

SERVICE MANUAL & PARTS LIST (without price)

LABEL PRINTER **KL-100E/100** (ZX-206A/206B)

SEP 1998



KL-100E

CASIO®

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1. SPECIFICATIONS

1-1. KL-100E

Input

Keyboard Layout: Typewriter (QWERTY)

Character Types

Alpha (English and other languages): 151

Numbers: 10

Symbols: 41

Display

Type: Liquid crystal display

Columns: 4

Character matrix: 5 × 7-dot

Printing

Type: Thermal transfer

Speed: Approximately 6.76 mm/second

Width: 4 mm (6 mm tape) or 8 mm (9 mm, 12 mm, and 18 mm tapes)

Character matrix: 24 × 24-dot

Character fonts: Sans-serif

Character effects: Shade, underline, box

Character sizes: 1 × 1, 1 × 2, 1 × 3, 2 × 1, 2 × 2, 2 × 3

Number of lines: 1 (6 mm tape); 1 or 2 (other tapes)

Memory

Text: Up to approximately 126 characters (total storage for AREA 1 and AREA 2)

General

Power supply: Six AA-size alkaline batteries or optional AD-A95100 AC adaptor

Battery life: Approximately 2 tape cartridges (continuous printing)

Power consumption: 9 W

Auto power off: Approximately six minutes after last key operation.

Dimensions: 53.0 (H) × 178 (W) × 111 (D) mm

(2 1/8" H × 7" W × 4 3/8" D)

Weight: 360 g (12.7 oz)

Ambient temperature: 10 °C ~ 35 °C (50 °F ~ 95 °F)

Threshold of voltage detection

Low battery: Vbat+ = 6.9V

Forced power off: Vbat+ = 4.50V

Note: Vbat+ is the voltage of BT+ pad in the Z206-2 ass'y. Refer to 4 page in this manual.

1-2. KL-100

Input

Keyboard Layout: Typewriter (QWERTY)

Character Types

Alpha (English and Spanish): 64
Numbers: 10
Symbols: 41

Display

Type: Liquid crystal display
Columns: 4
Character matrix: 5 × 7-dot

Printing

Type: Thermal transfer
Speed: Approximately 6.76 mm/second
Width: 4 mm (6 mm tape) or 8 mm (9 mm, 12 mm, and 18 mm tapes)
Character matrix: 48 × 48-dot
Character fonts: Sans-serif
Character effects: Shade, underline, box
Character styles: Normal, Outline, Shadow, Raised
Character sizes: 1 × 1, 1 × 2, 1 × 3, 2 × 1, 2 × 2, 2 × 3
Number of lines: 1 (6 mm tape); 1 or 2 (other tapes)
Frames: Three Types

Memory

Text: Up to approximately 126 characters (total storage for AREA 1 and AREA 2)

General

Power supply: Six AA-size alkaline batteries or optional AD-A95100 AC adaptor
Battery life: Approximately 2 tape cartridges (continuous printing)
Power consumption: 9 W
Auto power off: Approximately six minutes after last key operation.
Dimensions: 53.0 (H) × 178 (W) × 111 (D) mm
(2 1/8" H × 7" W × 4 3/8" D)
Weight: 360 g (12.7 oz)
Ambient temperature: 10 °C ~ 35 °C (50 °F ~ 95 °F)

Threshold of voltage detection

Low battery: Vbat+ = 6.9V
Forced power off: Vbat+ = 4.50V

Note: Vbat+ is the voltage of BT+ pad in the Z206-2 ass'y. Refer to 4 page in this manual.

2. CLEANING THE PRINTER HEAD AND ROLLER

A dirty printer head and roller can result in poor printing quality. If you have problems with print quality, use the following procedure to clean the printer head and roller.

To clean the printer head and roller

1. Make sure the Label Printer is turned off.
2. Turn over the Label Printer, and open the back cover while pressing down on its lock.
3. Remove the tape cartridge.
4. Use a cotton swab dipped in alcohol to clean the printer head and roller as shown in the illustration (Figure-1).

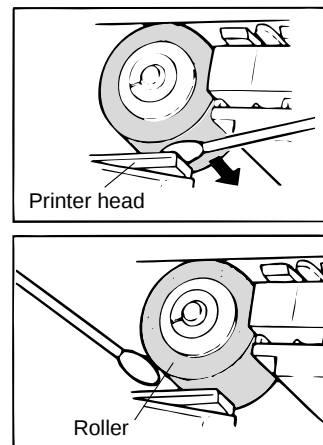


Figure-1

5. Replace the tape cartridge and close the back cover.

3. RESET OPERATION

1. Turn power off.
2. While holding down the **PRINT** and **ESC** keys, press **ON** to turn power on.
3. Keeping **PRINT** and **ESC** held down, release the **ON** key only.
 - This prompt confirms whether or not you want to initialize the Label Printer.
4. Press **SET** to initialize the Label Printer or **ESC** to abort the reset operation.
 - The following table shows the initial settings.

INT?

Item	Reset (KL-100E)	Reset (KL-100)
Display	Cleared	Cleared
Memory	Cleared	Cleared
EFFECT	CANCEL	CANCEL
STYLE	—	NORMAL
M-FEED	NO	NO
MIRROR	OFF	OFF
DENSITY	3	3
6 mm	OFF	OFF
CURRENCY A	€	—
FORMAT	1	—
ROUND	2	—

Table-1

4. PRECAUTIONS

To prevent damage of the thermal head caused by static electricity when assembling the chassis ass'y into the unit, the following steps must be followed;

1. Turn the power switch off.
2. Discharge the capacitor C205 (2200 μ F) on the PCB Z206-2.
3. Connect the FPC of chassis ass'y into a connector CN201 of the Z206-2 ass'y.
4. Assemble the chassis ass'y.
5. Turn the power switch on.
(Refer to the Disassembly view (Z206-1 ass'y) of 19 page.)

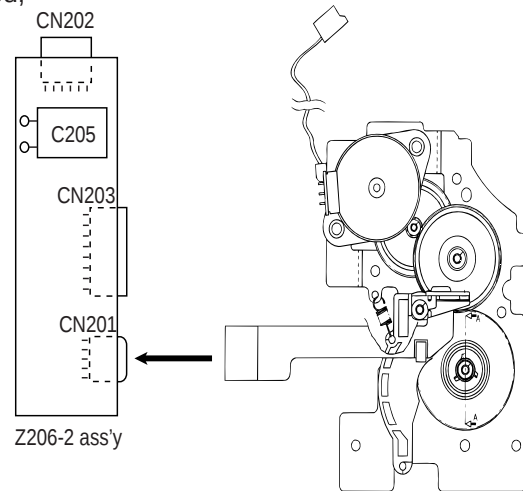


Figure-2 Chassis ass'y

5. MEASUREMENT

Measure each value according to the following table and figure, if necessary.

Measurement point		Voltage/Current	Condition
Vcc	Min.	4.875 V	Icc = 30 mA
	Max.	5.125 V	
Vp	Min.	9.31 V	Ip = 300 mA
	Max.	9.69 V	
Ibat+ (Displaying)	Typ.	11 mA	Turning power switch on.
	Max.	20 mA	
Ibat+ (Printing)	Typ.	0.6 A	When printing at diagnostic program PRINT CHECK 2
	Max.	0.7 A	
Ibat+ (Power off)	Typ.	60 μ A	Turning power switch off.
	Max.	80 μ A	

Note: Ibat+ = Power source (Batteries)

Vbat+ = 9.5 V $\pm$ 2%

Table-2

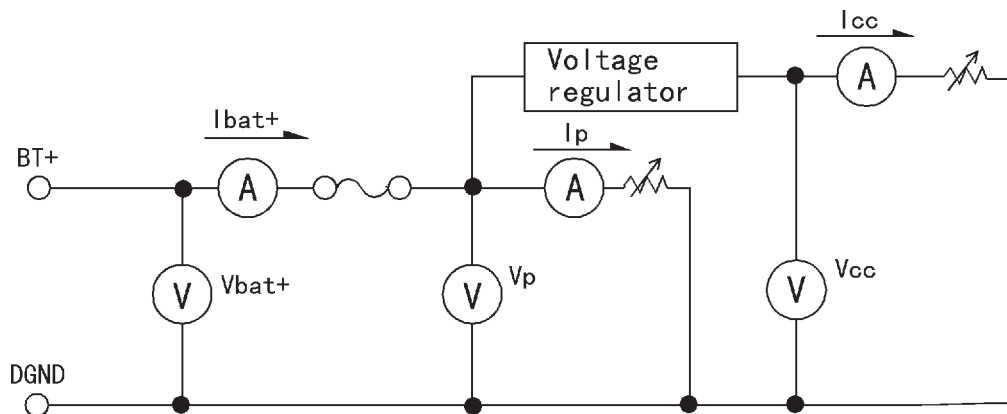


Figure-3

6. LSI PIN FUNCTION

CPU + ROM + RAM (UPD780306GC): LSI1

Pin No.	Name	I/O	Function
1	ANT1	O	Timing signal detecting low battery voltage
2~5	P12~P15	I/O	I/O port(not use)
6~7	P16~P17	I	Setting for thermal head rank
8	AVDD	I	Analog power supply for A/D converter of LSI1
9	AVREF	I	Analog reference voltage for A/D converter of LSI1
10	P100	O	Control signal for analog reference voltage
11	P101	I/O	I/O port(not use)
12	VSS	—	Digital ground for LSI1
13~14	P102~P103	I/O	I/O port(not use)
15~21	P30~P36	O	Key common signals(KO0~KO6)
22	P37	I/O	I/O port(not use)
23~26	COM0~COM3	O	Common signals for LCD
27	BIAS	—	LCD power supply bias control
28	VLCD0	I	LCD power supply
29	VLCD1	I	LCD power supply
30	VLCD2	I	LCD power supply
31	VSS	—	Digital ground for LSI1
32~71	S0~S39	O	Segment signals for LCD
72	SI0	O	Latch signal for thermal head
73	SO0	O	Serial data signal for thermal head
74	SCK0	O	Clock pulse for thermal head
75	P70	O	Strobe signal for thermal head
76~77	P71~P72	I/O	I/O port(not use)
78	IC	—	Internally connected
79	X2	O	Main system clock
80	X1	I	Main system clock
81	VDD	I	Power supply for LSI1(VCC)
82	XT1/P07	I	Subsystem clock(not use)
83	XT2	O	Subsystem clock (not use)
84	RESET	I	System reset for LSI1
85	INTP0	I	Power off signal from power switch
86	INTP1	I	Voltage detecting signal for low power(VCC)
87~90	P02~P05	O	Motor drive signals
91~98	P110~P117	I	Key input signals
99	AVSS	—	Analog ground for A/D converter of LSI1
100	ANI0	I	Voltage detecting signal for low battery

Table-3

7. BLOCK DIAGRAM (LSI1)

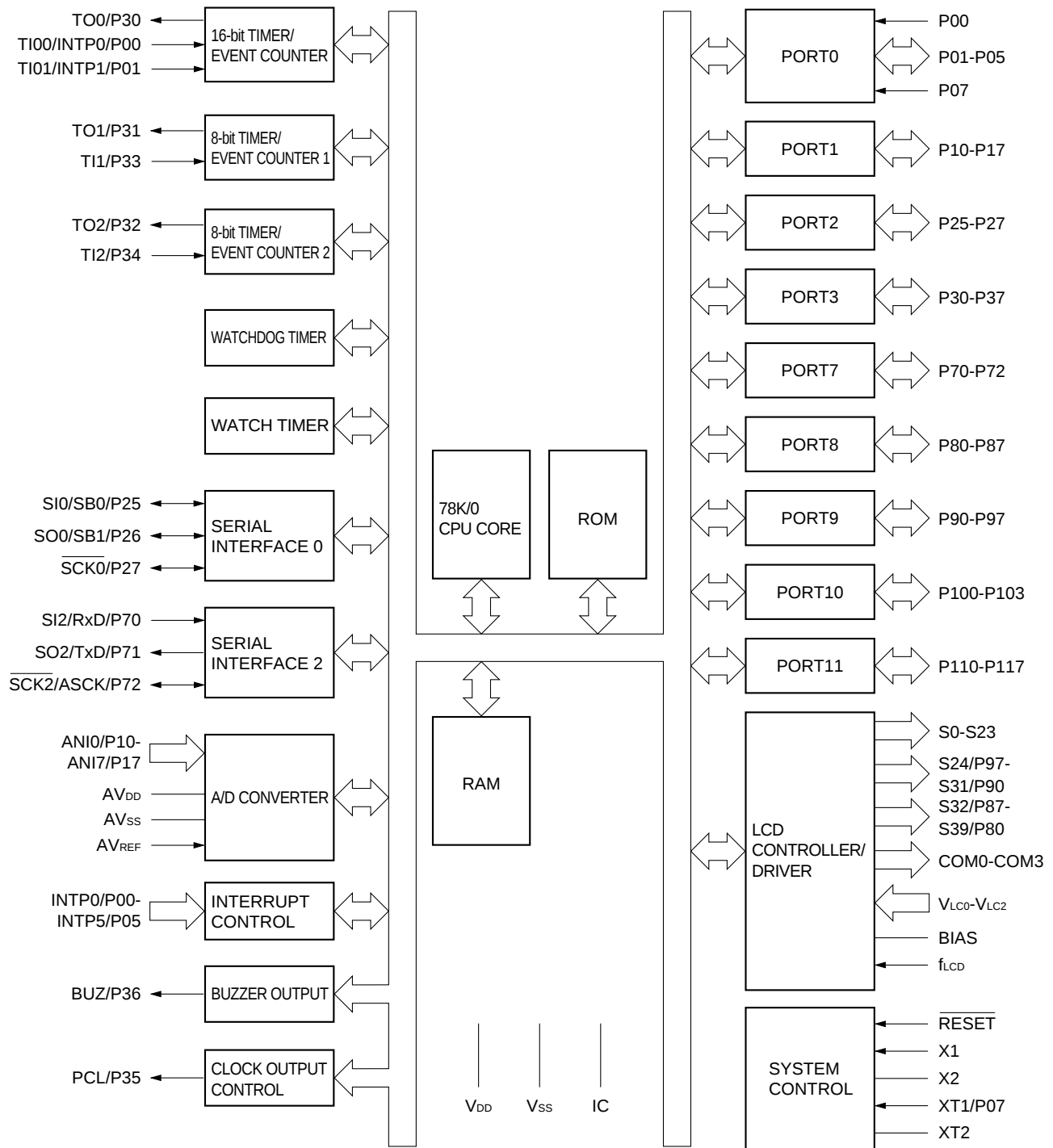
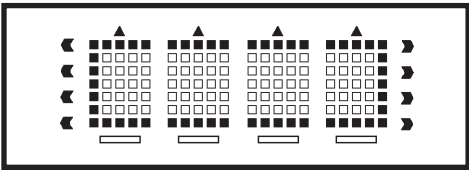
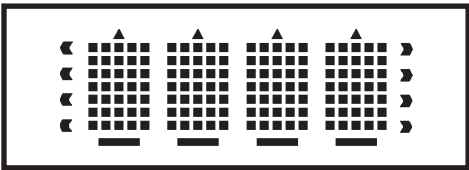
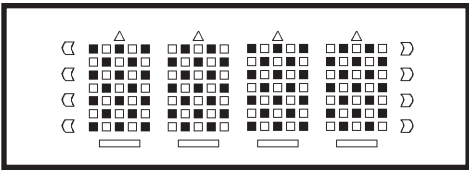
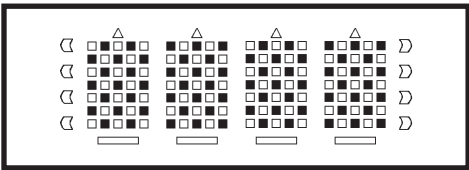
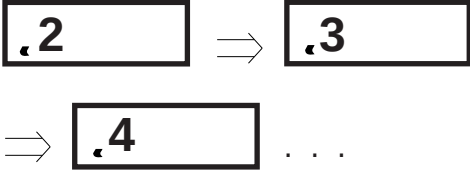
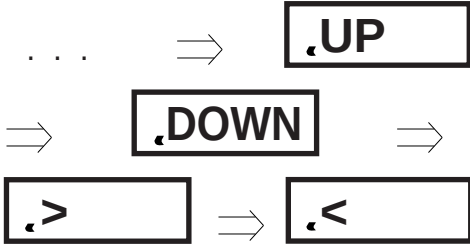


Figure-4

8. DIAGNOSTIC PROGRAM

Note: Make the reset operation after ROM check, because the ROM check break the data stored in RAM.

Check item	Operation	Display	Note
(BOOT)	Press ON key while pressing keys (Z + P + BS) at the same time.		Main menu
LCD CHECK	Press V key.		
	Press SET key.		
	Press SET key.		All dots
	Press SET key.		Checker
	Press SET key.		Reversed checker
	Press SET key.		Main menu
KEY CHECK	Press V key twice.		

Check item	Operation	Display	Note
KEY CHECK	Press SET key.		
	Press 1 , 2 , 3 , ... keys in succession.		Press the keys according to what is appeared on the LCD.
	... FUNKTION + PRINT ,  ,  , 		
	Press  key.		
	Press any key.		Main menu
HEAD RANK CHECK	Press  key three times.		
	Press SET key.	For example, 	Check the rank of the thermal head employed in the unit. (RANK = A ~ D) Refer to 19 page.
	Press any key.		Main menu

Check item	Operation	Display	Note
ROM CHECK	Press (V) key four times.	ROM	
	Press SET key.	For example, F52A	Sum check F52A (ZX-206A) 4F56 (ZX-206B)
	Press any key.	ALL	Main menu
PRINT CHECK-1	Press (V) key five times.	PRI1	
	Press SET key.	PRNT	Refer to the following Figure-5
	No operation	ALL	Main menu
PRINT CHECK-2	Press (V) key six times.	PR2	
	Press SET key.	PRNT	Refer to the following Figure-6

Check item	Operation	Display	Note
PRINT CHECK-2	No operation		Main menu

● PR-1 (Normal printing result)



Figure-5

● PR-2 (Normal printing result)



Figure-6

9. ERROR MESSAGES

9-1. KL-100E

Problem	Possible Cause	Action
ERR! * This message appears on the screen for about one second.	• Attempt to input two ↵ marks within the same text. • Attempt to input ↵ mark while 6 mm is specified as the tape width. • Label text containing a ↵ mark was input and then tape width specification was changed to 6 mm. (ERR! message appears when you try to perform a print operation.) • Text that is longer than 5.5 cm when stamp printing is selected. • Attempt to print a stamp while 6 mm is specified for the tape width. • Input of any of the following for while using the currency conversion functions : RATE, PRINT A→B (÷), or PRINT B→A (×) • A value with more than eight digits or more than seven digits with a leading decimal point. • More than one decimal point character	• Use only one ↵ mark. Only two lines of text can be input, so text can contain only one ↵ mark. • Do not use ↵ marks. 6 mm tape can have only one line of text, so text cannot contain any ↵ marks. • Delete the ↵ mark to print on 6 mm tape or switch back to a wider tape. • Shorten the text to be printed and try again. • Change the tape width setting to OFF and try printing the stamp again. • Input the value correctly.
FUL! * This message appears on the screen for about one second.	• Both text memory areas (AREA 1 and AREA 2) already contain text.	• Delete text from one of the text memory areas and then store the new text.
BATT	• Battery power is too low.	• Replace batteries.
ERR!	• Memory data has become corrupted for some reason.	• Initialize the Label Printer.

Table-4

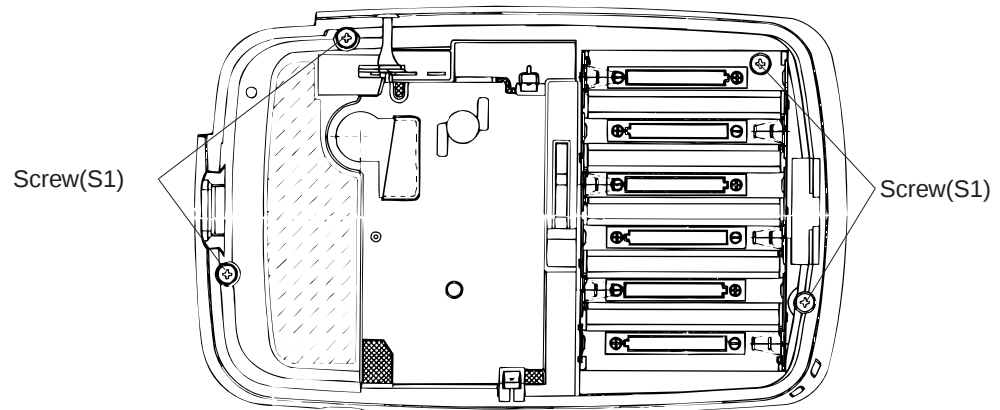
9-2. KL-100

Problem	Possible Cause	Action
ERR! * This message appears on the screen for about one second.	• Attempt to input two ↵ marks within the same text. • Attempt to input ↵ mark while 6 mm is specified as the tape width. • Label text containing a ↵ mark was input and then tape width specification was changed to 6 mm. (ERR! message appears when you try to perform a print operation.) • Text that is longer than 5.5 cm when stamp printing is selected. • Attempt to print a stamp or frame while 6 mm is specified for the tape width.	• Use only one ↵ mark. Only two lines of text can be input, so text can contain only one ↵ mark. • Do not use ↵ marks. 6 mm tape can have only one line of text, so text cannot contain any ↵ marks. • Delete the ↵ mark to print on 6 mm tape or switch back to a wider tape. • Shorten the text to be printed and try again. • Change the tape width setting to OFF and try printing the stamp again.
FUL! * This message appears on the screen for about one second.	• Both text memory areas (AREA 1 and AREA 2) already contain text.	• Delete text from one of the text memory areas and then store the new text.
BATT	• Battery power is too low.	• Replace batteries.
ERR!	• Memory data has become corrupted for some reason.	• Initialize the Label Printer.

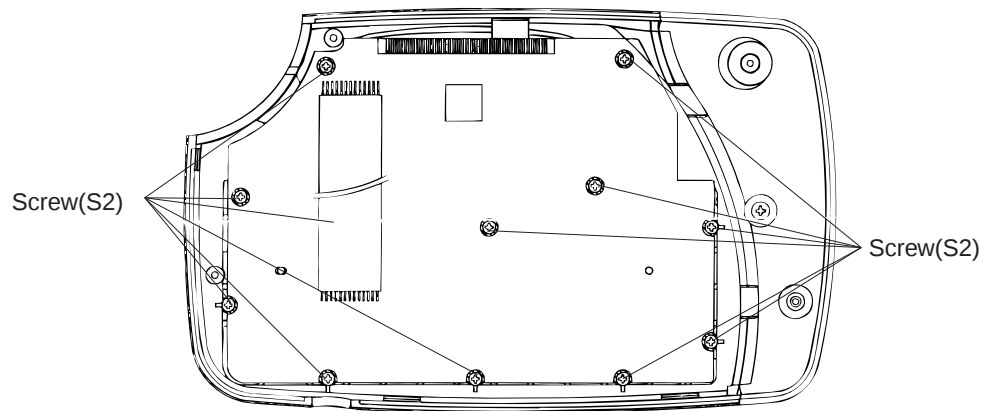
Table-5

10. DISASSEMBLY PROCEDURE

1. Remove the battery case.
2. Remove 4 screws (S1) and remove Connector (CN203), then separate upper case and lower case.

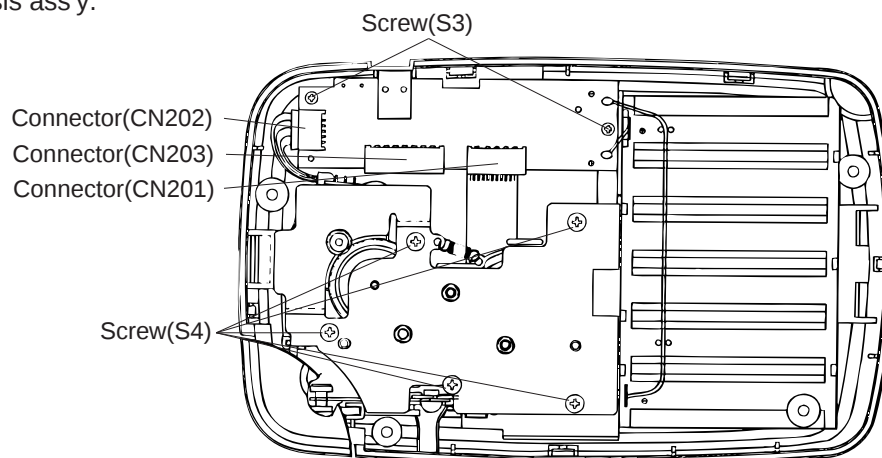


3. Remove 12 screws (S2), then remove PCB Z206-1.



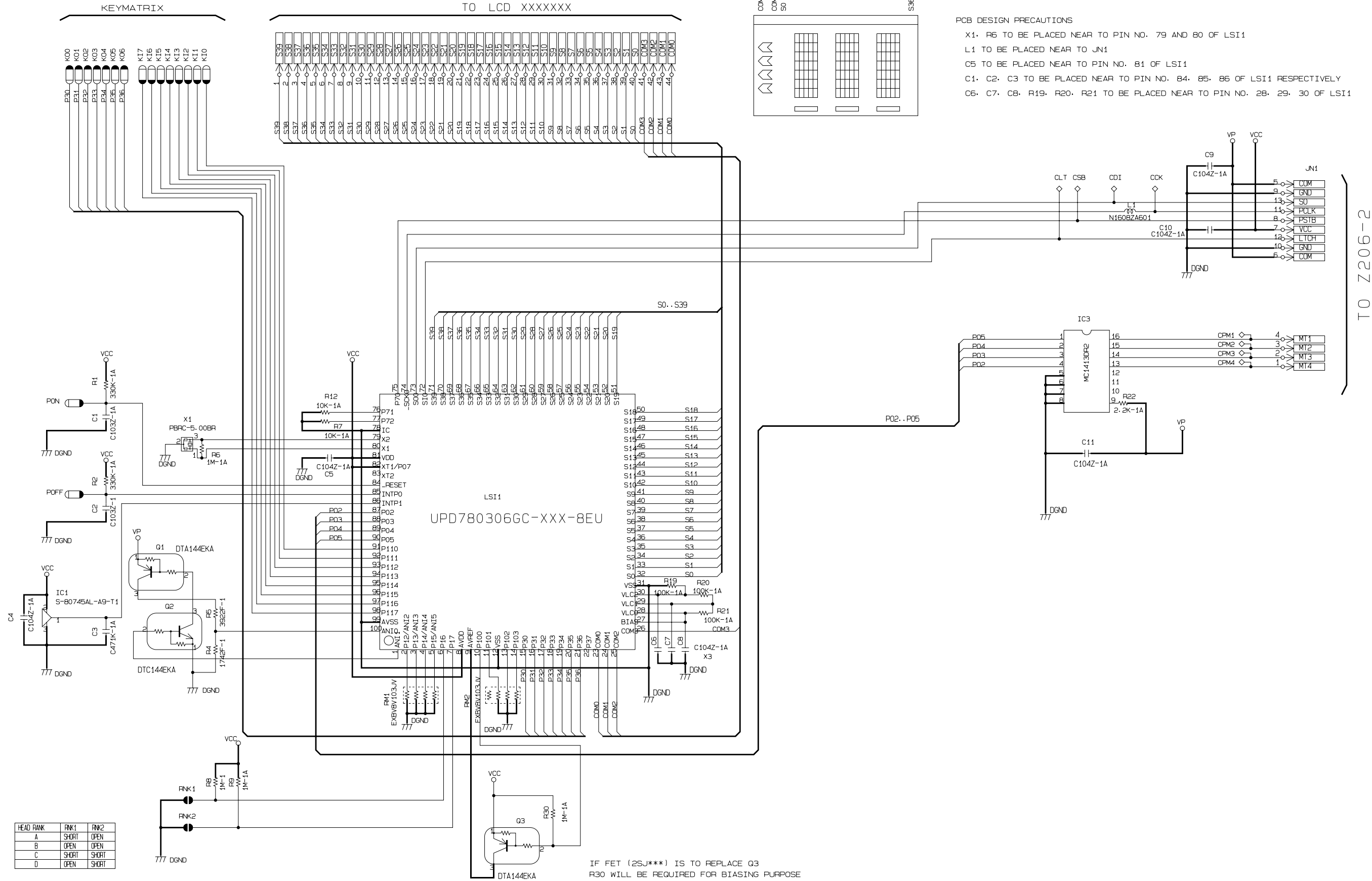
4. Remove 2 screws (S3) and remove connector (CN201, CN202), then Resolder both red and white wires and remove PCB Z206-2.

5. Remove 5 screws (S4) and remove cutter cradle, then remove the chassis ass'y.

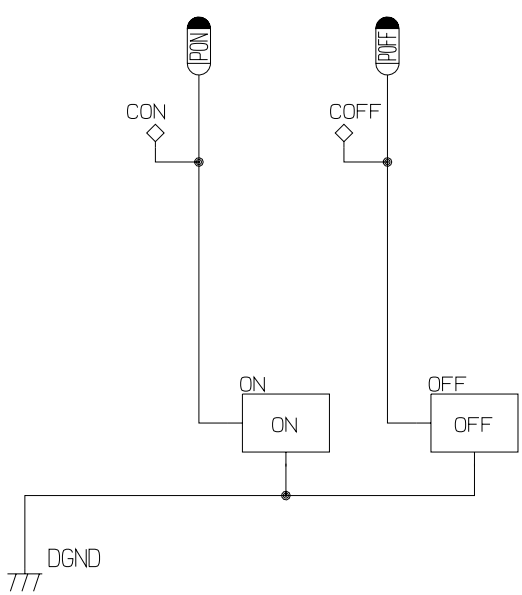
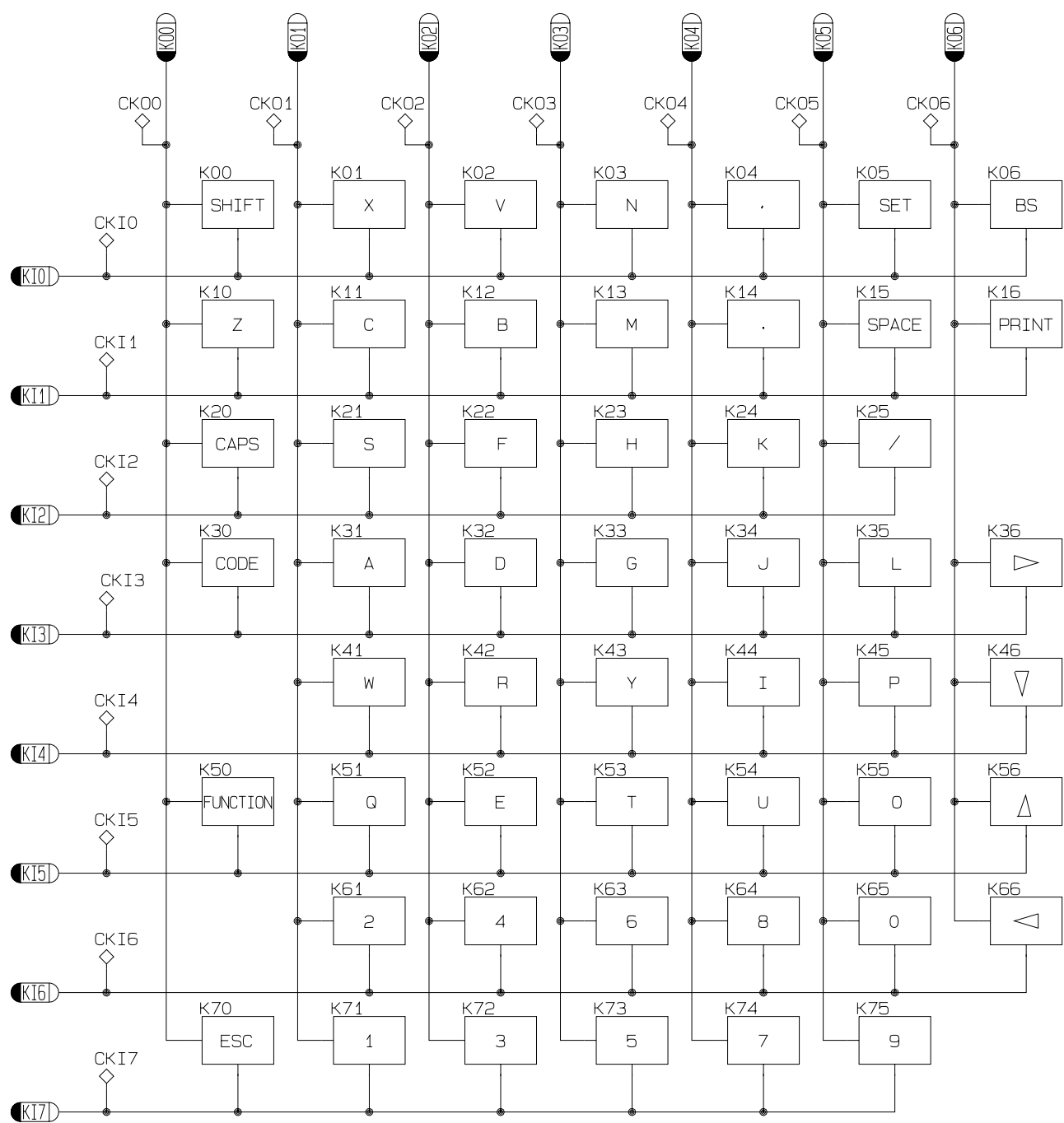


11. SCHAMATIC DIAGRAMS

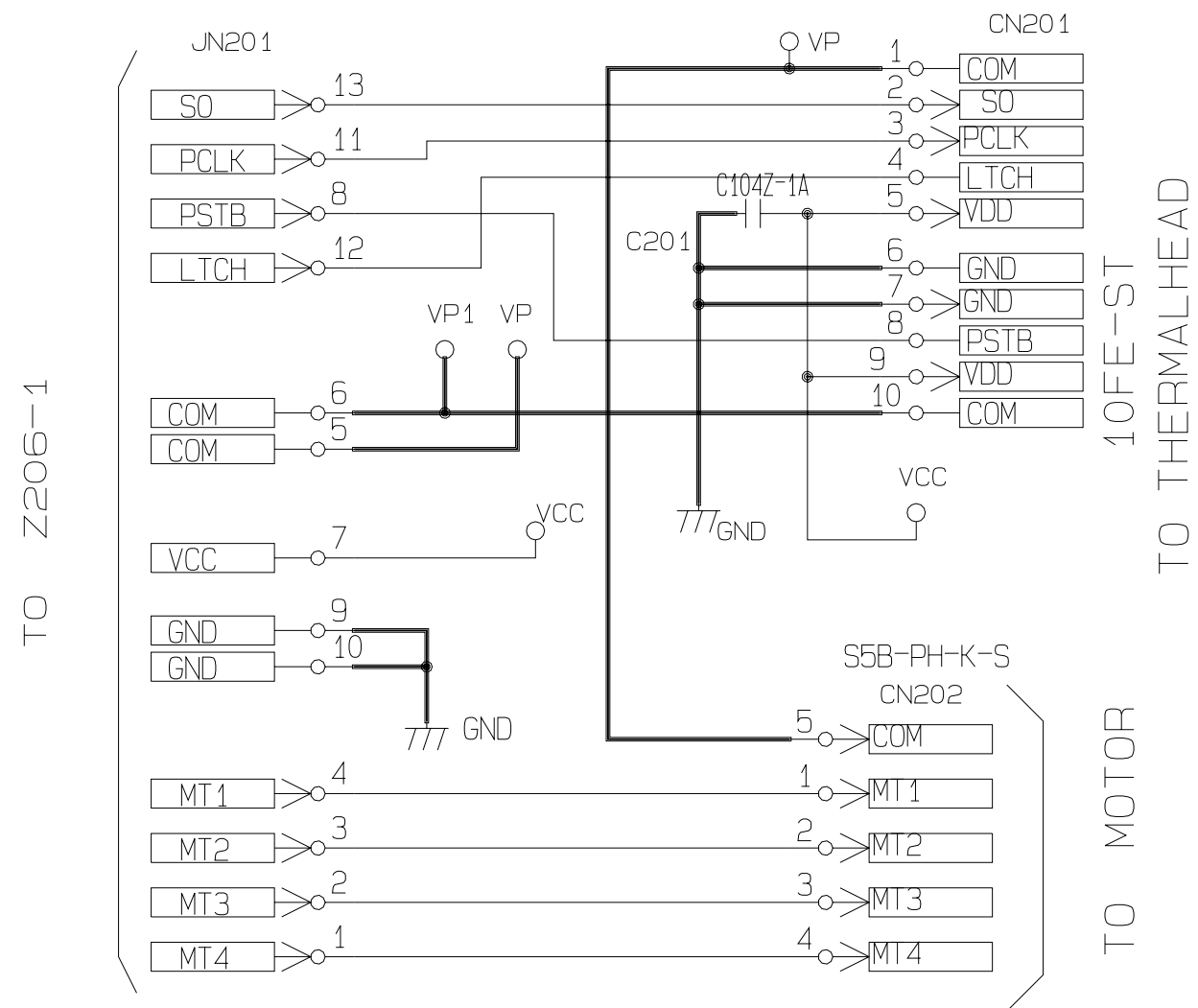
Z206-1 ASS'Y (1/2)



Z206-1 ASS'Y (2/2)



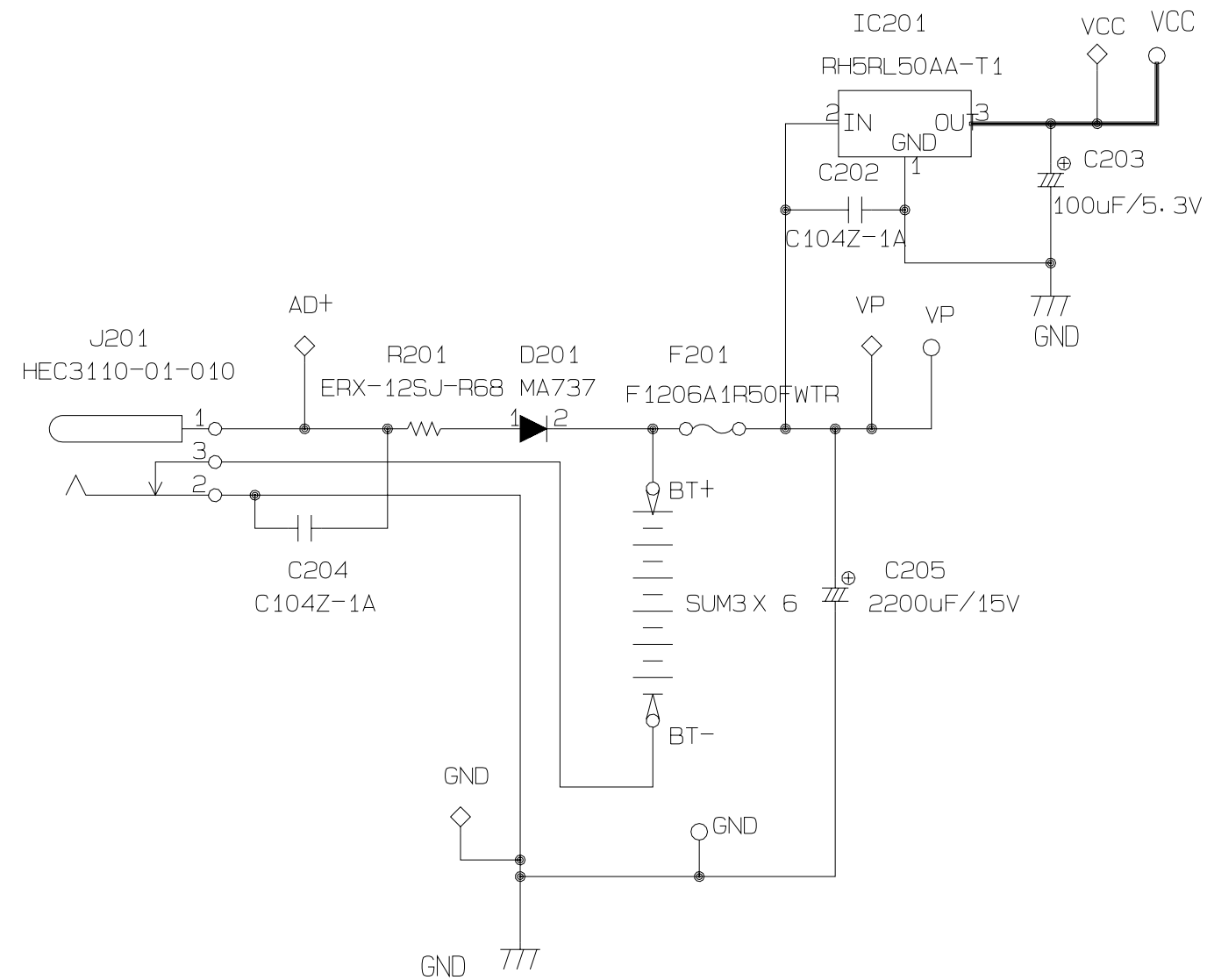
Z206-2 ASS'Y



PCB DESIGN PRECAUTIONS

C204 TO BE PLACED NEAR TO J201

C205 TO BE PLACED NEAR TO JN201



12. PARTS LIST

12-1. PARTS LIST (COMPONENTS)

Model Name	Shipment
KL-100E	for Europe & Others
KL-100	for U.S.A. & Others

N	Item	Code No.	Parts Name	Specification	Applicable	Q	R
PCB ASSY (A241363)							
N	LSI1	2012 6097	LSI	UPD780308GC-A02-8EU	KL-100E	1	B
N	LSI1	2012 6098	LSI	UPD780308GC-A01-8EU	KL-100	1	B
	IC1	2105 6275	IC/MOS	S-80745AL-A9-T1	Common	1	C
	IC3	2113 0343	IC/BIPOLAR	MC1413DR2	Common	1	C
	X1	2590 2450	OSCILLATOR/CERAMIC	PBRC-5.0BR	Common	1	C
N	Q1,Q3	2259 2760	TRANSISTOR/DIGITAL	DTA144EUA-T146	Common	2	C
N	Q2	2259 2761	TRANSISTOR/DIGITAL	DTC144EUA-T146	Common	1	C
PCB ASSY (A342472)							
	CN201	3502 1893	CONNECTOR/FPC	10FE-ST-VK-N	Common	1	C
	CN202	3501 6307	CONNECTOR	S5B-PH-K-S	Common	1	C
N	CN203	3502 2473	CONNECTOR/FPC	TOC-X13X-C1	Common	1	C
	J201	3501 5103	JACK/POWER	HEC3110-01-010	Common	1	C
	F201	3632 0637	FUSE/CHIP	F1206A1R50FWTR	Common	1	B
	IC201	2105 2737	IC/MOS	RH5RL50AA-T1	Common	1	C
PCB UNIT (A241364)							
N	JN1	3719 5420	CABLE/JOINT	FPC CABLE Z206-13P	Common	1	C
N	LCD	3335 6758	LCD	CG1736-TS	Common	1	B
N	1	5610 9670	HEAT SEAL	A342318-1	Common	1	B
N	2	6422 8390	PCB ASSY	A241363*1 A	KL-100E	1	B
N	2	6422 8400	PCB ASSY	A241363*2 A	KL-100	1	B
COMPONENTS							
N	3	6422 8640	CASE/UPPER	A140940-1	KL-100E	1	X
N	3	6422 8650	CASE/UPPER	A140940-2	KL-100	1	X
N	4	6422 8660	HANDLE	A241307-1	KL-100E	1	X
N	4	6422 8670	HANDLE	A241307-2	KL-100	1	X
N	5	6422 8680	KEY/RUBBER	A241309-1	KL-100E	1	C
N	5	6422 8690	KEY/RUBBER	A241309-2	KL-100	1	C
N	6	6422 8540	CASE/LOWER	A140941-1	Common	1	X
N	7	6422 8550	SPRING/BATTERY	A443538-1	Common	1	X
N	8	6422 8560	SPRING/BATTERY	A443539-1	Common	1	X
N	9	6422 8570	SPRING/BATTERY	A443540-1	Common	3	X
N	10	6422 8580	SPRING/BATTERY	A443541-1	Common	2	X
N	11	6422 8590	SPRING/BATTERY	A443675-1	Common	6	X
N	12	6422 8600	SWITCH/CASSETTE	A342269-1	Common	1	C
N	13	6422 7280	CUTTER SUB ASSY	A342262*1	Common	1	B
	14	6410 2980	PIN	A414873-1	Common	1	C
N	15	6422 8610	SPRING/CUTTER	A443537-1	Common	1	C
N	16	6422 8620	BUTTON	A241308-1	Common	1	C
N	17	6422 8330	CHASSIS ASSY	A140988*1 A	Common	1	C
N	18	6422 8340	PCB ASSY	A342472*1 A	Common	1	B
N	19	6422 8440	LABEL	A342411-1	KL-100E	1	C
N	19	6422 8450	LABEL	A342411-2	KL-100	1	C
N	20	6422 8460	COVER/BATTERY	A140942-1	Common	1	C
N	21	6419 7971	CUSHION	A442332A-1	Common	1	C
N	22	6422 8470	FOOT/RUBBER	A443715-1	Common	2	C
N	23	6422 8480	PLATE/DISPLAY	A342407-1	Common	1	B
N	24	6422 8490	CAP	A443674-1	Common	1	C
N	25	6422 8500	LABEL	A342408-1	KL-100E	1	C
N	25	6422 8510	LABEL	A342408-2	KL-100	1	C
N	26	6422 8520	PLATE/DISPLAY	A342331-1	KL-100E	1	B
N	26	6422 8530	PLATE/DISPLAY	A342331-2	KL-100	1	B
Parts Prices will be informed separately by Parts Price List.							

Notes: N- New parts

Q- Quantity used per unit

R- Rank

<Shipment>

R- A: Essential

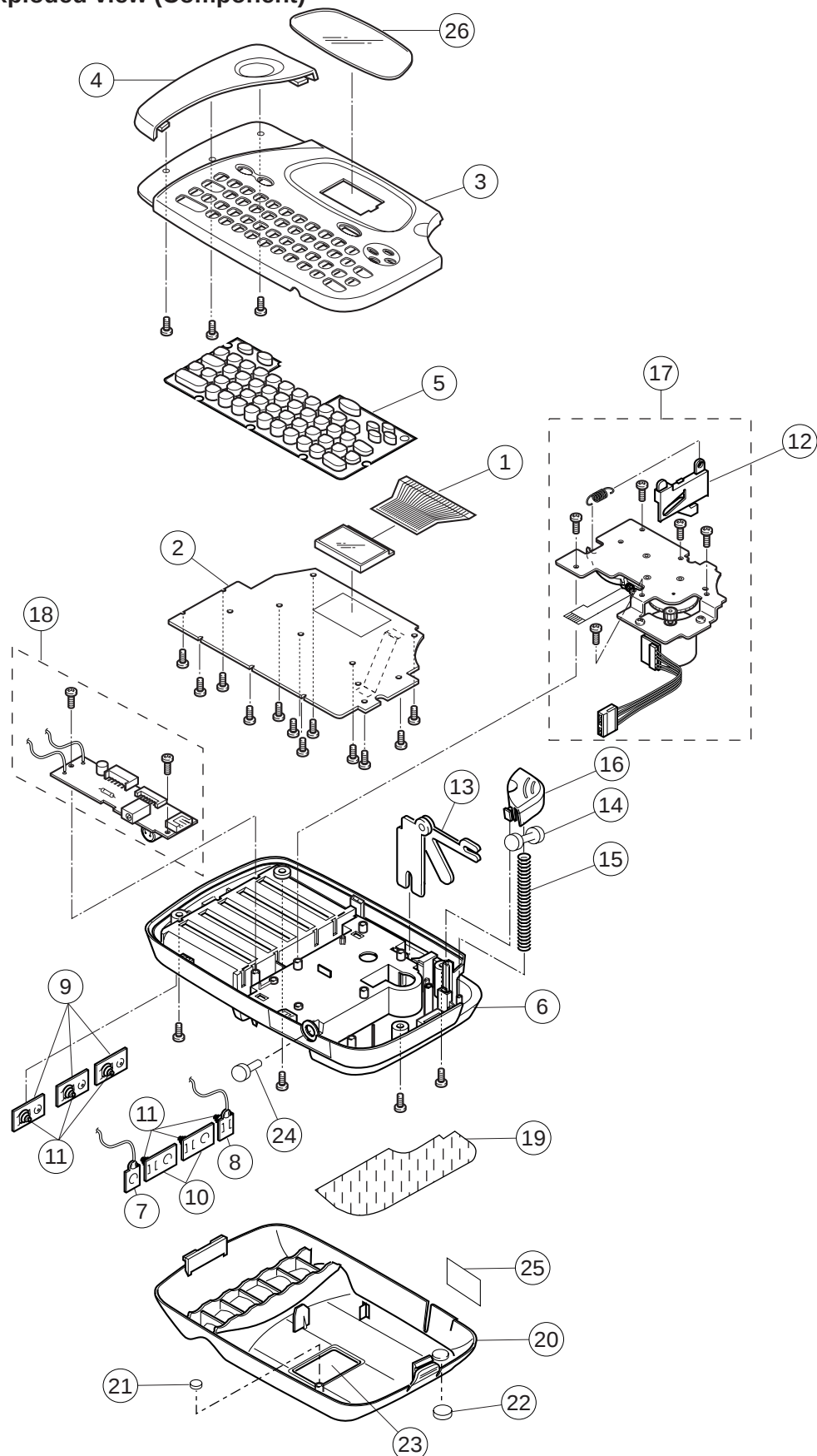
B: Stock recommended

C: Others

X: No stock recommended

13. DISASSEMBLY VIEW

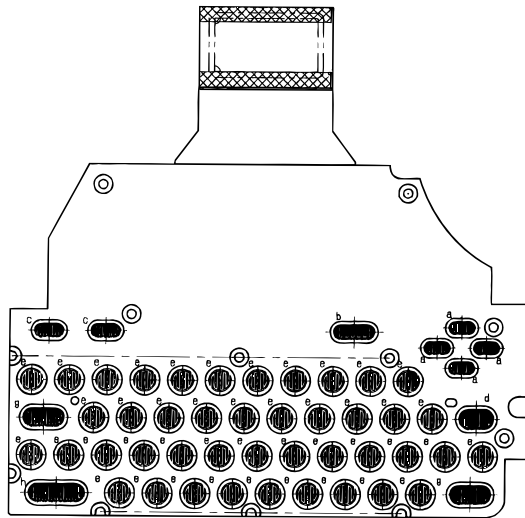
13-1-1. Exploded view (Component)



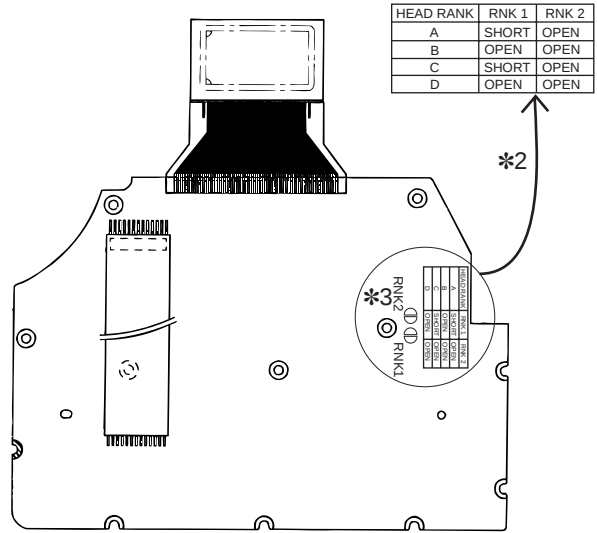
13-1-2. Disassembly view (Z206-1 ass'y)

Note-1: Setting the thermal head rank

Set the thermal head rank with pads RNK1 and RNK2 (*3) referring to the table on PCB Z206-1 (*2) when replacing the chassis ass'y or thermal head.
The head rank is indicated on FPC (*1).

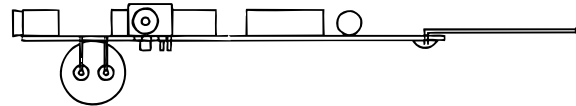
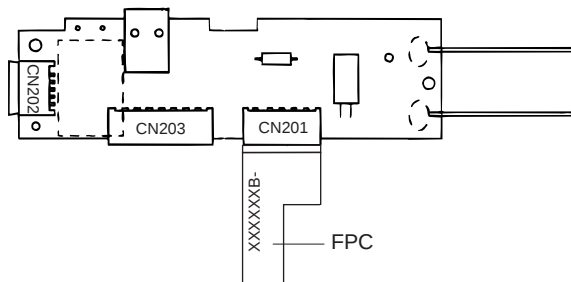


BOTTOM VIEW



TOP VIEW

13-1-3. Disassembly view (Z206-2 ass'y)



*1 For example, XXXXXXB-
Head rank=B

12-2. PARTS LIST (COMPONENTS)

Model Name	Shipment
KL-100E	for Europe & Others
KL-100	for U.S.A. & Others

	Item	Code No.	Parts Name	Specification	Applicable	Q	R
CHASSIS ASSY (A140988)							
N	101	6422 8370	CHASSIS ASSY/SUB	A241258*1 A	Common	1	C
	102	6410 2770	GEAR	A313765-1	Common	1	X
	103	6400 9640	PLATE/CLUCH	A311853-1	Common	1	X
	104	6400 9650	REEL TOP	A311854-1	Common	1	X
	105	6400 9710	FELT	A412350-1	Common	1	X
	106	6400 9720	WASHER	A412351-1	Common	1	X
	107	6400 9730	SPRING/CLUCH	A412352-1	Common	1	X
	108	6421 0390	HEAD/ARM	A240993-1	Common	1	X
	109	6413 9330	GEAR	A340279-1	Common	1	X
	110	6410 8092	PLATEN	C312242B-1	Common	1	X
	111	6413 9340	SPRING/HEAD	A440434-1	Common	1	X
	112	6405 2850	ADHESIVE TAPE	A413501-1	Common	1	X
	113	6400 9740	WASHER	A412353-1	Common	1	X
	114	6400 9750	WASHER	A412353-2	Common	3	X
	115	6400 9760	WASHER	A412353-3	Common	1	X
	116	1013 8689	PRINT HEAD/THERMAL	KSH64FK-CA	Common	1	B
	117	3222 0049	MOTOR/STEPPING	27S1N18ECNU	Common	1	X
	118	1909 1944	SCREW	M3X5 ZMC-3	Common	2	X
Parts Prices will be informed separately by Parts Price List.							

Notes: N- New parts

Q- Quantity used per unit

R- Rank

<Shipment>

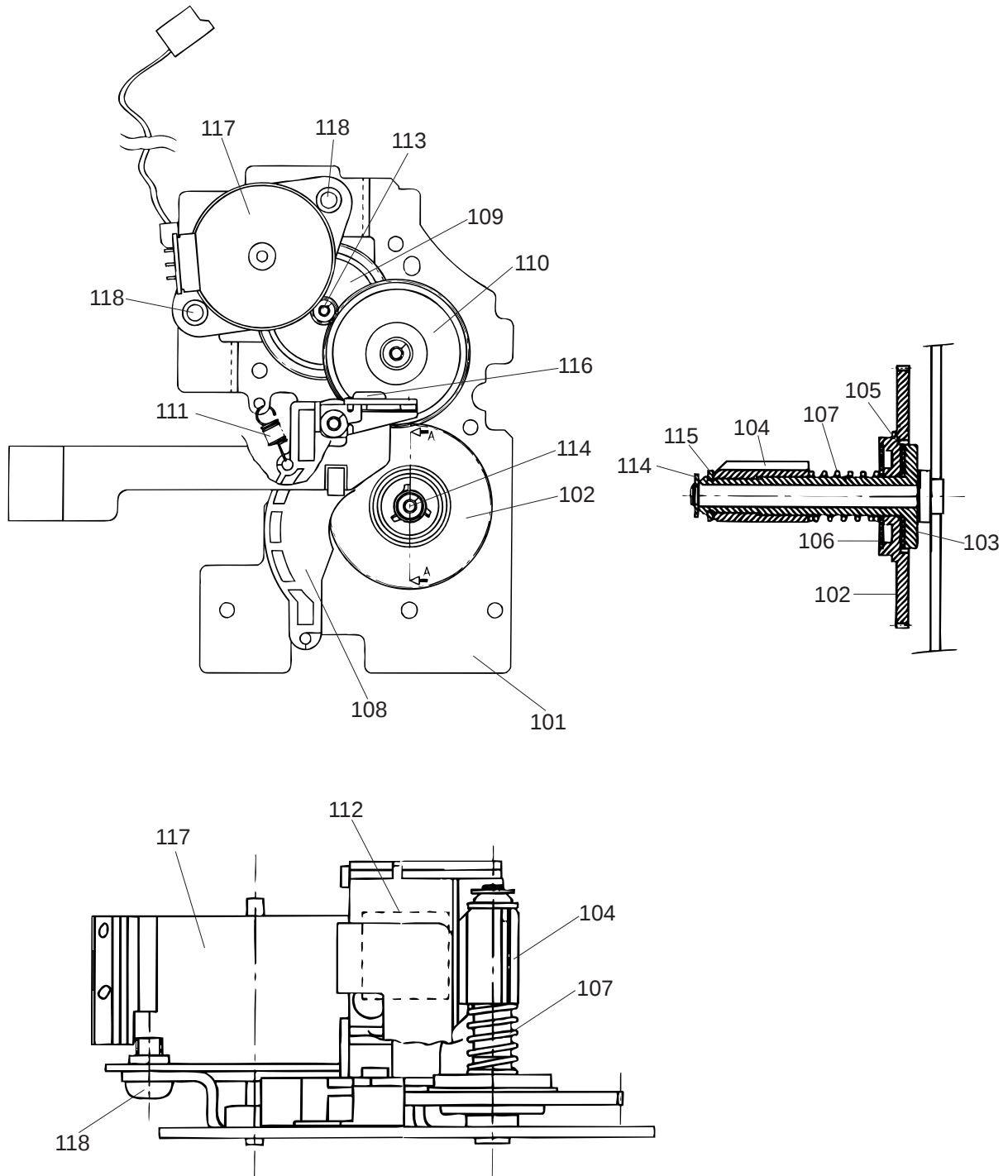
R- A: Essential

B: Stock recommended

C: Others

X: No stock recommended

13-2-1. Disassembly view (Chassis ass'y)



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