

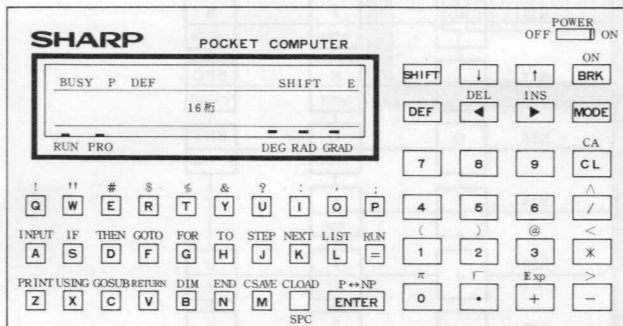
SHARP SERVICE MANUAL

PC-1246
PC-1247

CODE : 00ZPC1247SM/E



1. KEY LAYOUT

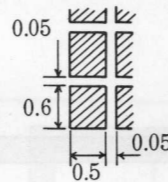


2. SPECIFICATIONS

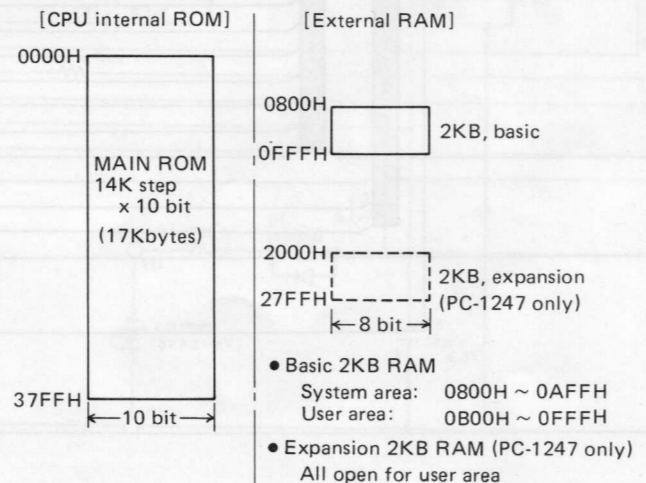
| | |
|-----------------------|---|
| Calculating Capacity: | 10 digits (mantissa) + 2 digits (exponent) |
| Calculating System: | Algebraic system (with priority judgement function) |
| Programming Language: | BASIC |
| CPU: | 4 bit CMOS |
| System ROM: | 17.4K bytes |
| Memory Capacity: | System Area About 0.5K bytes Area dedicated to data 208 bytes Program/data area 1278 bytes (PC-1246), 3326 bytes (PC-1247) |
| Stack: | Sub-routine: 10 stacks For-NEXT: 5 stacks Function: 16 stacks Data: 8 stacks |
| Operators: | Basic calculations: Addition, subtraction multiplication, division Function calculations: Trigonometric and inverse trigonometric functions, logarithmic and exponential functions, angle conversion, square root, interger, absolute, sign operators, π . |
| Editing Features: | Cursor left and right ($>$, $<$), character insert (INS), character delete (DEL), line up and down (\downarrow , \uparrow) |
| Memory Protection: | Battery backup (the contents of programme and its data are retained at power-off.) |

PC-1246 MODEL PC-1247

| | |
|------------------------|---|
| Display: | 16-character liquid crystal display with 5 x 7 dot characters (LF7133E) Character dimensions: 4.5(H) x 2.7(W)mm Character pitch: 3.45 mm |
| Operating Temperature: | 0°C ~ 40°C (32°F ~ 104°F) |
| Power Supply: | 6V DC Lithium cells Type: CR-2032 |
| Operating Time: | Approx. 1000 hours (Display: 55555555, ambient temperature: 20°C (68°F). The operating time slightly varies depending upon the use of battery.) Battery will last for a period of 2.4 months, assuming the use of one hour a day which consists of 10 minutes of operation or program execution and 50 minutes of displaying. |
| Power Consumption: | 0.07 W |
| Dimensions: | 135(W) x 70(D) x 9.5(H)mm 5-5/16"(W) x 2-3/4"(D) x 3/8"(H) |
| Weight: | 95g (with cells) |
| Auto power off time: | Approx. 11 minutes |
| Options: | CE-124, CE-125, CE-126P, CE-152 |



3. MEMORY MAP



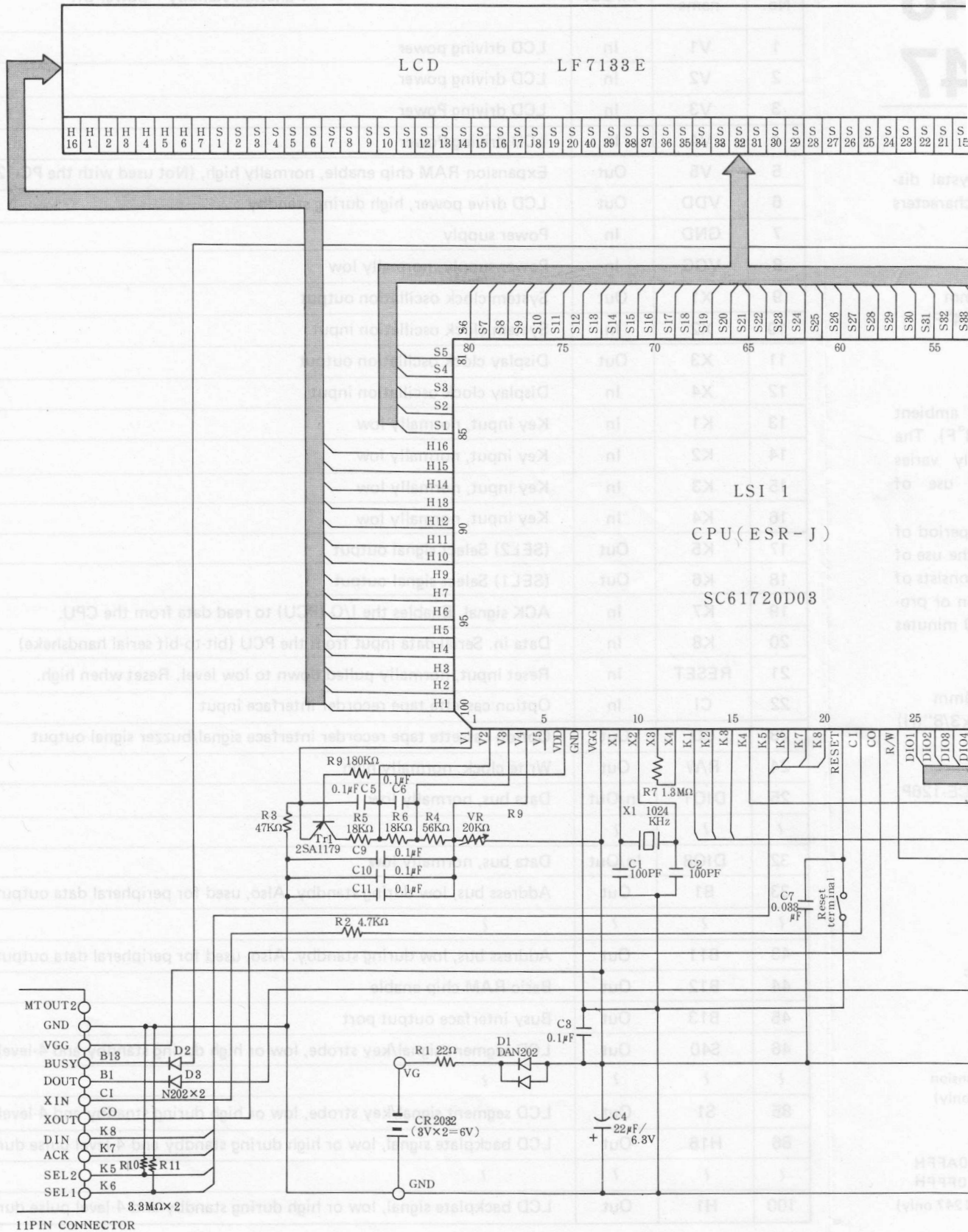
4. CPU (SC61720D03)

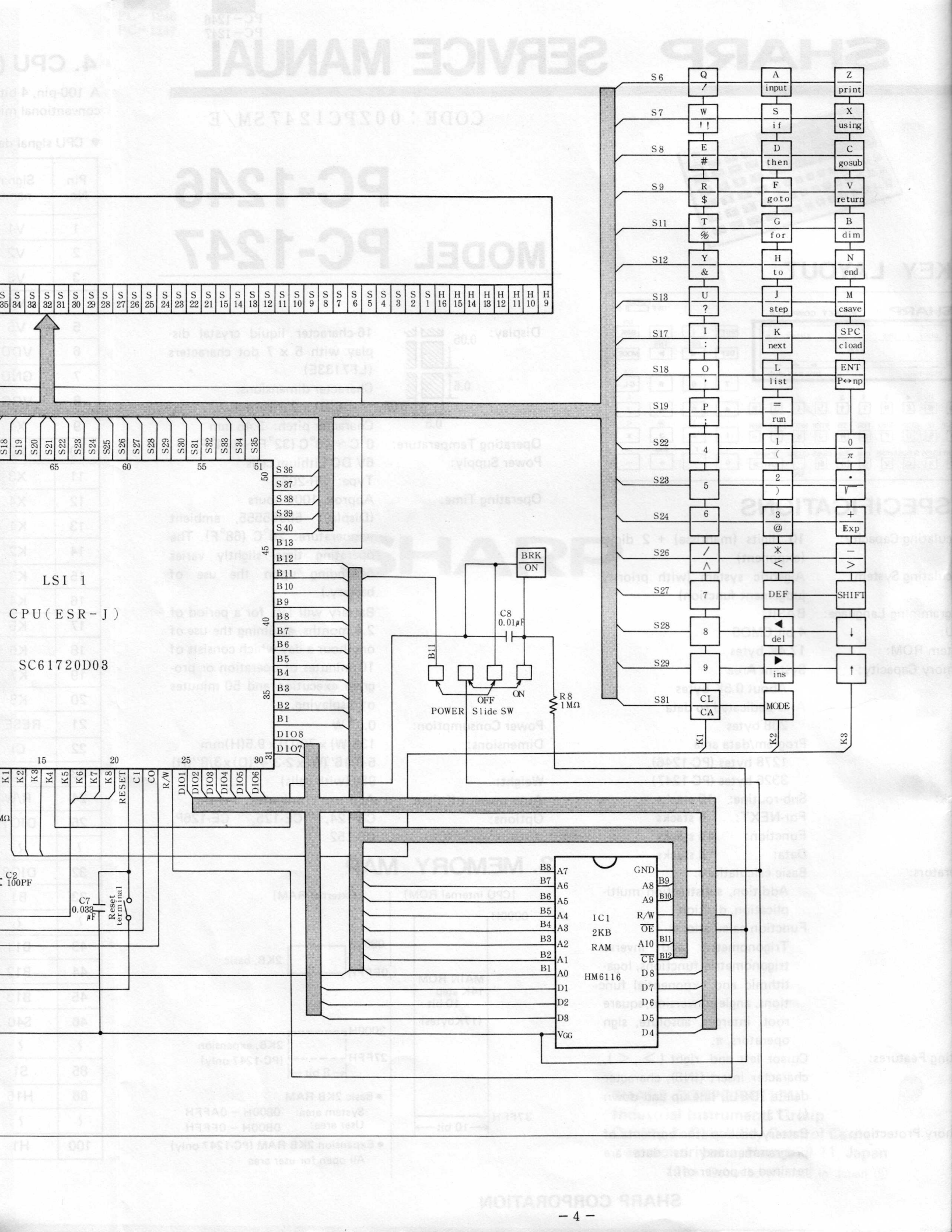
A 100-pin, 4-bit, microprocessor used in this model has a 17KB ROM and display chip within the chip. What it differs from the conventional microprocessor is that it has no internal RAM but uses an external RAM for execution.

● CPU signal description

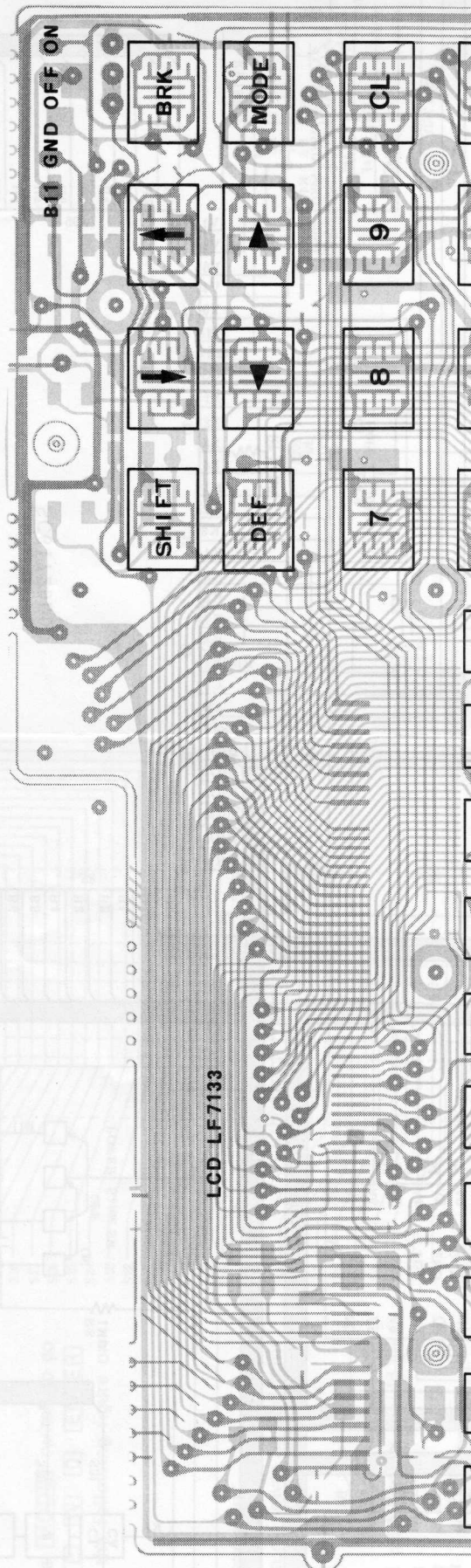
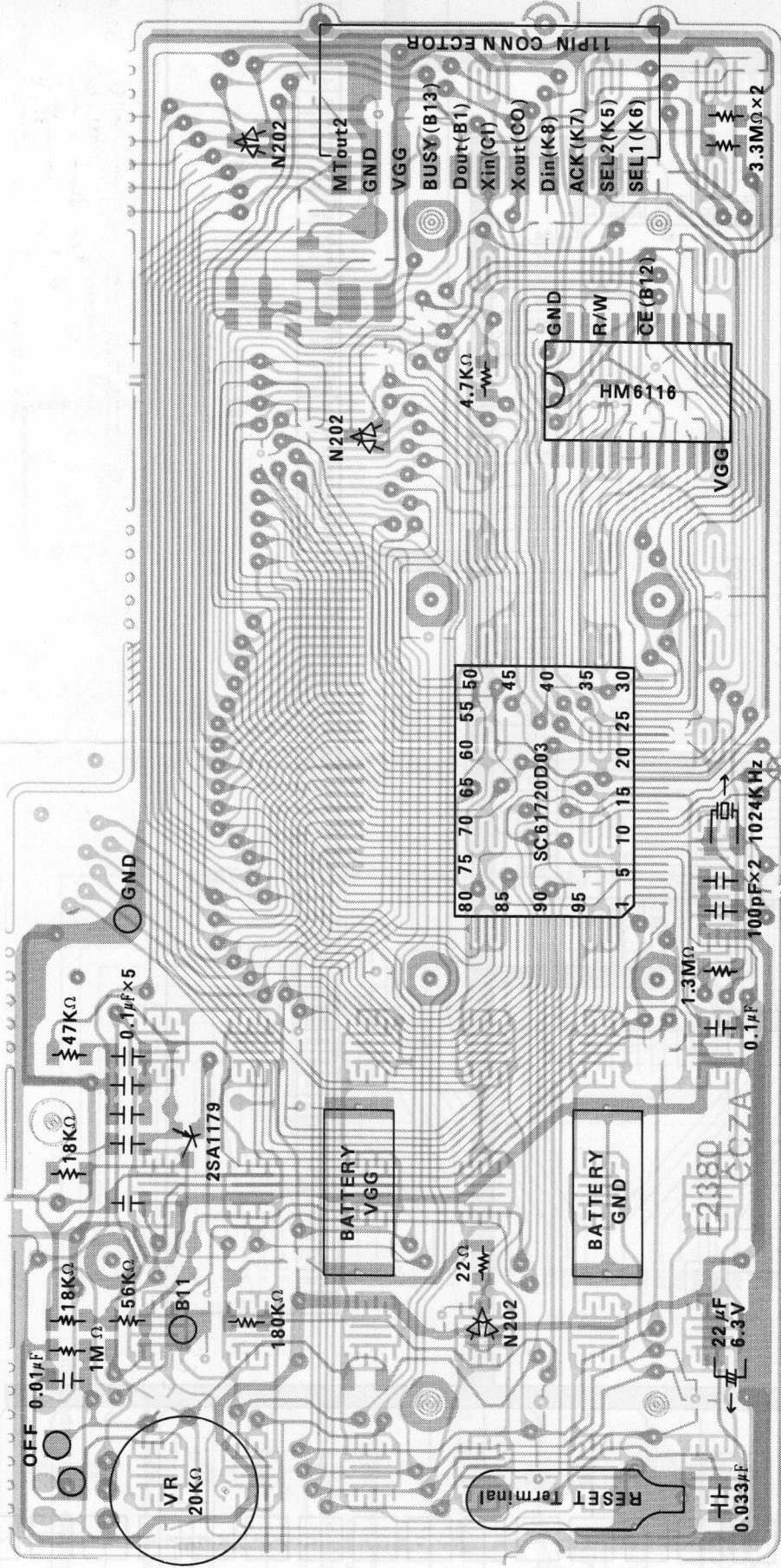
| Pin No. | Signal name | In/Out | Function standby = power off |
|---------|-------------|--------|---|
| 1 | V1 | In | LCD driving power |
| 2 | V2 | In | LCD driving power |
| 3 | V3 | In | LCD driving Power |
| 4 | V4 | In | LCD driving Power |
| 5 | V5 | Out | Expansion RAM chip enable, normally high, (Not used with the PC-1246.) |
| 6 | VDD | Out | LCD drive power, high during standby. |
| 7 | GND | In | Power supply |
| 8 | VGG | In | Power supply, normally low |
| 9 | X1 | Out | System clock oscillation output |
| 10 | X2 | In | System clock oscillation input |
| 11 | X3 | Out | Display clock oscillation output |
| 12 | X4 | In | Display clock oscillation input |
| 13 | K1 | In | Key input, normally low |
| 14 | K2 | In | Key input, normally low |
| 15 | K3 | In | Key input, normally low |
| 16 | K4 | In | Key input, normally low |
| 17 | K5 | Out | (SEL2) Select signal output |
| 18 | K6 | Out | (SEL1) Select signal output |
| 19 | K7 | In | ACK signal. Enables the I/O (PCU) to read data from the CPU. |
| 20 | K8 | In | Data in. Serial data input from the PCU (bit-to-bit serial handshake) |
| 21 | RESET | In | Reset input, normally pulled down to low level. Reset when high. |
| 22 | CI | In | Option cassette tape recorder interface input |
| 23 | CO | Out | Option cassette tape recorder interface signal/buzzer signal output |
| 24 | R/W | Out | Write clock, normally high |
| 25 | DIO1 | In/Out | Data bus, normally low |
| ? | ? | ? | ? |
| 32 | DIO8 | In/Out | Data bus, normally low |
| 33 | B1 | Out | Address bus, low during standby. Also, used for peripheral data output port (Dout). |
| ? | ? | ? | ? |
| 43 | B11 | Out | Address bus, low during standby. Also, used for peripheral data output port (Dout). |
| 44 | B12 | Out | Basic RAM chip enable |
| 45 | B13 | Out | Busy interface output port |
| 46 | S40 | Out | LCD segment signal/key strobe, low or high during standby and 4-level pulse during display. |
| ? | ? | ? | ? |
| 85 | S1 | Out | LCD segment signal/key strobe, low or high during standby and 4-level pulse during display. |
| 86 | H16 | Out | LCD backplate signal, low or high during standby and 4-level pulse during display. |
| ? | ? | ? | ? |
| 100 | H1 | Out | LCD backplate signal, low or high during standby and 4-level pulse during display. |

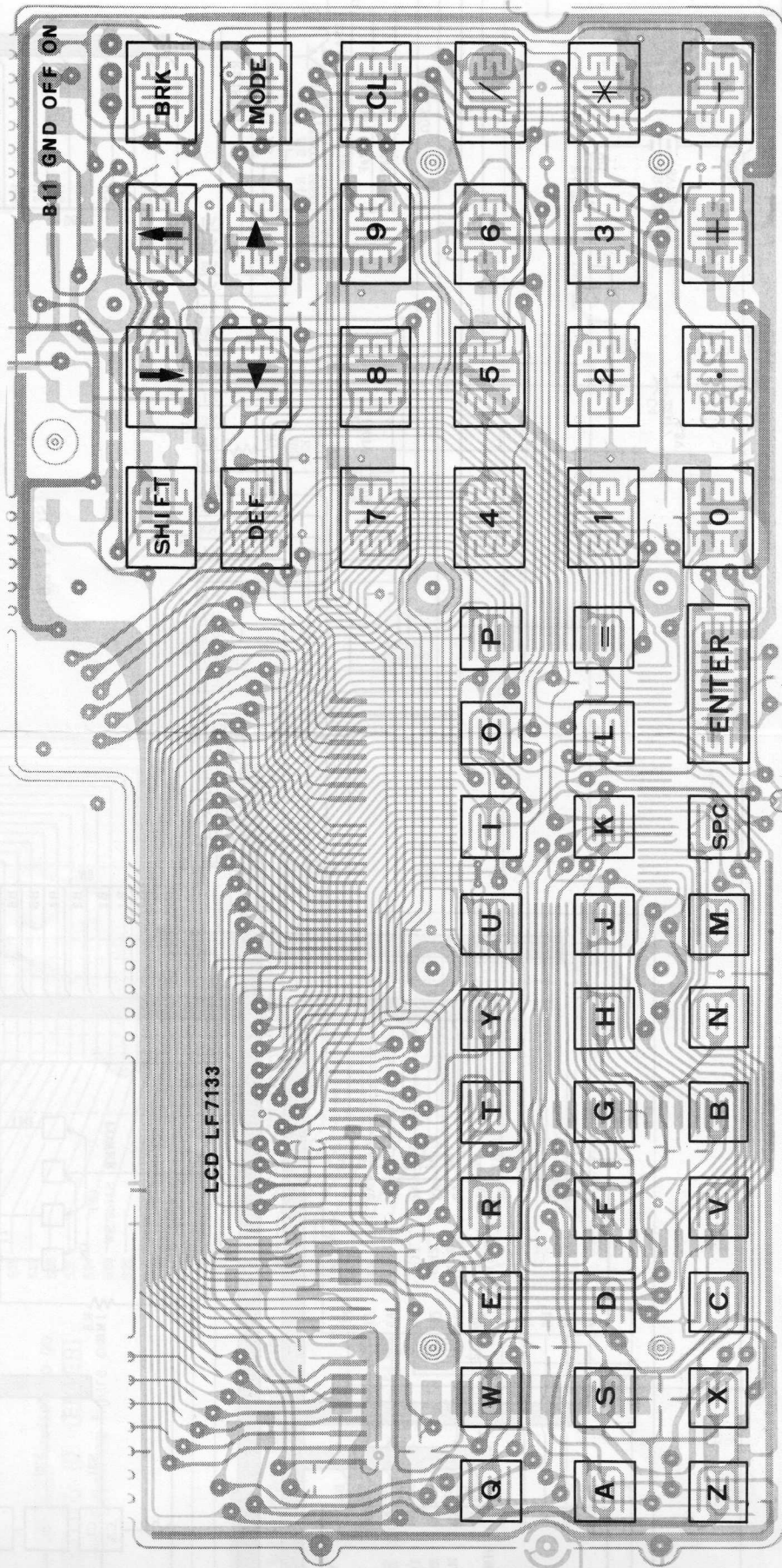
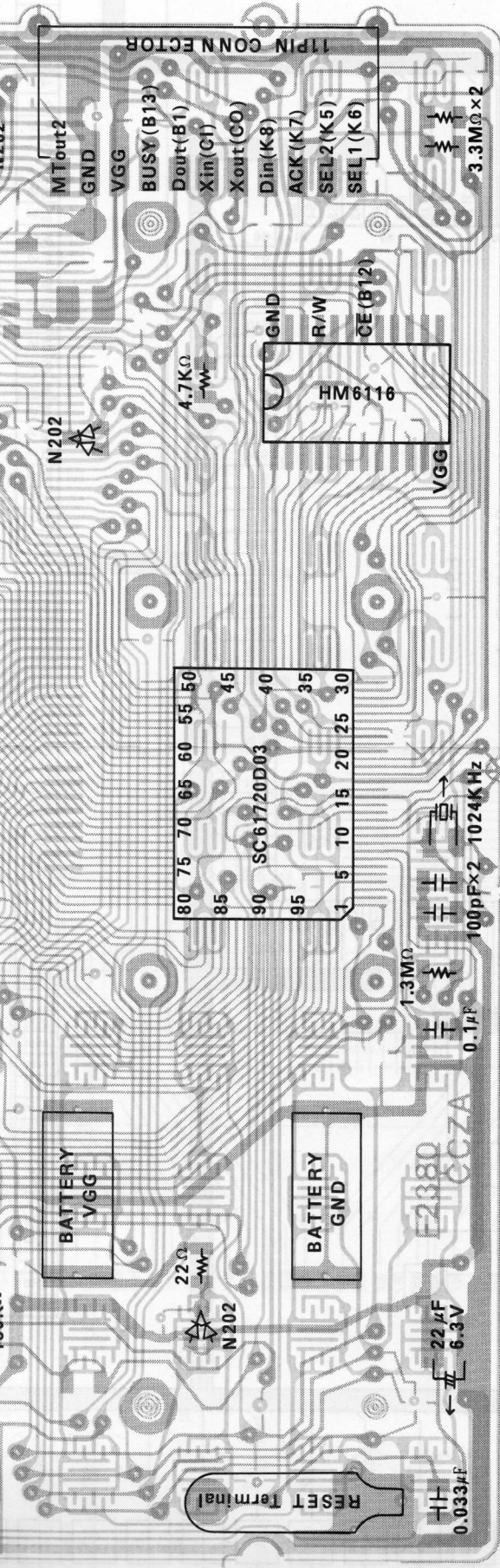
5. PC-1246 CIRCUIT DIAGRAM



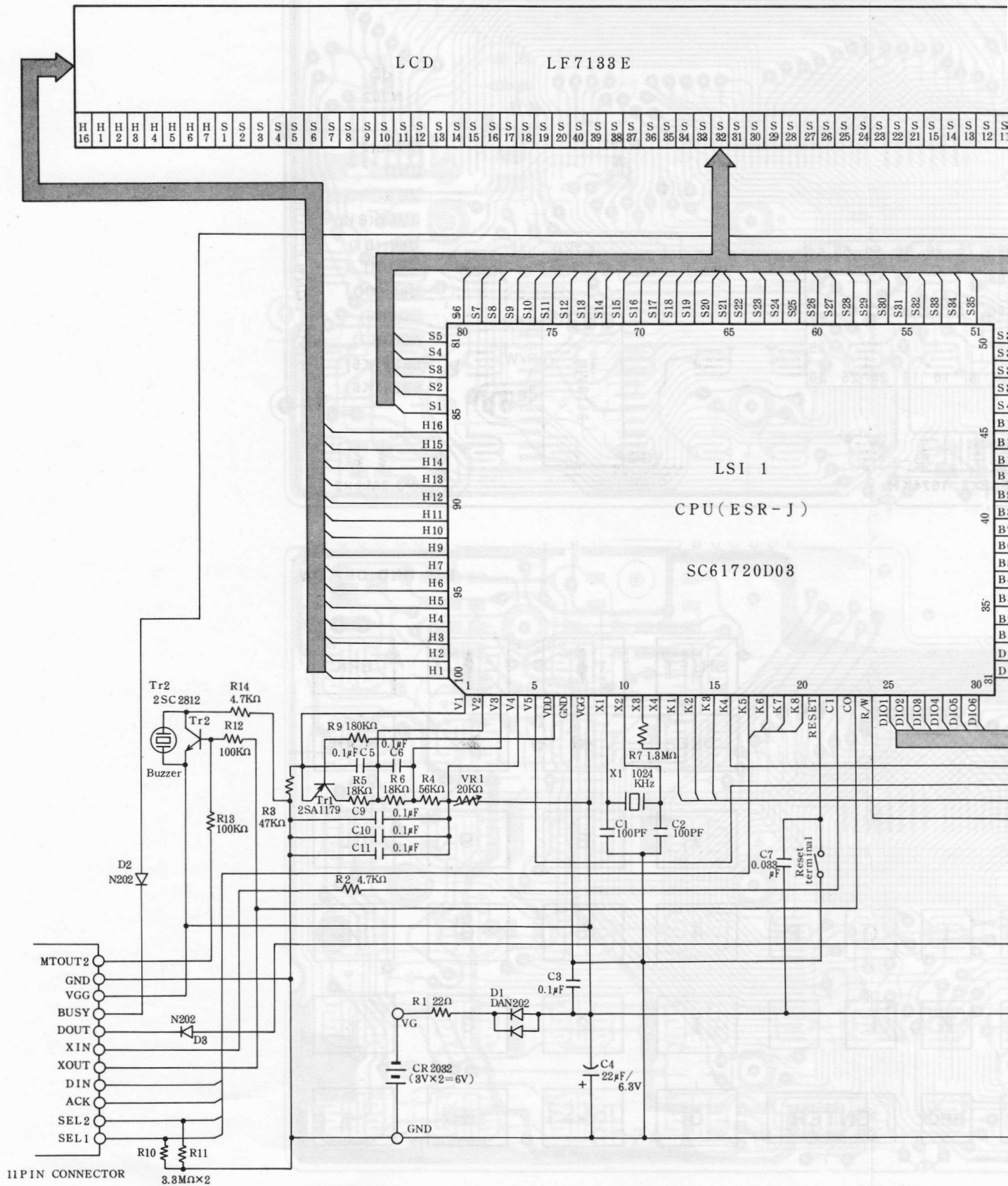


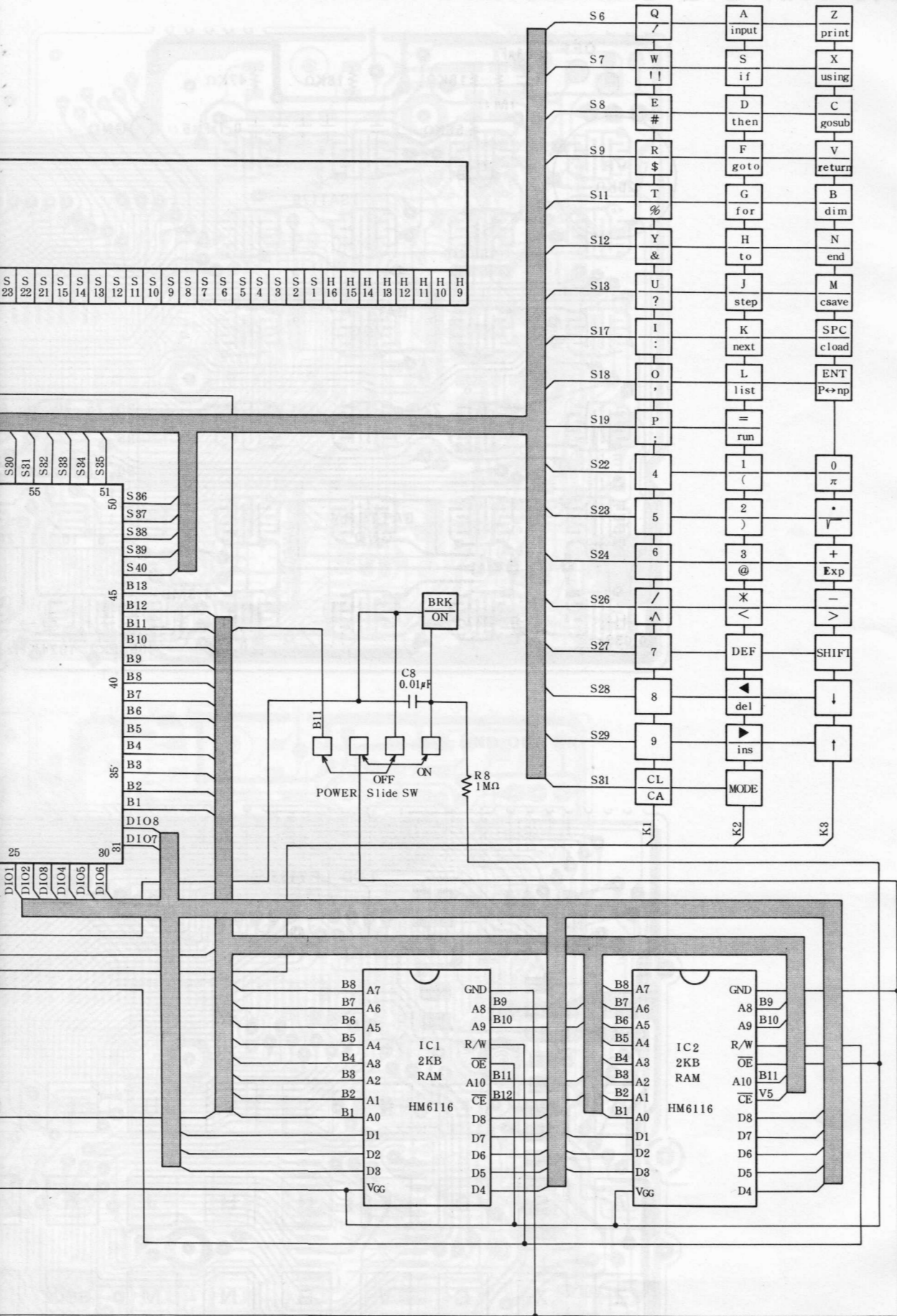
PARTS & SIGNALS POSITION



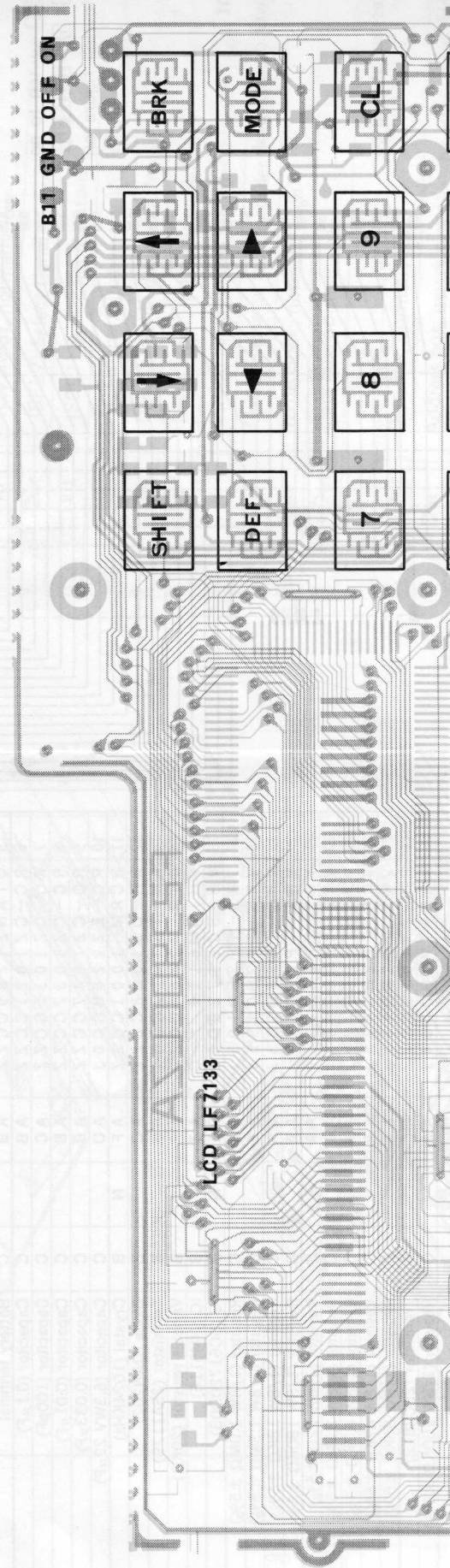
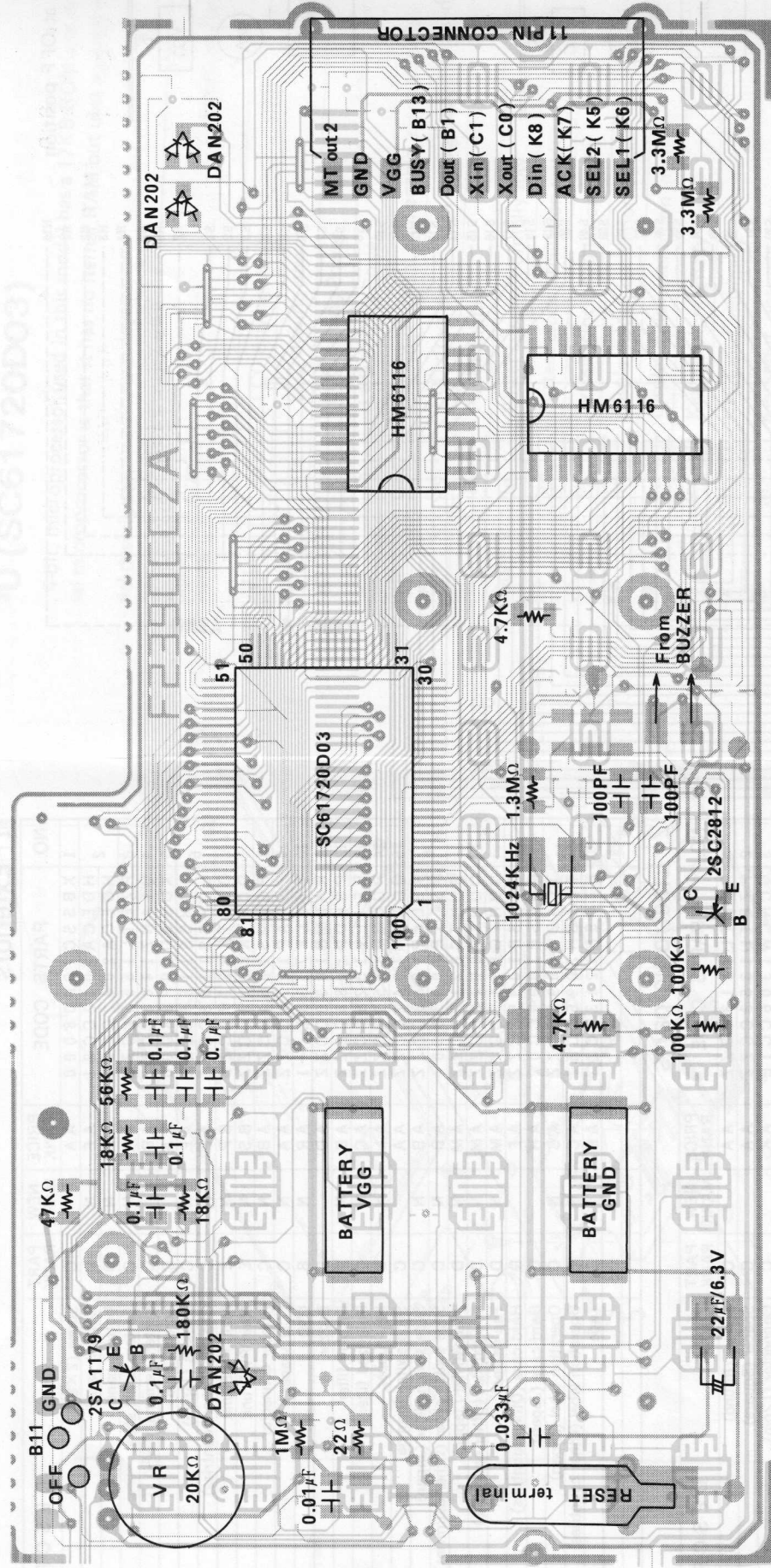


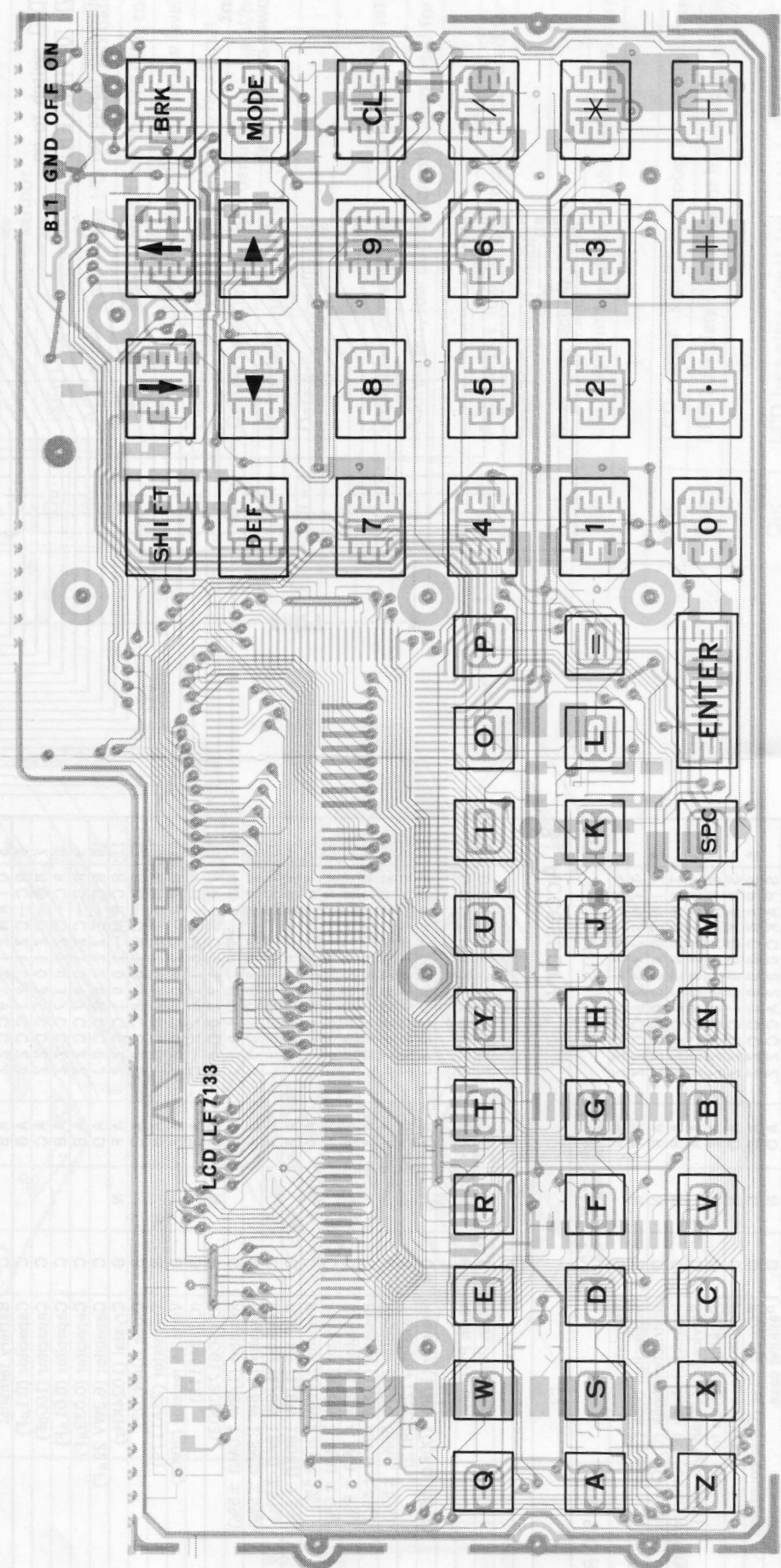
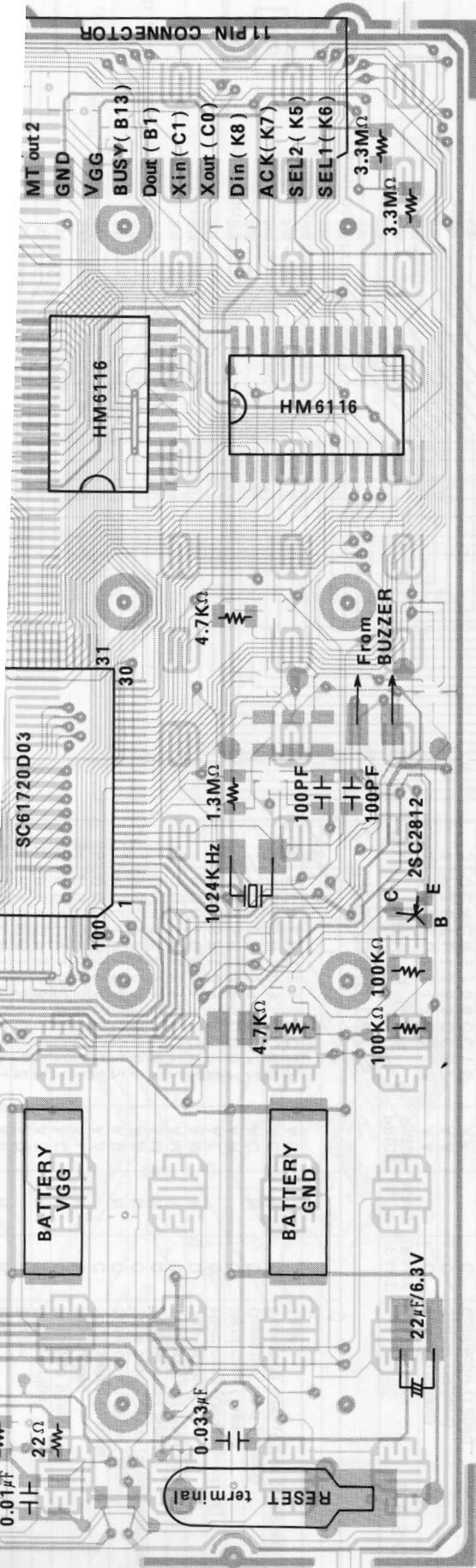
7. PC-1247 CIRCUIT DIAGRAM





RTS & SIGNALS POSITION

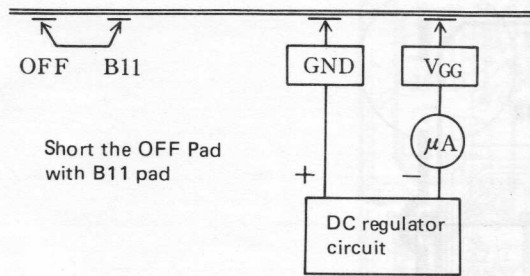




9. CHECK ITEMS AND CAUTIONS 10. LCD (LF7133E)

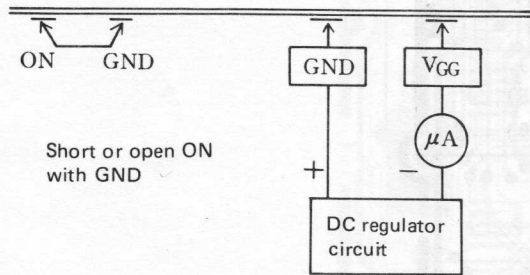
9-1. Off current check

At the time of off with the slide switch at OFF position
7 μ A at V_{GG} = -6.0V, maximum



9-2. On current check

At the time of on with the slide switch at ON position
115 μ A at V_{GG} = -0.6V, maximum



9-3. RAM capacity check

Turn the slide switch ON, push the [MODE] switch to go into the PRO mode. Enter [N] [E] [W] [O] [ENTER] and [M] [] [ENTER] to have the following figure on the display.

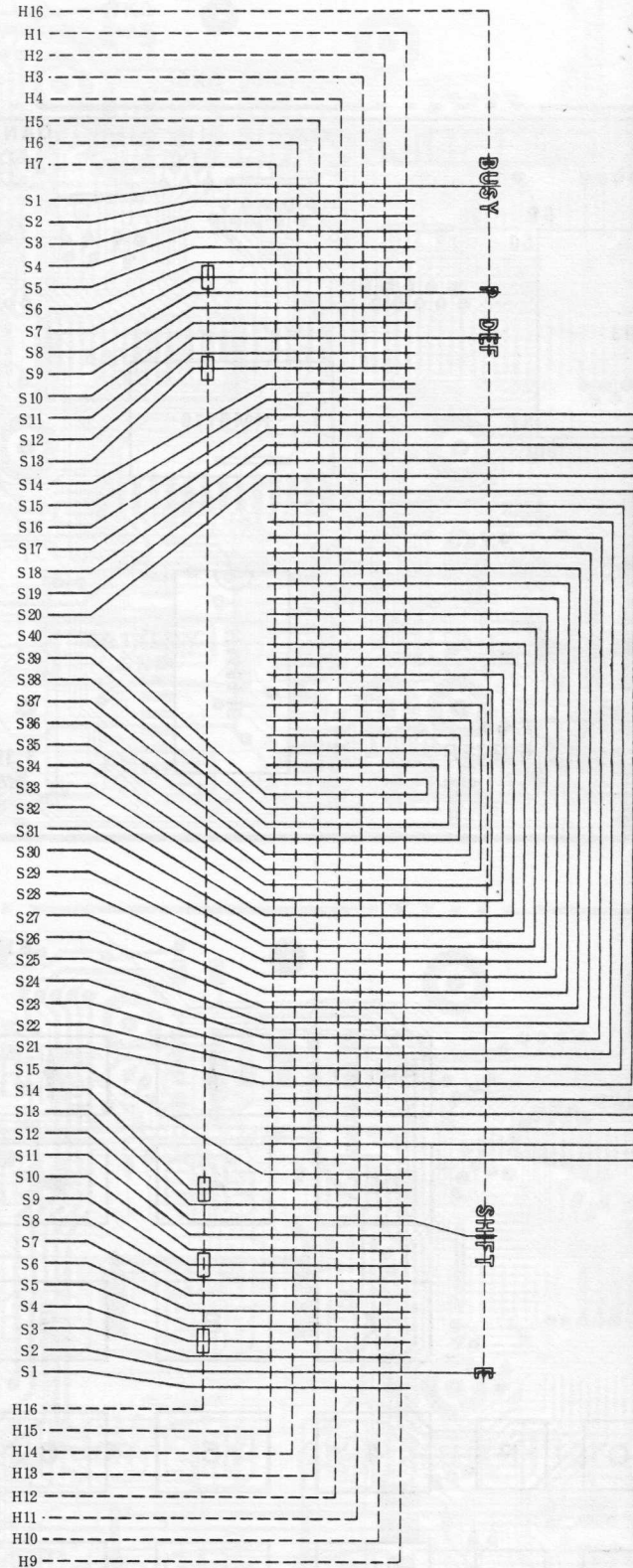
PC-1246: 1278
PC-1247: 3326

9-4. At a time of battery replacement

After replacement of the battery, turn power on and push the RESET switch.

9-6. Auto-power-off check

Display must not go out within 8 minutes but should go out within 14 minutes.



11. PARTS LIST & GUIDE

1 Exteriors

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | PC1246 | PC1247 |
|-----|---------------|------------|----------|-----------|---------------------------------------|--------|--------|
| 1 | XBSSC20P08000 | AA | | C | Screw (2×8) | ○ | ○ |
| 2 | HDECA2082CC21 | AF | N | D | Bottom panel | ○ | |
| | HDECA2082CC22 | AF | N | D | Bottom panel | | ○ |
| 3 | PZETL1556CCZZ | AA | N | C | Bottom panel sheet | ○ | ○ |
| 4 | QTANZ1406CCZZ | AB | | C | Battery terminal (⊕⊖) | ○ | ○ |
| 5 | XUSSD20P08000 | AA | | C | Screw (2×8) | ○ | ○ |
| 6 | LCHSS1168CCZZ | AE | N | C | Chassis (Japan) | ○ | |
| | LCHSS1168CC01 | AE | N | C | Chassis (Other countries) | ○ | ○ |
| 7 | DUNTK8217CCZZ | BP | N | E | Main PWB unit | ○ | |
| | DUNTK8313CCZZ | BS | N | E | Main PWB unit | | ○ |
| 8 | PGUMS1564CCZZ | AB | N | C | Rubber connector | ○ | ○ |
| 9 | PSPAP1271CCZZ | AA | N | C | LCD spacer | ○ | ○ |
| 10 | VVLLF7133E/-1 | AR | N | B | LCD | ○ | ○ |
| 11 | RALMB1030CCZZ | AD | | B | Buzzer | | ○ |
| 12 | PSLDP1486CCZZ | AB | N | D | Display filter | ○ | ○ |
| 13 | PFLV1526CCZZ | AC | N | C | Polarized filter | ○ | ○ |
| 14 | PGUMM1559CCZZ | AL | N | B | Key rubber | ○ | ○ |
| 15 | QCNTM1042CCZZ | AA | | C | Slide switch terminal | ○ | ○ |
| 16 | MSLIP1033CCZZ | AB | N | C | Slide switch slider (Japan) | ○ | |
| | MSLIP1033CC01 | AB | N | C | Slide switch slider (Other countries) | ○ | ○ |
| 17 | DUNTG8215CCZZ | AM | N | D | Top cabinet (Japan) | ○ | |
| | DUNTG8216CCZZ | AM | N | D | Top cabinet (Other countries) | ○ | |
| | DUNTG8312CCZZ | AM | N | D | Top cabinet | | ○ |
| 18 | GCASP1099CCZZ | AE | | D | Hard case (Other countries) | ○ | ○ |
| | GCASP1099CC02 | AH | | D | Hard case (Japan) | ○ | |
| 19 | TLABH2095CCZZ | AC | N | C | Operation label (Japan) | ○ | |
| | TLABH2096CCZZ | AC | N | C | Operation label (Other countries) | ○ | ○ |
| 20 | PTPEH1213CCZZ | AB | | C | Tape | | ○ |

2 Electronic parts

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | PC1246 | PC1247 |
|--------|---------------|------------|----------|-----------|---------------------------|------------------|--------|
| 1 | PZETL1313CCZZ | AA | | C | Spacer (Round) | ○ | ○ |
| 2 | PZETL1353CCZZ | AA | | C | Spacer (Square) | ○ | |
| 3 | QCNCW1306CC1B | AK | | C | Connector (12pin) | ○ | ○ |
| 4 | QCNTM1051CCZZ | AB | | C | Reset terminal | ○ | ○ |
| 5 | QTANZ1289CCZZ | AB | | C | Battery terminal | ○ | ○ |
| 6 | RC-CZ1021CCZZ | AB | | C | Capacitor (0.1μF) | [C3,5,6,9,10,11] | ○ |
| 7 | RC-CZ1035CCZZ | AC | | C | Capacitor (100pF) | [C1,2] | ○ |
| 8 | RC-CZ1037CCZZ | AB | | C | Capacitor (0.01μF) | [C8] | ○ |
| 9 | RC-CZ1047CCZZ | AB | | C | Capacitor (0.033μF) | [C7] | ○ |
| 10 | RC-EZ226BCC0J | AD | | C | Capacitor (6.3WV 22μF) | [C4] | ○ |
| 11 | RCRM-1001CCZZ | AF | N | B | Crystal (1024KHz) | [X1] | ○ |
| 12 | RH-DZ1008CCZZ | AC | | B | Diode (DAN202) | [D1,2,3] | ○ |
| 13 | RH-TX1017CCN1 | AB | | B | Transistor (2SA1179) | [TR1] | ○ |
| 14 | RVR-Z2400QCZZ | AF | | B | Variable resistor (20KΩ) | [VR] | ○ |
| 15 | VH1HM6116//C | AZ | | B | IC (HM6116) | [IC1,2] | ○ |
| 16 | VH1SC61720D03 | BE | N | B | IC (SC61720D03) | [LS11] | ○ |
| 17 | VRS-TP2BD105J | AA | | C | Resistor (1/8W 1.0MΩ ±5%) | [R8] | ○ |
| 18 | VRS-TP2BD135J | AA | | C | Resistor (1/8W 1.3MΩ ±5%) | [R7] | ○ |
| 19 | VRS-TP2BD183J | AA | | C | Resistor (1/8W 18KΩ ±5%) | [R5,6] | ○ |
| 20 | VRS-TP2BD184J | AA | | C | Resistor (1/8W 180KΩ ±5%) | [R9] | ○ |
| 21 | VRS-TP2BD220J | AA | | C | Resistor (1/8W 22Ω ±5%) | [R1] | ○ |
| 22 | VRS-TP2BD335J | AA | | C | Resistor (1/8W 3.3MΩ ±5%) | [R10,11] | ○ |
| 23 | VRS-TP2BD472J | AA | | C | Resistor (1/8W 4.7KΩ ±5%) | [R2,14] | ○ |
| 24 | VRS-TP2BD473J | AA | | C | Resistor (1/8W 47KΩ ±5%) | [R3] | ○ |
| 25 | VRS-TP2BD563J | AA | | C | Resistor (1/8W 56KΩ ±5%) | [R4] | ○ |
| 26 | RH-TX1012CCZZ | AC | | B | Transistor (2SC2812) | [TR2] | ○ |
| 27 | VRS-TP2BD104J | AA | | C | Resistor (1/8W 100KΩ ±5%) | [R12,13] | ○ |
| (Unit) | | | | | | | |
| 901 | DUNTK8217CCZZ | BP | N | E | Main PWB unit | ○ | |
| | DUNTK8313CCZZ | BS | N | E | Main PWB unit | | ○ |

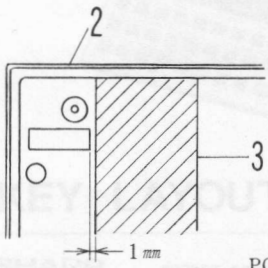
3 Accessory

| NO. | PARTS CODE | PRICE RANK | NEW MARK | PART RANK | DESCRIPTION | PC1246 | PC1247 |
|-----|---------------|------------|----------|-----------|--|--------|--------|
| 1 | LPLTP1112CCZZ | AA | | D | Template | ○ | ○ |
| 2 | TINSJ4326CCZZ | AT | N | D | Instruction book (Japan) | ○ | |
| | TINSG4330CCZZ | AK | N | D | Instruction book (G) (Germany) | ○ | ○ |
| | TINSE4328CCZZ | AR | N | D | Instruction book (E) (Other countries) | ○ | ○ |
| 3 | TLSTS1006CCZZ | AA | | D | Service list (Japan type only) | ○ | |
| 4 | SPAKA8990CCZZ | AE | N | D | Packing cushion for set | ○ | ○ |
| | SPAKC8991CCZZ | AD | N | D | Packing case (Japan) | ○ | |
| 5 | SPAKC8993CCZZ | AD | N | D | Packing case (Other countries) | ○ | |
| | SPAKC082ACCZZ | AD | N | D | Packing case | | ○ |

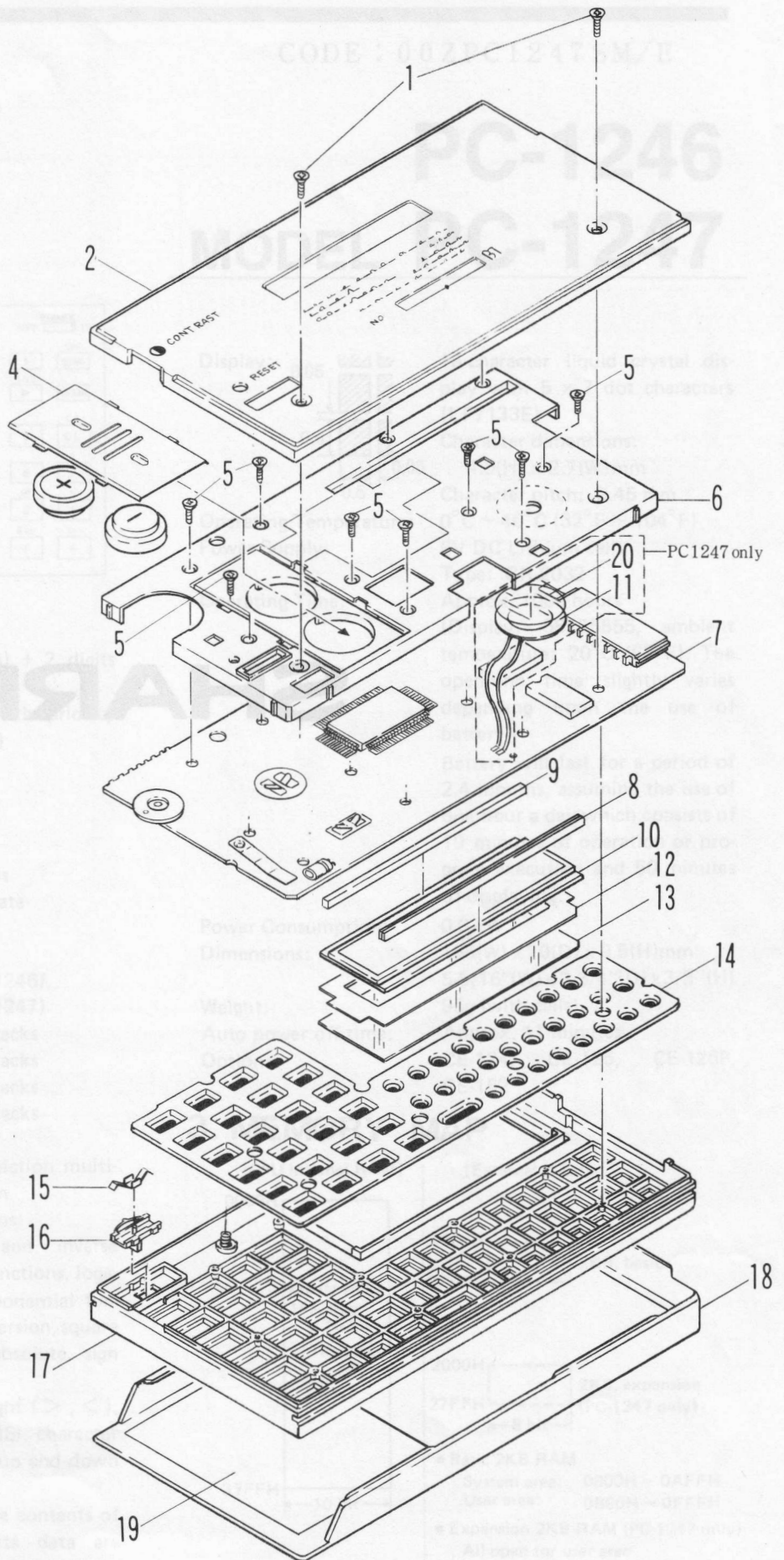
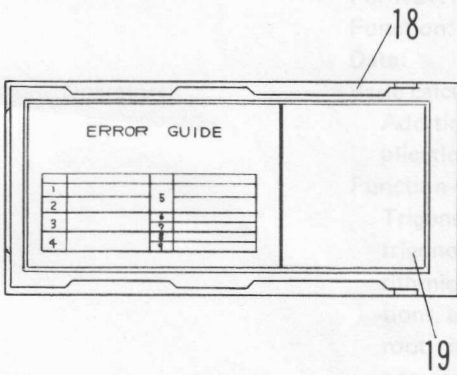
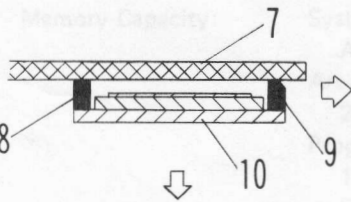
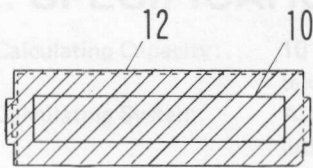
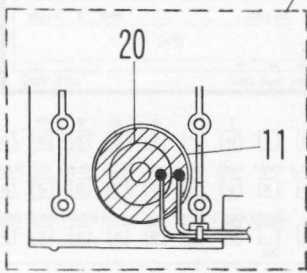
SHARP SERVICE MANUAL

CODE: 40251247M/T

PC-1246
MODEL NO. PC-1247



PC1247 only



11. PARTS LIST & GUIDE

1) Exterior

| NO. | PART CODE | PRICE RANGE | NEW MARK | PART MARK | DESCRIPTION | PC1246 | PC1247 |
|-----|---------------|-------------|----------|-----------|----------------------------|--------|--------|
| 1 | XB55C7APR5ED9 | AA | | C | Screw 4x4 | | |
| 2 | ND5GA2E28003 | AA | | D | Bottom panel | | |
| 3 | HD1CAY19220 | AA | N | D | Bottom panel | | |
| 4 | PZ1L19220 | AA | N | C | Bottom panel steel | | |
| 5 | Z555C7APR5ED9 | AA | | C | Warranty terminal (0122) | | |
| 6 | Z555C7APR5ED9 | AA | | C | Screw 4x4 | | |
| 7 | Z555C7APR5ED9 | AA | | C | Warranty (Japan) | | |
| 8 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 9 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 10 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 11 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 12 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 13 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 14 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 15 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 16 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 17 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 18 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 19 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 20 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 21 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 22 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 23 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 24 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 25 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 26 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 27 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 28 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 29 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |
| 30 | Z555C7APR5ED9 | AA | | C | Warranty (other countries) | | |

2) Electronic Parts

| NO. | PART CODE | PRICE RANGE | NEW MARK | PART MARK | DESCRIPTION | PC1246 | PC1247 |
|-----|-------------|-------------|----------|-----------|--------------------------|--------|--------|
| 1 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 2 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 3 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 4 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 5 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 6 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 7 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 8 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 9 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 10 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 11 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 12 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 13 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 14 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 15 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 16 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 17 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 18 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 19 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 20 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 21 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 22 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 23 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 24 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 25 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 26 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 27 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 28 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 29 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 30 | W1000000000 | AA | | C | Warranty terminal (0122) | | |

3) Accessory

| NO. | PART CODE | PRICE RANGE | NEW MARK | PART MARK | DESCRIPTION | PC1246 | PC1247 |
|-----|-------------|-------------|----------|-----------|--------------------------|--------|--------|
| 1 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 2 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 3 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 4 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 5 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 6 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 7 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 8 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 9 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 10 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 11 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 12 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 13 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 14 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 15 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 16 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 17 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 18 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 19 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 20 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 21 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 22 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 23 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 24 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 25 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 26 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 27 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 28 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 29 | W1000000000 | AA | | C | Warranty terminal (0122) | | |
| 30 | W1000000000 | AA | | C | Warranty terminal (0122) | | |

SHARP

SHARP CORPORATION
Industrial Instruments Group
Quality & Reliability Control Center
Yamatokoriyama, Nara 639-11, Japan
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