

SERVICE MANUAL & PARTS LIST (without price)

SF-4300A_(LX-571AT)

SF-4600_(LX-571ET/FT)

JAN. 1993



SF-4600



SF-4600 B.O.S.S.

INDEX

CASIO®

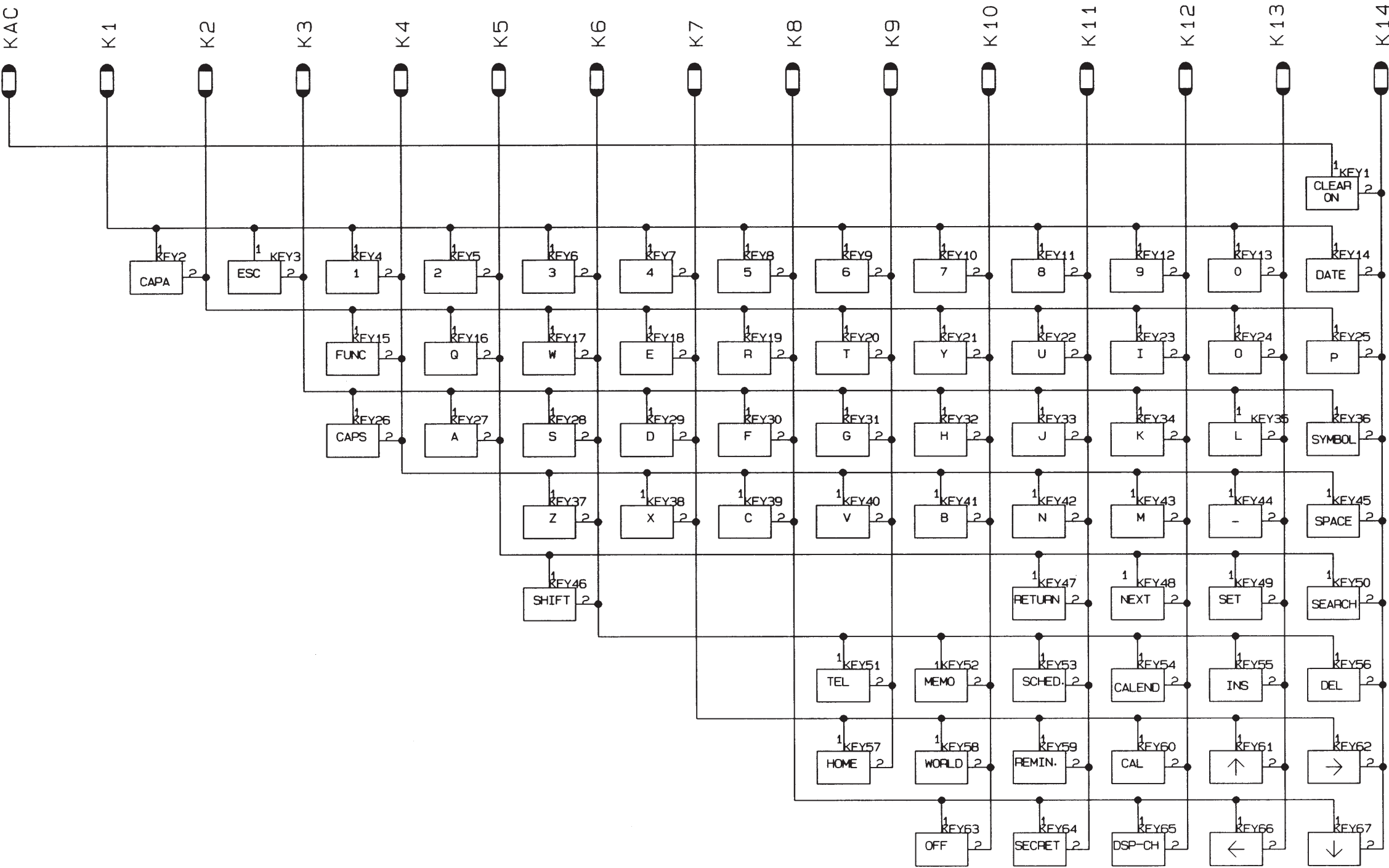
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1-1. MAIN PCB



1-2. KEY MATRIX



2. SPECIFICATIONS

Data storage:

Storage and recall of telephone, memo, schedule, reminder data; calendar display; mark protection; secret area; editing; memory status display

Clock:

World time; reminder alarm; schedule alarm; daily alarm; accuracy under normal temperatures: ± 3 seconds average

Calculation:

10-digit arithmetic calculations; arithmetic constants (+, −, ×, ÷); independent memory; percentages; square roots; 20-digit approximations; date calculations; other mixed calculations

General:

Display element: 16-column × 4-line LCD

Memory capacity: 32 KB / SF-4300A, 64 KB / SF-4600

Main component: LSI

Power supply: 3 lithium batteries (CR2032)

Power consumption: 0.05W

Battery life: Approximately 200 hours continuous operation in Telephone Directory approximately; 150 hours repeating one minute of input and 10 minutes of display in Telephone Directory; approximately 12 months for memory back up

Test condition: 20°C

Auto power off: Approximately 6 minutes after last key operation

Operating temperature: 0°C ~ 40°C (32°F ~ 104°F)

Dimensions:

Unfolded: 12.4H x 141W x 80.5Dmm (1/2"H x 5-5/8"W x 3-1/8"D)

Folded: 8.9H x 141W x 157Dmm (3/8"H x 5-5/8"W x 6-1/4"D)

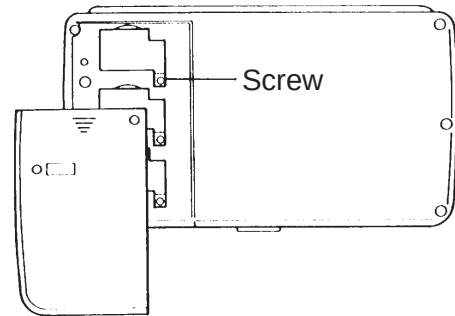
Weight: 110g (3.9 oz)

Current consumption:

Power switch	MIN. [μA]	MAX [μA]
OFF	9.51	—
ON	529	606
ON (Operating)	1,287	1,398

3. TO REPLACE THE BATTERIES

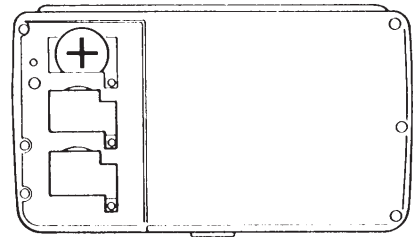
- 1) Loosen the screw on the back of the SF-4300A / SF-4600 that holds the battery compartment cover in place, and remove the cover.
- 2) Loosen the screw that secures one of the three battery holders in place and remove the battery holder.



Caution

**Be sure to remove only one battery at a time.
Otherwise, you will lose all data stored in memory.**

- 3) Replace the old battery with a new one, making sure that the positive (+) side of the new battery is facing up (so you can see it).



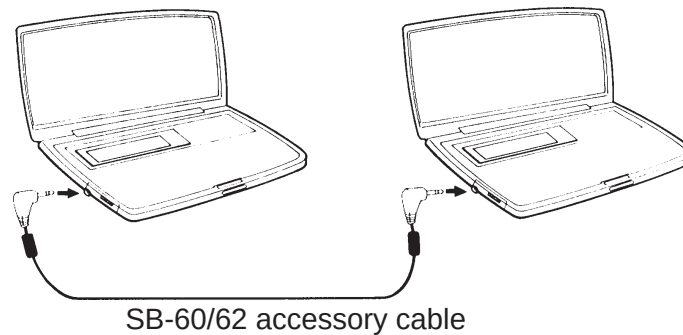
- 4) Replace the battery holder and secure it by tightening its screw.
 - Be sure careful that you do not over tighten the screw.
- 5) Repeat steps 2) through 4) for the other two batteries.
 - Be sure to replace all three batteries. Never mix old batteries with new ones, and be sure to use CR2032 lithium batteries only.
- 6) After you replace all three batteries, replace the battery compartment cover and secure it by tightening its screw.
 - Be careful that you do not over tighten the screw.

4. DATA TRANSFER

SF-4300A / SF-4600 can transfer customers data to other SF-4300A / SF-4600 with memory protection only when replacing the LCD or the outer case. How to transfer the data.

* Before connecting the cable (SB-60/62), be sure to reset the slave machine to clear all data.

- 1) Turn off the power switch and connect the two units using the cable (SB-60/62) as shown in the drawing.



- 2) Turn on the power switch of each machine.
- 3) The slave machine must be set the date of Feb. 3rd, 1901 into the memory under the calculator mode.

Operation: ☐ ON ☐ CAL ① TIME DATE ② TIME DATE ③ TIME DATE M+ (R)

M	SUN
1901/ 2/ 3	

If you don't set the date, the "PASSWORD" isn't transferred to the slave machine.

Setting up for Data Communications

The following procedures describe what you should do to set up for data communications between two SF Units or between an SF Unit and a personal computer. In addition to hardware connections, it details how to set up the communications parameters and how to set up the SF-4300A / SF-4600 to receive data. By following these instructions carefully, you can be ensured of successful communications every time.

To connect two SF Units

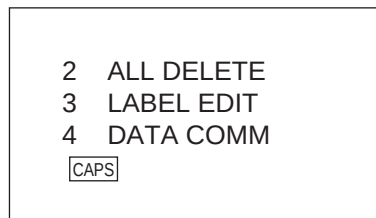
1. Check to make sure that the power of the two SF Units is switched off.
2. Remove the covers from the connectors on the two SF Units.
3. Connect the two SF Units using the optional SB-60/62 cable. You can also connect them using an SB-60/62 cable.

Important

Be sure to replace the connector covers on the SF Units when you are not performing data communications.

- 4) Check the hardware parameters.
 - 1 While an initial screen is displayed, press FUNC twice to display the second function menu.

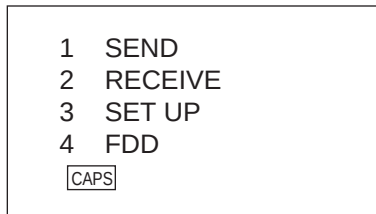
FUNC **FUNC**



- You can perform the above operation while the initial screen of the Telephone Directory, Memo Mode, Schedule Keeper, Calendar, Reminder is displayed.

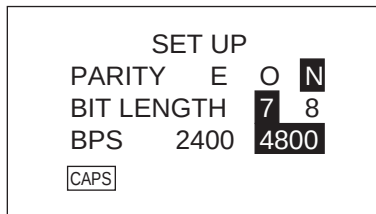
- 2 Press 4 to select DATA COMM.

4

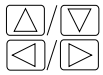


- 3 Press 3 to select SET UP.

3



- 4 If the units have another condition, reset as above.
 - To change the parameters



1. Use the Δ and ∇ cursor keys to change the selected parameter on the display.
2. Use the $\triangleleft$ and $\triangleright$ cursor keys to change the high-lighted setting of the currently selected parameter.
3. Press SET to store them in memory.

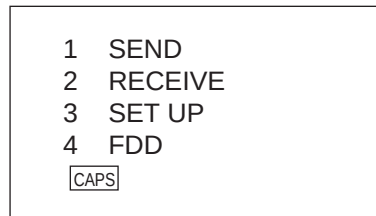
5) Set up the slave machine

- 1 While an initial screen is displayed, press FUNC twice to display the second function menu.

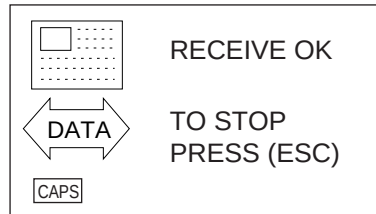


- You can perform the above operation while the initial screen of the Telephone Directory, Memo Mode, Schedule Keeper, Calendar, Reminder is displayed.

- 2 Press 4 to select DATA COMM.

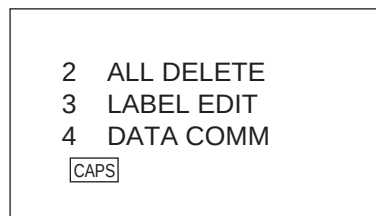


- 3 Press 2 to select RECEIVE.



6) Set up the customer's machine.

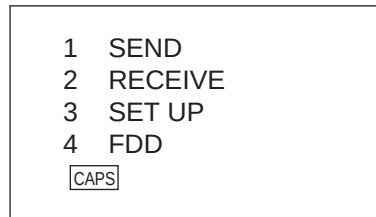
- 1 While an initial screen is displayed, press FUNC twice to display the second function menu.



- You can perform the above operation while the initial screen of the Telephone Directory, Memo Mode, Schedule Keeper, Calendar, Reminder is displayed.

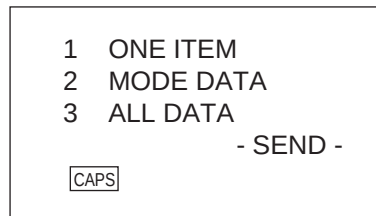
2 Press 4 to select DATA COMM.

4



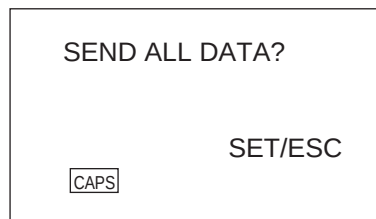
3 Press 1 to select SEND.

1



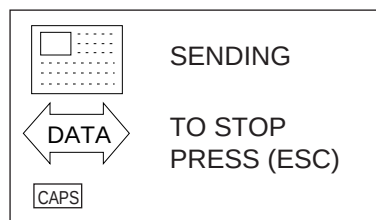
4 Press 3 to select ALL DATA.

3



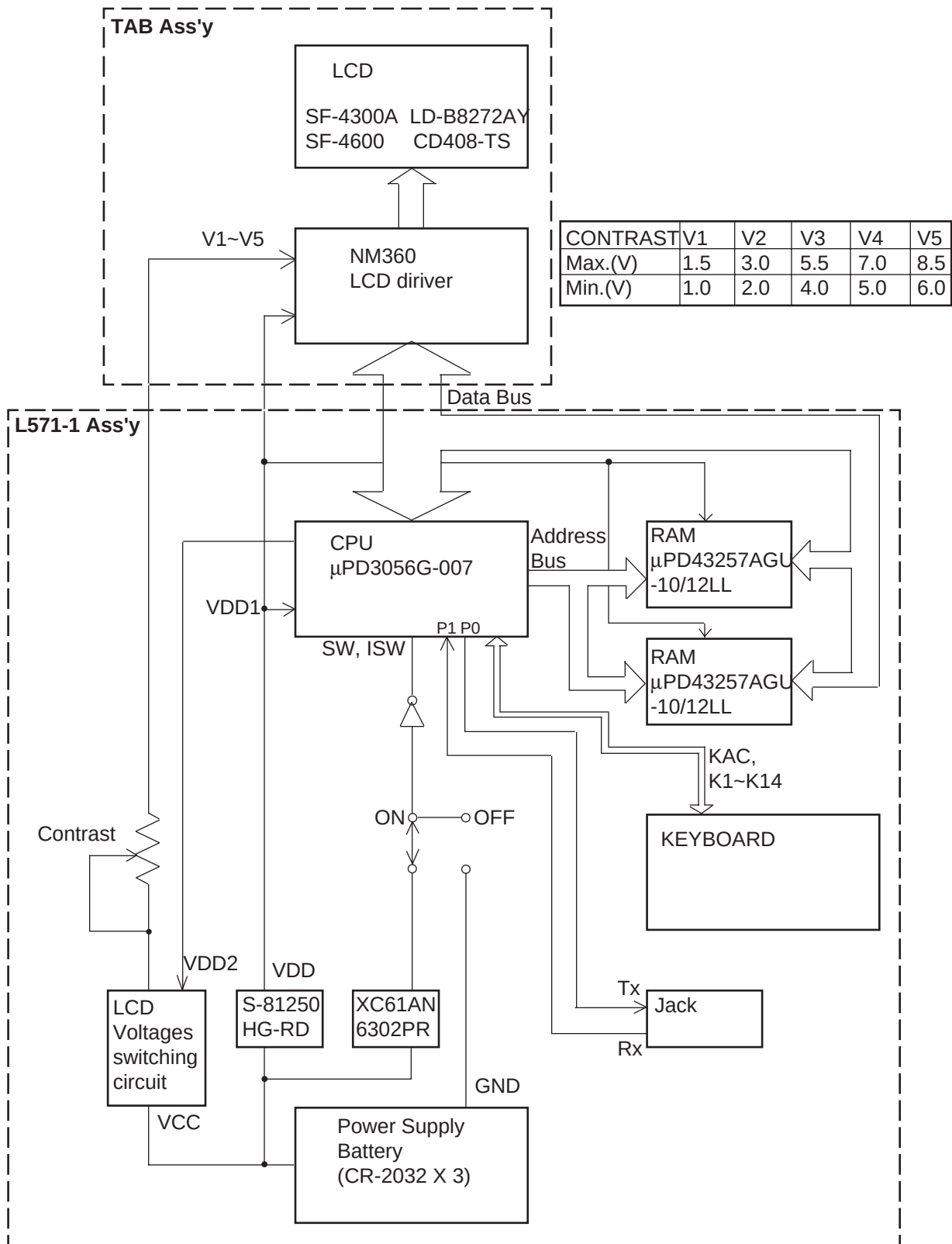
5 Press SET to start the send operation or ESC to abort the operation without sending anything.

SET / ESC



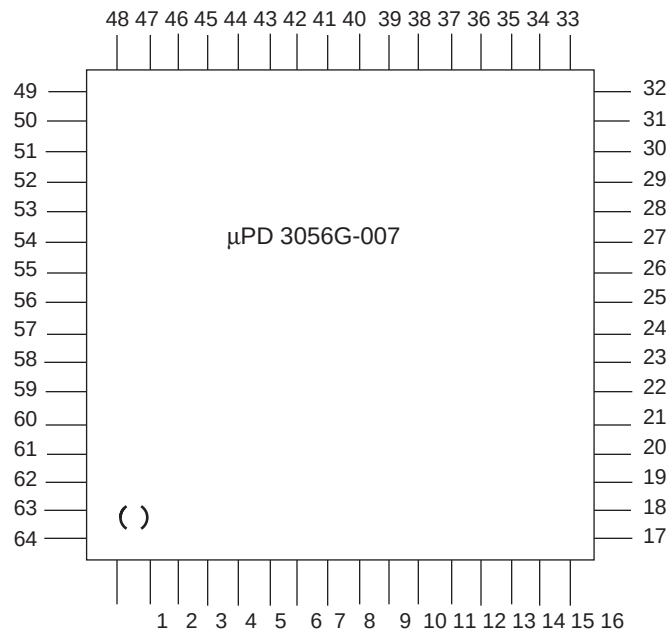
- Data is send in the sequence: Telephone Directory, Memo Mode, Reminder Mode, Schedule Keeper, Calendar.
 - To abort the send operation at any time, press ESC.
 - If an error occurs during the send operation, the message "SEND ERROR!" appears on the display. Press ESC to clear the error message.
- 6 After the send operation is complete, the display returns to the initial screen of the mode you were in when you started this procedure.

5. BLOCK DIAGRAM



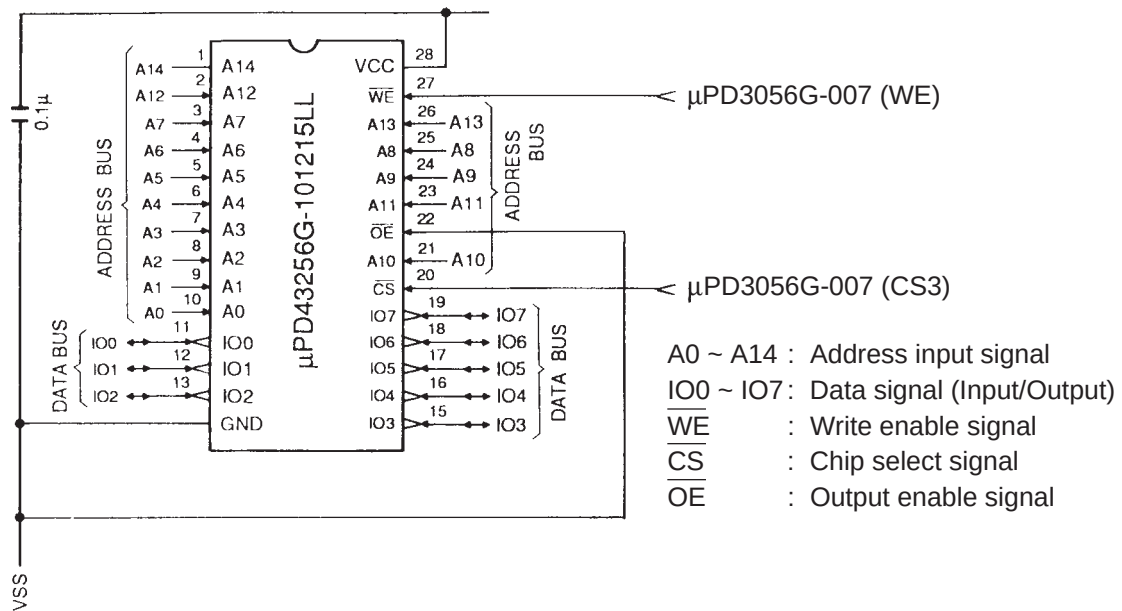
6. LSI, IC (Pin function)

6-1. CPU: μ PD 3056G-007 (LSI 1)

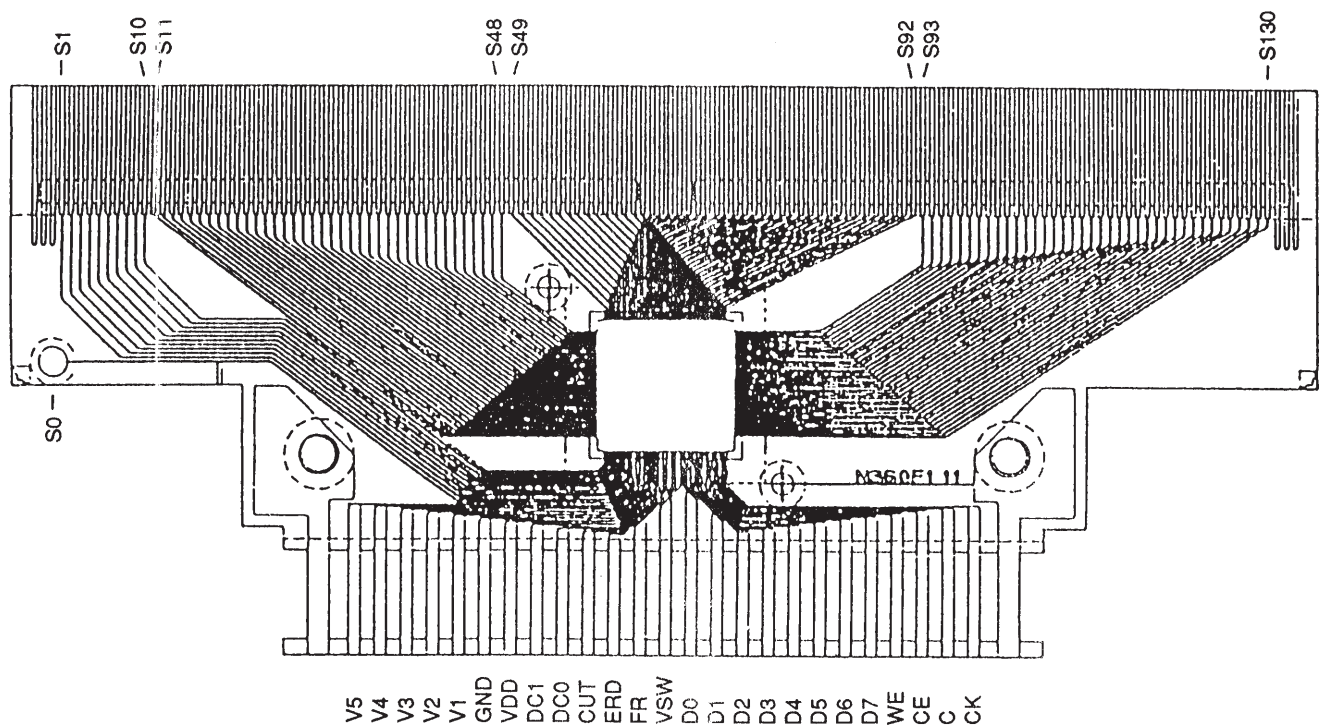


Pin No.	Signal	I/O	Function
1 ~ 8	P0 ~ 7		I/O PORT P0: I/F output P1: I/F input
9	VSS	I	GND (0V) P6, P7: For buzzer
10	XI	I	Clock input
11	TSB		Test Terminal
12	X0	O	Clock output
13	VDD2	O	Internal power supply terminal Power OFF: 0V ON: 5V
14	VDD1	I	Power supply terminal (+5V)
15	FI	I	Internal clock terminal
16	FO	O	Internal clock terminal
17	SW	I	Main switch signal Power ON: 0V OFF: 5V
18	ISW	I	Sub switch signal Power ON: 0V OFF: 5V
19 ~ 21	CS1 ~ 3	O	Enable signal for RAM
22	FE	O	Enable signal for ROM
23	WE	O	Write enable signal for RAM
24	CKO	O	Clock signal for LCD driver (NM360)
25 ~ 32	IO0 ~ 7	I/O	Data bus
33 ~ 48	A0 ~ 15	O	Address bus
49 ~ 63	KAC ~ K14		Key signal from keyboard
64	INT	I	Interrupt terminal

6-2. RAM: μ PD43256G-101215LL (LSI 2)

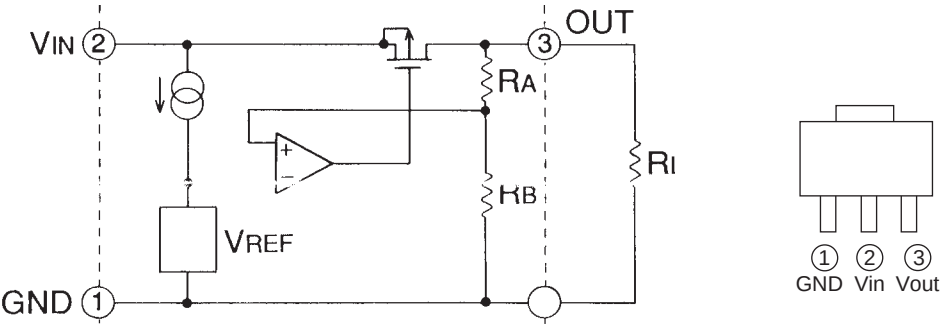


6-4. LCD driver: NM 360



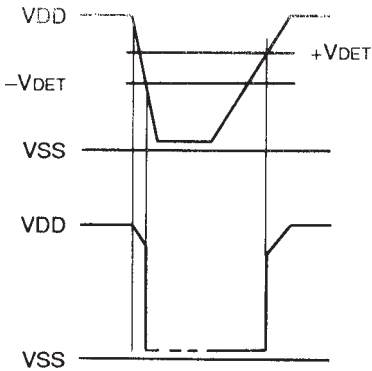
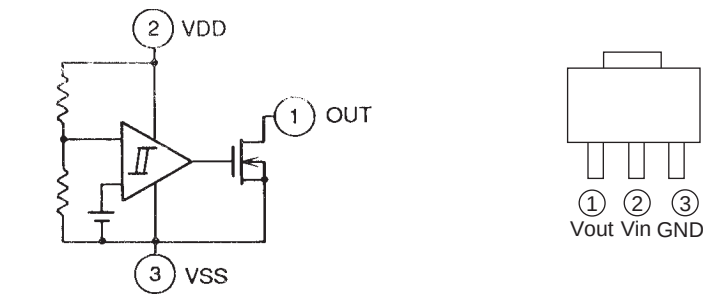
6-5. VOLTAGE REGULATOR: S-81250HG-RD (IC3, IC4)

Output Voltage (Vout) : $5V \pm 5\%$
[4.75V (MIN) ~ 5.25V (MAX)]



6-6. VOLTAGE DETECTOR: RH5VA60AA-T1 (IC5)

Detection Voltage(-VDET) : $6V \pm 2.5\%$
[5.85V (MIN) ~ 6.15V (MAX)]



Input voltage	Output voltage
>6V	5V
<6V	0V

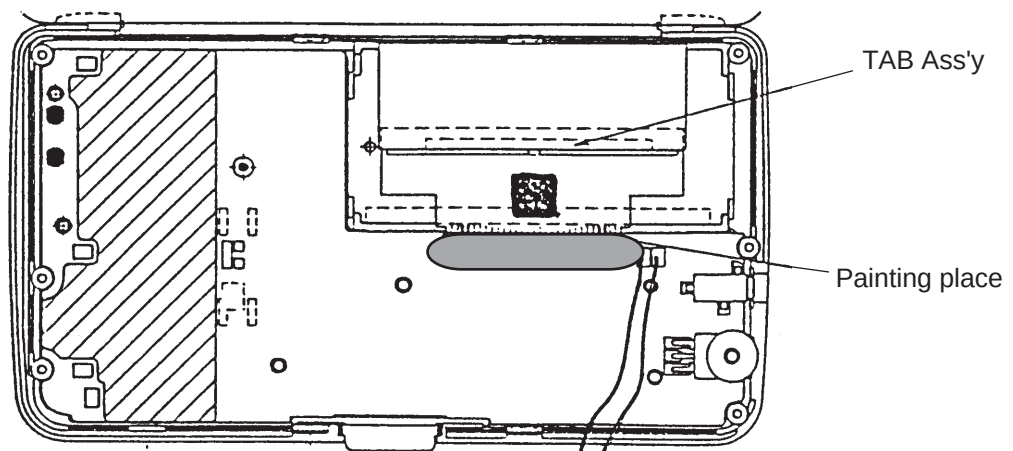
7. TO FIX TAB ASS'Y

When fixing a TAB ass'y part to the main PCB, it is necessary to paint "Neji lock" after soldering the cable to the place of soldering part for the against of a shock.

1) Parts code of "Neji lock"

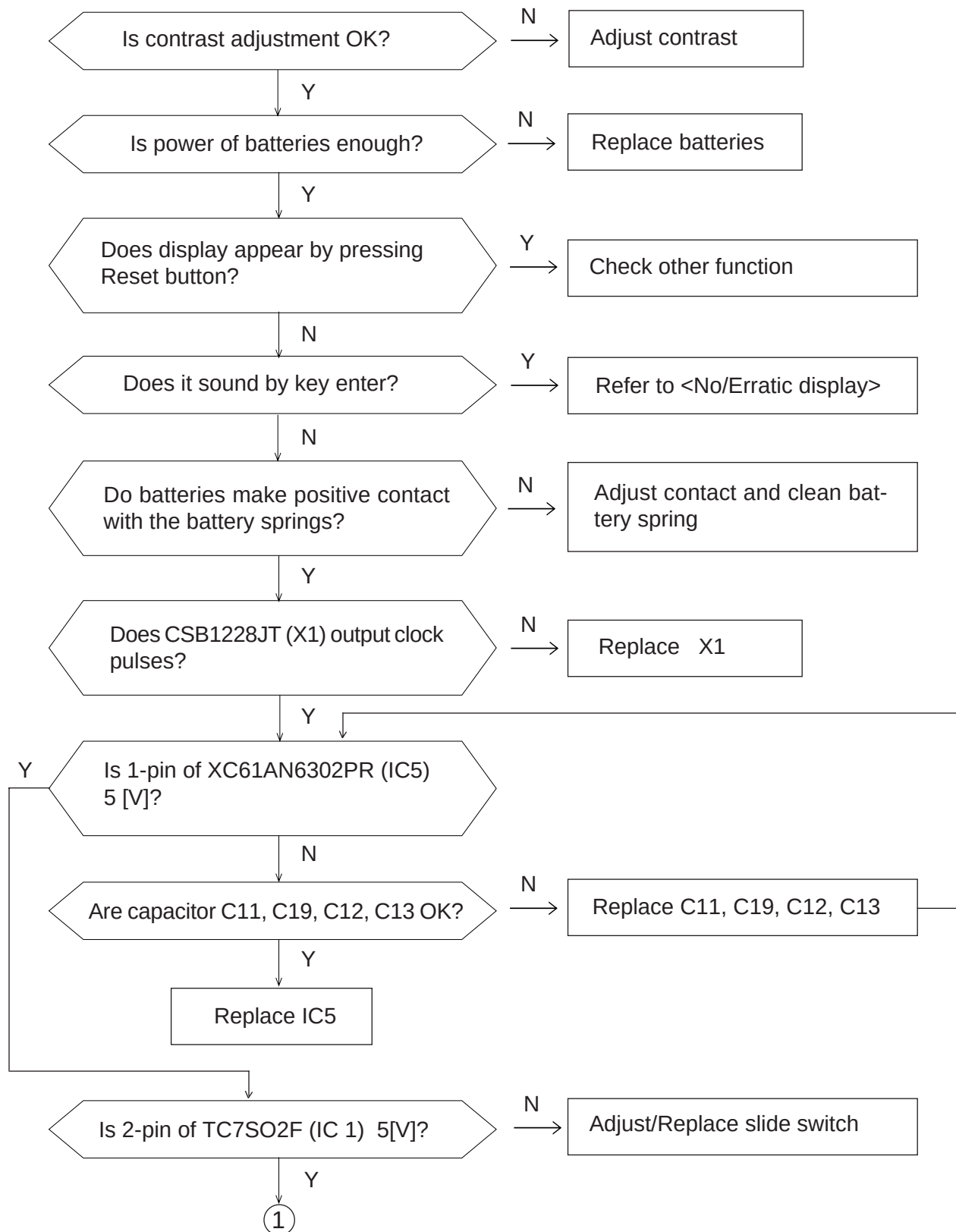
Code No.	Name	Specification	Unit Price (FOB:JAPAN)
0001 9829	Neji lock	1402B	YEN1,590.-

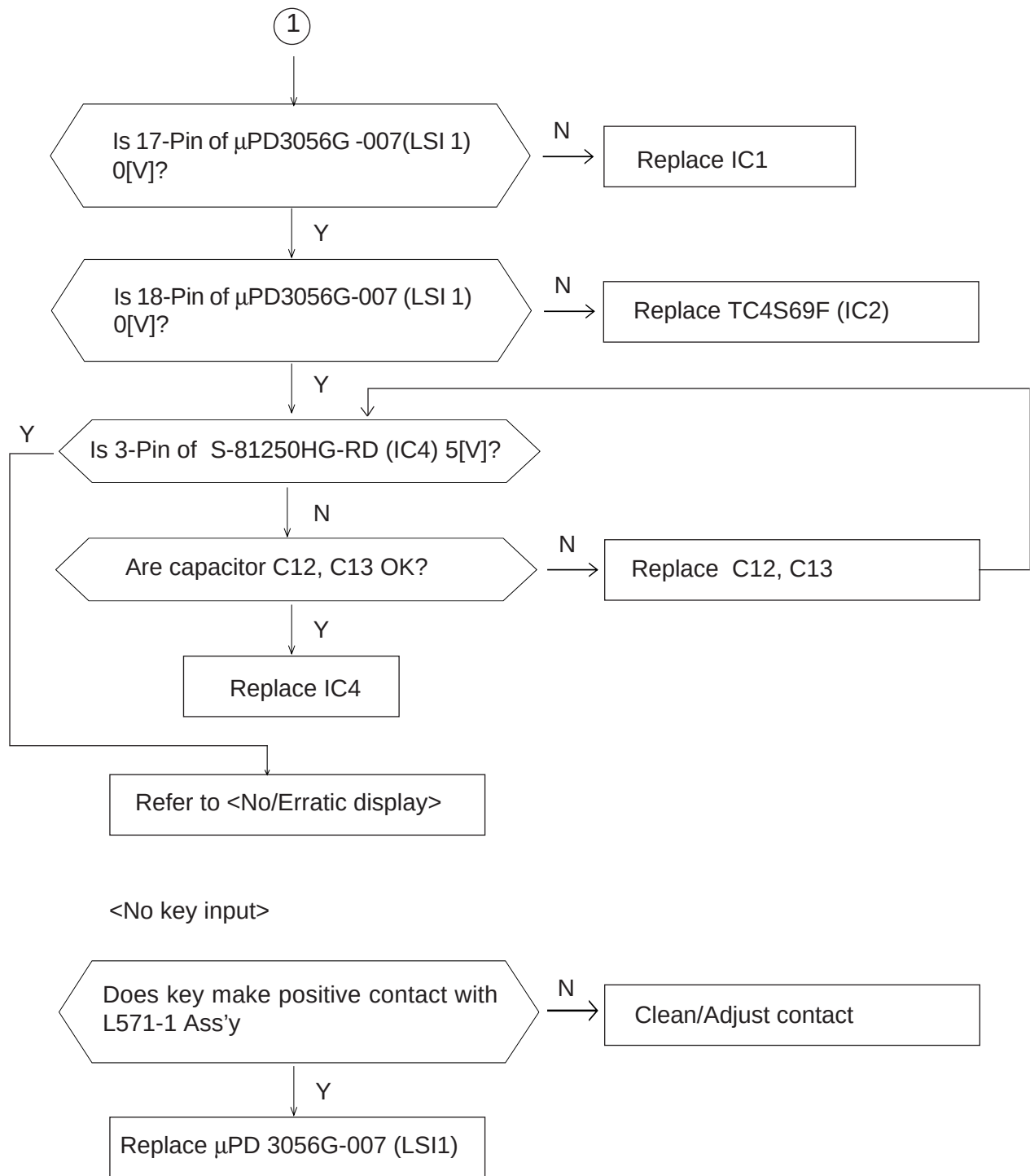
2) Location of the painting part



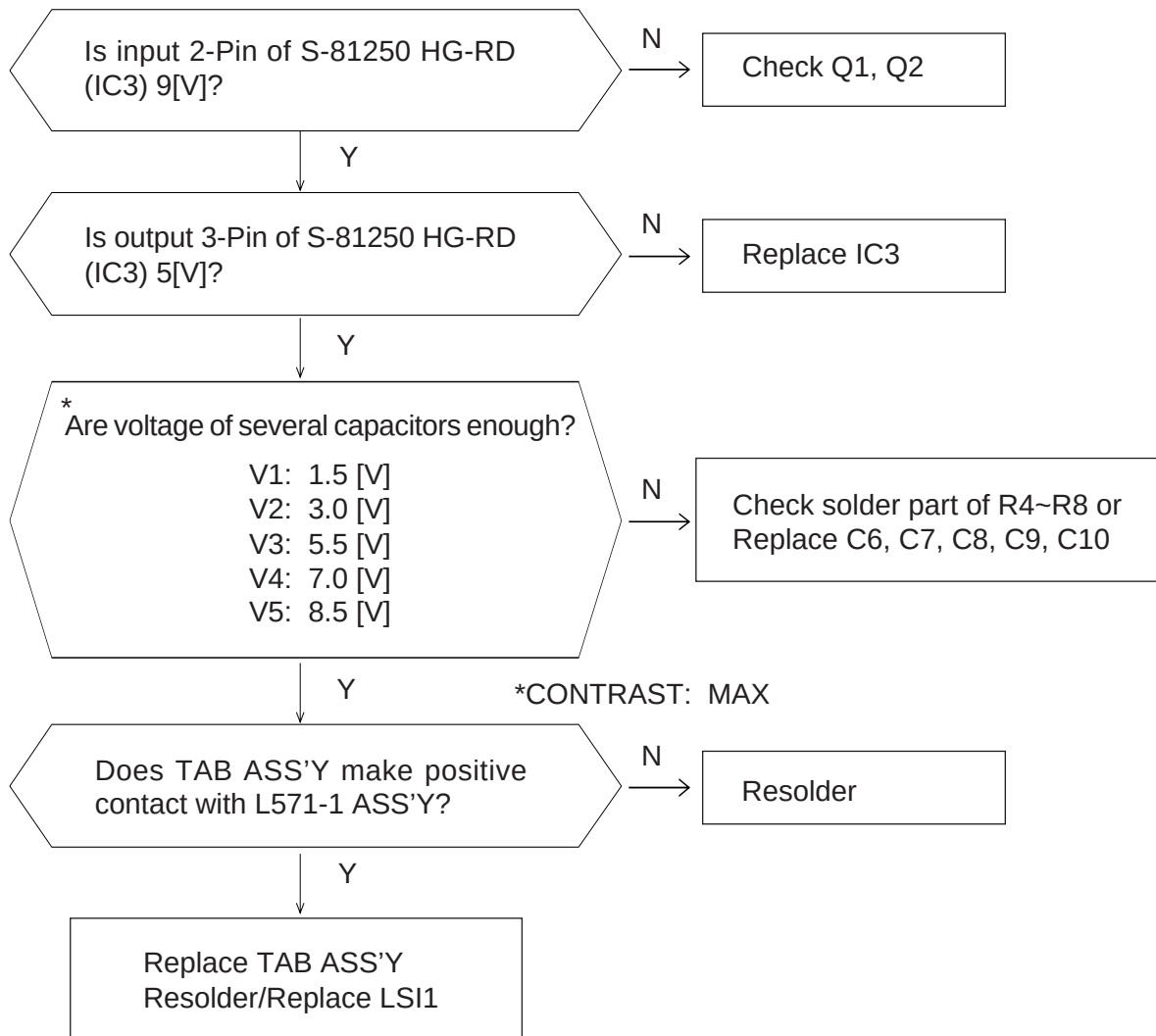
8. TROUBLE SHOOTING

<No power on>

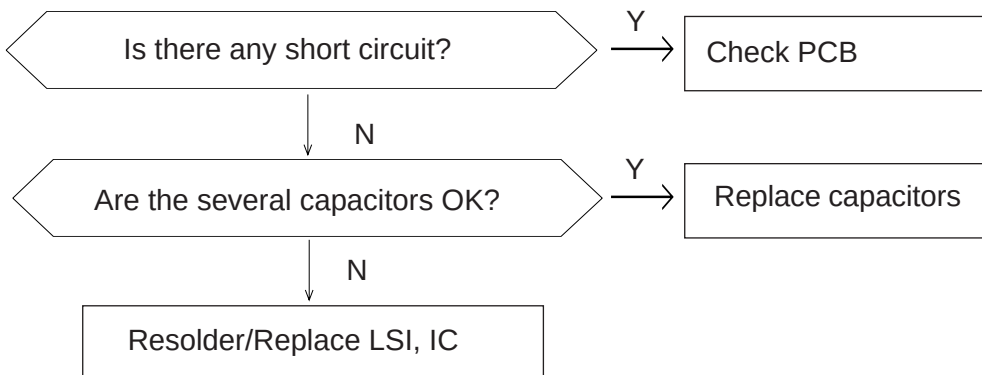




<No/Erratic display>



<High current consumption>



9. HARD CHECK

No.	OPERATION	DISPLAY	NOTE
1	1. Turn the slide (battery) switch off. 2. Push the P-button.		
2	Turn the slide (battery) switch on while short the short pad (T16, T37).	00:00:00	Check if timer is working.
3	ON	TEST MENU 1 DISP 2 MEMORY 3 KEY 4 BUZZER 5 EXT	
4	1	DISP 4 RVS. 1 WHITE 5 FRAME 2 BLACK 6 DOT 4 3 CHECK. 7 TIME	Display check
5	1	No display	
6	2	All dots display	
7	3	Checker display	

No.	OPERATION	DISPLAY	NOTE
8	4	Reverse checker display	
9	5	FRAME	
10	6	Dots appear at corners.	
11	7	00:00:00	Check if timer is working.
12	ON	TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	
13	3	KEY 1 RANDOM 2 AUTO	Key check
14	2	No display	

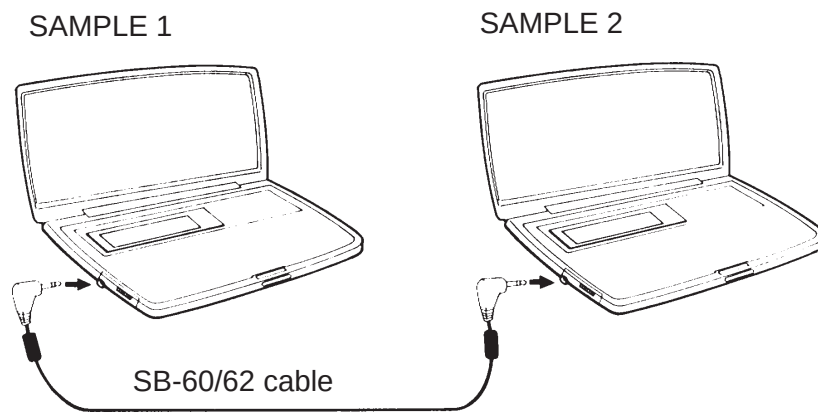
No.	OPERATION	DISPLAY	NOTE
15	TEL MEMO SCHEDULE CALENDAR HOME WORLD ÷ OFF ON ▲◀▶▼ ESC DEL FUNCTION Q W NEXT CAPA CAPS A S SET SHIFT DATE Z X SPACE	00 01 02 03 04	• Check the key no. appears on the display. • Check the key sounds. • To return to the menu mode, enter <u>SEARCH</u>.
16	SEARCH	TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	
17	4	BUZZER 1 BEEP 2 ALARM1 3 ALARM2	Buzzer check
18	2	EXECUTING	Check the alarm 1 sound.
19	ESC	BUZZER 1 BEEP 2 ALARM1 3 ALARM2	
20	ON	TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	
21	2	MEMORY 3 WR2 4 READ2 1 WR1 5 DUMP 2 READ1 6 CHKSUM	RAM check

No.	OPERATION	DISPLAY	NOTE
22	1	WRITE1	
23	(After few seconds)	MEMORY 3 WR2 4 READ2 1 WR1 5 DUMP 2 READ1 6 CHKSUM	
24	1. Remove the main batteries. 2. Measure the voltage between T16 (GND) and T17 (VDD). 3. Check the voltage is higher than 2 [V]. 4. Set the main batteries.		(Backup voltage check)
25	1. Turn the slide switch off. 2. Push the P-button. 3. Turn the slide switch on .	00:00:00	Check if timer is working.
26	ON	TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	RAM check
27	2	MEMORY 3 WR2 4 READ2 1 WR1 5 DUMP 2 READ1 6 CHKSUM	
28	2	EXECUTING	

No.	OPERATION	DISPLAY	NOTE
29		COMPLETE 32KB (In case of SF-4300A) COMPLETE 64KB (In case of SF-4600)	Check sound.

10. DATA TRANSFER CHECK

Connect the SAMPLE 1 to SAMPLE 2 using the SB-60/62 cable.



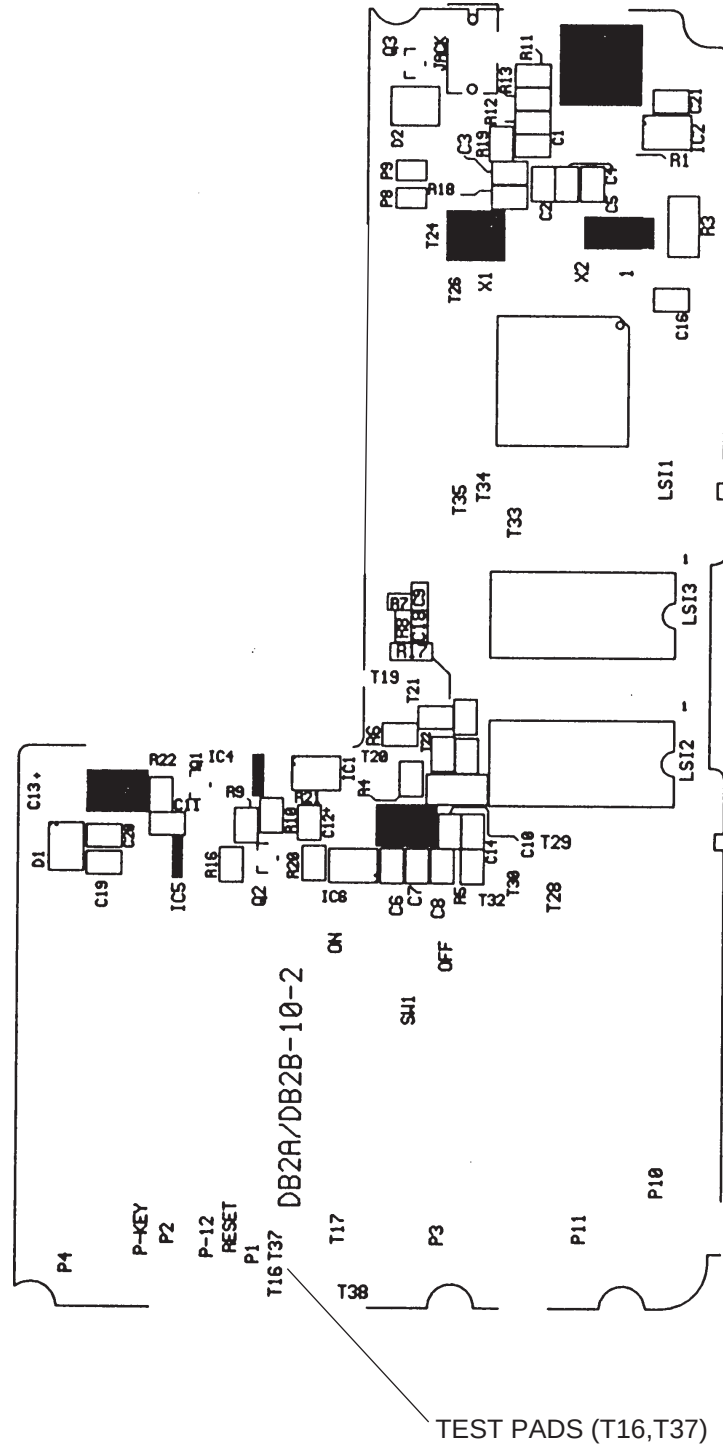
1. SAMPLE 1 → SAMPLE 2 (No. 1 ~ 9)
2. SAMPLE 2 → SAMPLE 1 (No. 10 ~16)

No.	OPERATION		DISPLAY		NOTE
	SAMPLE 1	SAMPLE 2	SAMPLE 1	SAMPLE 2	
1	1. Turn the slide (battery) switch off. 2. Push the P-button. 3. Turn the slide (battery) switch on. 4. Push the reset button, enter Y. 		1992/ 1/ 1WED AM 12:00:00	1992/ 1/ 1WED AM 12:00:00	Check if timer is working.
2	1. Turn the slide (battery) switch off. 2. Turn the slide (battery) switch on while short the shortpad (CP16, CP37)		00:00:00	00:00:00	Check if timer is working.
3	ON		TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	
4	5		I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	
5		2	I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	No display	
6	1		EXECUTING	HHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHH HHHHHHHHHHH.....	Check the received data
				TRNS BREAK	Transfer error

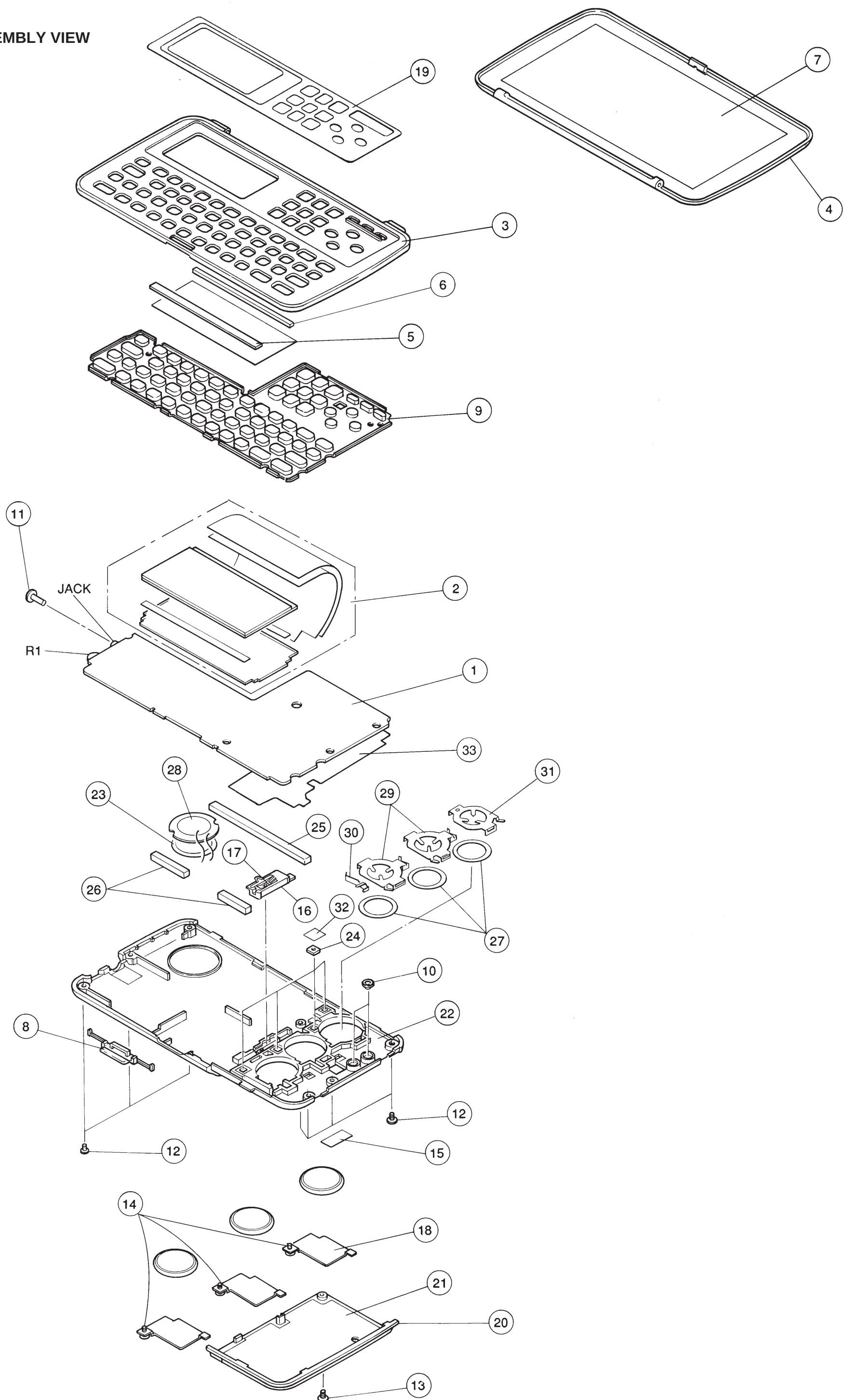
No.	OPERATION		DISPLAY		NOTE
	SAMPLE 1	SAMPLE 2	SAMPLE 1	SAMPLE 2	
7	ESC		TRNS BREAK	TRNS BREAK	
8	ESC		I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	TRNS BREAK	
9		ESC	I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	
10	2		No display	I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	
11		1	HHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHH HHHHHHHHHHHHHHHHHH HHHHHHHHHH.....	EXECUTING	Check the received data
			TRNS BREAK		Transfer error
12		ESC	TRNS BREAK	TRNS BREAK	

No.	OPERATION		DISPLAY		NOTE
	SAMPLE 1	SAMPLE 2	SAMPLE 1	SAMPLE 2	
13		ESC	TRNS BREAK	I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	
14	ESC		I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	I/F 1 TRANS 2 RECEIV 3 LOOP 7N4 4 ASCII	
15	Push the reset button		1992/ 1/ 1WED AM 12:00:00	1992/ 1/ 1WED AM 12:00:00	
16	OFF		No display	No display	

11. PCB VIEW



12. ASSEMBLY VIEW



13. PARTS LIST (SF-4300A/SF-4600)

PART LIST (SF-4300A)										
N	Item	Code No.	Parts Name	Specification	Q'ty			M	FOB Japan N.R.Yen Unit Price	R
					A	B	C			
1. L571-1 ASS'Y										
N	X1	2590 1169	Ceramic oscillator	CSB1228JT	1	1	1	1		C
	X2	7110 0642	Crystal oscillator	DT-26S	1	1	1	1		C
	LSI1	2011 3171	LSI	μPD3056G-007	1	1	1	1		B
	LSI2	2011 4914	LSI	μPD43257AGU-10/ 12LL	1	1	1	1		B
N	LSI3	2011 4914	LSI	μPD43257AGU-10/ 12LL	0	1	1	1		B
	Q1	2250 0413	Chip transistor	2SA1411-T1B (M16)	1	1	1	20		B
	Q2	2221 0378	Chip transistor	2SC2812-L5,L6-TB	1	1	1	1		B
	Q3	2259 0959	Chip digital transistor	DTC114YKT-146	1	1	1	10		B
	R11	2797 1855	Chip resistor	ERJ-3GEYJ102V	1	1	1	20		C
	R12	2797 1869	Chip resistor	ERJ-3GEYJ182V	1	1	1	20		C
	R13	2797 1862	Chip resistor	ERJ-3GEYJ473V	1	1	1	10		C
	R17	2797 2513	Chip resistor	ERJ-3GEYK106V	1	1	1	20		C
	R18,R19	2797 1813	Chip resistor	ERJ-3GEYJ101V	1	1	1	20		C
	R20,R21	2797 1820	Chip resistor	ERJ-3GEYJ105V	1	1	1	20		C
	R16	2797 2016	Chip resistor	ERJ-3GEYJ225V	1	1	1	20		C
	R3	2797 2520	Chip resistor	ERJ-3GEAK206V	1	1	1	20		C
	R4,R5,R7,R8	2797 2303	Chip resistor	ERJ-3GEYJ103V	1	1	1	20		C
	R6	2797 1988	Chip resistor	ERJ-3GEYJ183V	1	1	1	20		C
	R9,R10	2797 2485	Chip resistor	ERJ-3GEYJ684V	2	2	2	20		C
	C1,C6~C11, C16,C18~21	2845 2590	Chip capacitor	MCH183F104ZK	12	12	12	20		C
	C14	2845 2590	Chip capacitor	MCH183F104ZK	0	1	1	20		C
	C12,C13	2802 9742	Electyric capacitor	16MS510-T3	2	2	2	20		C
	C2,C3	2845 2912	Chip capacitor	MCH185A101JK	2	2	2	20		C
	D1	2390 0847	Chip diode	MA718-(TX)	1	1	1	20		C
	D2	2390 0364	Schottky diode	MA713-TX	1	1	1	20		C
N	IC1	2105 2618	L-MOS IC	TC7S02F-TE85R	1	1	1	10		C
N	IC4	2105 2611	C-MOS IC	S-81250HG-RD	1	1	1	5		C
N	IC5	2105 2597	C-MOS IC	XC61AN6302PR	1	1	1	5		C
	IC2	2105 0686	L-MOS IC	TC4S69F-TE85R	1	1	1	10		C
	IC6	2105 1575	C-MOS-IC	SC7S04FER	0	1	1	10		C
	C4,C5	2845 2569	Chip capacitor	MCH185A180JK	2	1	1	20		C
N	R1	6512 1250	Volume	CF10503A001	1	1	1	20		C
	JACK	3501 6538	Jack	HSJ1169-012010	1	1	1	20		C
	33	6510 4530	Insulation tape	HGFC0001001	1	1	1	10		X
N	1	6501 0501	Main PCB ass'y SF-4300A	DB2AXX3100N*1	1	0	0	1		B
N	1	6501 0502	Main PCB ass'y SF-4600	DB2BXX3100T*1	0	1	1	1		B
				(This ass'y contains the above parts as its element.)						
2. TAB ASS'Y										
N	2	6501 0500	TAB ass'y including LCD for SF-4300A	APDB2A3100N*1	1	0	0	1		B
N	2	6501 0503	TAB ass'y including LCD for SF-4600	APDB2B3100P*1	0	1	1	1		B
N		3335 3738	LCD for SF-4300A	LD-B8272AY	1	0	0	1		A
		3335 3731	LCD for SF-4600	CD408-TS	0	1	1	1		A
		2011 2212	LSI	N360F1	1	1	1	1		B
		6401 4880	LCD fixing plate	C311045-1	1	1	1	5		C
		6401 4890	Heat seal L570AA	C311044-1	1	1	1	1		A
		6401 4900	Tape A-L570AA	C411738-1	1	1	1	20		C
		6600 2220	Double sided adhesive tape A-K52	K451-5	2	2	2	10		C
3. UPPER CASE ASS'Y										
N	3	6512 5490	Upper case SF-4300A	FAADB2A0001	1	0	0	1		X

Notes: N - New parts

M - Minimum order/supply quantity

R - Rank

Q'ty - Quantity used per unit — 29 —

R - A : Essential

B : Stock recommended

C : Others

X : No stock recommended

A=SF-4300A
B=SF-4600
C=SF-4600 BOSS

N	Item	Code No.	Parts Name	Specification	Q'ty			M	FOB Japan N.R.Yen Unit Price	R
					A	B	C			
N		3	6512 5590	Upper case SF-4600	FAADB2A0109	0	1	1	1	X
N		4	6512 5500	Upper cover SF-4300A	FC002950011	1	0	0	1	X
N		4	6512 5600	Upper cover SF-4600	FC002950003	0	1	0	1	X
N		4	6512 5650	Upper cover SF-4600 BOSS	FC002950020	0	0	1	1	X
		5	6510 4340	Display cushion	FH100023501	1	1	1	20	X
N		6	6512 5520	Display cushion	FH100023510	1	1	1	20	X
N		7	6512 5510	Operation label SF-4300A	HGK00000600	1	0	0	20	X
N		7	6512 5610	Operation lable SF-4600	HGK00000707	0	1	1	20	X
N		8	6512 5440	Knob SF-4300A	FB3DB020406	1	0	0	20	B
		8	6510 4130	Knob SF-4600	FB3DB020007	0	1	1	20	B
N		9	6512 5450	Rubber key SF-4300A	LADB2A10001	1	0	0	1	B
N		9	6512 5560	Rubber key SF-4600	LADB1D10108	0	1	1	1	B
		10	6511 8400	Rubber button (RESET)	LADB0220105	2	2	2	20	B
N		11	6390 0431	Cap	A310765A-1	1	1	1	20	C
		12	6510 4290	Screw	MAB80002303	7	7	7	20	B
		13	6510 4350	Screw	MAA80006302	1	1	1	20	B
		14	6510 4310	Screw	MAA80006311	3	3	3	20	B
		15	6510 4260	Mask tape	HGFC0000803	1	1	1	20	X
N		16	6512 0660	Switch knob	FB1DB020500	1	1	1	20	C
		17	6510 4490	Switch spring	EF07DB02101	1	1	1	20	C
		18	6510 4300	Battery plate	ECDB0211103	3	3	3	20	X
N		19	6512 5470	Display plate SF-4300A	EL5K0002104	1	0	0	1	C
N		19	6512 5570	Display plate SF-4600	EL5K0002201	0	1	0	1	C
N		19	6540 3090	Display plate SF-4600 BOSS	EL5K0002309	0	0	1	1	C
N		20	6512 5480	Battery cover SF-4300A	FADB2A0101	1	0	0	1	X
N		20	6512 5580	Battery cover SF-4600	FADB2A0004	0	1	1	1	X
		21	6510 4250	Battery cover label	HGFC0000901	1	1	1	1	X
4. LOWER CASE ASS'Y										
N		22	6512 5550	Lower case SF-4300A	FABDB2A0105	1	0	0	1	X
N		22	6512 5620	Lower case SF-4600	FABDB2A0008	0	1	1	1	X
		23	6510 4500	Buzzer tape	HGFC0000501	1	1	1	20	X
N		24	6512 1080	Nut	MD100000602	4	4	4	20	X
		25	6510 4510	Cushion	FH100023706	1	1	1	20	X
		26	6510 4520	Cushion	FH100023609	2	2	2	20	X
		27	6510 4420	Battery insulation seal	HGFC0001109	3	3	3	20	X
N		28	6512 3120	Buzzer	CK234P50105	1	1	1	5	C
N		29	6512 5540	Battery spring (+/-)	EF03DB02118	2	2	2	20	X
		30	6510 4410	Battery spring (+)	EF01DB02201	1	1	1	20	X
N		31	6512 5530	Battery spring (-)	EF02DB02115	1	1	1	20	X
		32	6510 4440	Nut tape	HGFC0001206	4	4	4	20	X

Notes: N – New parts
M – Minimum order/supply quantity
R – Rank
Q'ty – Quantity used per unit

R – A : Essential
B : Stock recommended
C : Others
X : No stock recommended

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