)	<ul style="list-style-type: none">● Wipe off oil from the top surface of the cam gear. Keep it clean.



The diagram shows a perspective view of the HP Motor assembly. A white cylindrical component is connected to a black cable. The motor housing is open, revealing internal components. Labels with leader lines point to the 'Cam gear' and two 'PUTS 1.6 x 3.5 SN' components. A dashed line points to a third 'PUTS 1.6 x 3.5 SN' component located on the back of the assembly.

Fig. 5-56

6-2 Reassembly Procedure

Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<ol style="list-style-type: none"><li data-bbox="137 275 467 307">1. Adjust the cam position.<li data-bbox="137 340 440 401">2. Install the cam gear. PUTS 1.6 × 3.5 SN × 1	<ul style="list-style-type: none"><li data-bbox="785 275 1373 336">● To adjust the cam position, turn the worm gear clockwise with tweezers or the like.<li data-bbox="785 373 1373 436">● Make sure that when the cam gear is installed, the cam will not ride on the die pin.<li data-bbox="785 473 1373 565">● Be careful not to pull the P lever assembly to the front because if you do so the P lever holder disengages from the bearing.

7. Pinch Roller (PR Lever Assembly)

7-1 Disassembly Procedure

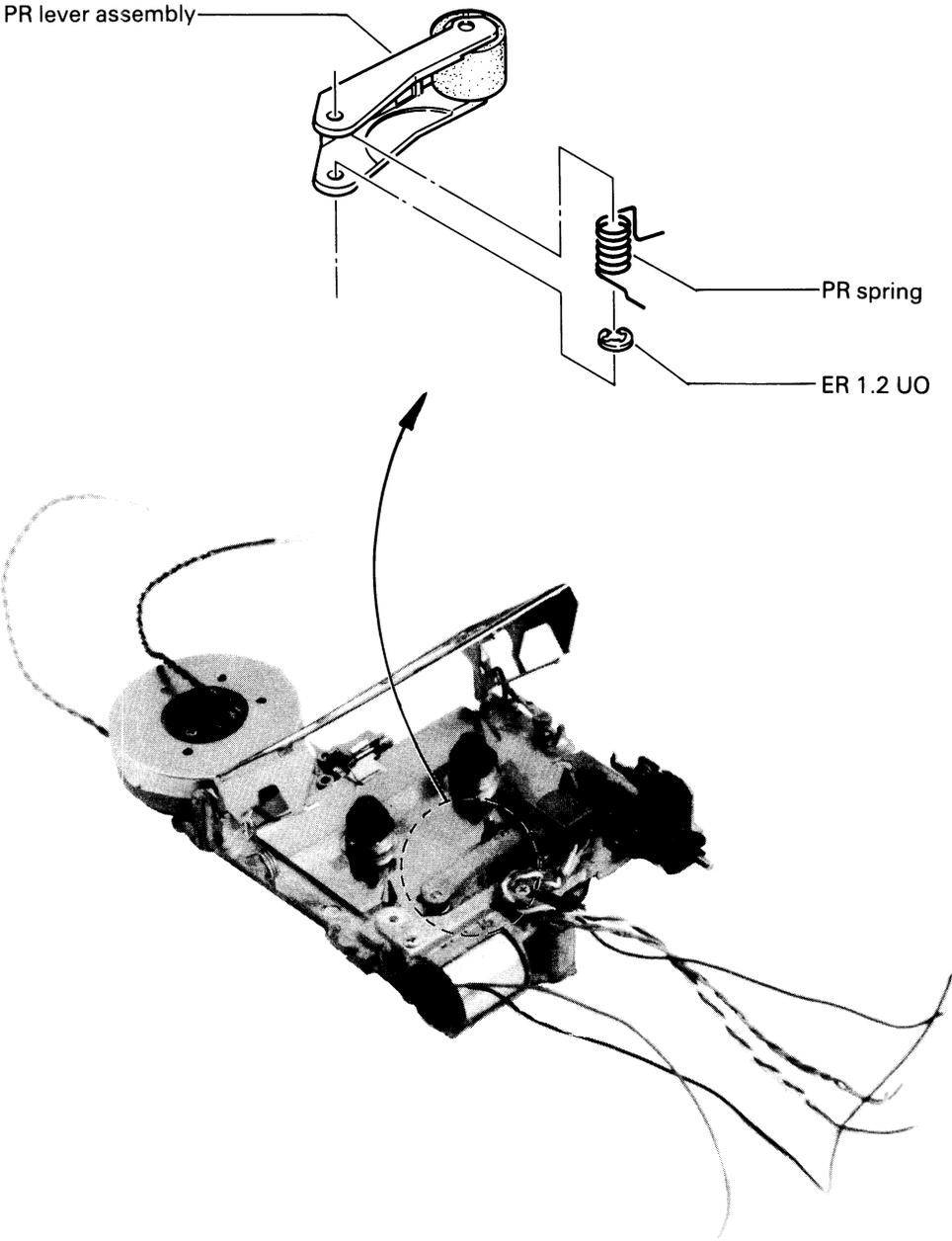
Disassembly Procedure	Disassembly Precautions
<ol style="list-style-type: none">1. If the HP motor and HP switch have been installed, remove them.2. Remove the pinch roller. ER 1.2 UO × 1 PR spring × 1	<ul style="list-style-type: none">● Be careful not to stain the pinch roller rubber with adhesive, oil, or grease.
 <p>The diagram illustrates the disassembly of the pinch roller (PR) lever assembly. The top portion shows a detailed view of the PR lever assembly, which is a long, thin metal arm with a roller at one end. It is connected to a spring mechanism. Labels include 'PR lever assembly' pointing to the arm, 'PR spring' pointing to a coiled spring, and 'ER 1.2 UO' pointing to a small component. The bottom portion shows a perspective view of the main device with the PR lever assembly highlighted by a dashed circle and an arrow pointing to the detailed view above. The main device has a motor on the left and various components on the right.</p>	

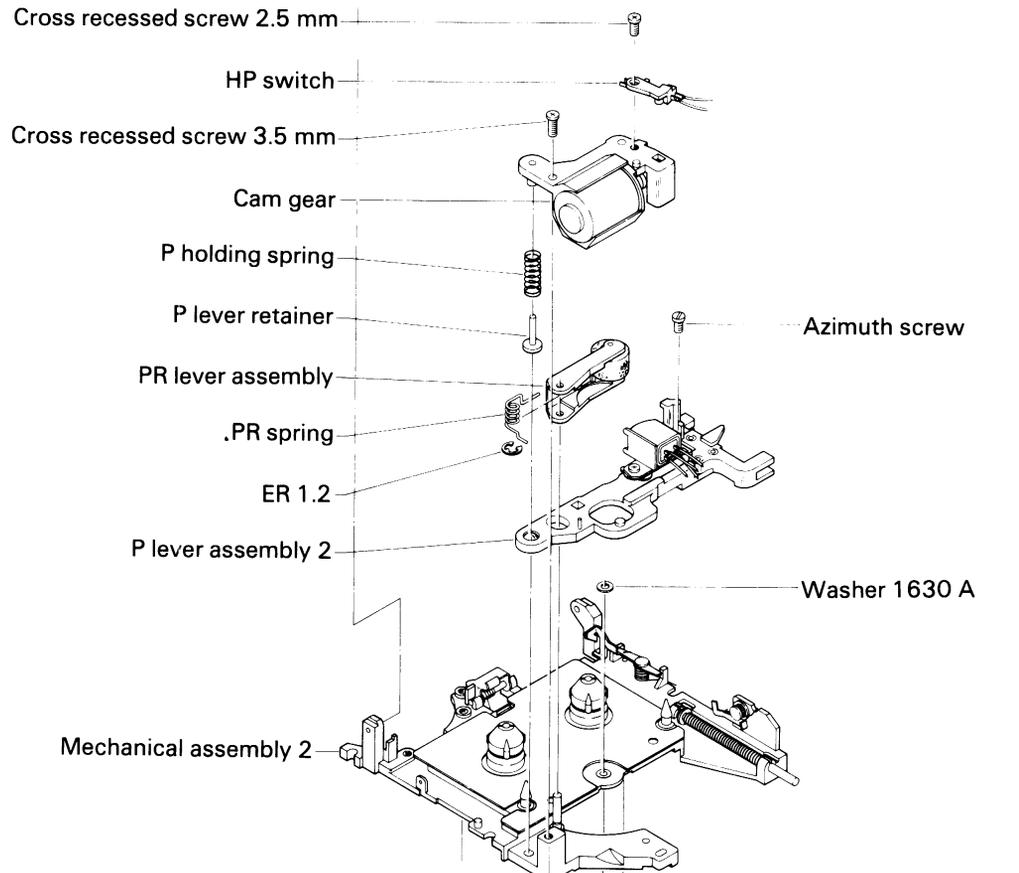
Fig. 5-57

7-2 Reassembly Procedure

Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<p>1. Install the pinch roller. PR spring x 1 ER 1.2 UO x 1 Apply grease to the PR spring.</p>	

8. Head (P Lever Assembly 2)

8-1 Disassembly Procedure

Disassembly Procedure	Disassembly Precautions
1. Remove the P lever assembly 2.	● Remove the HP motor, HP switch and pinch roller beforehand.
 <p>The diagram shows an exploded view of the P lever assembly 2. The components are labeled as follows:</p> <ul style="list-style-type: none">Cross recessed screw 2.5 mmHP switchCross recessed screw 3.5 mmCam gearP holding springP lever retainerPR lever assembly.PR springER 1.2P lever assembly 2Mechanical assembly 2Azimuth screwWasher 1630 A	
<p style="text-align: center;">Fig. 5-58</p>	

8-2 Reassembly and Adjustment Procedure

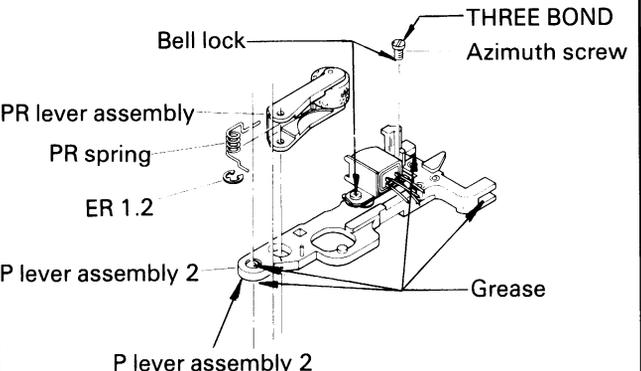
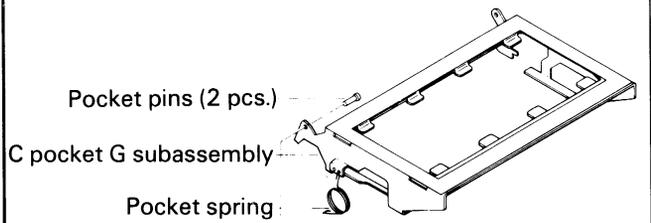
Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<p>1. Compress the E button spring with tweezers, fit the black plastic on the right to the E button spring shaft, and fit it onto the pinch roller shaft.</p> <p>2. Longitudinal head position adjustment.</p> <ul style="list-style-type: none">● Connect a wow meter, valve voltmeter, and oscilloscope to the head leads (red, white).● Remove the cross recessed screw on the left of the head, attach the bell lock to the bottom of the screw, and tighten the screw loosely.● Load an uneven rotation test tape into place, and play it.● Move the left of the head forward and back with tweezers, and tighten the cross recessed screw at a point where the valve voltmeter reads about 5 mV. <p>3. Azimuth adjustment</p> <ul style="list-style-type: none">● Connect a wow meter, valve voltmeter, and oscilloscope to the head leads (red, white).● Remove the single-slotted screw on the right, attach the bell lock to the bottom of the screw, and tighten it loosely.● Load an azimuth test tape, and play it.● Turn the screw until the output rises to the maximum (about 5 mV), and tighten the screw securely.	<ul style="list-style-type: none">● Apply grease and adhesive to the points shown below.● Apply grease to the E button spring.  <p>The diagram shows a side view of a tape head assembly. A bell lock is attached to the bottom of a cross-recessed azimuth screw. A PR lever assembly is connected to a PR spring, which is attached to the ER 1.2 roller. A P lever assembly 2 is shown at the bottom, with a grease application point indicated. Another P lever assembly 2 is labeled at the bottom left.</p>

Fig. 5-59

9. Pocket

9-1 Disassembly Procedure

Disassembly Procedure	Disassembly Precautions
<p>1. Remove the pocket (C pocket G subassembly).</p> <p>Pocket pin × 2 Pocket spring × 1</p> <ul style="list-style-type: none">● Push the pins inward with pliers, and pull them out.● Remove the spring.  <p>The diagram shows a perspective view of a rectangular metal subassembly. Two pins are shown being pushed into the subassembly from the left side. A spring is shown being removed from the bottom of the subassembly. Labels with leader lines point to the pins, the subassembly, and the spring.</p> <p>Pocket pins (2 pcs.) C pocket G subassembly Pocket spring</p> <p>Fig. 5-60</p>	

9-2 Reassembly Procedure

Reassembly and Adjustment Procedure	Precautions for Reassembly and Adjustment
<p>1. Install the C pocket G subassembly.</p> <ul style="list-style-type: none">● Install the spring. Pocket spring × 1● Install the pins. Pocket pin × 2	<ul style="list-style-type: none">● Fasten the pins with an instant adhesive.

A

B

C

D

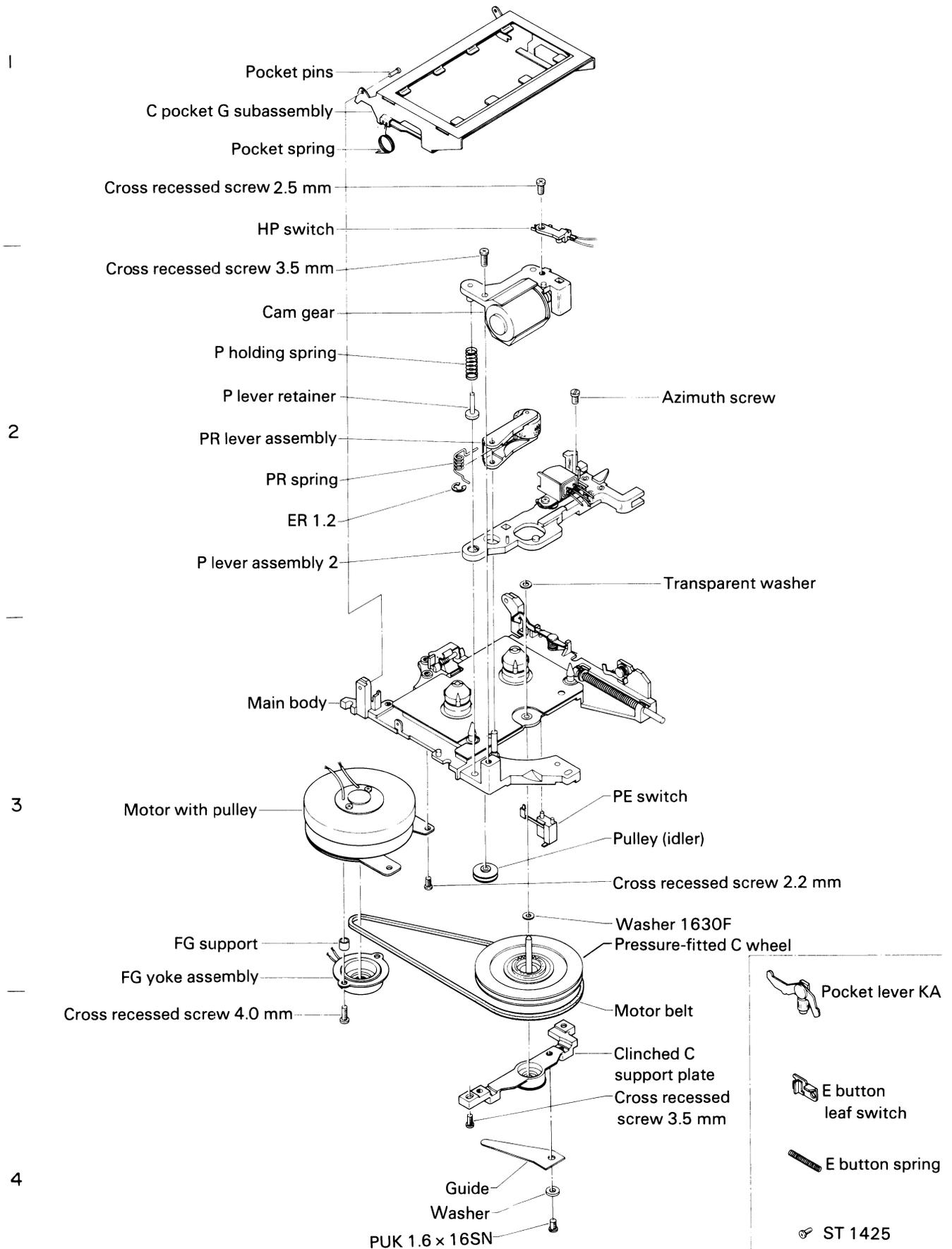


Fig. 5-61

