CHAPTER 3. MECHANISM BLOCKS

[1] General description

1. Document feed block and diagram

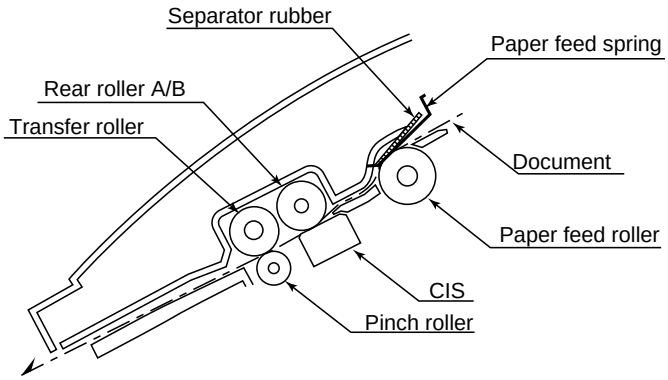

Fig. 1

2. Document feed operation

1) The document placed in the hopper actuates the document sensor. After one second, the pulse motor starts to drive the paper feed roller. The document is automatically taken up into the machine, and stopped at the document sensor.
2) When a specified number of pulses are received from the document sensor after the document lead edge is sensed, scanning is started.
3) When a specified number of pulses are received from the document sensor after the document rear edge is sensed, scanning is terminated and the document is fed through.
4) If the document sensor is active (i.e., another document is in the hopper), when the preceding document scanning is completed and it is fed out, the next document is taken up into the machine. If the document sensor is not active (i.e., there is no document in the hopper), when the document is fed out, the operation is terminated.

3. Hopper mechanism

3-1. General view

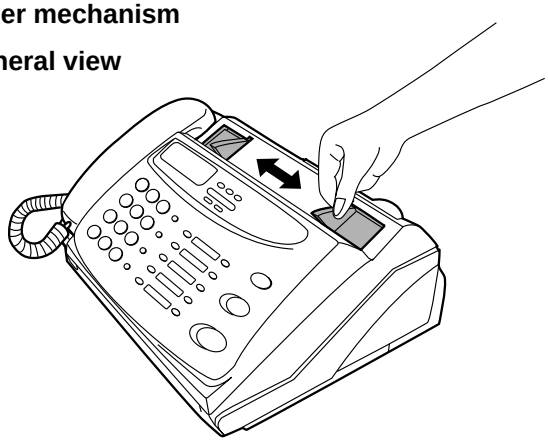

Fig. 2

The hopper is used to align documents with the document guides adjusted to the paper width.
NOTE: Adjust the document guide after setting up the document.

3-2. Automatic document feed

1) Use of the paper feed roller and separation rubber plate ensures error-free transport and separation of documents. The plate spring presses the document to the paper feed roller to assure smooth feeding of the document.
2) Document separation method: Separation rubber plate

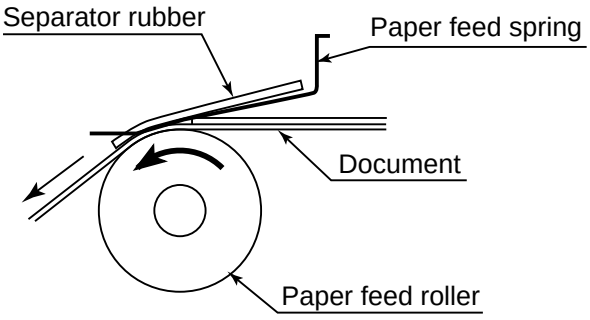

Fig. 3

3-3. Documents applicable for automatic feed

	4x6 series (788mm x 1091mm x 1000mm sheets)		Square meter series	
	Minimum	Maximum	Minimum	Maximum
Feeder capacity	10 sheets, max.			
Paper weight	45kg	64.3kg	52g/m^2	74.3g/m^2
Paper thickness (ref.)	0.06mm	0.09mm	0.06mm	0.09mm
Paper size	1/2 Letter (148mm x 140mm) ~ A4 (210mm x 297mm), Letter (216mm x 279mm)			

NOTE: Double-side coated documents and documents on facsimile recording paper should be inserted manually. The document feed quantity may be changed according to the document thickness.

Documents corresponding to a paper weight heavier than 64.3kg (74.3g/m^2) and lighter than 135kg (157g/m^2) are acceptable for manual feed.

Documents heavier than 135kg in terms of the paper weight must be duplicated on a copier to make it operative in the facsimile.

3-4. Loading the documents

1) Make sure that the documents are of suitable size and thickness, and free from creases, folds, curls, wet glue, wet ink, clips, staples and pins.
2) Place documents face down in the hopper.
   i) Adjust the document guides to the document size.
   ii) Align the top edge of documents and gently place them into the hopper. The first page under the stack will be taken up by the feed roller to get ready for transmission.

NOTES: 1) Curled edge of documents, if any, must be straighten out.
2) Do not load the documents of different sizes and/or thicknesses together.

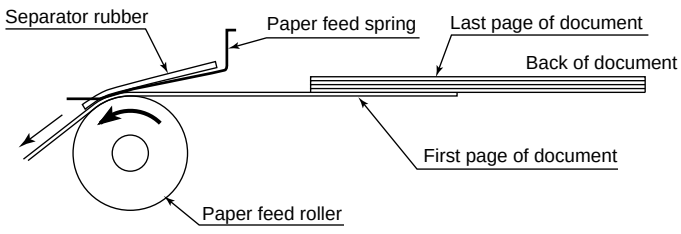

Fig. 4

3-5. Documents requiring use of document carrier

1) Documents smaller than B6 (128mm x 182mm).
2) Documents thinner than the thickness of 0.06mm.
3) Documents containing creases, folds, or curls, especially those whose surface is curled (maximum allowable curl is 5mm).
4) Documents containing tears.
5) Carbon-backed documents. (Insert a white sheet of paper between the carbon back and the document carrier to avoid transfer of carbon to the carrier.)
6) Documents containing an easily separable writing material (e.g., those written with a lead pencil).
7) Transparent documents.
8) Folded or glued documents.

Document in document carrier should be inserted manually into the feeder.

4. Document release

4-1. General

When the release lever is pulled by hand in the direction of arrow, the latch is released and the upper document guide moves on its axis in the derection of the arrow. The feed rollers, the separation rubber plate, and the pinch rollers become free to make it possible to remove the document.

4-2. Cross section view

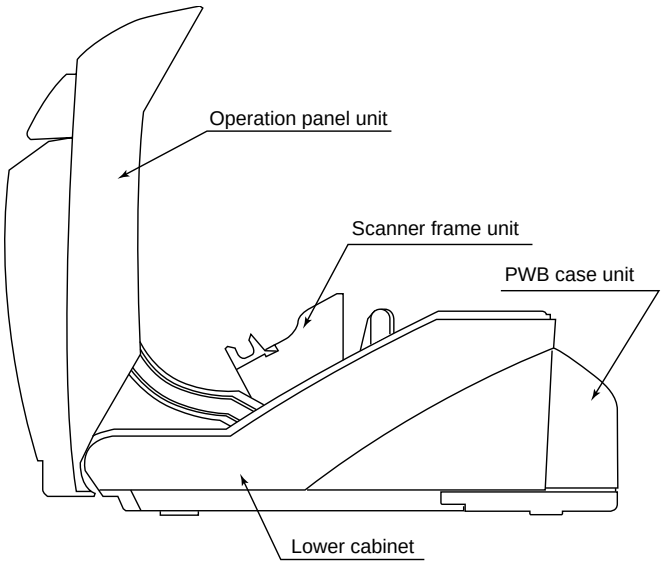

Fig. 5

5. Recording block

5-1. General view

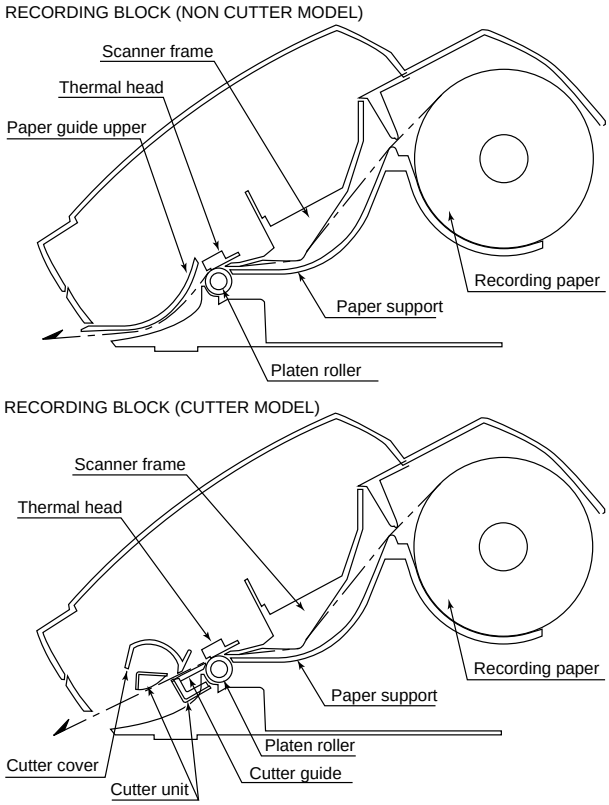

Fig. 6

5-2. Driving

Via the pulse motor gear shaft, the reduction gear, and the recording paper feed gear, rotation of the pulse motor is conveyed to the recording paper feed roller to feed the recording paper.

5-3. Recording

Use of a thermal head permits easier maintenance and low operating costs.

1) Thermal head

The thermal head consists of 1728-dot heat elements arranged in a single row and has the resolution of 8 dots/mm. The maximum recording speed is 10ms/line. The thermal head also incorporates a 1728-dot shift register latch and output control driver circuit. Low power consumption is achieved by dividing the head into nine segments.

2) Structure of the recording mechanism

Recording is accomplished by pressing the thermal head on the recording paper against the platen roller.

The main scan (horizontal) is electronically achieved, while the subscan (vertical) is achieved by moving the recording paper by the recording platen roller.

Usually, the cause for uneven print tone is caused by misalignment of the thermal head or uneven contact with the roller.

It can be checked in the following manner.

1) Check if the thermal head power and signal cables are properly routed.
2) Check that the thermal head pivot moves smoothly up and down.
3) Check that the thermal head support bracket is secured without any play.
4) Check to see that the recording platen roller has proper concentricity, in the case of a print tone variation evenly repeated down the page.
5) Replace the thermal head with a new one and check to see if the same trouble occurs.

[2] Disassembly and assembly procedures

- This chapter mainly describes the disassembly procedures. For the assembly procedures, reverse the disassembly procedures.
- Easy and simple disassembly/assembly procedures of some parts and units are omitted. For disassembly and assembly of such parts and units, refer to the Parts List.
- The numbers in the illustration, the parts list and the flowchart in a same section are common to each other.
- To assure reliability of the product, the disassembly and the assembly procedures should be performed carefully and deliberately.

1 Handset cover and paper support guide

Parts list (Fig. 1)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Mechanism unit	1	7	Guide wire sheet	1
2	Handset cover	1		(Non cutter model)	
3	Hook switch lever	1	8	PO pinch roller	2
4	Screw (ø3×12)	2		(Cutter model)	
5	Paper support guide unit	1	8	Paper set label	1
6	Anti curl shaft	1		(Non cutter model)	
	(Cutter model)		9	Paper sensor lever	1
6	Guide wire	1	10	Paper sensor lever spring	1
	(Non cutter model)		11	Guide sheet	2
7	Anti curl spring	2	12	Sensor sheet	1
	(Cutter model)		13	Paper support guide	1

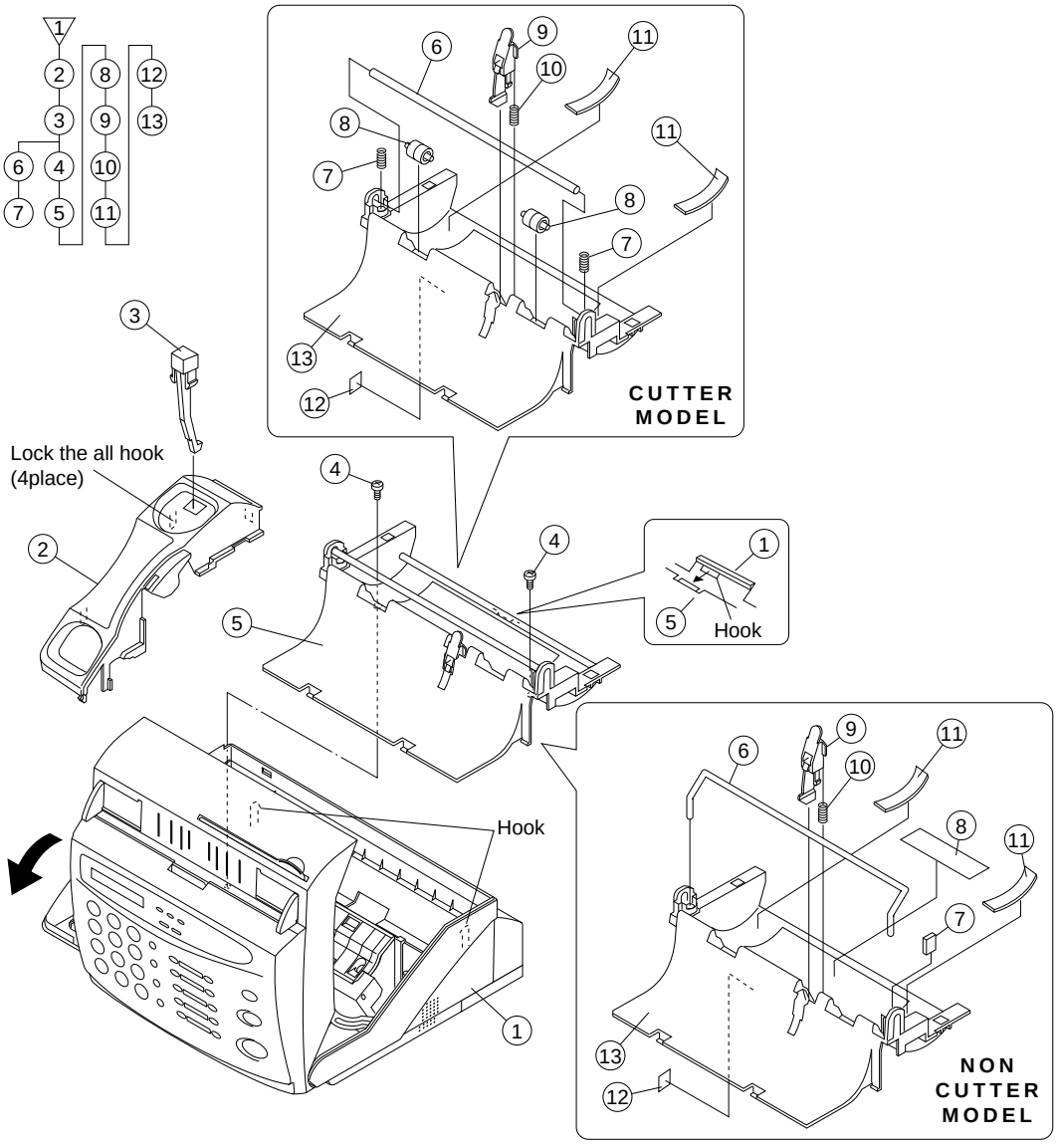

Fig. 1

2 PWB case top, bottom and PWB

Parts list (Fig. 2)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Mechanism unit	1	9	Screw (4×6)	1
2	Screw (3×6)	1	10	AC cord ass'y	1
3	Head earth cable	1	11	Screw (3×6)	1
4	Connector	2	12	TEL ARG cable	1
5	Screw (3×10)	1	13	Power supply PWB unit	1
6	PWB case unit	1	14	TEL/LIU PWB unit	1
7	Screw (3×10)	2	15	Rubber leg	2
8	PWB case, top	1	16	PWB case, bottom	1

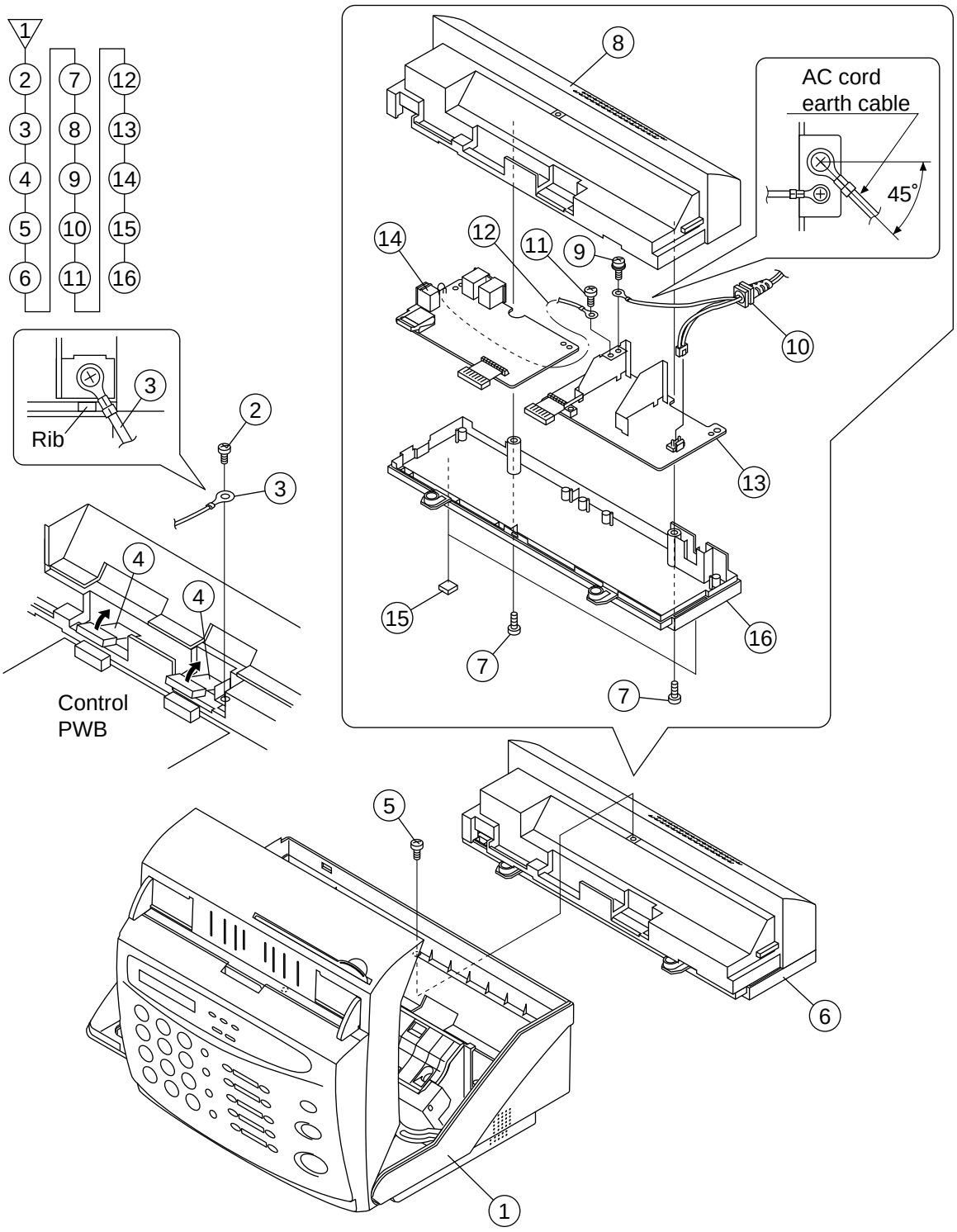

Fig. 2

3 Operation panel unit and scanner frame

Parts list (Fig. 3)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Mechanism unit	1	9	Feed roller	1
2	Screw (3×10)	2	10	CIS cable	1
3	Scanner frame unit	1	11	CIS support, right	1
4	Document guide lower	1	12	CIS unit	1
5	Reduction gear, 17/36Z	1	13	CIS support, left	1
6	Reduction gear, 17/21Z	1	14	CIS spring	2
7	Idler gear, 25Z	1	15	Scanner frame	1
8	Feed roller shaft	1	16	Panel and head cable	2
			17	Operation panel unit	1

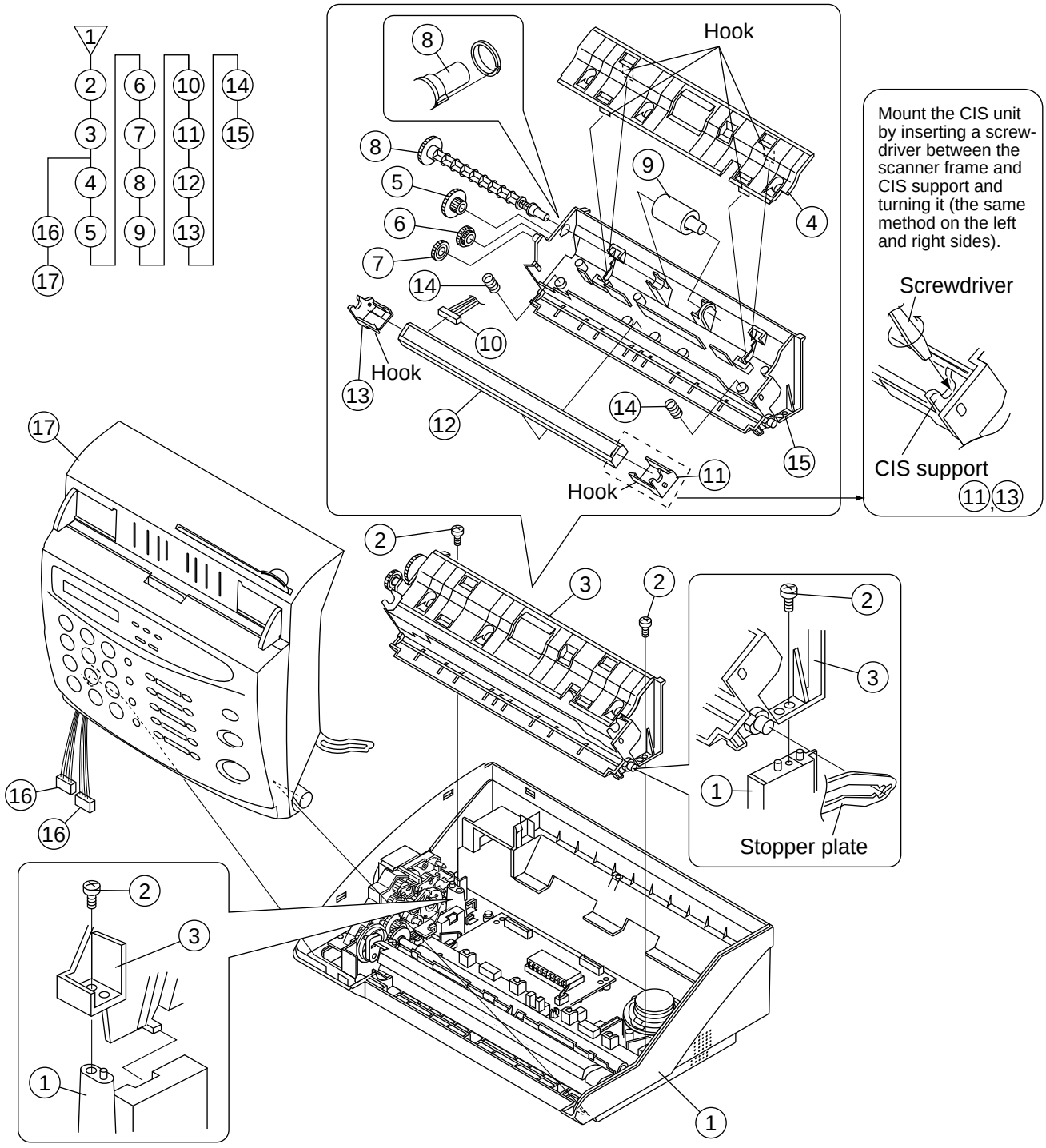

Fig. 3

4 Document guide upper unit and head frame

Parts list (Fig. 4)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Operation panel unit	1	11	Head support, right	1
2	Screw (3×10)	2	12	Screw (3×6)	1
3	Support plate	1	13	Head earth cable	1
4	Document guide upper unit	1	14	Head support, left	1
			15	Thermal head	1
5	Screw (3×10)	2	16	Pinch roller shaft	1
6	Head sheet	1	17	Pinch roller	2
7	Head cable	1	18	Pinch roller pressing spring	2
8	Head spring A	2			
9	Head spring B	3	19	Head frame	1
10	Screw (3×6)	1			

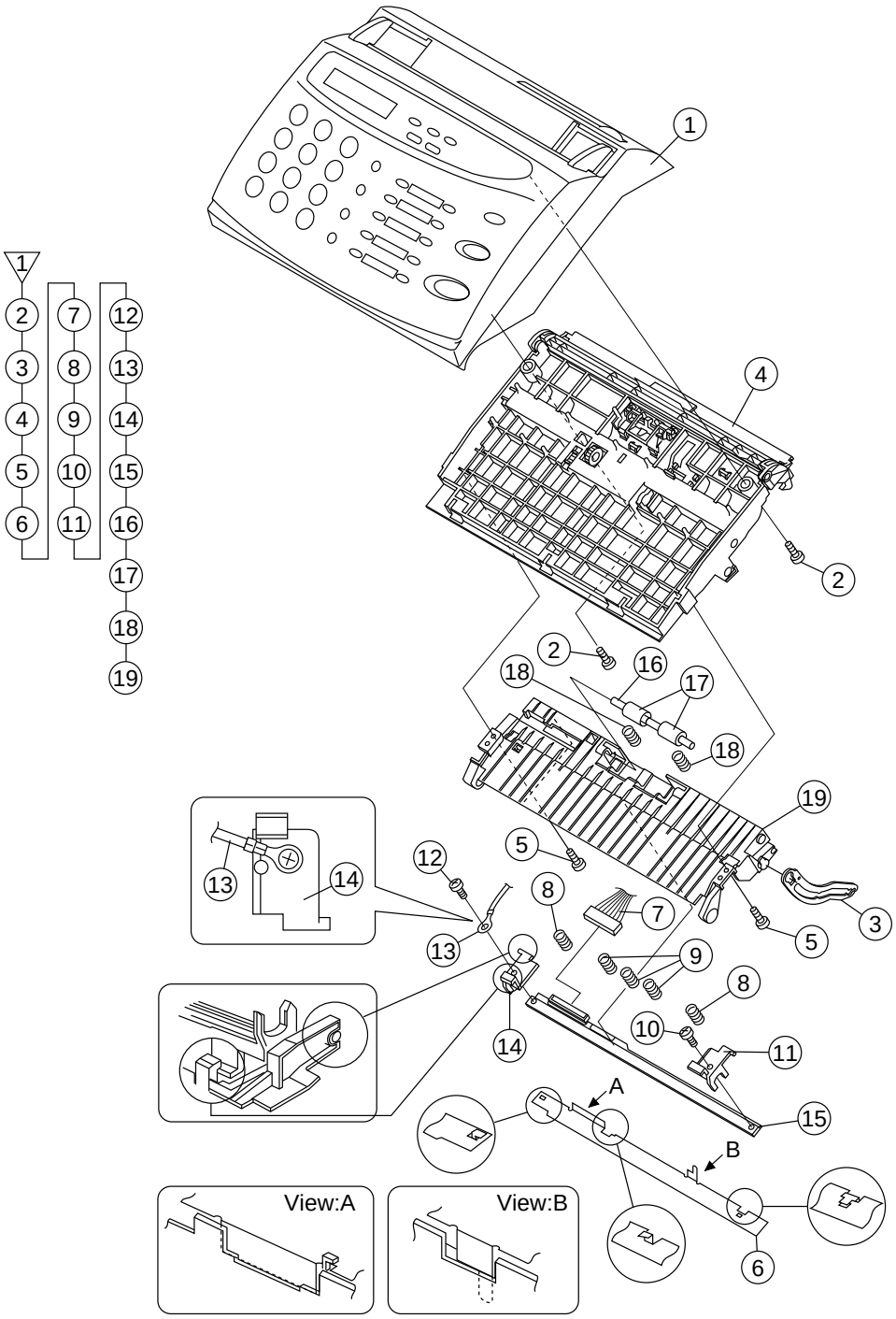

Fig. 4

5 Document guide upper

Parts list (Fig. 5)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Rear sheet	1	10	Panel lock lever	1
2	CIS gear, 29Z	1	11	Document sensor lever spring	1
3	CIS roller A ass'y	1			
4	Transfer bearing	1	12	Document sensor lever	1
5	CIS roller B ass'y	1	13	Separate spring	1
6	Transfer roller	1	14	Separator plate	1
7	Transfer bearing	1	15	Paper feed spring	1
8	Idler gear, 20Z	1	16	Separator rubber	1
9	Panel lock lever spring	1	17	Document guide upper	1

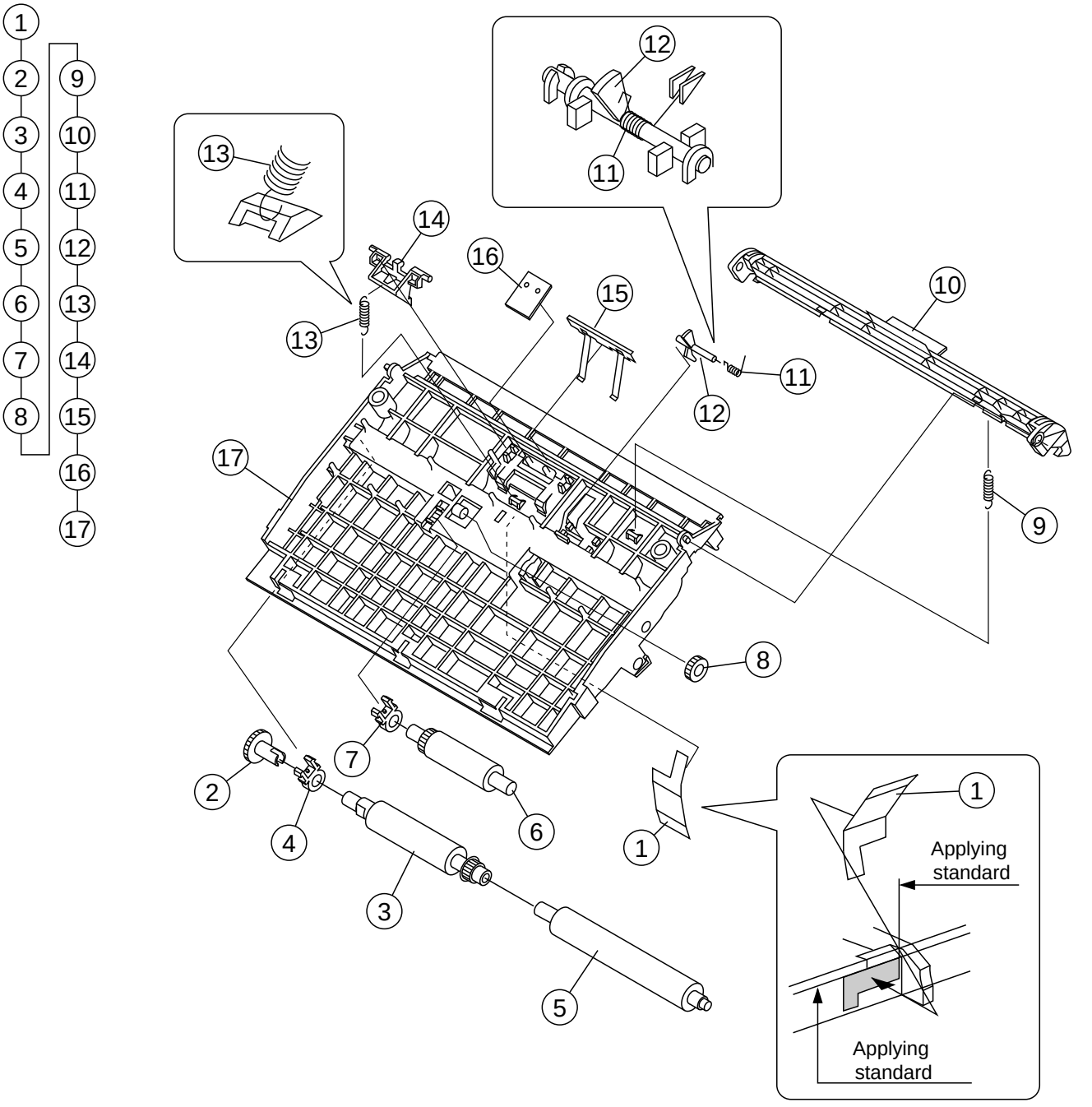

Fig. 5

6 Operation panel

Parts list (Fig. 6)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Operation panel unit	1	8	Hopper spring	1
2	Screw (2×6)	3	9	Hopper guide, right	1
3	Operation panel cable	1	10	Hopper guide, left	1
4	Operation panel PWB	1	11	Stop key	1
5	Document tray	1	12	Start key	1
6	Screw	1	13	Direct key	1
7	Pinion gear	1	14	12 key	1
			15	Operation panel	1

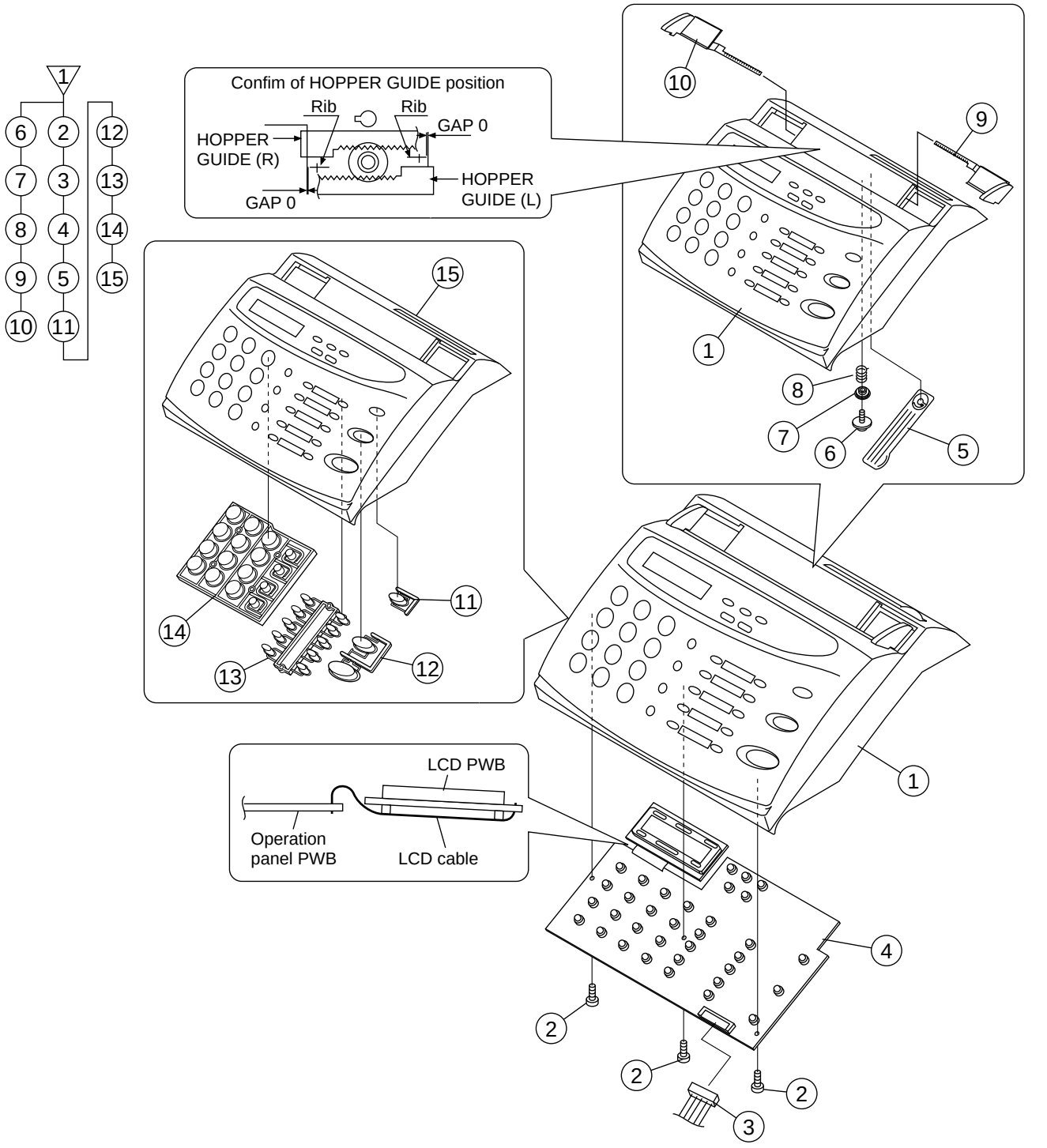

Fig. 6

7 Drive unit, PWB and cutter

Parts list (Fig. 7)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Mechanism unit	1	9	Cutter unit (Cutter model only)	1
2	Screw (3×10) (Cutter model)	2	10	Screw (3×10) (Cutter model only)	1
2	Screw (3×10) (Non cutter model)	1	11	Cutter cover (Cutter model only)	1
3	Cutter arm (Cutter model only)	1	12	Cutter guide (Cutter model only)	1
4	Drive unit	1	13	Cutter (Cutter model only)	1
5	Platen gear	1	14	Screw (3×10)	2
6	Platen roller	1	15	Speaker cable	1
7	Platen bearing	2	16	Control PWB unit	1
8	Screw (3×10) (Cutter model only)	1			

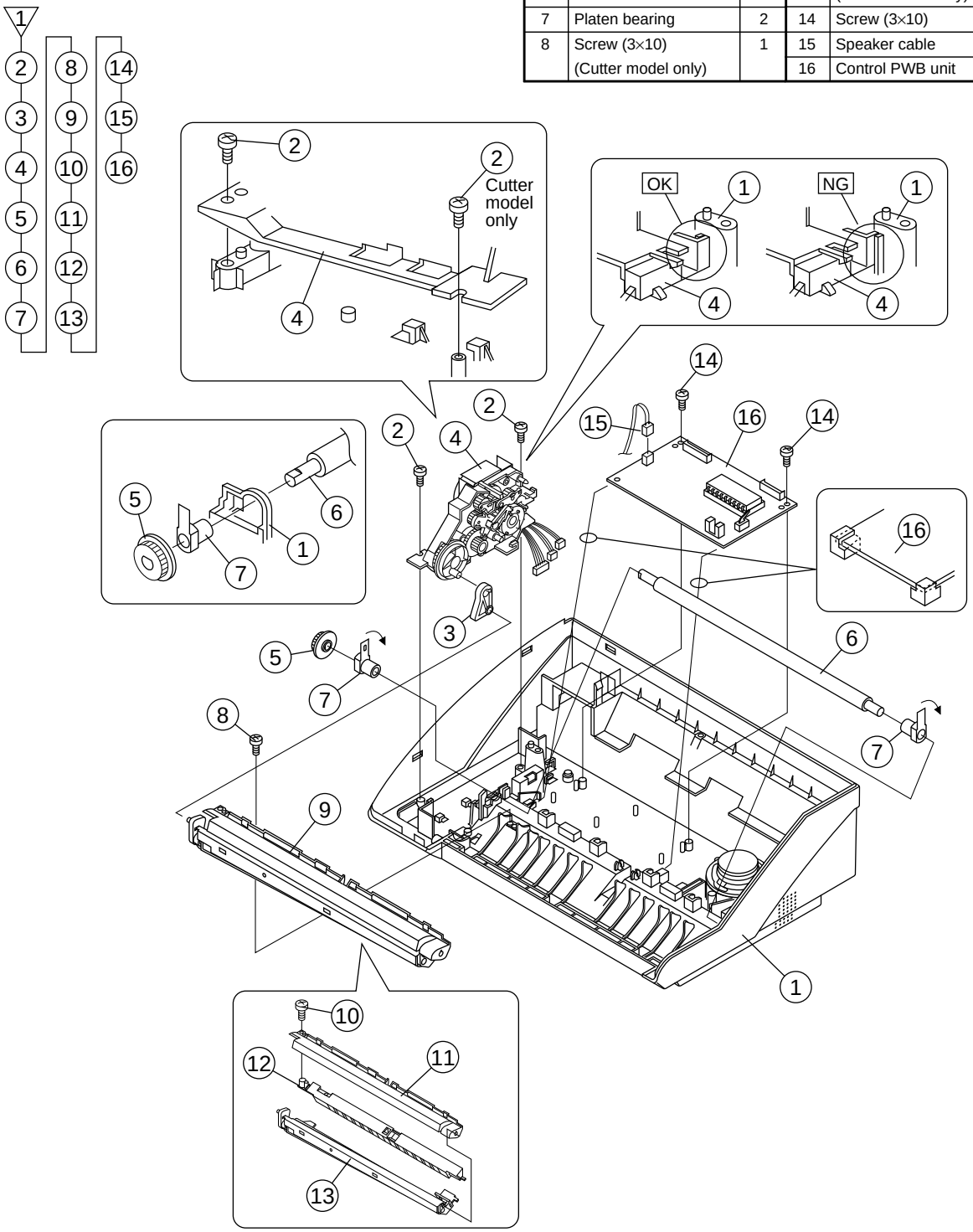

Fig. 7

8	**Speaker, paper sensor lever and paper guide upper**

Parts list (Fig. 8)

No.	Part name	Q'ty
1	Mechanism unit	1
2	Paper sensor lever spring (Cutter model only)	1
3	Paper sensor lever (Cutter model only)	1
4	Screw	2
5	Speaker	1
6	Paper guide upper (Non cutter model only)	1

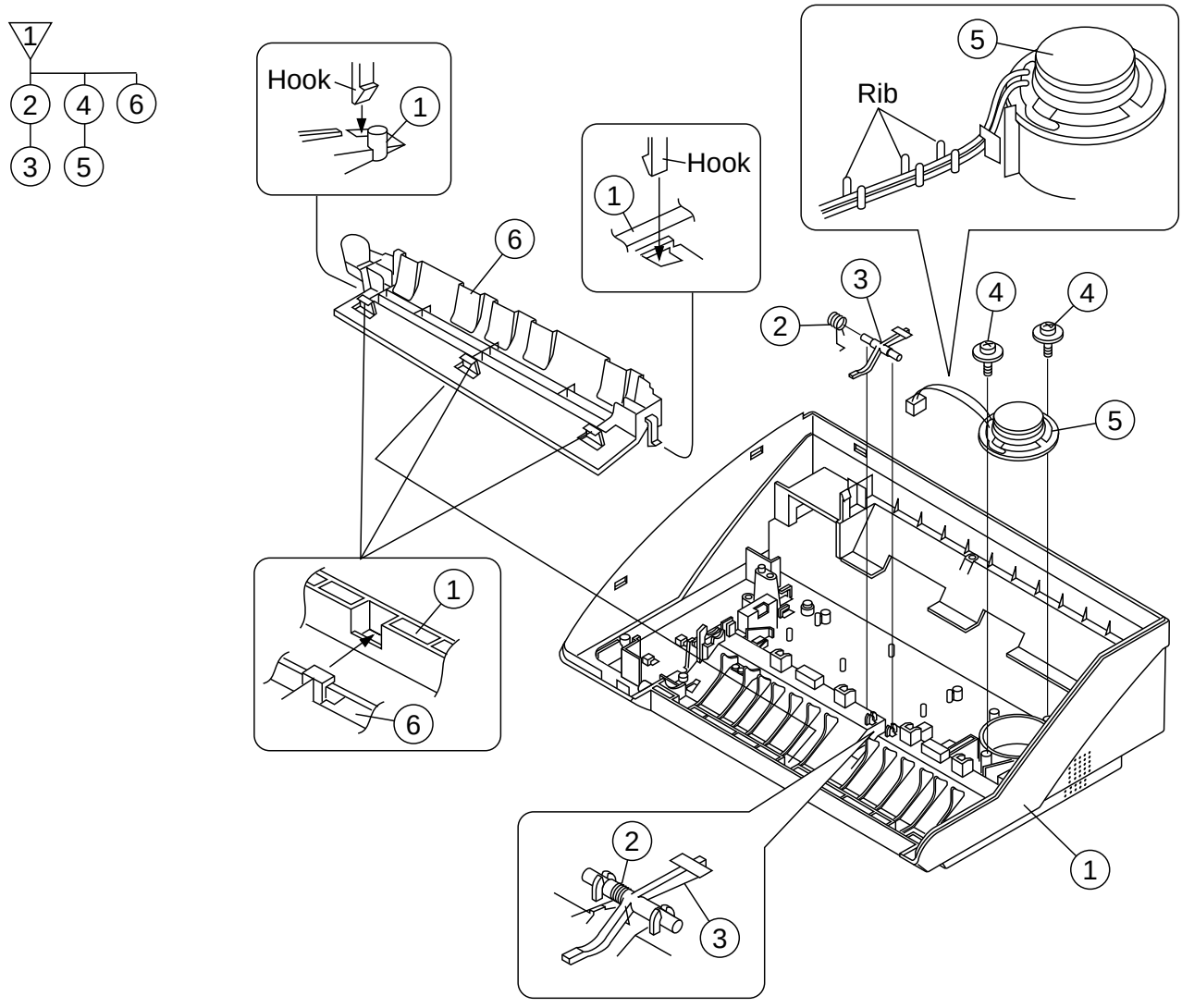

Fig. 8

9 Drive frame (Non cutter model)

Parts list (Fig. 9)

No.	Part name	Q'ty	No.	Part name	Q'ty
1	Change lever spring	1	11	Planet gear lever B	1
2	Planet gear, 17Z	1	12	Idler gear, 25Z	1
3	Change lever A	1	13	Cam switch	1
4	Cam	1	14	Reduction gear, 17Z	1
5	Reduction gear, 17/36Z	1	15	Idler gear, 25Z	1
6	Planet gear, 17Z	1	16	Screw (3×10)	1
7	Planet gear spring	1	17	Motor	1
8	Planet gear lever A	1	18	Motor heat sink	1
9	Planet gear, 17Z	1	19	Drive frame	1
10	Planet gear spring	1			

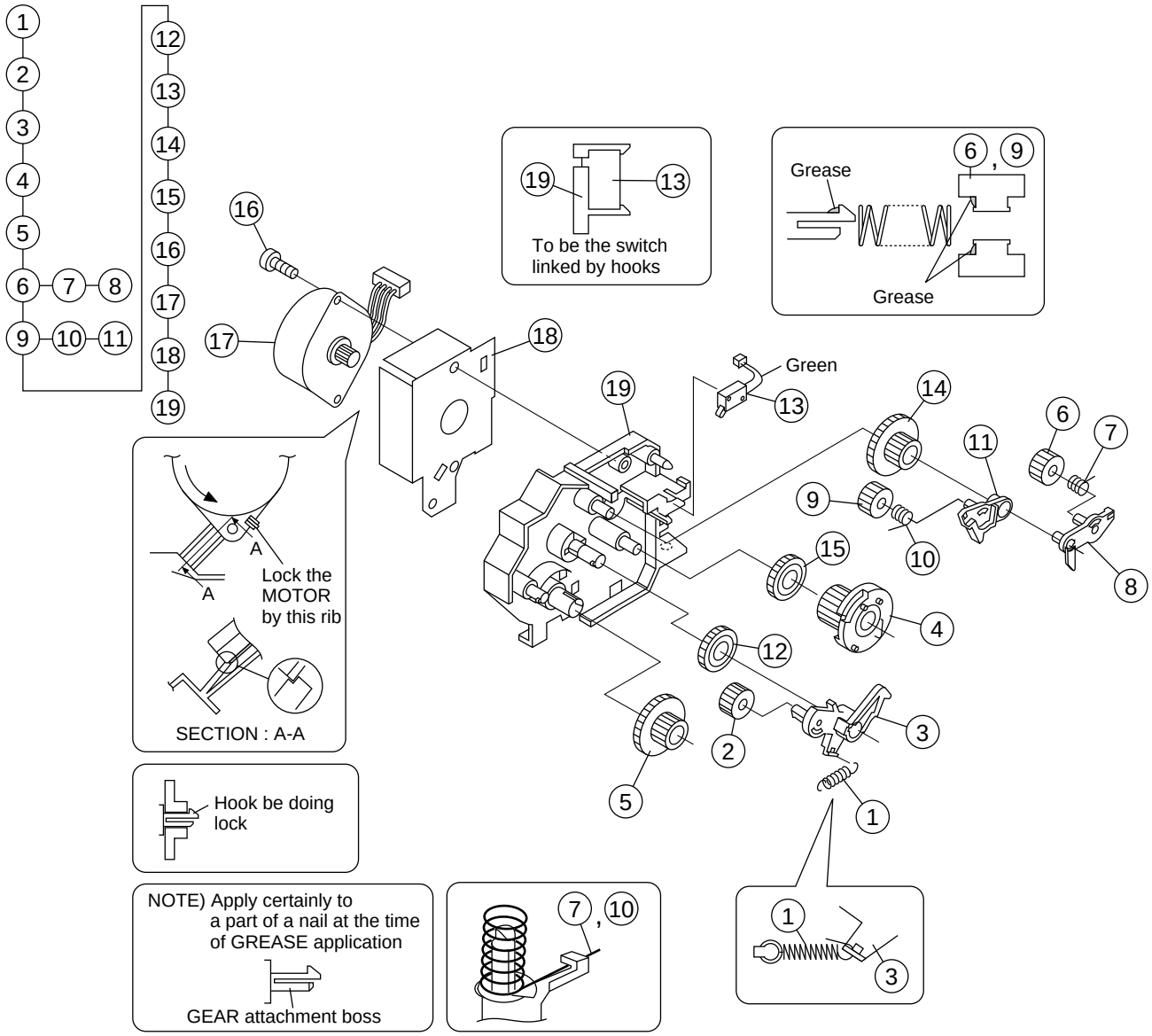

Fig. 9

10 Drive frame (Cutter model)

Parts list (Fig. 10)

No.	Part name	Q'ty	No.	Part name	Q'ty	No.	Part name	Q'ty
1	Cutter cam switch	1	11	Planet gear, 17Z	1	21	Reduction gear, 17/36Z	1
2	Planet gear, 17Z	1	12	Planet gear spring	1	22	Idler gear, 25Z	1
3	Planet gear spring	1	13	Planet gear lever A	1	23	Idler gear, 25Z	1
4	Planet gear lever C	1	14	Planet gear, 17Z	1	24	Idler gear, 20Z	1
5	Change lever spring	1	15	Planet gear spring	1	25	Screw (3×10)	1
6	Planet gear, 17Z	1	16	Planet gear lever B	1	26	Motor	1
7	Change lever A	1	17	Idler gear, 25Z	1	27	Motor heat sink	1
8	Cam	1	18	Cam switch	1	28	Drive frame	1
9	Reduction gear, 17/36Z	1	19	Reduction gear, 17/30Z	1			
10	Cutter gear, 44Z	1	20	Reduction gear, 17/30Z	1			

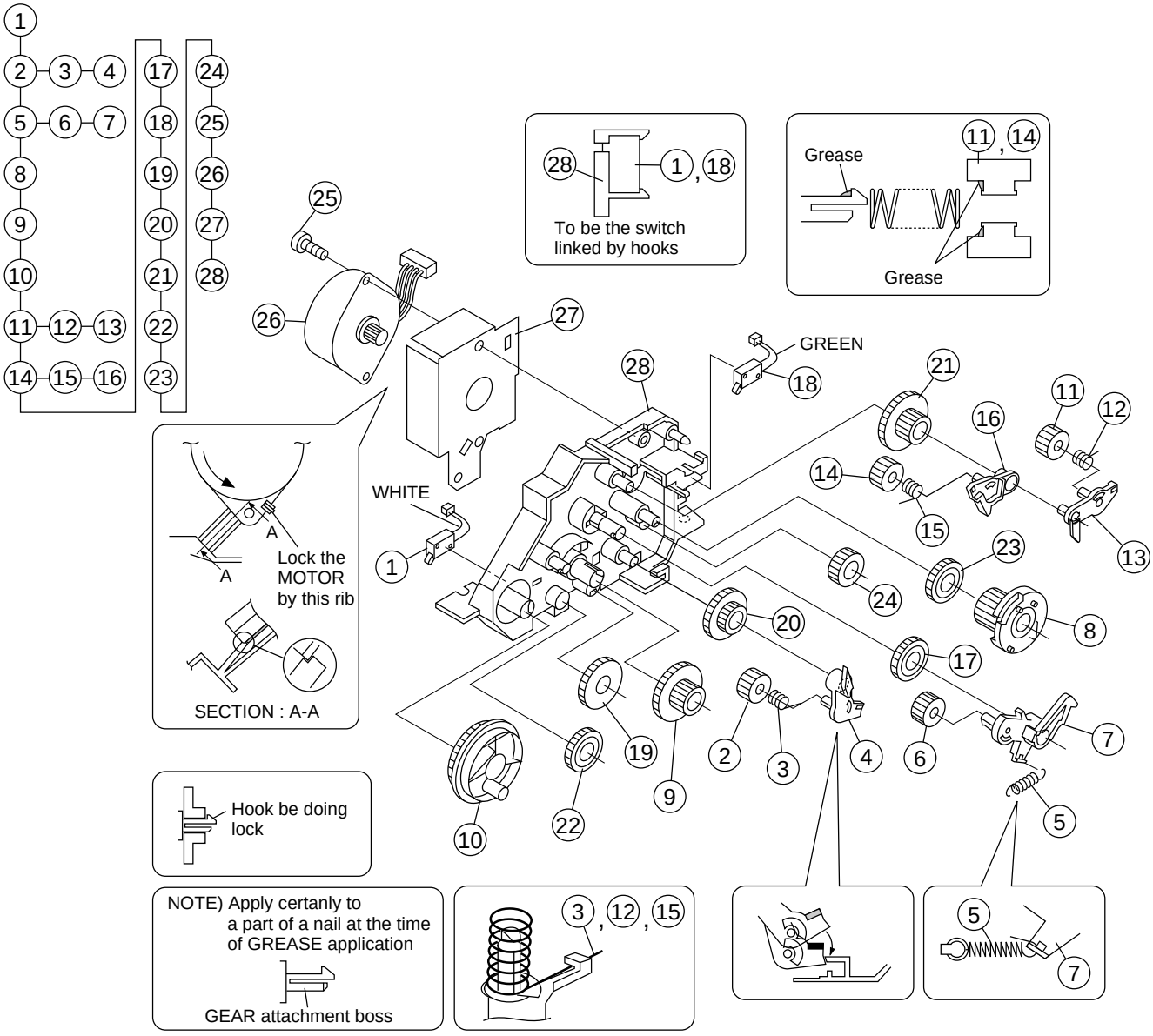

Fig. 10

11 Wire treatment

Parts list (Fig. 11)

No.	Part name	Q'ty
1	Band	6
2	Screw (3×6)	2
3	Screw (4×6)	1
4	UL tape	1
5	Core (F2064)	1
6	Core (F2103)	1

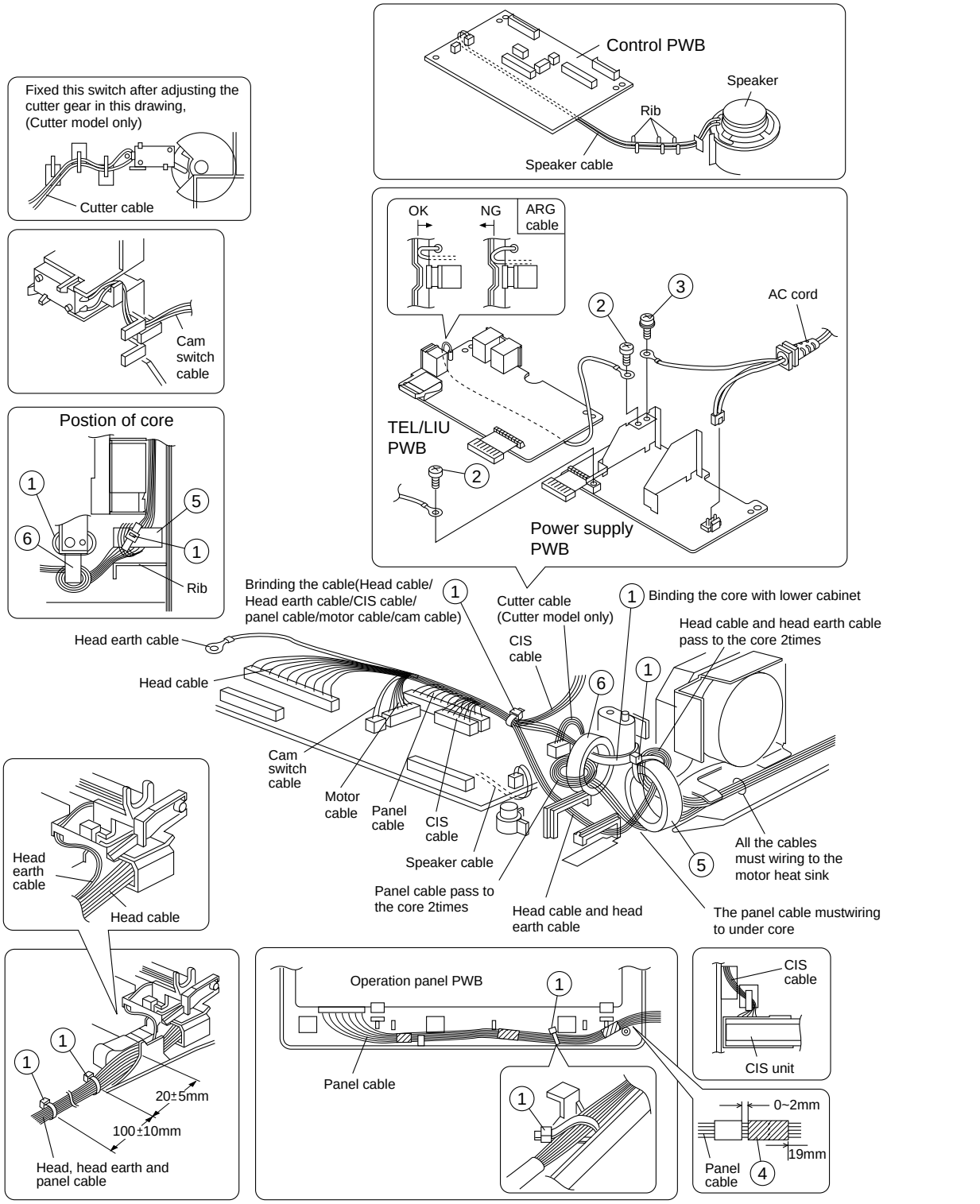

Fig. 11