

SERVICE MANUAL & PARTS LIST (with price)

SF-6300_(LX-559)

DEC. 1994



SF-6300

INDEX

CASIO®

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SPECIFICATIONS

Display element:	16-column × 4-line LCD
Memory capacity:	64 kB (60972 bytes)
Main component:	LSI
Power supply:	2 lithium batteries (CR2025)
Power consumption:	0.05 W
Battery life*:	Approximately 300 hours continuous operation in Telephone Directory Approximately 250 hours repeating one minute of input and 10 minutes of display in Telephone Directory Approximately 12 months for memory backup
Auto power off:	Approximately 6 minutes after last key operation
Ambient temperature range:	0°C ~ 40°C (32°F ~ 104°F)
Dimensions (HWD):	Unfolded: 4.65 x 122 x 146 mm ($\frac{3}{6}$ x 4 $\frac{13}{16}$ x 5 $\frac{3}{4}$ inches) Folded: 8.9 x 122 x 75 mm ($\frac{3}{8}$ x 4 $\frac{13}{16}$ x 2 $\frac{15}{16}$ inches)
Weight:	91 g (3.2 oz)

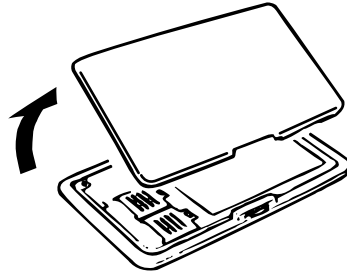
Current consumption:

Power Switch	Maximum [μA]
OFF	11.0
ON	510

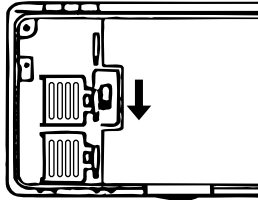
- * The batteries that come installed in this unit when you purchase it are for factory test purposes, so they will probably not provide normal service life.

To replace the batteries

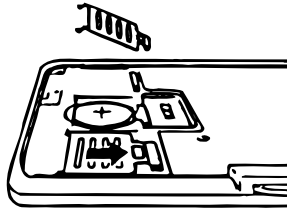
1. Loosen the screws on the back of the SF Unit that hold the battery compartment cover in place, and remove the cover.
- Lift up the edge of the back cover that was fastened down by the screws, hinging on the opposite edge.



2. Slide the battery switch to the "Replacement" setting.



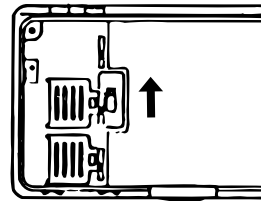
3. Remove the battery holder by sliding it in the direction indicated by the arrow in the illustration.



Caution

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

4. 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).
5. Replace the battery holder and fasten it in place.
6. Repeat steps 2 through 5 for the other battery.
- Be sure to replace both batteries. Never mix old batteries with new ones, and be sure to use CR2025 lithium batteries only.
7. Slide the battery switch to the "Operational" setting.
8. Replace the back cover of the SF Unit and fasten it in place using three screws.
- Be careful that you do not over tighten the screws.



Resetting the SF Unit's Memory

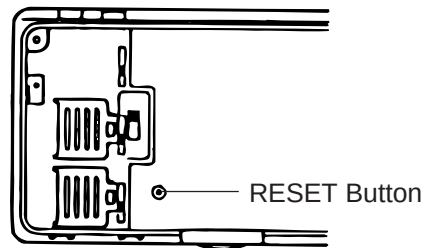
Warning!

The following procedure erases all data stored in the memory of the SF Unit. Perform the following operation only when you want to delete all data and initialize the settings of the SF Unit.

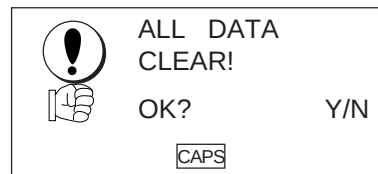
Remember - you should always keep copies of important data by writing it down, by transferring it to a personal computer or other SF Unit.

To reset the SF Unit's memory

1. Check to make sure that the power is off.
2. Remove the three screws that hold the back cover in place, and then remove the back cover.
 - Lift up the edge of the back cover that was fastened down by the screws, hinging on the opposite edge.



3. Switch on power and press the **RESET** button with a thin, pointed object. The following message appears on the display.



4. Press Y* to reset the memory and delete all data or N to abort the reset operation without deleting anything.

* Note that the letter key you press to indicate "yes" depends on the system language, as noted below.

English: Y	Spanish: S	German: J
French: O	Italian: S	

5. Replace the back cover and fasten it in place with three screws.
 - Be careful that you do not over tighten the screws.

Following the reset operation described above, the Home Time display appears and the SF Unit settings are initialized as noted below.

Home Time:	12-hour format
	JAN/1/1995
	AM/12:00 00
Zone:	London (LON)
World Time:	New York (NYC)
Daily Alarm:	12:00 PM
Language:	English
Sound:	Schedule alarm → ON
	Reminder alarm → ON
	Daily alarm → OFF
	Key → ON
Character input:	CAPS

SAVING DATA

The SF-6300 can transfer the customer's data (both the open and secret areas) to another SF-6300.

- Turn off both the transmitting and receiving units and connect them using the SB-60/62 cable.

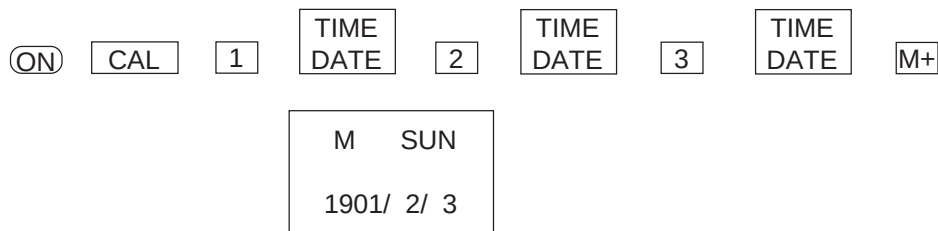


SB-60/62

① Setting up the receiving unit:

1. Do the reset operation.
2. Enter the calculator mode. Set the date of receiving unit to February 3rd, 1901.

Operation:



Note: The customer may have created a password to protect confidential information from unauthorized access. To be sure this password is transferred to the receiving unit, be sure to set the date as described above.

3. Press **TEL**, and **FUNC** twice.

1* TO SECRET AREA
2 ALL DELETE
3 LABEL EDIT
4 DATA COMM.
CAPS

* If the password isn't registered in the SF-6300, the display shows **X** instead of "1."

4. Press **4** to select DATA COMM.

1 SEND
2 RECEIVE
3 SET UP PAR.
CAPS

5. Press **2** to select RECEIVE.

←  RECEIVE OK
DATA
 → TO STOP
PRESS (ESC)
CAPS

② Setting up the transmitting unit:

Set the hardware parameters as follows:

Parity: None

Bit length: 7

BPS: 9600

1. Press **ON** , **TEL** .
2. Press **FUNC** twice.

1* TO SECRET AREA
2 ALL DELETE
3 LABEL EDIT
4 DATA COMM

CAPS

* If the password isn't registered in the SF-6300, the display shows **X** instead of "1."

3. Press **4** to select DATA COMM.

1 SEND
2 RECEIVE
3 SET UP PAR.

CAPS

4. Press **3** to select SET UP.

** SET UP PAR. ***
PARITY E O **N**
BIT LENGTH **7** 8
BPS 4800 **9600**

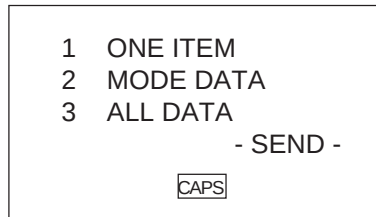
CAPS

5. Use **△** , **▽** , **▷** , or **◁** to select "N," "7," and "9600" and press **SET** .

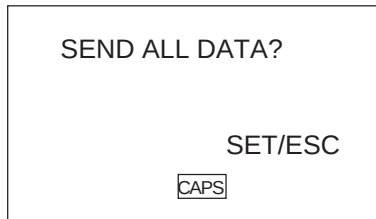
1 SEND
2 RECEIVE
3 SET UP

CAPS

6. Press **1** to select SEND.



7. Press **3** to select ALL DATA.



8. Press **SET** to start data transmission or **ESC** to abort the operation without sending anything.

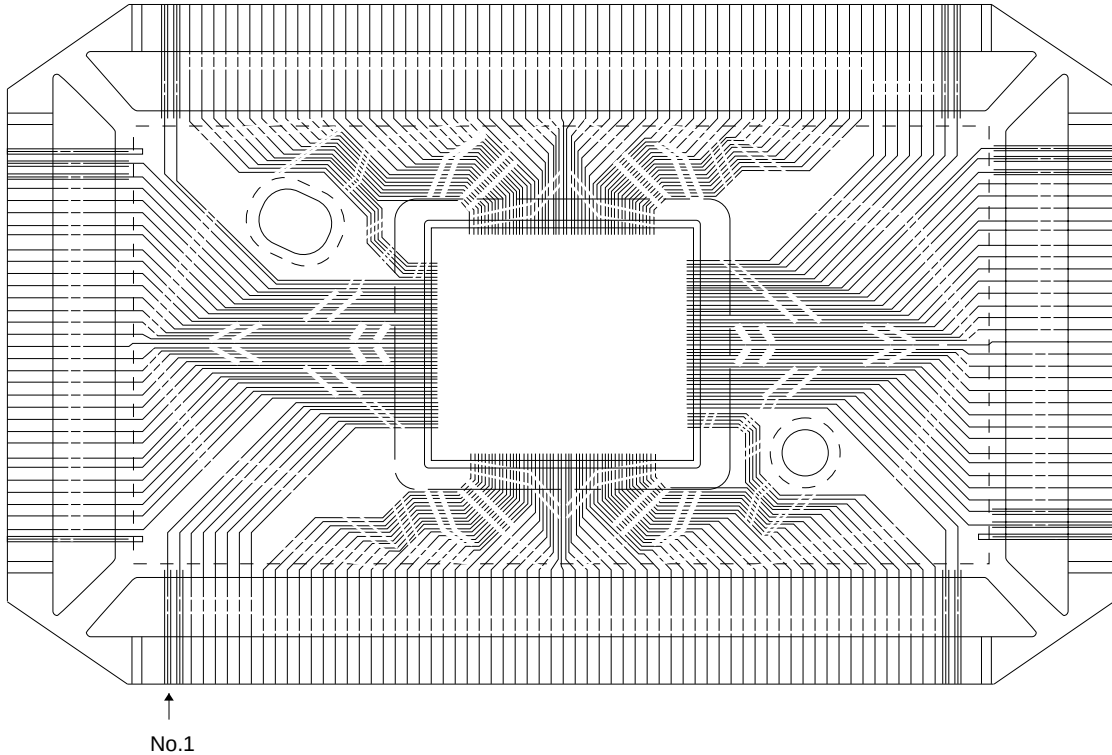


- If an error occurs during data transmission, the message "TRANSMIT ERROR!" appears on the display. Press **ESC** to clear the error message.

9. After data transmission is complete, the display returns to the initial screen of the telephone mode.

LSI PIN FUNCTIONS

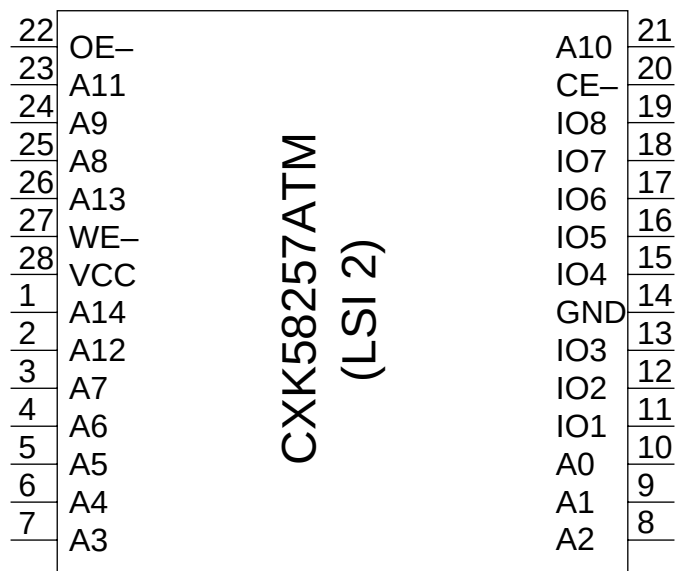
CPU: LSI1



Pin No.	Name	I/O	Description
1 ~ 5	C0 ~ 4	Out	Common signal for display
6	GND	In	GND 0 V
7,8	BZ1,2	Out	Buzzer terminal
9	VDD	In	Power supply terminal (+5.3 V)
10	CSRA1	Out	Chip enable signal for LSI2
11	CSRA2	Out	Chip enable signal for LSI3
12	CSROM	Out	Chip enable signal (Not used)
13	WEB	Out	Write enable signal for LSI2 and LSI3
14,15	RA15,16	Out	Address bus (Not used)
16 ~ 30	A0 ~ 14	Out	Address bus
31 ~ 38	IO0 ~ 7	I/O	Data bus
39 ~ 54	KY0 ~ 15	I/O	Key signal
55	SW	In	Battery switch Power on: 0 V off: 6 V
56	DEBUG	-	Not used
57	ON	Out	Data communication enable signal
58	CRCKI	In	GND 0 V
59	SOUTB	Out	Transmission data output
60	SIN	In	Receiving data input
61	VDD	In	Power supply terminal (+5.3 V)
62	TEST	-	Not used
63	VTM	-	Not used

Pin No.	Name	I/O	Description
64,65	OSC I/O	I/O	Clock terminal
67,69~71	V1 ~ 4		Voltage for LCD drive OFF: 0 V ON–V1: 0.64 Minimum ~ 1.29 Maximum V V2: 1.29 Minimum ~ 2.56 Maximum V V3: 3.99 Minimum ~ 2.71 Maximum V V4: 4.64 Minimum ~ 3.99 Maximum V
68	NC	-	Not used
72	INTO	In	Low battery detection INTO < 5.2 V => No power on
73	STNT	-	GND 0 V
74	VLCD	In	Power supply terminal (+5.3 V)
75 ~ 171	S0 ~ 95	Out	Segment signal for display
172 ~199	C5 ~ 32	Out	Common signal for display
168,200	NC	-	Not used

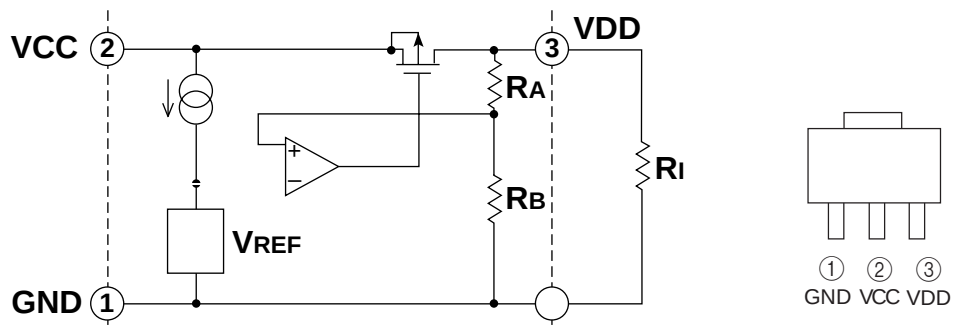
RAM: LSI2 and LSI3 (CXK58257)



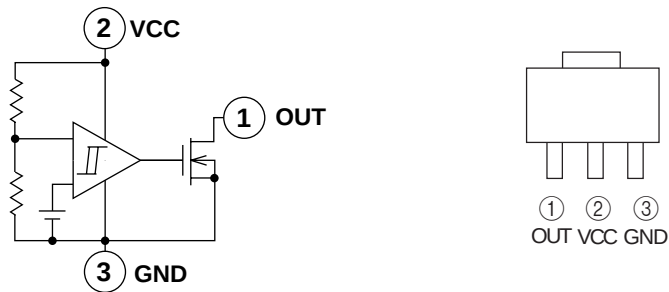
Pin No.	Name	I/O	Description
1~10,21,23~26	A0 ~ 14	In	Address bus
11~13,15~19	IO1 ~ IO8	I/O	Data bus
14	GND	In	GND 0 V
20	CE	In	Chip select signal from LSI1
22	OE	In	0 V
27	WE	In	Write enable signal from LSI1
28	VCC	In	Power supply terminal (+ 5.3 V)

VOLTAGE REGULATOR: REG1 (S-81253)

Output Voltage (VDD): 5.3 V ± 5%



VOLTAGE DETECTOR: DET1 (RH5VL46CA)



Input Voltage (VCC)	Output Voltage (OUT)
VCC > 5.2 V	5.2 V
VCC < 5.2 V	0 V

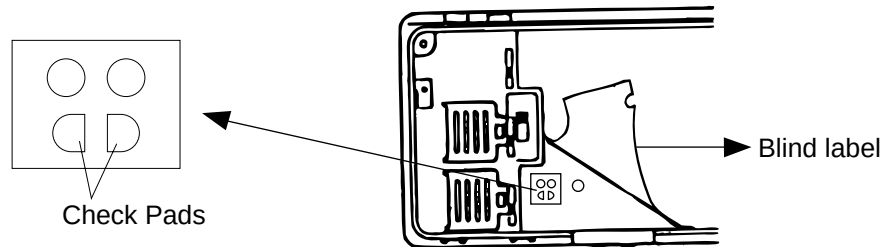
TROUBLESHOOTING

Before the following solutions will be done, save data if possible.

SYMPTOM	CAUSE	SOLUTION
No Power	Battery shortage	Replace batteries
	Poor soldering of the power supply circuit	Resolder
	Defective LSI-1 or LSI-2	Replace it
	Defective Capacitor C8, C12, C13, or C14	Replace it
No display at all or wrong display	Defective TAB LSI	Replace it
	Defective heat seal	Replace it
	Defective LCD	Replace it
No key input at all	Poor soldering LSI-1 or LSI2	Resolder
	Defective LSI-1 or LSI-2	Replace it

DIAGNOSTICS

- Notes:**
1. Be sure to transfer data to another SF-6300 unit before entering the diagnostic mode, because the data will be changed by entering the diagnostic mode.
 2. The check pads shown in the following illustration are covered by a blind label.



3. To exit the diagnostic mode, press the reset button.

To enter the diagnostic mode:

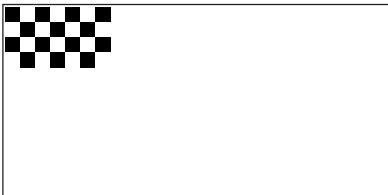
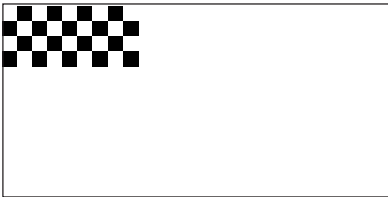
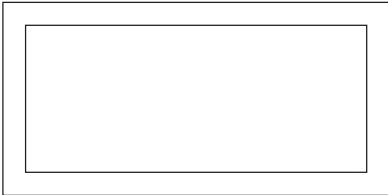
1. Slide the battery switch to "Replacement" position.
2. Slide it to "Operational" position while shorting the check pads.

SELF TEST PROG.
PRESS SEARCH
QUIT BY OFF
CASIO APR 1994

3. Press **SEARCH**.

TEST	2	MEMORY
MENU	3	KEY
	4	BUZZER
1 DISP	5	I/F

Display Check

Operation	Display	Note
Press [1] on the TEST MENU.	DISP 4 RVS. 1 WHITE 5 FRAME 2 BLACK 6 DOT4 3 CHECK. 7 TIME	Display check To return to the TEST MENU, press [ESC] .
[1]		No display
[2]		All dots displayed
[3]	 	Checker displayed
[4]	 	Reverse checker display
[5]		Frame display

Operation	Display	Note
[6]		Shows dots at corners.
[7]	TIME DISPLAY 00:00:XX	Check to see if timer is working.
[ESC]	TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	

Memory Check

The functions of the numbered items on the display include:

1. WR1 : Writes the test pattern in the ROM to the RAM area. (Test pattern: Incremental order 00, 01, and so on)
2. READ1 : Compares the test pattern with the write data (WRITE1) of the RAM and displays the results.
3. WR2 : Writes the test pattern in the ROM to the RAM area. (Test pattern: Decremental order FF, FE, and so on)
4. READ2 : Compares the test pattern with the write data (WRITE2) of the RAM and displays the results.
5. DUMP : Dump the data stored in ROM.
6. CHKSUM : Calculate SUM and XOR of RAM connected and display them.

Operation	Display	Note
[2]	MEMORY 3 WR2 4 READ2 1 WR1 5 DUMP 2 READ1 6 CHKSUM	RAM check To return to the TEST MENU, press [ESC]. 5: Not used 6: Not used
[1] (or [3])	WRITE1 (or WRITE2)	

Operation	Display	Note
(After a few seconds)	MEMORY 3 WR2 4 READ2 1 WR1 5 DUMP 2 READ1 6 CHKSUM	
[2] (or [4])	EXECUTING!!	
	COMPLETE!! 64KB	
	DATA ERROR!! ADDRESS CORR RAM XXXX XX XX	RAM error If the displayed address is within 0000-7FFF, check LSI3. If the displayed address is within 8000-FFFF, check LSI2.
[5]	07 B5 C7 0B FF D6 88 20 03 EB 83 47 F7 1B 81 86 82 (E.G.)	(Value: Address). 07: 00001 B5: 00002 C7: 00004 0B: 00008 FF: 00010 D6: 00020 88: 00040 20: 00080 03: 00100 EB: 00200 83: 00400 47: 00800 F7: 01000 1B: 02000 81: 04000 86: 08000 82: 10000 (E.G.)
[6]	TY SZ SUM XOR FE 0 128 E290 XX C3 A 64 XXXX XX	

Key Check

Each key has its own key code. The key codes are assigned incrementally from left to right on the keyboard. (Refer to the keyboard in the schematic diagrams.)

In the auto mode, the key input sequence is limited so that the keys must be pressed in the order of the key code as mentioned above. If a key is pressed in the wrong order, the SF-6300 beeps.

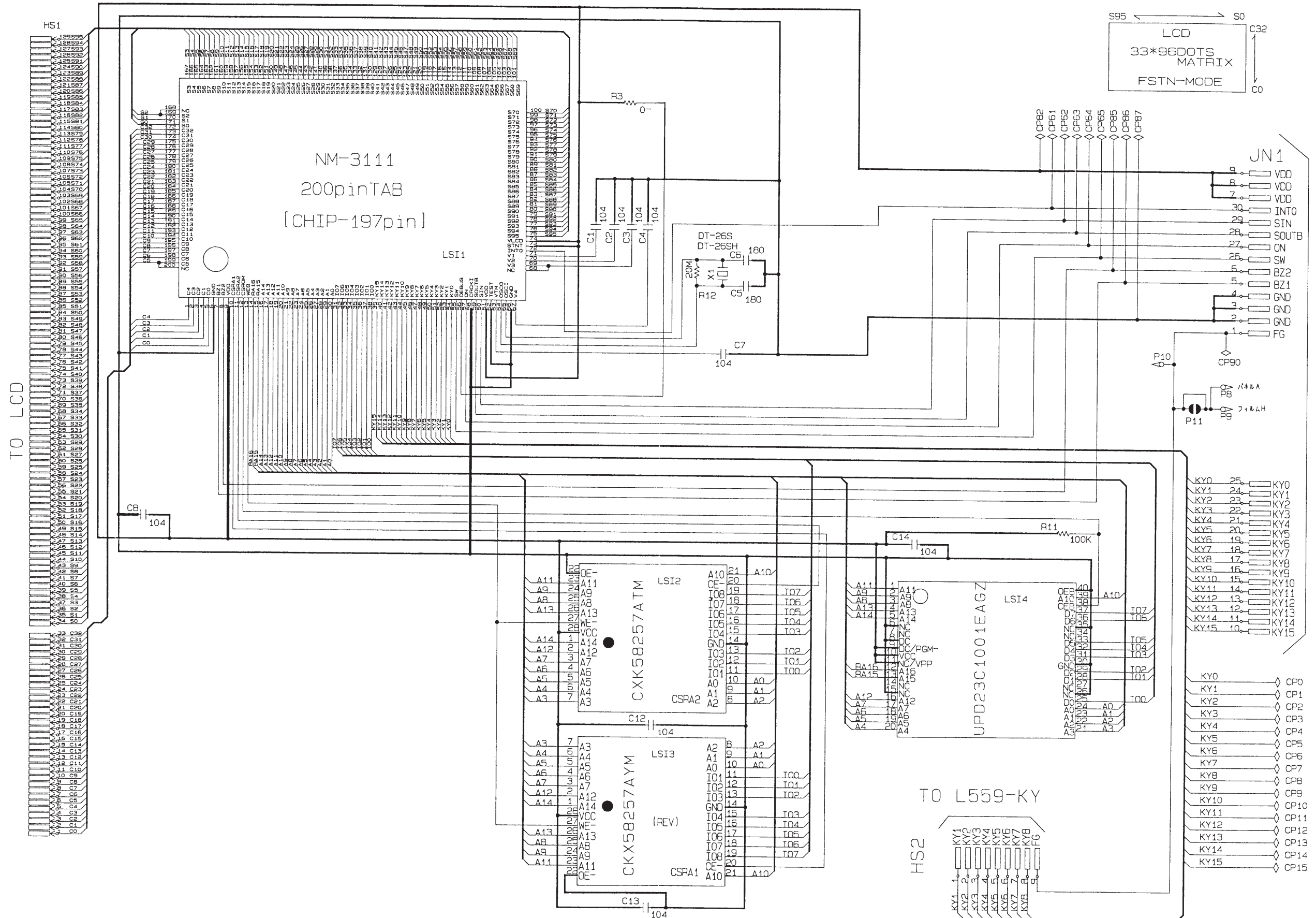
Operation	Display	Note
Press [3] on the TEST MENU.	KEY 1 RANDOM 2 AUTO	Key check To return to the TEST MENU, press [ESC] .
[2]	No display	
[MC] [MR] [M-] [M+] [AC] , ... [%] [7] , ... [÷] [4] , ... [x] [1] , ... [=] [0] , ... [+] [ON] [OFF] [EXPENSE] , ... [DISP CHNG] [REMINDER] , ... [DEL] [←] [↑] [↓] [→] [ESC] , ... [()] [FUNCTION] , ... [⇐] [SHIFT] , ... [SHIFT] [CAPS] , ... [SET]	00 01 02 03 04 56 57	Check that the key number appears on the display. To return to the TEST MENU, enter [SEARCH] .
[SEARCH]	TEST 2 MEMORY MENU 3 KEY 4 BUZZER 1 DISP 5 EXT	

Buzzer Check

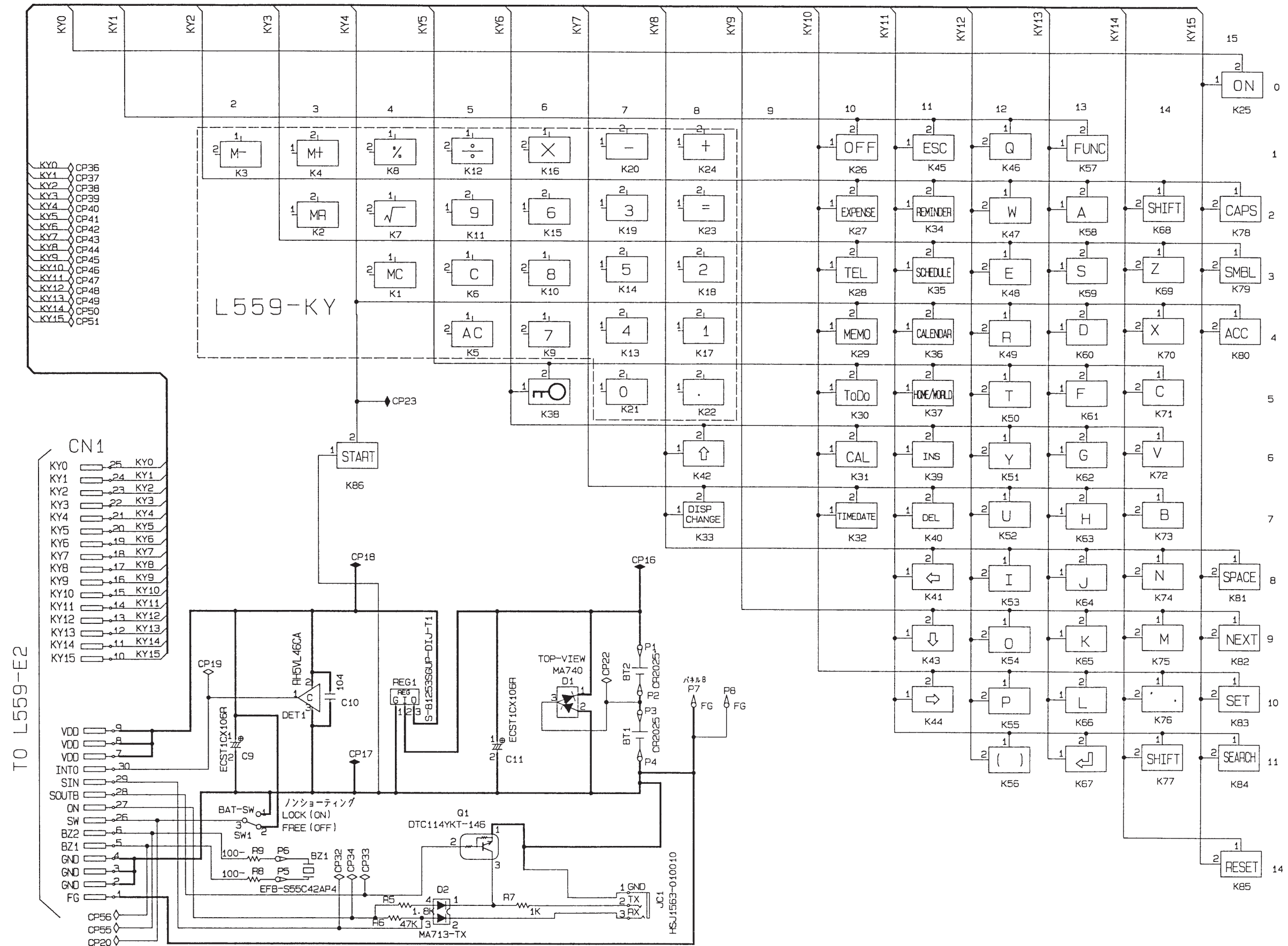
Operation	Display	Note
Press 4 on the TEST MENU.	BUZZER 1 BEEP 2 ALARM1 3 ALARM2	Buzzer check To return to the TEST MENU, press ESC .
1 (or 2 , 3)	EXECUTING!!	Check the sound. To return to the BUZZER menu, press any key.
	BUZZER 1 BEEP 2 ALARM1 3 ALARM2	
ESC	TEST MENU 2 MEMORY 3 KEY 4 BUZZER 1 DISP 5 EXT	

SCHEMATIC DIAGRAM

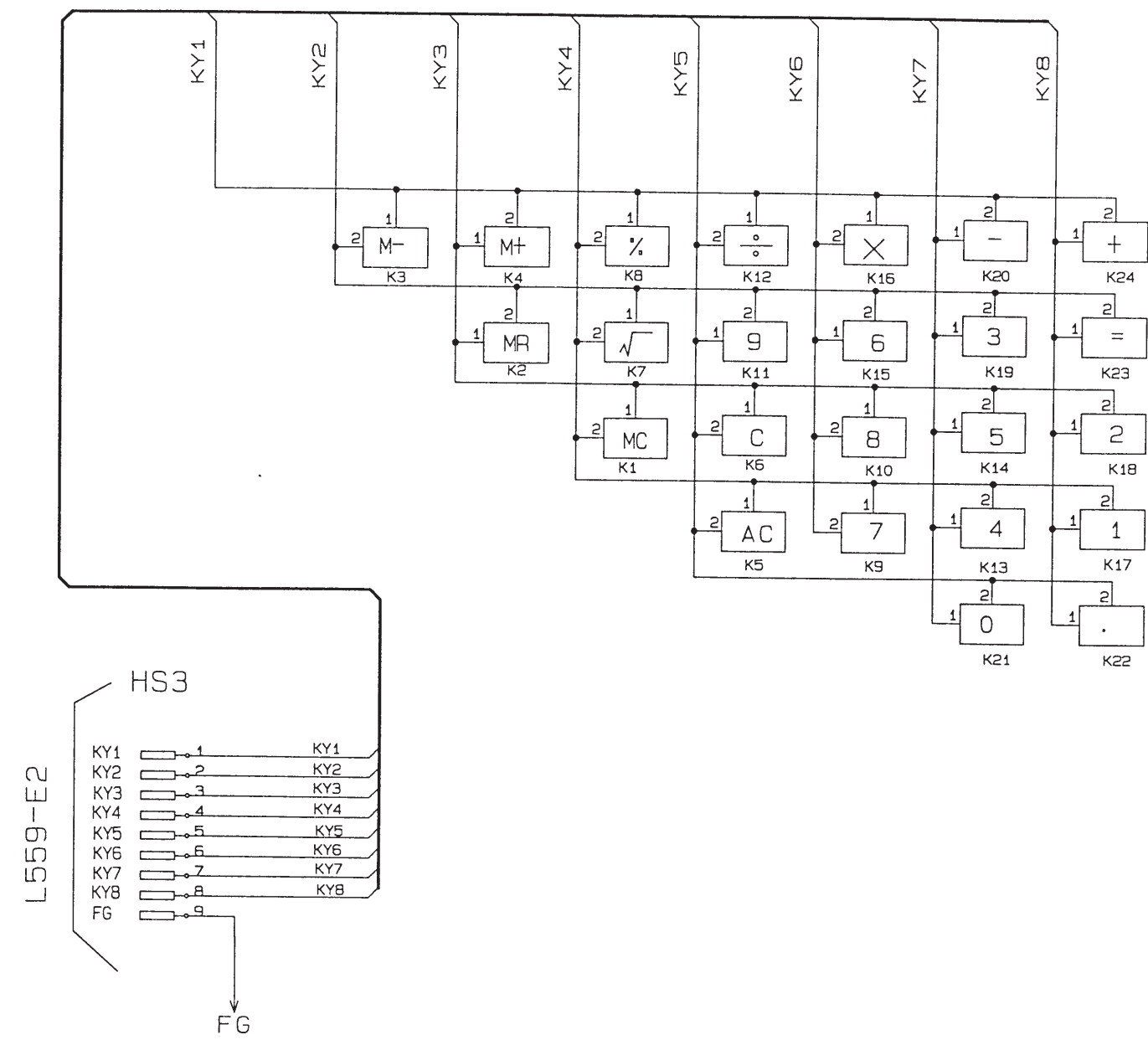
Main PCB



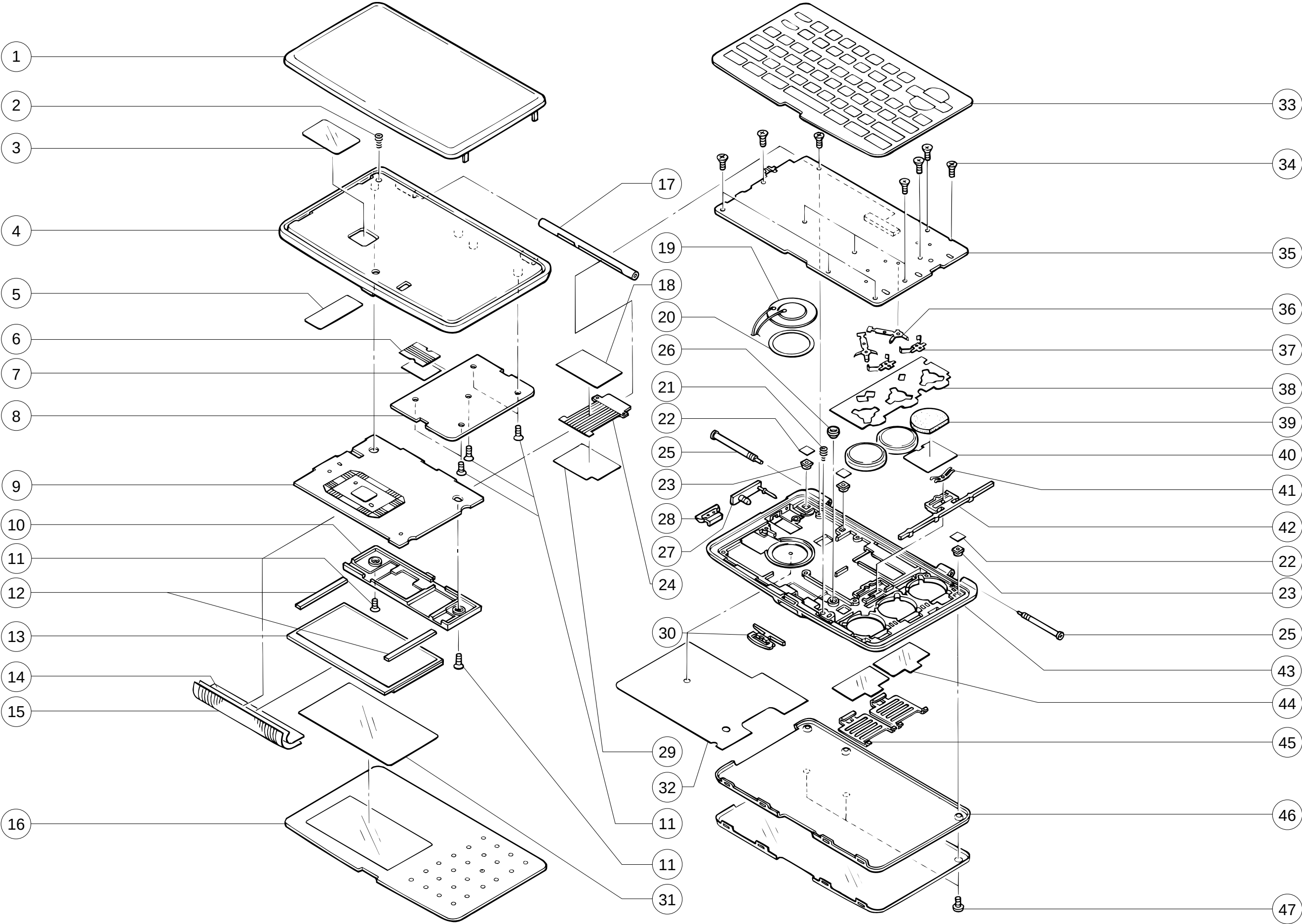
Key PCB



Key PCB (Display Side)



ASSEMBLY VIEW



AM : STANDARD (Black)

BM : B.O.S.S. (Black)

PARTS LIST

N	Item	Code No.	Parts Name	Specification	Q'ty		M	FOB Japan N.R.Yen Unit Price	R
					BM	AM			
L559-1 PCB ASS'Y									
N	C9	2895 1967	Tantalum capacitor	ECST1CX106R	1	1	10	39	C
	C10	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C11	2895 1967	Tantalum capacitor	ECST1CX106R	1	1	1	39	C
N	CN1	3501 9191	Connector	52746-3090	1	1	5	98	C
	D1	2390 2128	Chip diode	MA740-(TX)	1	1	5	50	C
	D2	2390 0364	Schottky diode	MA713-TX	1	1	10	33	C
	DET1	2105 3864	CMOS IC	RH5VL46CA-T1	1	1	10	45	B
N	JC1	3501 8778	Mini jack	HSJ1563-010010	1	1	5	59	C
N	Q1	2259 0959	Chip digital transistor	DTC114YKT-146	1	1	20	12	C
	R5	2792 1191	Chip resistor	MCR10EZHZJ182	1	1	10	9	C
	R6	2792 0462	Chip resistor	MCR10EZHZJ473	1	1	20	3	C
	R7	2792 0470	Chip resistor	MCR10EZHZJ102	1	1	20	3	C
	R8	2792 0217	Chip resistor	MCR10EZHZJ101	1	1	20	3	C
	R9	2792 0217	Chip resistor	MCR10EZHZJ101	1	1	20	3	C
N	REG1	2105 3290	CMOS IC	S-81253SGUP-DIJ-T1	1	1	5	60	B
	19	7435 9096	Buzzer	EFB-S55C42AP4	1	1	5	55	X
	36	6408 9410	Battery contact spring B	C311911-2	2	2	20	6	X
N	37	6409 9960	Battery contact spring A	C413299-1	2	2	20	26	X
N	38	6409 9970	Tape A-L525AM	C413327-1	1	1	10	31	X
L559-E2 PCB ASS'Y								578	
	C1	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C2	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C3	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C4	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C5	2845 1652	Chip capacitor	MCH215A180JK	1	1	20	3	C
	C6	2845 1652	Chip capacitor	MCH215A180JK	1	1	20	3	C
	C7	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C8	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C12	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C13	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	C14	2845 1540	Chip capacitor	MCH212F104ZK	1	1	20	4	C
	LSI1	6409 2760	L594 TAB sub ass'y	C312133*1	1	1	1	1,010	B
	LSI2	2011 8267	LSI	CXK58257ATM-10/12L	1	1	1	580	B
	LSI3	2011 8274	LSI	CXK58257AYM-10/12L	1	1	1	580	B
	LSI4	2011 9268	LSI	uPD23C1001EAGZ-M05	1	1	1	370	B
	R3	2795 0056	Chip resistor	MCR10EZHZJ000	1	1	20	3	C
	R11	2792 0209	Chip resistor	MCR10EZHZJ104	1	1	20	3	C
	R12	2797 1288	Chip resistor	ERJ-6GEYK106V	1	1	20	3	C
	X1	7110 0642	Crystal oscillator	DT-26S	1	1	10	57	B
CABINET								2,648	
N	1	6412 4330	Lower panel A-L559AM	C211663-1	0	1	1	830	X
N	1	6412 4480	Lower panel A-L559BM	C211663-2	1	0	1	830	X
N	2	6412 4310	Earth spring L559AM	C413749-1	1	1	20	10	X
N	3	6412 4280	Tape E-L559AM	C413743-1	1	1	20	23	X
N	4	6412 4110	Lower cabinet A-L559AM	C111382-1	1	1	1	120	X
N	5	6412 4290	W tape D-L559AM	C413744-1	1	1	20	10	X
N	6	5610 8230	Heat seal P-L559AM	C413738-1	1	1	10	36	B
N	7	6412 4260	Tape P-L559AM	C413741-1	1	1	20	10	X
N	8	4311 9180	PCB-L559-KY	C211650-1	1	1	1	140	X
N	9	6412 4030	L559-E2 PCB ass'y	C211666C*1A	1	1	1	4,720	X

Notes: N – New parts

M – Minimum order/supply quantity

R – Rank

R – A : Essential

B : Stock recommended

C : Others

X : No stock recommended

N	Item	Code No.	Parts Name	Specification	Q'ty		M	FOB Japan N.R.Yen Unit Price	R
					BM	AM			
N	10	6412 4180	Spacer L559AM	C312382-1	1	1	10	36	C
N	11	6409 9950	Screw 1A-L525AM	A310609-11	7	7	20	7	X
N	12	6412 4240	W tape LC-559AM	C413739-1	2	2	20	10	X
	13	3335 5264	LCD	CD792-TS	1	1	1	790	B
N	14	6412 4250	Tape L-L559AM	C413740-1	1	1	20	13	X
N	15	5610 8220	Heat seal L-L559AM	C312396-1	1	1	1	190	B
N	16	6412 4200	Upper sheet A-L559AM	C312391-1	0	1	1	160	A
N	16	6412 4390	Upper sheet A-L559BM	C312391-2	1	0	1	160	A
N	17	6410 0080	Hinge L525BM	C312119-2	1	1	10	39	X
N	18	6410 0210	Tape HB-L525AM	C413323-1	1	1	20	8	X
	20	6512 5920	Buzzer tape L571AM	C412699-1	1	1	20	17	X
N	21	6410 0160	Earth spring L525AM	C413294-1	1	1	20	13	X
	22	6512 5880	P spring blind L571AM	C411700-2	3	3	20	9	X
	23	6408 9460	Nut L594AM	C413032-2	3	3	10	35	X
N	24	6412 4210	FFC joiner L559AM	C312397-1	1	1	1	180	X
N	25	6409 9900	Pin L525AM	C413298-1	2	2	20	27	X
N	26	6410 0170	Rubber key L525AM	C311028-3	1	1	10	28	X
N	27	6410 0140	Cap L525AM	C312138-1	1	1	20	19	X
N	28	6412 4190	VR blind L559AM	C312383-1	1	1	10	28	X
N	29	6412 4270	Tape HA-L559AM	C413742-1	1	1	20	10	X
N	30	6410 0130	OP knob L525AM	C312114-1	1	1	5	57	X
N	31	6412 4220	AN tape L559AM	C413734-1	1	1	5	57	X
N	32	6412 4160	Tape B-L559AM	C312126-2	0	1	10	36	X
N	33	6412 4130	Upper sheet B-L559AM	C211669-1	1	1	1	150	A
N	34	6409 9950	Screw 1A-L525AM	A310609-11	11	11	20	7	X
N	35	6412 4070	L559-1 PCB ass'y	C240001*1	1	1	1	1,300	C
N	39	6412 4300	B blind L559AM	C413745-1	1	1	20	16	X
N	40	6412 4320	Tape BC-L559AM	C440004-1	1	1	10	25	X
N	41	6410 0150	Contact spring L525AM	C412167-2	1	1	20	13	X
N	42	6410 0120	SW knob L525AM	C211441-1	1	1	10	49	X
N	43	6410 0110	Lower cabinet B-L525BM	C111233-2	1	1	5	95	X
N	44	6409 9930	Tape C-L525AM	C413333-1	2	2	20	16	X
N	45	6409 9890	Battery holder L525AM	C413296-1	2	2	20	37	X
N	46	6412 4120	Lower panel B-L559AM	C211439-3	0	1	1	470	X
N	46	6412 4370	Lower panel B-L559BM	C211439-4	1	0	1	470	X
N	47	6411 3100	Screw A-L529AA	C413301-2	3	3	20	2	X

Notes: N – New parts
M – Minimum order/supply quantity
R – Rank

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

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