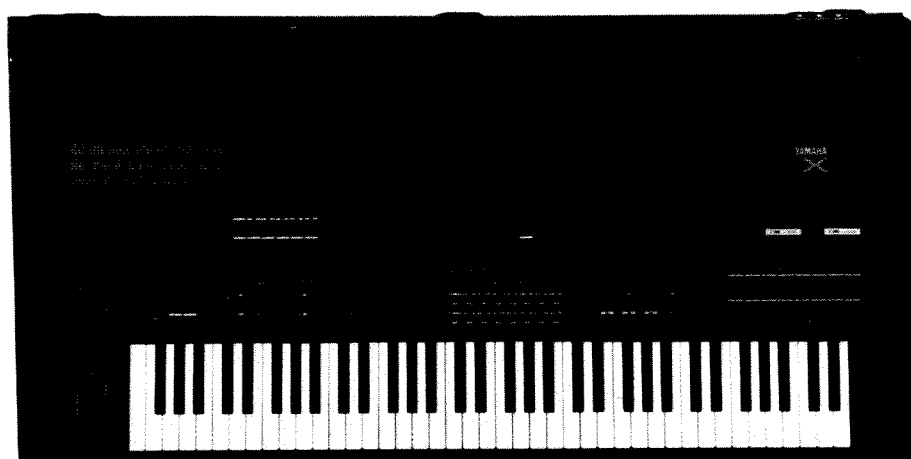


DIGITAL PROGRAMMABLE ALGORITHM SYNTHESIZER

DX-1

SERVICE MANUAL



006565

SINCE 1887



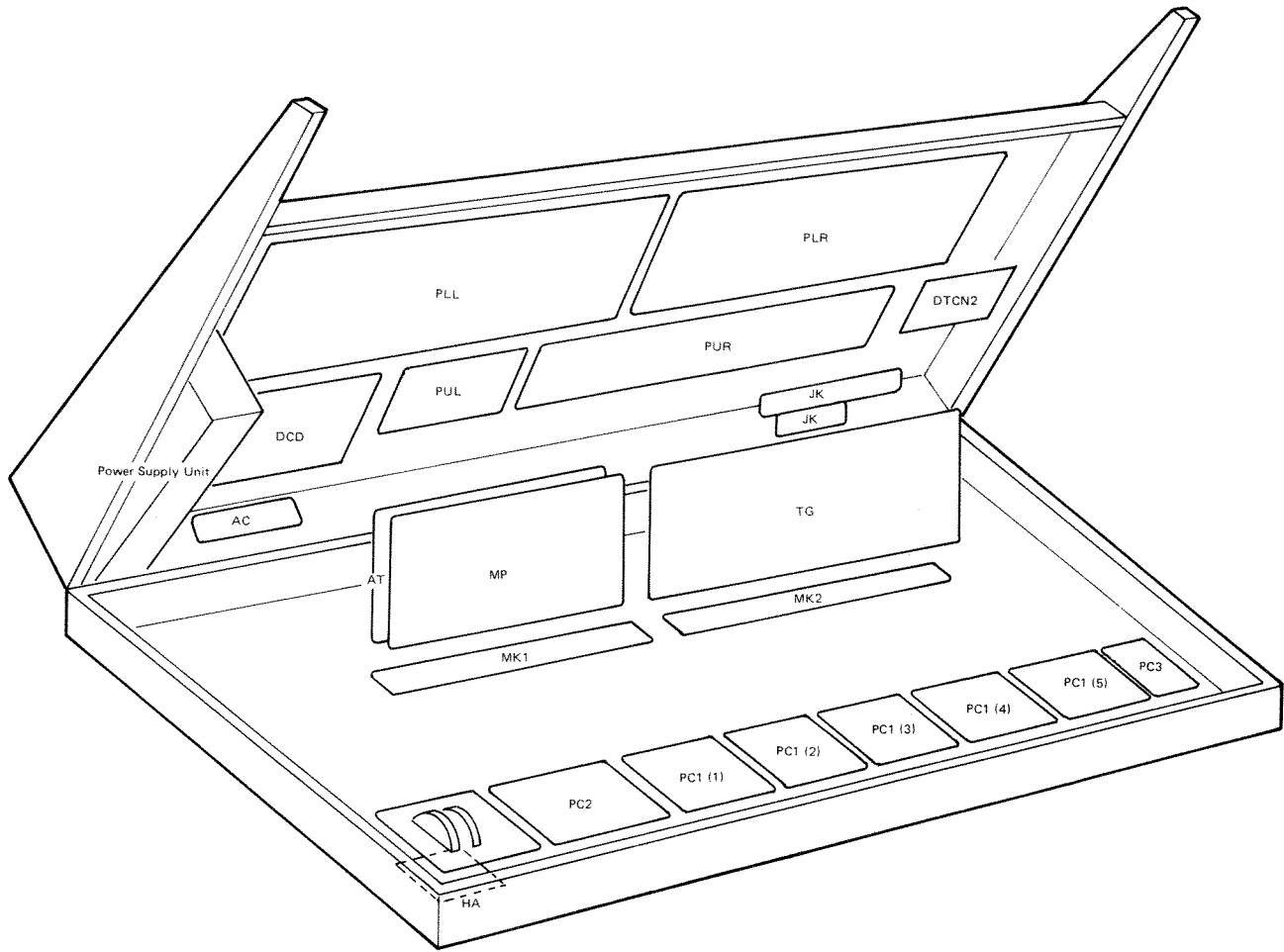
YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

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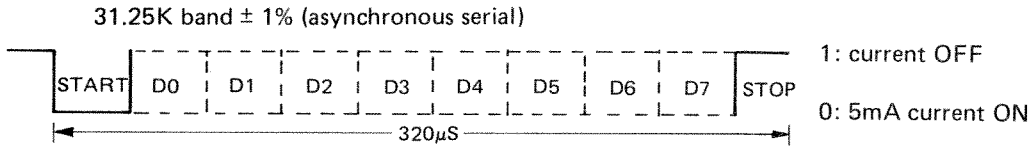
UNIT LAYOUT (ユニットレイアウト)



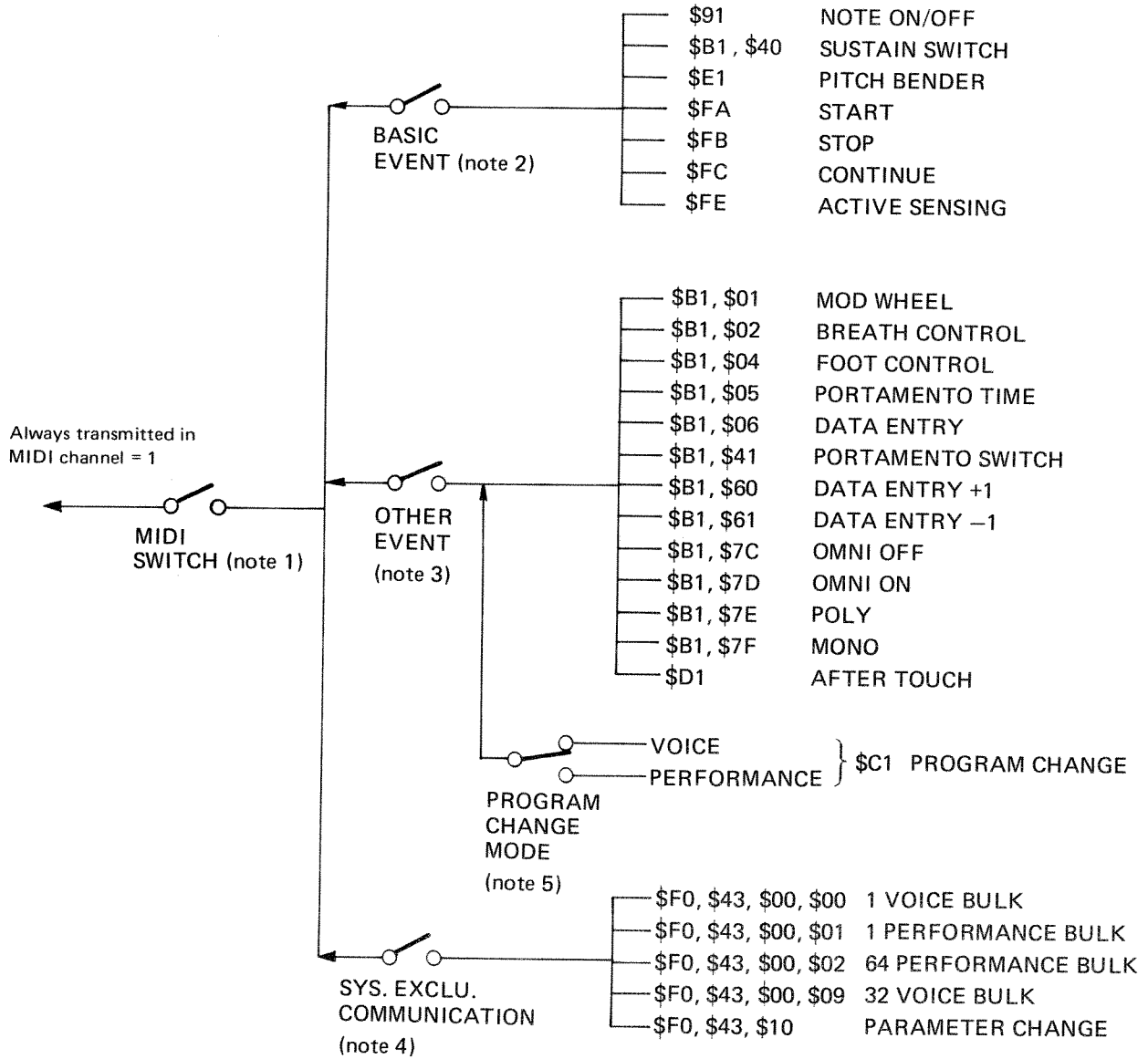
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DX-1 MIDI SPECIFICATION

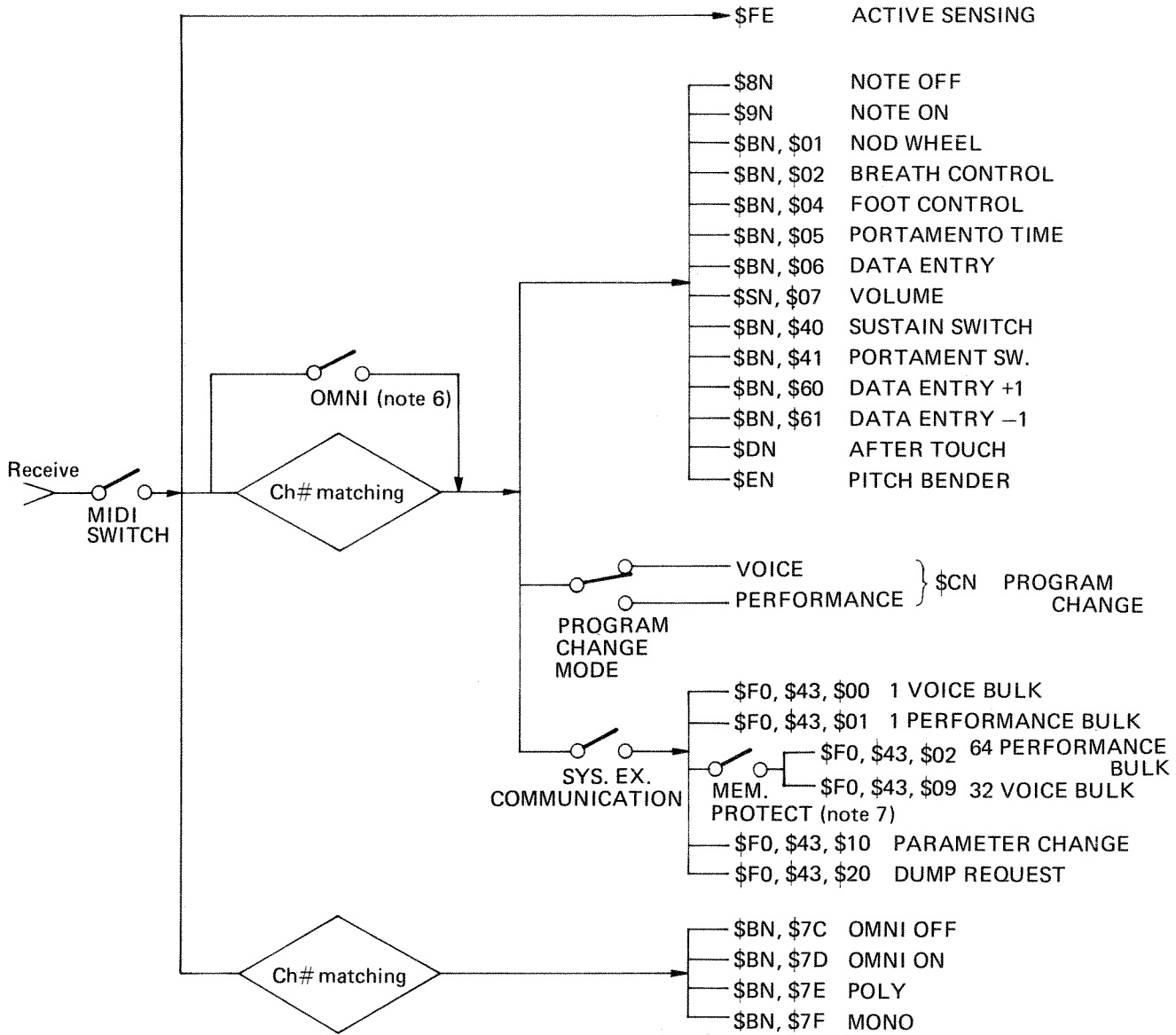
• Hardware



• Transmit data and conditions



● Receive data and conditions



N: Ch# data

DX-1

● **Data format** (Tx ; transmit data, Rx; receive data)

1. Channel information

- l o o o n n n n Key OFF (only Rx) (note 7)
- o k k k k k k k Key number (note 8)
- o v v v v v v v Key velocity (ignored)

- l o o l n n n n Key ON (note 7)
- o k k k k k k k Key number (note 8)
- o v v v v v v v Key velocity (note 9)

- l o l n n n n n Control change (note 7)
- o c c c c c c c Control number (note 10)
- o v v v v v v v Control value (note 10, 12)

- l l o o n n n n Program change (note 7)
- o p p p p p p p Program number (note 11)

- l l o l n n n n Channel pressure/after touch (note 7)
- o v v v v v v v Pressure value (note 12)

- l l l o n n n n Pitch bender
- o u u u u u u u Bender value LS byte (note 13)
- o v v v v v v v Bender value MS byte (note 13)

3. Real time information

- l l l l l o l o Start (only Tx) (note 20)
- l l l l l o l l Continue (only Tx) (note 20)
- l l l l l l o o Stop (only Tx) (note 20)
- l l l l l l l o Active sensing clock (note 19)

● **Note**

1. Function F15 JOB1 MIDI
2. Function F15 JOB2 STAT SUBJOB1
3. Function F15 JOB2 STAT SUBJOB2
4. Function F15 JOB2 STAT SUBJOB3
5. Function F15 JOB2 STAT SUBJOB5
6. Function F15 JOB2 STAT SUBJOB4 (A or B)
7. Tx; n n n n = 0 (Ch1)
Rx; $0 \leq n n n n \leq 15$ (Ch1 ~ Ch16)
8. Tx; $28 \leq k k k k k k k k \leq 100$ (E0 ~ E6)
Rx; $0 \leq k k k k k k k k \leq 127$ (C2 ~ C8)
9. v v v v v v v = 0 (Key OFF)
 $l \leq v v v v v v v \leq 127$ (ppp ~ fff)
- 10.

| cccccc | Controller & Switch | vvvvvv |
|--------|------------------------|----------------------------------|
| 1 | Modulation wheel | 0 ~ 127 |
| 2 | Breath controller | 0 ~ 127 |
| 4 | Foot controller | 0 ~ 127 |
| 5 | Portamento time | 0 ~ 127 |
| 6 | Data entry | 0 ~ 127 |
| 7 | Volume (only Rx) | 0 ~ 127 (effective for MS 3 bit) |
| 64 | Sustain foot switch | 0, 127 |
| 65 | Portamento foot switch | 0, 127 |
| 96 | Data increment (+1) | 127 |
| 97 | Data decrement (-1) | 127 |
| 124 | Omni mode off | 0 |
| 125 | Omni mode on | 0 |
| 126 | Mono mode on | 1 |
| 127 | Poly mode on | 0 |

2. System exclusive information

2-1. Bulk data (note 15)

- l l l l o o o o Status = \$F0
- o l o o o o l l ID = \$43
- o o o o n n n n Channel number (note 7)
- o f f f f f f f Format number (note 14)
- o a a a a a a a Byte count MS byte (note 14)
- o b b b b b b b Byte count LS byte (note 14)
- o d d d d d d d Data 1st byte
- (
- o d d d d d d d Data Xth byte (note 14)
- o e e e e e e e Check sum (note 16)
- l l l l o l l l EOX

2-2. Parameter change

- l l l l o o o o Status = \$F0
- o l o o o o l l ID = \$43
- o o o l n n n n Channel number (note 7)
- o g g g g p p Parameter group number
- o p p p p p p & parameter number (note 17)
- o d d d d d d Data byte
- l l l l o l l l EOX

2-3. Dump request (only Rx) (note 18)

- l l l l o o o o Status = \$F0
- o l o o o o l l ID = \$43
- o o l o n n n n Channel number (note 7)
- o f f f f f f f Format number (note 14)
- l l l l o l l l EOX

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11. Program change mode = Voice

0 ≤ p p p p p p p ≤ 31 (Voice memory A)

32 ≤ p p p p p p p ≤ 63 (Voice memory B)

Program change mode = Performance

0 ≤ p p p p p p p ≤ 63 (Performance memory)

12. Controller

0 ≤ v v v v v v v v ≤ 127 (min ~ max)

Switch

v v v v v v v = 0 (OFF)

v v v v v v v = 127 (ON)

13.

| | | |
|----|----------|-----------------|
| | vvvvvv | uuuuuu |
| Tx | 0 ~ 64 | 0 |
| | 65 ~ 127 | 2-(vvvvvv - 64) |
| Rx | 0 ~ 127 | Ignored |

14.

| | | | |
|----------------|--------|----------------|-------|
| | ffffff | aaaaaaa bbbbbb | X |
| 1 voice | 0 | 155 | 155 |
| 32 voices | 9 | 4,096 | 4,096 |
| 1 performance | 1 | 94 | 94 |
| 64 performance | 2 | 4,096 | 4,096 |

15. **YES** ボタンを押しつつ、音色ボタンあるいはパフォーマンスボタンを選んだ時のみバルクダンプされる。

Bulk data is send when voice or performance switch is selected at pushing **YES**.

16. データバイトをすべて加算し2の補数をとったもの

2's complement of the sum of all data bytes.

17. g g g g = 0 (Common DX voice parameter)

| pp pppppp | Parameter | ddddddd | pp pppppp | Parameter | ddddddd |
|--------------|--|---------|--------------|-----------------------|---------------------------|
| 0 | OP6 EG RATE 1 | 0 ~ 99 | 126 | PITCH EG RATE 1 | 0 ~ 99 |
| 1 | " RATE 2 | " | 127 | " RATE 2 | " |
| 2 | " RATE 3 | " | 128 | " RATE 3 | " |
| 3 | " RATE 4 | " | 129 | " RATE 4 | " |
| 4 | " LEVEL 1 | " | 130 | " LEVEL 1 | " |
| 5 | " LEVEL 2 | " | 131 | " LEVEL 2 | " |
| 6 | " LEVEL 3 | " | 132 | " LEVEL 3 | " |
| 7 | " LEVEL 4 | " | 133 | " LEVEL 4 | " |
| 8 | OP6 KEY BOARD LEVEL SCALE BREAK POINT | " | 134 | ALGORITHM SELECT | 0 ~ 31 |
| 9 | " LEFT DEPTH | " | 135 | FEED BACK | 0 ~ 7 |
| 10 | " RIGHT DEPTH | " | 136 | OSCILLATOR SYNC | 0 ~ 1 |
| 11 | " LEFT CURVE | 0 ~ 3 | 137 | LFO SPEED | 0 ~ 99 |
| 12 | " RIGHT CURVE | " | 138 | " DELAY | " |
| 13 | OP6 KEY BOARD RATE SCALING | 0 ~ 7 | 139 | " PMD | " |
| 14 | OP6 MOD SENSITIVITY AMPLITUDE | 0 ~ 3 | 140 | " AMD | " |
| 15 | OP6 OPERATOR KEY VELOCITY SENSITIVITY | 0 ~ 7 | 141 | LFO SYNC | 0 ~ 1 |
| 16 | OP6 OPERATOR OUTPUT LEVEL | 0 ~ 99 | 142 | " WAVE | 0 ~ 4 |
| 17 | OP6 OSCILLATOR MODE | 0 ~ 1 | 143 | MOD SENSITIVITY PITCH | 0 ~ 7 |
| 18 | OP6 OSCILLATOR FREQUENCY COARSE | 0 ~ 31 | 144 | TRANSPOSE | 0 ~ 48 |
| 19 | " FINE | 0 ~ 99 | 145 | VOICE NAME 1 | ASCII |
| 20 | DETUNE | 0 ~ 14 | 146 | VOICE NAME 2 | ASCII |
| 21 | | | 147 | VOICE NAME 3 | ASCII |
| | | | 148 | VOICE NAME 4 | ASCII |
| | | | 149 | VOICE NAME 5 | ASCII |
| | | | 150 | VOICE NAME 6 | ASCII |
| | | | 151 | VOICE NAME 7 | ASCII |
| | | | 152 | VOICE NAME 8 | ASCII |
| | | | 153 | VOICE NAME 9 | ASCII |
| | | | 154 | VOICE NAME 10 | ASCII |
| | | | 155 | OPERATOR ON/OFF | D6 D5 D4 D3 D2 D1 D0 |
| | | | | 0 = OFF, 1 = ON | 0 OP1 OP2 OP3 OP4 OP5 OP6 |

DX-1

g g g g = 1 (DX1 Function parameter)

| pp pppppp | Parameter | dddddd | pp pppppp | Parameter | dsdddd |
|--------------|--|--------|--------------|-------------------------------|--------|
| 1 | SOURCE SELECT | 0 ~ 15 | 19 | KIAT OP2 SENSITIVITY | 0 ~ 15 |
| 2 | POLY/MONO | 0 ~ 1 | 20 | KIAT OP3 " | " |
| 3 | PITCH BENDER RANGE | 0 ~ 12 | 21 | KIAT OP4 " | " |
| 4 | PITCH BENDER STEP | " | 22 | KIAT OP5 " | " |
| 5 | PORTAMENTO TIME | 0 ~ 99 | 23 | KIAT OP6 " | " |
| 6 | PORTAMENTO/GLISSANDO SELECT | 0 ~ 1 | 24 | KIAT DECAY RATE | 0 ~ 99 |
| 7 | PORTAMENTO MODE | " | 25 | KIAT RELEASE RATE | " |
| 8 | PORTAMENTO PEDAL AND KNOB ASSIGN | " | 26 | AUDIO OUTPUT LEVEL ATTENUATOR | 0 ~ 7 |
| 9 | MODULATION WHEEL SENSITIVITY | 0 ~ 15 | 27 | PROGRAM OUTPUT | 0 ~ 1 |
| 10 | MODULATION WHEEL ASSIGN | 0 ~ 7 | 28 | SUSTAIN PEDAL | " |
| 11 | FOOT CONTROLLER SENSITIVITY | 0 ~ 15 | 29 | PERFORMANCE KEY SHIFT | 0 ~ 48 |
| 12 | FOOT CONTROLLER ASSIGN | 0 ~ 7 | 30 | KEY ASSIGN MODE | 0 ~ 2 |
| 13 | AFTER TOUCH SENSITIVITY | 0 ~ 15 | 31 | VOICE MEMORY SELECTOR FLAG | 0 ~ 1 |
| 14 | AFTER TOUCH ASSIGN | 0 ~ 7 | 32 | DUAL MODE DETUNE | 0 ~ 15 |
| 15 | BREATH CONTROLLER SENSITIVITY | 0 ~ 15 | 33 | SPLIT POINT | 0 ~ 99 |
| 16 | BREATH CONTROLLER ASSIGN | 0 ~ 7 | 34 | PERFORMANCE NAME 1 | ASCII |
| 17 | KEY INDIVIDUAL AFTER TOUCH SENSITIVITY | 0 ~ 15 | } | } | |
| 18 | KIAT OP 1 SENSITIVITY | " | 63 | PERFORMANCE NAME 30 | |

18. ダンプリクエストを受信すると、フォーマットナンバーに対応するバルクデータを送信する。

If dump request is received, bulk data which correspond with format number is transmitted.

19. Tx; アクティブセンシングクロックは83mS毎に送信される。

Active sensing clock is continuously output at 83mS intervals.

Rx; 333mS以上の間、本クロックあるいは他のいかなるMIDIデータを受信しなかった場合、受信不良が発生したと判断し本体で発音中のすべての音を消す。

If the clock or the other MIDI data is interrupted for more than 333mS, DX1 assumes that transmitter power is off or the line has been disconnected, and stops note output.

20. Function F16 JOB1 SEQ CONTROL

LSI DATA TABLE (LSI端子機能表)

YM21219 EGS (Envelope Generator-S)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---------|-----------------|-----|--|---------|------|-----|--------------------------|
| 1 | V _{ss} | I | Ground | 33 | F8 | O | Frequency data (to OPS) |
| 2 | IC | I | Initial clear | 34 | F9 | O | |
| 3 | SY | I | Syncro pulse | 35 | F10 | O | |
| 4 | CE | I | Chip enable | 36 | F11 | O | |
| 5 | WR | I | Read and write control | 37 | F12 | O | Non connection |
| 6 | A0 | I | Address buses (8 bits) | 38 | F13 | O | |
| 7 | A1 | I | | | | | |
| 8 | A2 | I | | | | | |
| 9 | A3 | I | | | | | |
| 10 | A4 | I | | | | | |
| 11 | A5 | I | Data buses (8 bits) | 41 | EC1 | O | Envelope data (to OPS) |
| 12 | A6 | I | | | | | |
| 13 | A7 | I | | | | | |
| 14 | D0 | I/O | | | | | |
| 15 | D1 | I/O | | | | | |
| 16 | D2 | I/O | Frequency data (to OPS) | 42 | EC2 | O | |
| 17 | — | — | | | | | |
| 18 | D3 | I/O | | | | | |
| 19 | D4 | I/O | | | | | |
| 20 | D5 | I/O | | | | | |
| 21 | D6 | I/O | Non connection | 43 | EC3 | O | |
| 22 | D7 | I/O | | | | | |
| 23 | F1 | O | | | | | |
| 24 | F2 | O | | | | | |
| 25 | — | — | | | | | |
| 26 | F3 | O | Output enable data in Key ON data output | 44 | EC4 | O | |
| 27 | F4 | O | | | | | |
| 28 | F5 | O | | | | | |
| 29 | F6 | O | | | | | |
| 30 | F7 | O | | | | | |
| 31 | VDD | I | DC supply (+5V) | 45 | EC5 | O | DC supply (+5V) |
| 32 | V _{ss} | I | DC supply (0V) | 46 | EC6 | O | |
| | | | | 47 | EC7 | O | |
| | | | | 48 | EC8 | O | |
| | | | | 49 | EC9 | O | |
| | | | | 50 | EC10 | O | Master clock pulse input |
| | | | | 51 | EC11 | O | |
| | | | | 52 | EC12 | O | |
| | | | | 53 | — | — | |
| | | | | 54 | — | — | |
| | | | | 55 | — | — | |
| | | | | 56 | — | — | |
| | | | | 57 | — | — | |
| | | | | 58 | — | — | |
| | | | | 59 | OE | I | |
| | | | | 60 | KON | O | |
| | | | | 61 | NC | — | |
| | | | | 62 | VDD | I | |
| | | | | 63 | φ1 | I | |
| | | | | 64 | φ2 | I | |

YM21280 OPS (Operator-S)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---------|-----------------|-----|---------------------------------|---------|------|-----|---------------------------------|
| 1 | V _{ss} | I | DC supply (0V) | 33 | DA7 | O | Digital code for analog convert |
| 2 | D6 | I/O | Data buses | 34 | DA8 | O | |
| 3 | D7 | I/O | | | | | |
| 4 | DS | I | | | | | |
| 5 | WR | I | Read write control | 35 | DA9 | O | Multiplex data |
| 6 | — | — | Non connection | 36 | DA10 | O | |
| 7 | — | — | | | | | |
| 8 | — | — | | | | | |
| 9 | SH1 | O | Sample and hold data | 37 | DA11 | O | |
| 10 | SH2 | O | | | | | |
| 11 | SYNC | O | | | | | |
| 12 | F1 | I | Frequency data (from EGS) | 38 | DA12 | O | |
| 13 | F2 | I | | | | | |
| 14 | F3 | I | | | | | |
| 15 | F4 | I | | | | | |
| 16 | F5 | I | | | | | |
| 17 | V _{ss} | I | DC supply (0V) | 39 | SF0 | O | Envelope data (from EGS) |
| 18 | F6 | I | | | | | |
| 19 | F7 | I | | | | | |
| 20 | F8 | I | | | | | |
| 21 | F9 | I | | | | | |
| 22 | F10 | I | Frequency data (from EGS) | 40 | SF1 | O | |
| 23 | F11 | I | | | | | |
| 24 | F12 | I | | | | | |
| 25 | F13 | I | | | | | |
| 26 | F14 | I | | | | | |
| 27 | DA1 | O | Digital code for analog convert | 41 | SF2 | O | |
| 28 | DA2 | O | | | | | |
| 29 | DA3 | O | | | | | |
| 30 | DA4 | O | | | | | |
| 31 | DA5 | O | | | | | |
| 32 | DA6 | O | Key ON data | 42 | SF3 | O | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Data buses | 43 | EC1 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 44 | EC2 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 45 | EC3 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 46 | EC4 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 47 | EC5 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 48 | EC6 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 49 | EC7 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 50 | EC8 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 51 | EC9 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 52 | EC10 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 53 | EC11 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 54 | EC12 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 55 | KON | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 56 | D0 | I/O | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 57 | D1 | I/O | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 58 | D2 | I/O | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 59 | D3 | I/O | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 60 | D4 | I/O | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 61 | D5 | I/O | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 62 | VDD | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | Master clock pulse | 63 | φ1 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | DC supply (+5V) | 64 | φ2 | I | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

DX-1

SPU3 (6303)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---------|-----------------|-----|----------------------|------------------------|-------|-----|-----------------------------|
| 1 | V _{ss} | I | DC Supply (0V) | 21 | VCC | I | DC supply (+5V) |
| 2 | XTAL | I | Crystal clock input | 22 | A15 | O | Address buses (LSB 8 bits) |
| 3 | EXTAL | I | | | | | |
| 4 | NMI | I | | Non maskable interrupt | 23 | A14 | |
| 5 | IRQ | I | Interrupt request | 24 | A13 | O | |
| 6 | RES | I | Reset control | 25 | A12 | O | |
| 7 | STBY | I | Standby mode control | 26 | A11 | O | |
| 8 | P20 | I/O | I/O port 2 | 27 | A10 | O | |
| 9 | P21 | I/O | | | | | |
| 10 | P22 | I/O | | | | | |
| 11 | P23 | I/O | | | | | |
| 12 | P24 | I/O | I/O port 1 | 28 | A9 | O | |
| 13 | A0/P10 | I/O | | | | | |
| 14 | A1/P11 | I/O | | | | | |
| 15 | A2/P12 | I/O | | | | | |
| 16 | A3/P13 | I/O | | | | | |
| 17 | A4/P14 | I/O | | | | | |
| 18 | A5/P15 | I/O | | | | | |
| 19 | A6/P16 | I/O | | | | | |
| 20 | A7/P17 | I/O | | | | | |
| | | | | 29 | A8 | O | |
| | | | | 30 | D7/A7 | I/O | Data buses or address buses |
| | | | | 31 | D6/A6 | I/O | |
| | | | | 32 | D5/A5 | I/O | |
| | | | | 33 | D4/A4 | I/O | |
| | | | | 34 | D3/A3 | I/O | |
| | | | | 35 | D2/A2 | I/O | |
| | | | | 36 | D1/A1 | I/O | |
| | | | | 37 | D0/A0 | I/O | |
| | | | | 38 | R/W | I | Read or write control |
| | | | | 39 | AS | I | Address strobe |
| | | | | 40 | E | O | Enable clock output |

ACIC (MC68B50P)

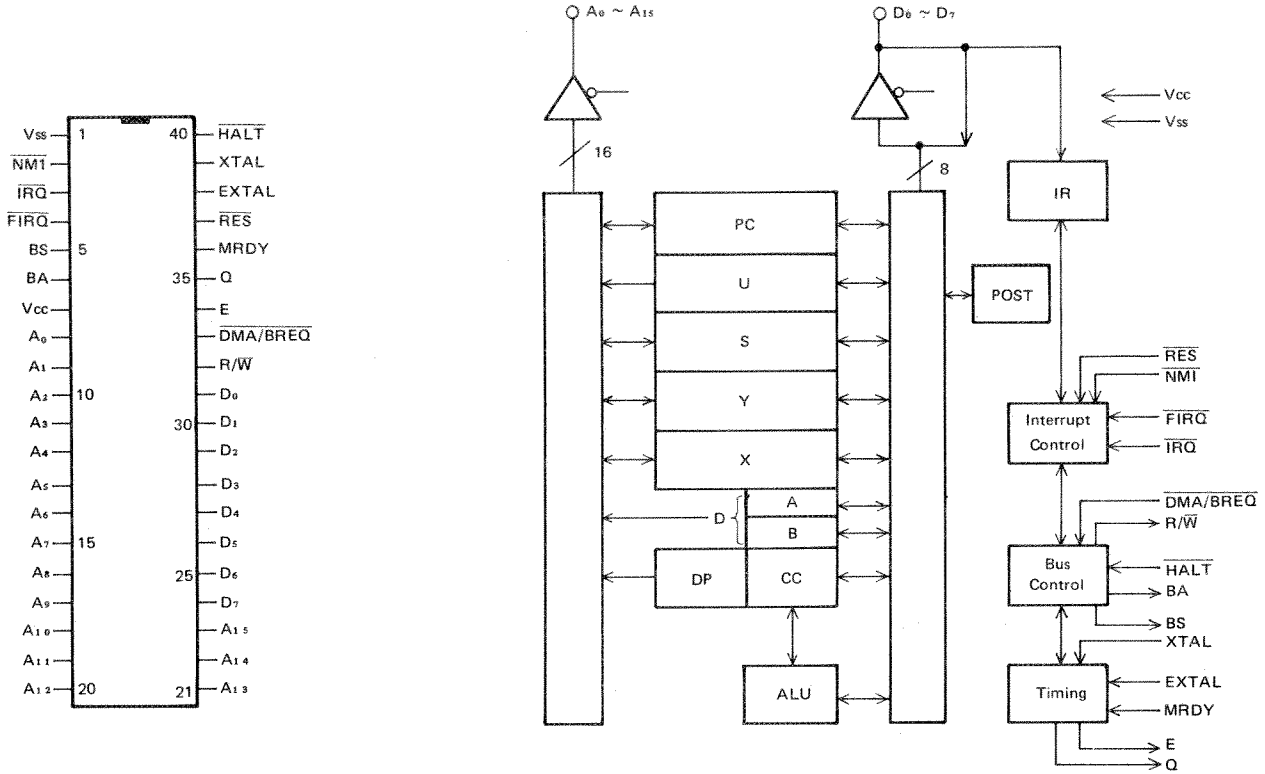
| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---------|-----------------|-----|------------------------------------|---------|------|-----|---------------------------------|
| 1 | V _{ss} | I | DC supply (0V) | 13 | R/W | I | Read or write control data |
| 2 | RX Data | I | Receive data input | 14 | E | I | Enable |
| 3 | RX CLK | I | Receive clock | 15 | D7 | I/O | Data buses |
| 4 | TX CLK | I | Transmit clock | 16 | D6 | I/O | |
| 5 | RTS | O | Request to send to modem | 17 | D5 | I/O | |
| 6 | TX data | O | Transmit data | 18 | D4 | I/O | |
| 7 | IRQ | O | Interrupt to MPU | 19 | D3 | I/O | |
| 8 | CS0 | I | Chip select from MPU address lines | 20 | D2 | I/O | |
| 9 | CS2 | I | | | | | |
| 10 | CS1 | I | | | | | |
| 11 | RS | I | Register select | 21 | D1 | I/O | |
| 12 | VCC | I | DC supply (+5V) | 22 | D0 | I/O | |
| | | | | 23 | DCD | I | Data carrier detect from modem |
| | | | | 24 | CTS | I | Clear to send signal from modem |

ADC (M58990P-I)

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---------|-----------------|-----|-------------------------------|---------|--------|-----|------------------------------|
| 1 | IN3 | I | Analog data in | 15 | 2-6 | O | Digital data output |
| 2 | IN4 | I | | | | | |
| 3 | IN5 | I | | | | | |
| 4 | IN6 | I | | | | | |
| 5 | IN7 | I | | | | | |
| 6 | START | I | Start data in | 16 | REF(-) | - | Reference voltage (-) |
| 7 | EOC | O | End of conversion data output | 17 | 2-8 | O | Digital data output |
| 8 | 2-5 | O | Digital data output | 18 | 2-4 | O | |
| 9 | OE | I | Output enable data in | 19 | 2-3 | O | |
| 10 | CLK | I | Clock data in | 20 | 2-2 | O | |
| 11 | V _{cc} | - | Supply power (+5V) | 21 | 2-1 | O | |
| 12 | REF(+) | - | Reference voltage (+) | 22 | ALE | I | Address latch enable data in |
| 13 | GND | - | Supply power (0V) | 23 | ADD A | I | Address data in |
| 14 | 2-7 | O | Digital data output | 24 | ADD B | I | |
| | | | | 25 | ADD C | I | |
| | | | | 26 | IN0 | I | Analog data in |
| | | | | 27 | IN1 | I | |
| | | | | 28 | IN2 | I | |

DX-1

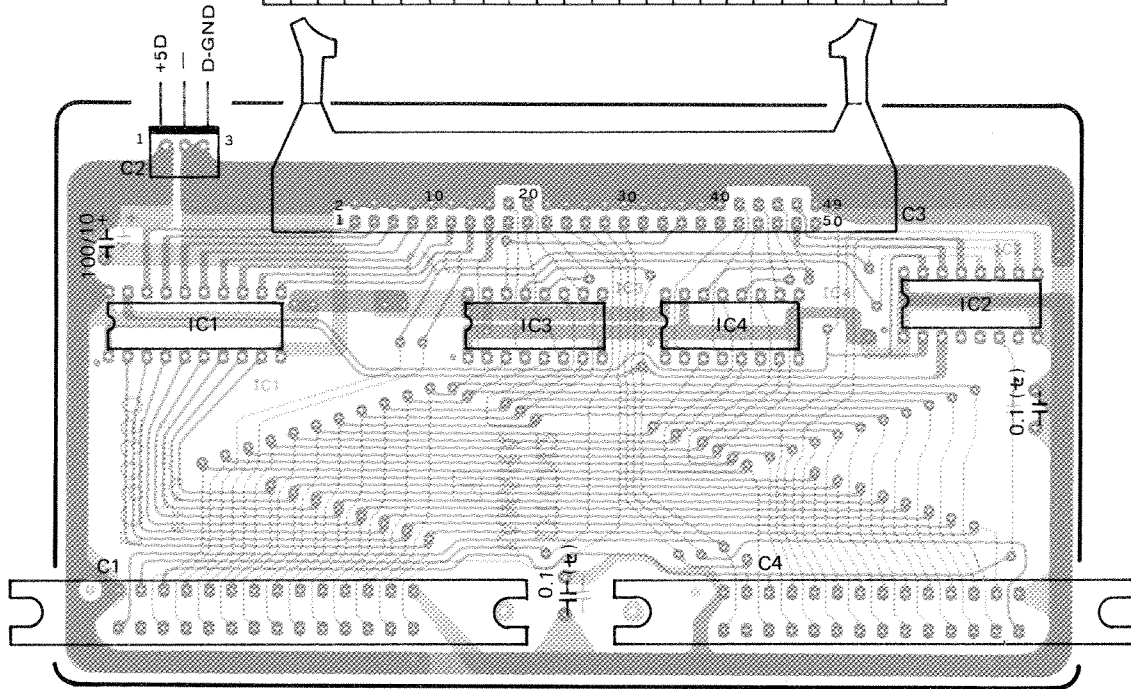
MPU, SPU1, SPU2, SPU4 (HD68B09)



DX-1

DTCN2 CIRCUIT BOARD & WIRING

| | | | |
|----|-------|------|----|
| 1 | MD0 | G | 2 |
| 3 | MD1 | G | 4 |
| 5 | MD2 | G | 6 |
| 7 | MD3 | G | 8 |
| 9 | MD4 | G | 10 |
| 11 | MD5 | G | 12 |
| 13 | MD6 | G | 14 |
| 15 | MD7 | G | 16 |
| 17 | MA0 | MA1 | 18 |
| 19 | MA2 | MA3 | 20 |
| 21 | MA4 | G | 22 |
| 23 | DINSA | G | 24 |
| 25 | DPRTA | G | 26 |
| 27 | CRT | G | 28 |
| 29 | DPRTB | G | 30 |
| 31 | — | — | 32 |
| 33 | — | — | 34 |
| 35 | — | — | 36 |
| 37 | — | — | 38 |
| 39 | — | — | 40 |
| 41 | MA5 | MA6 | 42 |
| 43 | MA7 | MA8 | 44 |
| 45 | MA9 | MA10 | 46 |
| 47 | MA11 | MA12 | 48 |
| 49 | EXTE | G | 50 |



C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | +5D | OR | PLR+5D (C2-1) |
| 2 | — | — | — |
| 3 | D-GND | GY | PLR-D-GND (C2-3) |

Note)

1. Circuit Board : LC90350
2. IC's
 - IC1 : 74LS245
 - IC2 : 74LS139
 - IC3, 4 : 74LS365
3. Capacitor
 - (μ) Marked : Ceramic Cap.

DX-1



10/10/2020 10:10:10

YAMAHA

DIGITAL PROGRAMMABLE ALGORITHM SYNTHESIZER

DX1

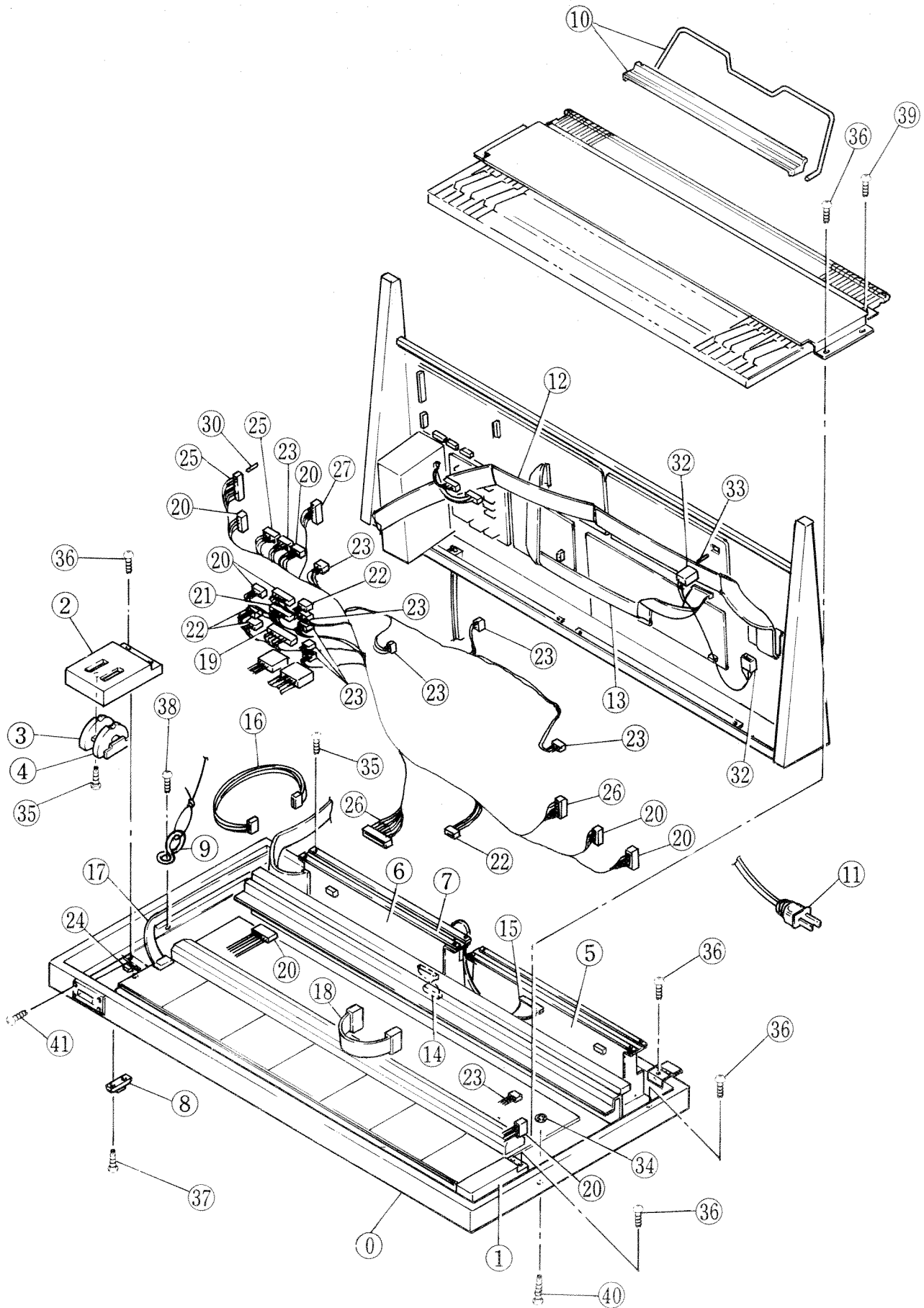
PARTS LIST

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DX-1

A. Cabinet Assembly (外装集成)



Dx-1

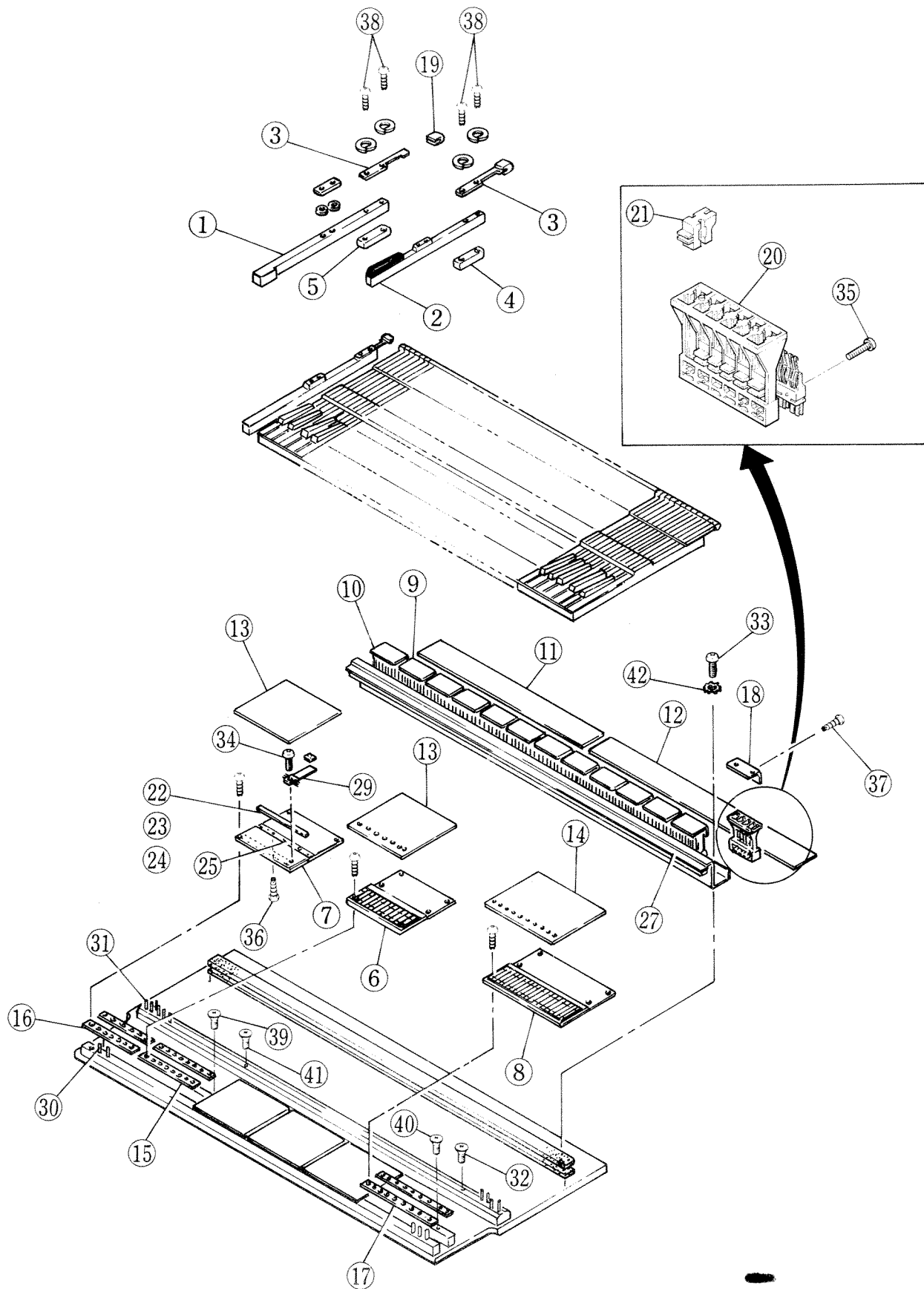
| Ref. No. | Part No. | Description | 品名 | Remarks | ランク |
|----------|------------|-------------------------|------------------------------|---------|-----|
| * 0 | DA 823160 | Bottom Case | 底 枠 集 成 | | 460 |
| * 1 | DA 823190 | End Block, R | 拍 子 木 集 成 (右) | | 16* |
| 2 | DA 823180 | End Block, L | PB 拍 子 木 集 成 (左) | | 17* |
| 3 | NB 826670 | Wheel Assembly | MW ホイール Ass'y | DX7 | 15* |
| 4 | NB 826680 | Wheel Assembly | // | DX7 | 08* |
| * 5 | NA 812140 | P.C. Board, TG | #9111 T G シ ー ト | | 460 |
| * 6 | NA 812150 | P.C. Board, MP | #9112 M P シ ー ト | | 460 |
| * 7 | NA 812160 | P.C. Board, AT | #9113 A T シ ー ト | | 460 |
| 8 | CB 818110 | Leg | ゴ ム 脚 | | 020 |
| 9 | AA 814630 | D Rack | D ラ ッ ク フ ッ ク | | 030 |
| 10 | NB 826360 | Music Rest Assembly | 譜 面 板 Ass'y | | 060 |
| 11 | MG 001030 | AC Cord | 電 源 コ ー ド | J | 060 |
| | MG 000580 | AC Cord | // | C | |
| | MG 001060 | AC Cord | // | G | |
| | MG 00128 | AC Cord | // | U | |
| * 12 | MZ 818640 | Flat Cable | フ ラ ッ ト ケ ー ブ ル | | 160 |
| * 13 | MZ 818650 | Flat Cable | // | | 110 |
| * 14 | MZ 818660 | Flat Cable | // | | 110 |
| * 15 | MZ 818670 | Flat Cable | // | | 090 |
| * 16 | MZ 818680 | Flat Cable | // | | 090 |
| * 17 | MZ 818690 | Flat Cable | // | | 090 |
| * 18 | MZ 818700 | Flat Cable | // | | 090 |
| | | <i>Main Wiring</i> | メ イン 束 線 | | |
| * 19 | LB 008060 | Receptacle Housing | 6P ハ ウ ジ ン グ | | 010 |
| 20 | LB 008070 | Receptacle Housing | 7P // | | 010 |
| * 21 | LB 008080 | Receptacle Housing | 8P // | | 020 |
| 22 | LB 300720 | Receptacle Housing | 3P // | | 010 |
| 23 | LB 500240 | Receptacle Housing | 5P // | | 010 |
| 24 | LB 602440 | Receptacle Housing | 7P // | | 010 |
| 25 | LB 602450 | Receptacle Housing | 10P // | | 010 |
| 26 | LB 602480 | Receptacle Housing | 8P // | | 010 |
| 27 | LB 603030 | Receptacle Housing | 9P // | | 010 |
| 28 | LB 301180 | Plug Housing | 3P プ ラ グ ハ ウ ジ ン グ | | 010 |
| 29 | LB 400820 | Plug Housing | 4P // | | 010 |
| 30 | BB 004430 | Contact | コ ン タ ク ト ビ ン | | 010 |
| 31 | LB 101050 | Terminal, Connector | ス ポ ッ ク ス タ ー ミ ナ ル | | 010 |
| 32 | LB 300720 | Connector | H3P コ ネ ク タ ハ ウ ジ ン グ | | 010 |
| 33 | BB 004430 | Contact | コ ン タ ク ト ビ ン | | 010 |
| 34 | CB 010640 | P Nut | P ナ ッ ト | | 010 |
| 35 | ED 330066 | Bind Head Screw | M3 x 6 バ イ ン ド 小 ネ ジ | Black | 010 |
| 36 | E i 335126 | Bind Head Tapping Screw | 3.5 x 12 バ イ ン ド タ ッ ピ ン ネ ジ | Black | 010 |
| 37 | E i 335166 | Bind Head Tapping Screw | 3.5 x 16 // | Black | 010 |
| 38 | E i 035206 | Bind Head Tapping Screw | 3.5 x 20 // | Yellow | 010 |
| 39 | E i 340086 | Bind Head Tapping Screw | 4 x 8 // | Black | 010 |
| * 40 | EG 350900 | Bind Head Screw | 5 x 90 尖 先 ナ ベ 小 ネ ジ | Black | 01* |
| 41 | EM 331120 | Oval Head Tapping | 3.1x12 丸 皿 タ ッ ピ ン ネ ジ | Black | 010 |

* : New Parts

ランク : Japan only

DX-1

B. Keyboard Assembly (鍵盤)

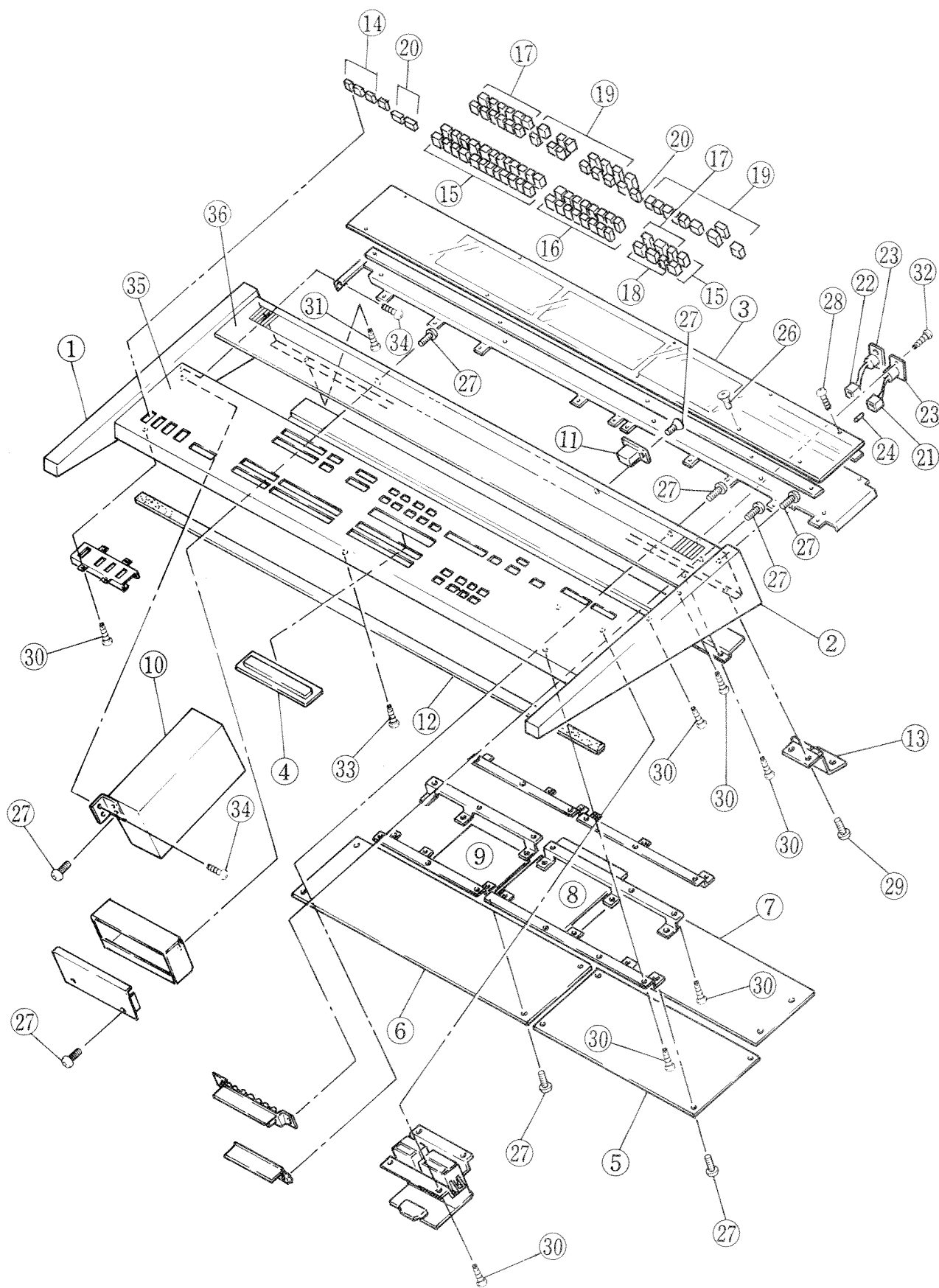


| Ref. No. | Part No. | Description | | 品 名 | Remarks | ランク |
|----------|-----------|-------------------------|----------|---------------|-----------|-----|
| | | Keyboard Assembly | | 鍵盤 Assy | | |
| 1 | NX 801060 | White Key Assembly | C | 白 鍵 Assy | | 113 |
| | NX 801070 | White Key Assembly | D | 〃 | | 113 |
| | NX 801080 | White Key Assembly | E | 〃 | | 113 |
| | NX 801090 | White Key Assembly | F | 〃 | | 113 |
| | NX 801100 | White Key Assembly | G | 〃 | | 113 |
| | NX 801110 | White Key Assembly | A | 〃 | | 113 |
| | NX 801120 | White Key Assembly | B | 〃 | | 113 |
| | NX 800840 | White Key Assembly | E' | 〃 | | 113 |
| 2 | NX 801130 | Black Key Assembly | | 黒 鍵 | | 113 |
| 3 | AA 814980 | Actuator Plate | | アクチュエータ駆板 | | 010 |
| 4 | BF 000010 | Key Weight | | キーウェイト | Black Key | 060 |
| 5 | BF 000020 | Key Weight | | 〃 | White Key | 060 |
| * 6 | NB 827950 | PC-1 Unit | | PC-1 ユニット | | 360 |
| * 7 | NB 827960 | PC-2 Unit | | PC-2 ユニット | | 320 |
| * 8 | NB 827970 | PC-3 Unit | | PC-3 ユニット | | 460 |
| 9 | NB 816150 | Key Switch Unit I | | スイッチユニットI | | 060 |
| 10 | NB 816160 | Key Switch Unit II | | スイッチユニットII | | 050 |
| * 11 | NA 812250 | P.C. Board, MK1 | # 8610 | MK1 シート | | 210 |
| * 12 | NA 812260 | P.C. Board, MK2 | # 8611 | MK2 シート | | 220 |
| 13 | CA 802370 | Dust Proof Cover, PC-1 | | PC-1防塵シート | | 010 |
| * 14 | CA 808670 | Dust Proof Cover, PC-3 | | PC-3防塵シート | | 020 |
| 15 | CB 817280 | PC-1 Film | | PC-1フィルム | | 020 |
| 16 | CB 830550 | PC-2 Film | | PC-2フィルム | | 010 |
| 17 | CB 830560 | PC-3 Film | | PC-3フィルム | | 010 |
| 18 | CB 817300 | Contact Cover | | 接点カバー | | 050 |
| 19 | CB 817360 | Actuator Plate Cap | | 駆動板キャップ | | 010 |
| 20 | CB 817370 | Actuator Guide | | アクチュエータガイド | | 040 |
| 21 | CB 817380 | Actuator | | アクチュエータ | | 050 |
| 22 | CC 014630 | PC-1 Stopper Felt | | PC-1ストッパーフェルト | | 010 |
| * 23 | CC 016190 | PC-2 Stopper Felt | | PC-2ストッパーフェルト | | 010 |
| * 24 | CC 016200 | PC-3 Stopper Felt | | PC-3ストッパーフェルト | | 010 |
| 25 | CC 030480 | Sensor Lever Felt | | センサーレバーフェルト | | 010 |
| 26 | CC 070420 | Key Back Rail Felt | | ストッパーフェルトI | | 050 |
| 27 | CD 070240 | Keyboard Stopper Felt | | ストッパーフェルトII | | 060 |
| 28 | CC 015210 | Felt | | フェルト | | 030 |
| 29 | iT 439000 | IC | PSA437 | I C | | 080 |
| 30 | AA 814960 | Front Pin | | フロントピン | | 010 |
| 31 | AA 814970 | Balance Pin | | バランスピン | | 010 |
| 32 | EB 340306 | Flat Head Screw | M4 x 30 | 皿 小 ネジ | Black | 010 |
| 33 | EC 040106 | Truss Head Screw | M4 x 10 | トラス小ネジ | Yellow | 010 |
| 34 | ED 026060 | Bind Head Screw | M2.6 x 6 | バインド小ネジ | Yellow | 010 |
| 35 | ED 030256 | Bind Head Screw | M3 x 25 | バインド小ネジ | Yellow | 010 |
| 36 | Ei 030066 | Bind Head Tapping Screw | 3 x 6 | バインドタッピンネジ | Yellow | 010 |
| 37 | Ei 030166 | Bind Head Tapping Screw | 3 x 16 | 〃 | Yellow | 010 |
| 38 | Ei 040356 | Bind Head Tapping Screw | 4 x 3.5 | 〃 | Yellow | 010 |
| 39 | EO 340202 | Flat Head Screw | 4 x 20 | 皿タッピンネジ | Black | 010 |
| 40 | EO 340252 | Flat Head Screw | 4 x 25 | 〃 | Black | 010 |
| 41 | EO 340302 | Flat Head Screw | 4 x 30 | 〃 | Black | 010 |
| 42 | EV 430046 | Toothed Lock Washer | AB4S | 歯付座金 | Yellow | 010 |

* : New Parts

ランク : Japan only

C. Control Panel Assembly (コントロールパネル)



DX-1

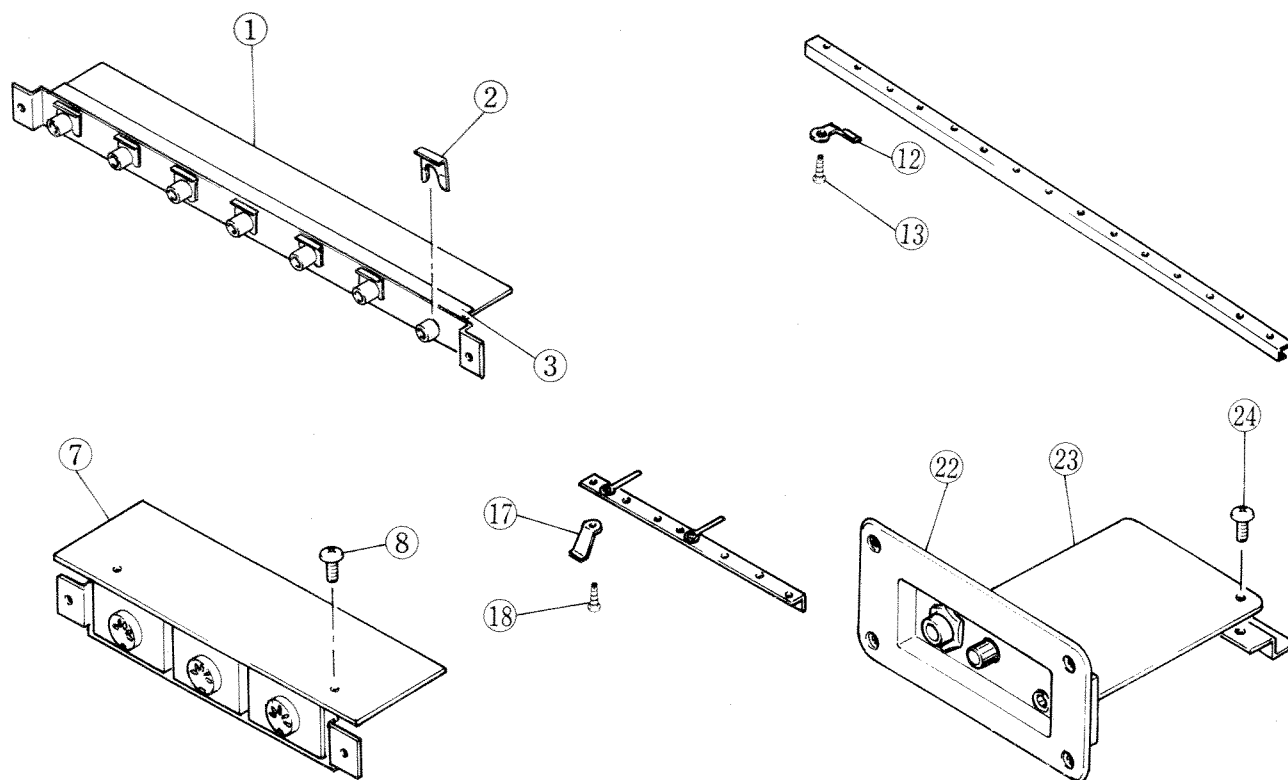
| Ref. No. | Part No. | Description | 品 名 | Remarks | ランク | |
|----------|-----------|-------------------------|-------------|-------------|--------|-----|
| * 1 | DA 823200 | Arm Ass'y, L | 腕木集成 (左) | | 37* | |
| * 2 | DA 828210 | Arm Ass'y, R | 腕木集成 (右) | | 37* | |
| * 3 | NB 828440 | Display Panel Ass'y | アクリル表示板Assy | | 170 | |
| * 4 | CB 830540 | Cover,LCD | LCD 保護板 | | 080 | |
| * 5 | NA 812170 | P.C. Board, PLR | # 9114 | PLR シート | 460 | |
| * 6 | NA 812180 | P.C. Board, PLL | # 9115 | PLL シート | 460 | |
| * 7 | NA 812190 | P.C. Board, PUR | # 9116 | PUR シート | 460 | |
| * 8 | NA 812200 | P.C. Board, PUL | # 9117 | PUL シート | 330 | |
| * 9 | NA 812210 | P.C. Board, DCD/AC | # 9118 | DC D/AC シート | 180 | |
| * 10 | NP 804000 | Power Supply Unit | 電源ユニット | J,U,C | 46* | |
| | NP 804100 | Power Supply Unit | 電源ユニット | G | | |
| 11 | CB 828130 | Bush, Music Rest | 譜面板ブッシュ | | 010 | |
| * 12 | CC 016188 | Felt | フェルト | | 030 | |
| * 13 | AA 828160 | Hinge | 蝶番 | | 050 | |
| 14 | CB 828140 | Knob | ツマミ | | 010 | |
| * 15 | CB 830440 | Knob, A | Blue, LED | ツマミ A | 020 | |
| * 16 | CB 830450 | Knob, B | Green, LED | ツマミ B | 020 | |
| * 17 | CB 830460 | Knob, C | Ivoly, LED | ツマミ C | 020 | |
| * 18 | CB 830470 | Knob, D | Grey, LED | ツマミ D | 030 | |
| * 19 | CB 830480 | Knob, E | Grey | ツマミ E | 020 | |
| * 20 | CB 830490 | Knob, F | Ivoly | ツマミ F | 030 | |
| 21 | LB 301190 | Housing, Receptacle | リセプタクルハウジング | | 010 | |
| 22 | LB 400830 | Housing, Receptacle | リセプタクルハウジング | | 010 | |
| 23 | LB 300160 | Cannon | キャノン | | 070 | |
| 24 | BB 004690 | Pin Contact | ピンコンタクト | | 010 | |
| 25 | EB 330066 | Flat Head Screw | M3 x 6 | 皿小ネジ | Black | 010 |
| 26 | EB 330086 | Flat Head Screw | M3 x 8 | 皿小ネジ | Black | 010 |
| 27 | ED 330066 | Bind Head Screw | M3 x 6 | バインド小ネジ | Black | 010 |
| 28 | ED 330086 | Bind Head Screw | M3 x 8 | バインド小ネジ | Black | 010 |
| 29 | ED 340086 | Bind Head Screw | M4 x 8 | バインド小ネジ | Black | 010 |
| 30 | Ei 330066 | Bind Head Tapping Screw | 3 x 6 | バインドタッピンネジ | Black | 010 |
| 31 | Ei 330086 | Bind Head Tapping Screw | 3 x 8 | バインドタッピンネジ | Black | 010 |
| 32 | EM 130066 | Oval Head Tapping Screw | 3 x 6 | 丸皿タッピンネジ | Nickel | 010 |
| 33 | EM 130086 | Oval Head Tapping Screw | 3 x 8 | 丸皿タッピンネジ | Nickel | 01* |
| 34 | Ei 335126 | Bind Head Tapping Screw | 3.5 x 12 | バインドタッピンネジ | Black | 010 |
| 35 | BA 808440 | Control Panel | コントロールパネル | | | |
| 36 | BA 808450 | Rear Panel | リアパネル | | | |

* : New Parts

ランク : Japan only

DX-1

D. P.C.Board, JK/MIDI Assembly (JK, DINシート・アースレール・パネル)

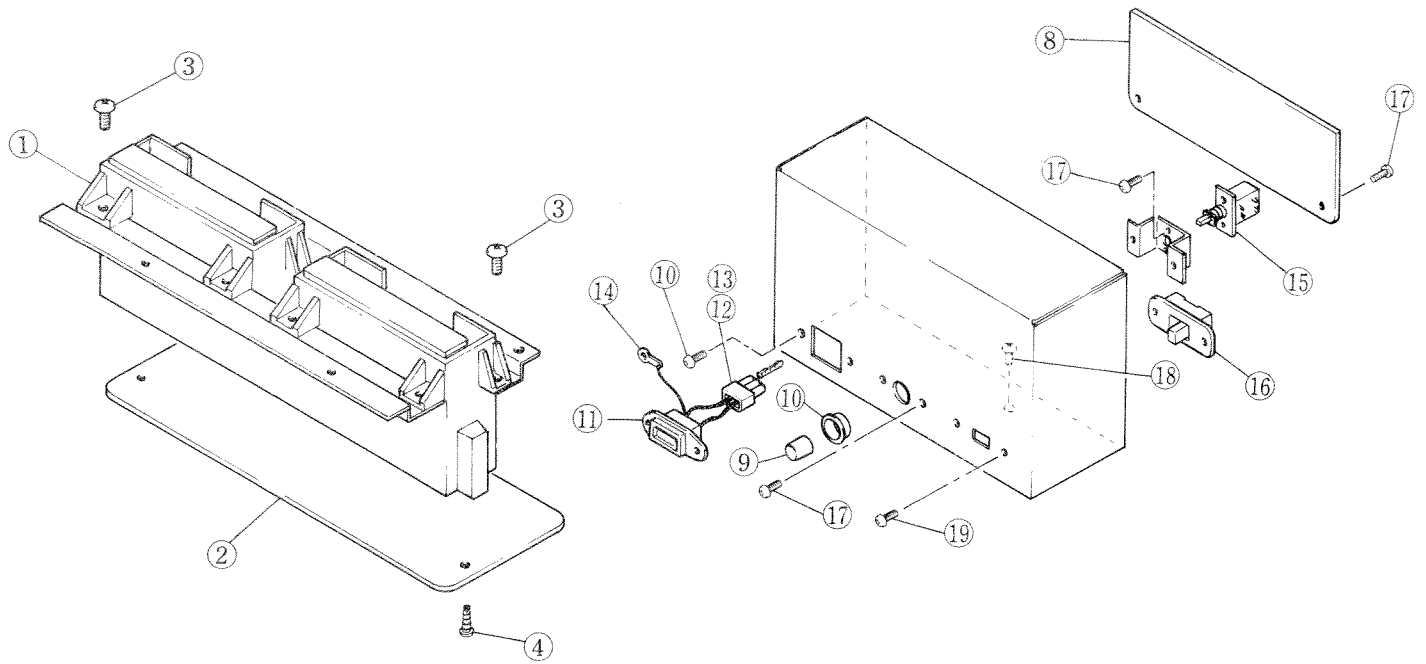


| Ref. No. | Part No. | Description | 品 名 | Remarks | ランク |
|----------|-----------|----------------------------------|--------|-------------|--------------|
| | | <i>P.C. Board, JK/MIDI Ass'y</i> | | | |
| * 1 | NA 812220 | P.C. Board, JK/MIDI | #9119 | JK/MIDI シート | 130 |
| 2 | LB 301910 | Holder | | U 字 金 具 | 010 |
| * 3 | CB 830570 | Earthing Film | | アースフィルム | 020 |
| | | | | | |
| | | <i>P.C. Board, MIDI Ass'y</i> | | | |
| * 7 | NA 812220 | P.C. Board, JK/MIDI | #9119 | JK/MIDI シート | 130 |
| 8 | ED 330068 | Bind Head Screw | M3 x 6 | バインド小ネジ | Black 010 |
| | | | | | |
| | | <i>Earthing Rail Ass'y A</i> | | | |
| * 12 | BB 807050 | Contact | | 接 触 子 | 010 |
| 13 | Ei 340066 | Bind Head Tapping Screw | 4 x 6 | バインドタッピンネジ | Black 01* |
| | | | | | |
| | | <i>Earthing Rail Ass'y B</i> | | | |
| * 17 | BB 807050 | Contact | | 接 触 子 | 010 |
| 18 | Ei 340066 | Bind Head Tapping Screw | 4 x 6 | バインドタッピンネジ | Black 01* |
| | | | | | |
| | | <i>Phone Panel Ass'y</i> | | | |
| * 22 | CB 830600 | Phone Panel | | ホーンパネル | 050 |
| * 23 | NA 812270 | P.C. Board, HA | #9129 | H A シ ー ト | 110 |
| 24 | ED 330066 | Bind Head Screw | 3 x 6 | バインド小ネジ | Black 010 |

* : New Parts

ランク : Japan only

E. Cartridge Guide Assembly (カートリッジガイド・ACケース)

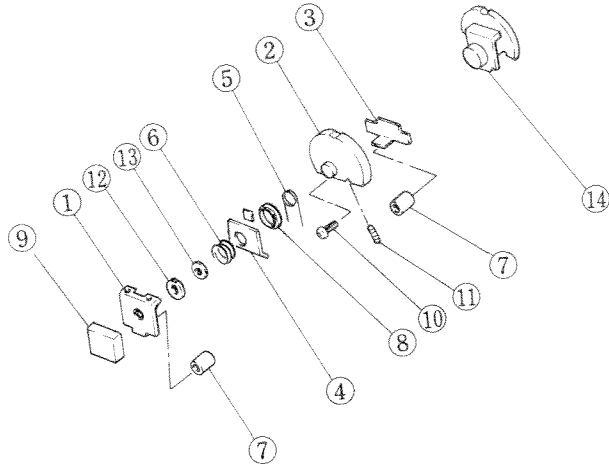


| Ref. No. | Part No. | Description | 品名 | Remarks | ランク |
|----------|-----------|------------------------------|----------------------|---------|-----|
| | | <i>Cartridge Guide Ass'y</i> | カートリッジガイド Ass'y | | |
| 1 | NB 826910 | Lid Guide Ass'y | 蓋ガイド Ass'y | | 050 |
| 2 | NA 812280 | P.C. Board, DTCN2 | # 9035 DTCN2シート | | 210 |
| 3 | ED 340086 | Bind Head Screw | M4 x 8 バインド小ネジ | Black | 010 |
| 4 | Ei 330206 | Bind Head Tapping Screw | 3 x 20 バインドタッピンネジ | Black | 01* |
| | | <i>A.C. Case Ass'y</i> | ACケース Ass'y | | |
| 8 | NA 812210 | P.C. Board, DCD/AC | # 9118 DCD/ACシート | J | 180 |
| | NA 812570 | P.C. Board, DCD/AC | # 9118 " | U. C | |
| | NA 812580 | P.C. Board, DCD/AC | # 9118 " | G | |
| 9 | CB 825380 | Push Button | プッシュボタン | | 010 |
| 10 | CB 819200 | Escutcheon, Switch | スイッチエスカッション | | 020 |
| 11 | LB 201860 | Inlet | 2P インレット | J | 030 |
| | LB 300560 | Inlet | 3P " | U. C. G | |
| 12 | LB 300770 | LB Connector | LBコネクター | | 010 |
| 13 | LB 100670 | Socket Contact | ソケットコンタクト | | 010 |
| 14 | LA 003690 | Lug With Tooth | 歯付アースラグ | U. C. G | |
| 15 | KA 800220 | Power Switch | パワースイッチ | J | 050 |
| | KA 800200 | Power Switch | " | U. C | |
| | KA 800690 | Power Switch | " | G | |
| 16 | KA 400830 | Voltage Selector | 電圧切換器 | G | |
| 17 | ED 330066 | Bind Head Screw | M3 x 6 バインド小ネジ | Black | 010 |
| 18 | ED 340066 | Bind Head Screw | M4 x 6 " | Black | 010 |
| 19 | Ei 330066 | Bind Head Tapping Screw | 3 x 6 バインドタッピンネジ | Black | 010 |

* : New Parts

ランク : Japan only

F. Wheel Assembly (ホイールAss'y・オプション)



| Ref. No. | Part No. | Description | 品 名 | Remarks | ランク |
|----------|-----------|---------------------------|-------------|-------------------|-------------------|
| | | <i>Wheel Ass'y</i> | ホイール Ass'y | | |
| 1 | AA 817460 | Frame | フ レ ー ム | | 030 |
| 2 | CB 828280 | Wheel | ホ イ ー ル | | 030 |
| 3 | AA 817470 | Wheel Angle | ホイールアングル | | 030 |
| 4 | AA 817480 | Wheel Plate | ホイールプレート | | 030 |
| 5 | AA 817490 | Return Spring | リターンスプリング | | 010 |
| 6 | AA 817500 | Friction Spring | フリクションスプリング | | 010 |
| 7 | CB 819020 | Wheel Tube | ホイールチューブ | | 020 |
| 8 | EK 801260 | Wheel Ring | C S 型 止 め 輪 | | 010 |
| 9 | HR 500030 | Variable Resistor | B10K | ロータリーボリューム | Pitch 100 |
| 10 | ED 330080 | Bind Head Screw | M3 x 8 | バインド小ネジ | Black 010 |
| 11 | EK 801270 | Wheel Screw | 3 x 12 | スリワリ付止めネジ | 010 |
| 12 | EV 220070 | Flat Washer | 7S | 特殊平座金 | 010 |
| 13 | EZ 307010 | Hexagonal Nut | M7 | 特殊六角ナット | 010 |
| 14 | HS 420310 | Variable Resistor | B10K | ロータリーボリューム | Modulation 040 |
| | | <i>Accessories</i> | 付 属 品 | | |
| | NB 826360 | Music Rest | | 譜 面 板 Ass'y | 060 |
| | | Sustainer Pedal | FC-4 | サステナー・ペダル | |
| | | EXP Pedal | FC-3A | E X P ・ ペダル | |
| * | NB 828610 | Voice ROM Cartridge | DX1 VROM 1 | ボイス・ROM・カートリッジ | 18* |
| * | NB 828620 | Voice ROM Cartridge | DX1 VROM 2 | 〃 | 18* |
| | NB 826850 | Voice ROM Cartridge | DX7 VROM 1 | 〃 | except US DX7 18* |
| | NB 826860 | Voice ROM Cartridge | DX7 VROM 2 | 〃 | except US DX7 18* |
| | NB 828290 | Voice ROM Cartridge | DX7 VROM 3 | 〃 | only US DX7 |
| | NB 828300 | Voice ROM Cartridge | DX7 VROM 4 | 〃 | only US DX7 |
| * | NB 828650 | Performance ROM Cartridge | PROM 1 | パフォーマンスROM・カートリッジ | |
| | | Data RAM Cartridge | DRAM | データRAM・カートリッジ | |
| | | Breath Controller | BC-1 | ブレス・コントローラー | |
| | | <i>Option</i> | 別 売 品 | | |
| | | Sustain Pedal | FC-4 | サステナー・ペダル | |
| | | EXP Pedal | FC-3A | E X P ・ ペダル | |
| | | Data RAM Cartridge | DRAM | データRAM・カートリッジ | |
| | | Breath Controller | BC-1 | ブレス・コントローラー | |

* : New Parts

ランク : Japan only

DX-1

G. Electronic Components (電気)

| Ref. No. | Part No. | Description | 品名 | Remarks | ランク |
|-----------|-----------|-------------------------------|------------------|--------------|------------|
| | | <i>P.C. Board Ass'y, TG</i> | | | |
| | | | T G シ ー ト | | |
| | iG 001270 | IC | TC4066BP | I C | 050 |
| | iG 001390 | IC | NJM4558DV | // | 030 |
| | iG 001770 | IC | TC4051BP | // | 050 |
| | iG 029000 | IC | HD74LS02P | // | 040 |
| | iG 043800 | IC | HD7417P | // | 030 |
| | iG 050600 | IC | HD74LS393P | // | 070 |
| | iG 060000 | IC | HD74LS244P | // | 060 |
| | iG 076600 | IC | TL072CP | // | 040 |
| | iG 079500 | IC | iG07950 | // | 050 |
| | iG 097200 | IC | 74LS377 | // | 060 |
| | iG 106000 | IC | BA9221 | // | DAC 100 |
| | iG 106200 | IC | M5M5118P | // | RAM 120 |
| | iG 106400 | IC | 74LS32 | // | 030 |
| | iG 106600 | IC | 74LS174 | // | 040 |
| | iG 106700 | IC | 74LS138 | // | 030 |
| | iG 107100 | IC | LF356 | // | 050 |
| * | iG 114900 | IC | HD68B09P | // | CPU 130 |
| * | iG 115100 | IC | 74LS85 | // | 040 |
| * | iG 115200 | IC | 74LS123 | // | 030 |
| * | iG 115300 | IC | 74LS670 | // | 050 |
| * | iG 115700 | IC | 74LS399 | // | 050 |
| * IC8, 14 | iN 006200 | IC | MBM2732A | // | ROM 12* |
| | iT 212800 | IC | YM2128 | // | CPS 200 |
| | iT 212900 | IC | YM2129 | // | EGS 170 |
| * | iT 520600 | IC | YM5206 | // | 120 |
| | iC 181510 | Transistor | 2SC1815 (O,Y) | トランジスタ | 031 |
| | iF 003450 | Diode | 1SS133 | ダイオード | 010 |
| | HZ 001730 | Metal Film Resistor | 1K Ω | キンピ抵抗 | 030 |
| | HZ 001740 | Metal Film Resistor | 2K Ω | // | 030 |
| | HZ 001760 | Metal Film Resistor | 10K Ω | // | 030 |
| | HZ 002120 | Module Resistor | 10K Ω x 8 | モジュール抵抗 | 020 |
| | Fi 364220 | Electro Magnetic Interference | 0.022 μ F | エミフィル | 020 |
| | FT 552120 | Polypropylene Capacitor | 120P | ポリプロコン | 031 |
| | FT 552470 | Polypropylene Capacitor | 470P | // | 031 |
| | FZ 004110 | SC ceramic Capacitor | 0.1 μ F 16V | 半導体セラコン | 010 |
| | UK 166100 | BP Electrolytic Capacitor | 1 μ F 50V | BPケミコン | 010 |
| * | KC 001770 | Relay | RY5W | リレー | 070 |
| | LB 300730 | Connector, NH | 5P | NHコネクタ | 010 |
| | LB 603980 | Connector, LB | 7P | LBコネクタ | 020 |
| | LB 606640 | Flat Cable Connector | 34P | フラットケーブルコネクタ | 050 |
| | LB 606650 | Flat Cable Connector | 40P | // | 060 |
| | LB 606030 | IC Socket | 24P | ICソケット | 051 |
| | | | | | |
| | | <i>P.C. Board Ass'y, MP</i> | | | |
| | | | | M P シ ー ト | |
| | iG 001720 | IC | TC4069UBP | I C | 030 |
| | iG 026910 | IC | HD74LS00P | // | 040 |
| | iG 029000 | IC | HD74LS02P | // | 040 |
| | iG 043700 | IC | HD74LS08P | // | 030 |
| | iG 044000 | IC | HD74LS74A | // | 040 |

* : New Parts

ランク : Japan only

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| Ref. No. | Part No. | Description | 品名 | Remarks | ランク | | |
|----------|-----------|--------------------------------|-------------------|--------------|------|-----|-----|
| | iG 044200 | IC | HD74LS138P | I C | 040 | | |
| | iG 044400 | IC | HD74LS161P | // | 050 | | |
| | iG 049600 | IC | HD74LS14P | // | 050 | | |
| | iG 049800 | IC | HD74LS32P | // | 030 | | |
| | iG 049900 | IC | HD74LS139P | // | 050 | | |
| | iG 052600 | IC | HD74LS05P | // | 030 | | |
| | iG 059610 | IC | HD74LS157P | // | 040 | | |
| | iG 060000 | IC | HD74LS244P | // | 060 | | |
| | iG 060100 | IC | HD74LS245P | // | 080 | | |
| | iG 068300 | IC | HD74S74P | // | 040 | | |
| | iG 090500 | IC | SN74S02N | // | 031 | | |
| | iG 096600 | IC | TC40H166 | // | 060 | | |
| | iG 106200 | IC | M5M5118P-15 | // | RAM | 120 | |
| | iG 107200 | IC | 40H244 | // | | 070 | |
| * | iG 114900 | IC | HD68B09P | // | CPU | 130 | |
| * | iG 115400 | IC | 74LS283 | // | | 040 | |
| * | iG 115800 | IC | MC68B50P | // | UART | 100 | |
| * | iG 116200 | IC | PST518 | // | | 040 | |
| * | IC12 | iN 005900 | IC | HN482764 | // | ROM | 13* |
| * | IC13 | iN 006000 | IC | HN482764 | // | ROM | 13* |
| * | IC60 | iN 006100 | IC | HN482764 | // | ROM | 13* |
| * | IC61 | iN 006800 | IC | HN482764 | // | ROM | 13* |
| * | iT 520600 | IC | YM5206 | // | | 120 | |
| | iA 101510 | Transistor | 2SA1015 (O) | トランジスタ | | 031 | |
| | iC 075220 | Transistor | 2SC752 (Y) | // | | 030 | |
| | iC 181510 | Transistor | 2SC1815 (O) | // | | 031 | |
| | iF 003450 | Diode | 1SS133 | ダイオード | | 010 | |
| | iF 005640 | Diode | OA95 | // | | 010 | |
| | HZ 001690 | Module Resistor | 10K Ω x 12 | モジュール抵抗 | | 030 | |
| | FD 351330 | Polystyrene Capacitor | 33P | スチコン | | 020 | |
| | FT 551470 | Polypropylene Capacitor | 47P | ポリプロピレンコン | | 030 | |
| | FT 551560 | Polypropylene Capacitor | 56P | // | | 031 | |
| | FT 552120 | Polypropylene Capacitor | 120P | // | | 031 | |
| | Fi 364220 | Electro Magnetic Interference | 0.022 μ F | エミフィル | | 020 | |
| | FZ 004110 | SC Ceramic Capacitor | 0.1 μ F 16V | 半導体セラコン | | 010 | |
| | iK 000420 | Photo Conductor | PC900 | フォトカプラー | DX7 | 050 | |
| | GE 100660 | Oscillator Coil | 0.8 μ H | 発振コイル | | 030 | |
| | PC 900040 | Battery | CR2032 | リチウム電池 | | 042 | |
| | QU 004700 | Piezoelectric Ceramic Vibrator | 500KHz | セラロック | | 030 | |
| | QU 004900 | Crystal Resonator | 37.706MHz | 水晶振動子 | | 050 | |
| | LB 602460 | Connector, NH | 7P | NHコネクタ | | 010 | |
| | LB 603970 | Connector, LH | 6P | LBコネクタ | | 030 | |
| * | LB 606640 | Flat Cable Connector | 34P | フラットケーブルコネクタ | | 050 | |
| * | LB 606650 | Flat Cable Connector | 40P | // | | 060 | |
| * | LB 606550 | Flat Cable Connector | 50P | // | | 060 | |
| | LB 606030 | IC Socket | 24P | ICソケット | | 051 | |
| | LB 606050 | IC Socket | 28P | // | | 05* | |
| | | | | | | | |
| | | P.C. Board, AT | | A T シート | | | |
| | iG 043700 | IC | HD74LS08 | I C | | 031 | |
| | iG 001390 | IC | NJM4558DV | // | | 030 | |

* : New Parts

ランク : Japan only

DX-1

| Ref. No. | Part No. | Description | 品名 | Remarks | ランク |
|----------|-----------|-------------------------------|--------------|---------------|---------|
| | iG 026910 | IC | HD74LS00P | I C | 040 |
| | iG 027010 | IC | HD74LS04P | // | 040 |
| | iG 033600 | IC | UPC624 | // | 100 |
| | iG 044100 | IC | HD74LS122 | // | 040 |
| | iG 044200 | IC | HD74LS138P | // | 040 |
| | iG 044400 | IC | HD74LS161P | // | 050 |
| | iG 049800 | IC | HD74LS32P | // | 030 |
| | iG 050000 | IC | HD74LS174P | // | 050 |
| | iG 059610 | IC | HD74LS157P | // | 040 |
| | iG 097200 | IC | SN74LS377 | // | 060 |
| | iG 106100 | IC | M58990P-1 | // | ADC 090 |
| | iG 106200 | IC | M5M5118P-15 | // | RAM 120 |
| | iG 114900 | IC | HD68B09P | // | CPU 130 |
| | iG 115100 | IC | HD74LS85P | // | 040 |
| | iG 115300 | IC | HD74LS670P | // | 050 |
| | iG 115400 | IC | HD74LS283P | // | 040 |
| | iG 115500 | IC | HD7489P | // | 050 |
| | iG 115700 | IC | SN74LS399 | // | 050 |
| | iG 116200 | IC | PST518 | // | 040 |
| IC6 | iN 006400 | IC | MBM2732A-308 | // | ROM 12* |
| | iT 520600 | IC | YM5206 | // | 120 |
| | iG 132300 | IC | HD74LS21 | // | 04* |
| | iF 000460 | Diode | 1S1555 | ダイオード | 010 |
| | Fi 364220 | Electro Magnetic Interference | 0.022μF | エミフィル | 020 |
| | FZ 004100 | SC Ceramic Capacitor | 0.1μF 16V | 半導体セラコン | 010 |
| | LB 300730 | Connector, NH | 3P | NHコネクタ | 010 |
| | LB 603990 | Connector, LB | 8P | LBコネクタ | 020 |
| | LB 606630 | Flat Cable Connector | 26P | フラットケーブルコネクタ | 050 |
| | LB 606640 | Flat Cable Connector | 34P | // | 050 |
| | LB 606030 | IC Socket | 24P | ICソケット | 051 |
| | | <i>P.C. Board, PLR</i> | | <i>PLRシート</i> | |
| | iG 001270 | IC | TC4066BP | I C | 050 |
| | iG 026910 | IC | HD74LS00P | // | 040 |
| | iG 044000 | IC | HD74LS74A | // | 040 |
| | iG 044200 | IC | HD74LS138P | // | 040 |
| | iG 048300 | IC | HD7416P | // | 030 |
| | iG 050000 | IC | HD74LS174P | // | 050 |
| | iG 050400 | IC | HD74LS367P | // | 040 |
| | iG 050700 | IC | SN74LS374 | // | 060 |
| | iG 060000 | IC | HD74LS244P | // | 060 |
| | iG 060100 | IC | HD74LS245P | // | 080 |
| | iG 060350 | IC | SN74LS373N | // | 060 |
| | iG 064100 | IC | TC40H174P | // | 050 |
| | iG 093500 | IC | HD6303 | // | CPU 160 |
| | iG 107200 | IC | TC40H244 | // | 070 |
| | iG 116200 | IC | PST518 | // | 040 |
| IC15 | iN 006300 | IC | MBM2732A-308 | // | ROM 12* |
| | iG 116100 | Power Supply for EL | NEL-D32-43 | EL電源 | 100 |
| | iF 005750 | Lighting Plate for EL | NEL-51-065-G | EL照明板 | 090 |
| | iD 119800 | Transistor | 2SD1198 | トランジスタ | 031 |

* : New Parts

ランク : Japan only

| Ref. No. | Part No. | Description | 品 名 | Remarks | ランク |
|----------|------------|--------------------------------|---------------|------------------|-----------------------|
| | i F 003450 | Diode | 1SS133 | ダイオード | 010 |
| | i F 005640 | Diode | 0A95 | // | 010 |
| * | i F 005730 | LED | GL9HD24 | L E D | 020 |
| | HT 770060 | Semi-Variable Resistor | B10KΩ | 半固定ボリューム | 020 |
| * | HZ 003820 | Module Resistor | RM9-472J | モジュール抵抗 | 020 |
| * | KA 903010 | Push Switch | 1 Linked | プッシュスイッチ | 021 |
| * | KA 906290 | Push Switch | 4 Linked | // | Rate, Level, Edit 050 |
| * | KA 906300 | Push Switch | 4 Linked | // | Performance 040 |
| * | KA 906310 | Push Switch | 3 Linked | // | Left curve 040 |
| * | KA 906320 | Push Switch | 3 Linked | // | Right curve 040 |
| | GE 300350 | Coil | 68μH | コイル | 010 |
| | F i 364220 | Electro Magnetic Interference | 0.022μF | エミフィル | 020 |
| | FZ 004110 | SC Ceramic Capacitor | 0.1μF 16V | 半導体セラコン | 010 |
| | QU 004800 | Piezoelectric Ceramic Vibrator | 4MHz | セラロック | 03* |
| | LB 300730 | Connector, NH | 3P | N H コネクタ | 010 |
| | LB 500250 | Connector, NH | 5P | // | 010 |
| | LB 602500 | Connector, NH | 7P | // | 020 |
| | LB 603020 | Connector, NH | 8P | // | 020 |
| * | LB 606630 | Flat Cable Connector | 26P | フラットケーブルコネクタ | 050 |
| * | LB 606650 | Flat Cable Connector | 40P | // | 060 |
| | LB 606030 | IC Socket | 24P | I C ソケット | 051 |
| | JN 200020 | LCD Unit | LM018LT | LCD ユニット | 270 |
| | CB 830650 | LCD Escutcheon | | LCD エスカッション | 02* |
| | BB 004430 | Contact Pin, NH | | NH コンタクトピン | LCD Cable 010 |
| | LB 602440 | Housing, NH | 7P | NHハウジング | LCD Cable 010 |
| | LB 602480 | Housing, NH | 8P | NHハウジング | LCD Cable 010 |
| * | CB 830390 | LED Holder | | L E D ホルダー | 020 |
| | ED 330066 | Bind Head Screw | M3 x 6 | バインド小ネジ | Black 010 |
| | ED 326066 | Bind Head Screw | M2.6 x 6 | // | Black 010 |
| | | | | | |
| | | <i>P.C. Board, PLL</i> | | <i>P L L シート</i> | |
| | i G 001390 | IC | NJM4558DV | I C | 030 |
| | i G 029000 | IC | HD74LS02P | // | 040 |
| | i G 044000 | IC | HD74LS74P | // | 040 |
| | i G 044200 | IC | HD74LS138P | // | 040 |
| | i G 048300 | IC | HD7416P | // | 030 |
| | i G 049800 | IC | HD74LS32P | // | 030 |
| | i G 050400 | IC | HD74LS367P | // | 040 |
| | i G 050700 | IC | SN74LS374 | // | 060 |
| | i G 050800 | IC | TC40174BP | // | 050 |
| | i G 060100 | IC | HD74LS245P | // | 080 |
| | i G 106100 | IC | M58990P-1 | // | ADC 090 |
| | i G 107200 | IC | TC40H244 | // | 070 |
| | i A 050920 | Transistor | 2SA509 (O,Y) | トランジスタ | 031 |
| | i A 101510 | Transistor | 2SA1015 (O,Y) | // | 031 |
| | i C 181510 | Transistor | 2SC1815 (O,Y) | // | 031 |
| | i C 212000 | Transistor | 2SC2120 (Y) | // | 031 |
| * | i D 119800 | Transistor | 2SD1198 (R) | // | 031 |
| | i F 003450 | Diode | 1SS133 | ダイオード | 010 |

* : New Parts

ランク : Japan only

DX-1

| Ref. No. | Part No. | Description | 品 名 | Remarks | ランク |
|----------|------------|-------------------------------|--------------------|--------------|------------------------------------|
| | i F 005640 | Diode | 0A95 | ダイオード | 010 |
| * | i F 005730 | LED | GL9HD24 | L E D | 020 |
| * | HQ 300360 | Slide Variable Resistor | A10K Ω x 2 | スライドボリューム | VOLUME 040 |
| * | HQ 300370 | Slide Variable Resistor | BH10K Ω x 2 | " | BALANCE 040 |
| * | HQ 300380 | Slide Variable Resistor | B10K Ω | " | PORTAMENTO, DATA ENTRY 030 |
| | HT 770030 | Semi-Variable Resistor | B1K Ω | 半固定ボリューム | 020 |
| | HT 770080 | Semi-Variable Resistor | B50K Ω | " | 020 |
| | Hi 209990 | Solid Resistor | 10M | ソリッド抵抗 | 010 |
| | HU 576510 | Metal Film Resistor | 5.1K Ω | キンピ抵抗 | 020 |
| | HU 577100 | Metal Film Resistor | 10K Ω | " | 020 |
| | HZ 001760 | Metal Film Resistor | 10K Ω | " | 030 |
| | HZ 002940 | Module Resistor | RM8-472 | モジュール抵抗 | 020 |
| | Fi 364220 | Electro Magnetic Interference | 0.022 μ F | エミフィル | 020 |
| | FZ 004110 | SC Ceramic Capacitor | 0.1 μ F 16V | 半導体セラコン | 010 |
| | UK 346100 | BP Electrolytic Capacitor | 1 μ F 25V | BPケミコン | 010 |
| | UK 737330 | BP Electrolytic Capacitor | 33 μ F 16V | " | 020 |
| | UK 147100 | BP Electrolytic Capacitor | 10 μ F 25V | " | 010 |
| | i K 000290 | Photo Conductor | P873-13 070 | フォトカプラー | 070 |
| | GE 300350 | Choke Coil | 68 μ H 010 | チョークコイル | 010 |
| * | KA 906300 | Push Switch | 4 Linked | プッシュスイッチ | BANK, VOLUME OPERATOR 040 |
| * | KA 906310 | Push Switch | 3 Linked | " | FEEDBACK, ALGORITHM 040 |
| * | KA 906330 | Push Switch | 2 Linked | " | DATA ENTRY, MODE, COARSE 030 |
| * | KC 001900 | Relay | RY12W | リレ | 070 |
| * | KC 001770 | Relay | RY5W | " | 070 |
| | LB 500250 | Connector, NH | 5P | NHコネクタ | 010 |
| | LB 602460 | Connector, NH | 7P | " | 010 |
| | LB 602470 | Connector, NH | 10P | " | 020 |
| | LB 603040 | Connector, NH | 9P | " | 030 |
| * | LB 606630 | Flat Cable Connector | 26P | フラットケーブルコネクタ | 050 |
| * | LB 606650 | Flat Cable Connector | 40P | " | 060 |
| * | CB 830390 | LED Holder | | L E D ホルダ | 020 |
| | | | | | |
| | | <i>P.C. Board, PUR Ass'y</i> | | P U R シ ー ト | |
| | i G 048300 | IC | HD7416P | I C | 030 |
| | i G 078600 | IC | HD40H374 | " | 070 |
| | i G 097200 | IC | HD74LS377 | " | 060 |
| * | i G 115600 | IC | HD74247 | " | 050 |
| * | i D 119800 | Transistor | 2SD1198 | トランジスタ | 031 |
| * | i F 005720 | Numerical LED | GL-9D03D | 数 字 L E D | 050 |
| * | i F 005740 | LED | LD-105 | L E D | 020 |
| | FZ 004110 | SC Ceramic Capacitor | 0.1 μ F 16V | 半導体セラコン | 010 |
| | GE 300350 | Choke Coil | 68 μ H | チョークコイル | 010 |
| | LB 500250 | Connector, NH | 5P | NHコネクタ | 010 |
| * | LB 606630 | Flat Cable Connector | 26P | フラットケーブルコネクタ | 050 |
| | | | | | |
| | | <i>P.C. Board, PUL Ass'y</i> | | P U L シ ー ト | |
| | i G 048300 | IC | HD7416P | I C | 030 |
| | i G 050700 | IC | SN74LS374 | " | 060 |
| | i G 078600 | IC | TC40H374P | " | 070 |
| | i G 106600 | IC | M74LS174P | " | 040 |

* : New Parts

ランク : Japan only

| Ref. No. | Part No. | Description | 品 名 | Remarks | ランク |
|----------|-----------|----------------------------------|-----------------|----------------|----------|
| * | iG 115600 | IC | 74247 | I C | 050 |
| * | iD 119800 | Transistor | 2SD1198 R | トランジスタ | 031 |
| | iF 005720 | Numeral LED | GL-9D03D | 数 字 L E D | 050 |
| | iF 005740 | LED | LD-105 | L E D | 020 |
| | FD 004110 | SC Ceramic Capacitor | 0.1 μ F 16V | 半 導 体 セ ラ コ ン | 010 |
| | GE 300350 | Choke Coil | 68 μ H | チョークコイル | 010 |
| | LB 500250 | Connector, NH | 5P | N H コ ネ ク タ | 010 |
| * | LB 606630 | Flat Cable Connector | 26P | フラットケーブルコネクタ | 050 |
| | | | | | |
| | | <i>P.C. Board, DCD/AC Ass'y</i> | | DCD, ACシート | |
| * | Fi 383100 | Ceramic Capacitor | 1000P | セ ラ コ ン | 020 |
| | FR 164220 | Spark-killer Capacitor | 0.022 | スパークキラーコン | 040 |
| * | FZ 005110 | MP Capacitor | 0.047 | メタライズドプラスチックコン | 030 |
| * | FT 424470 | MP Capacitor | 0.047 | 〃 | 030 |
| | Fi 364220 | Electro Magnetic Interference | 0.022 | エ ミ フ ィ ル | 020 |
| * | GE 901370 | Coil | SC-05-100 | コ イ ル | 050 |
| * | GE 901380 | Coil | GP-5 | コ イ ル | 070 |
| | KB 000380 | Fuse | 4A 250V | ヒ ュ ー ズ | J 010 |
| | KB 002640 | Fuse | 4A 250V | 〃 | U. C |
| | KB 002620 | Fuse | 1.6A 250V | 〃 | G |
| | LB 300730 | Connector, NH | 3P | N H コ ネ ク タ | 010 |
| | LB 500250 | Connector, NH | 5P | 〃 | 010 |
| | LB 602460 | Connector, NH | 7P | 〃 | 010 |
| | LB 603970 | Connector | 6P | モレックスコネクタ | 020 |
| | LB 603980 | Connector | 7P | 〃 | 020 |
| | LB 603990 | Connector | 8P | 〃 | 030 |
| | LB 301470 | Connector, LB | 3P | L B コ ネ ク タ | 020 |
| | LB 301480 | Connector, LB | 3P | 〃 | 020 |
| | | | | | |
| | | <i>P.C. Board, JK/MIDI Ass'y</i> | | JK/MIDI シート | |
| | FS 685100 | SC Ceramic Capacitor | 0.1 μ F 25V | 半 導 体 セ ラ コ ン | 010 |
| | LB 602460 | Connector, NH | 7P | N H コ ネ ク タ | 010 |
| | LB 602490 | Connector, NH | 8P | 〃 | 010 |
| | LB 500520 | DIN Socket | 5P | D I N ソ ケ ッ ト | 031 |
| | LB 202330 | Jack | | ジャックモノラル | 020 |
| * | LB 301780 | Head Phone | | ヘッドホン | 031 |
| | | | | | |
| | | <i>P.C. Board, MK1 Ass'y</i> | | M K 1 シ ー ト | |
| | NB 816150 | Switch Unit | 6 Notes | スイッチユニット | 060 |
| | NB 816160 | Switch Unit | 3 Notes | 〃 | 050 |
| | iF 000040 | Diode | 1S1555 | ダ イ オ ード | 010 |
| * | LB 606670 | Flat Cable Connector | 34P | フラットケーブルコネクタ | 050 |
| | | | | | |
| | | <i>P.C. Board, MK2 Ass'y</i> | | M K 2 シ ー ト | |
| | NB 816150 | Switch Unit | 6 Notes | スイッチユニット | 060 |
| | iF 000040 | Diode | 1S1555 | ダ イ オ ード | 010 |
| | LB 606670 | Flat Cable Connector | 34P | フラットケーブルコネクタ | 050 |

* : New Parts

ランク : Japan only

| Ref. No. | Part No. | Description | 品 名 | Remarks | ランク |
|----------|-----------|--------------------------------|----------------------|-------------------------|-------------|
| | | <i>P.C. Board, HA Ass'y</i> | | | |
| | iG 027400 | IC | TA7220P | H A シ ー ト | |
| | iA 101510 | Transistor | 2SA1015 (O,Y) | I C | 040 |
| | HS 412050 | Rotary Pot | A10KΩ x 1 | ト ラ ン ジ ス タ | 031 |
| | FS 684100 | SC Ceramic Capacitor | 0.01μF 25V | 回 転 ポ リ ュ ー ム | 030 |
| | FZ 004170 | SC Ceramic Capacitor | 0.1μF 16V | 半 導 体 セ ラ コ ン | 010 |
| | UK 137100 | BP Electrolytic Capacitor | 10μF 16V | 〃 | 010 |
| | UK 137220 | BP Electrolytic Capacitor | 22μF 16V | B P ケ ミ コ ン | 010 |
| | LB 602500 | Connector, NH | 7P | 〃 | 020 |
| | LB 302000 | Jack | S-G4116 | N H コ ネ ク タ | 020 |
| | LB 302010 | Jack | S-G8040 | ジ ャ ッ ク | 030 |
| | | | | 〃 | 020 |
| | | | | | |
| | | <i>P.C. Board, DTCN2 Ass'y</i> | | | |
| | iG 049900 | IC | HD74LS139P | D T C N 2 シ ー ト | |
| | iG 060100 | IC | HD74LS245P | I C | 050 |
| | iG 103200 | IC | HD74LS365 | 〃 | 080 |
| | LB 605350 | Connector Socket | 28P | 〃 | 030 |
| | LB 300750 | Connector, NH | 3P | コ ネ ク タ ー ソ ケ ッ ト | 07* |
| | LB 606530 | Flat Cable Connector | 50P | N H コ ネ ク タ | 010 |
| | | | | フ ラ ッ ト ケ ー ブ ル コ ネ ク タ | 060 |
| | | | | | |
| | | <i>PC-1,2,3 Unit</i> | | | |
| | iG 001390 | IC | NJM4558DV | PC-1,2,3 ユ ニ ッ ト | |
| | iG 001770 | IC | TC4051BP | I C | 030 |
| | iG 043800 | IC | 7417 | 〃 | 050 |
| | iT 439000 | PC Sensor | PSA439 | 〃 | 030 |
| | FZ 004110 | SC Ceramic Capacitor | 0.1μF 16V | P C セ ン サ ー | 080 |
| | iF 003450 | Diode | 1SS133 | 半 導 体 セ ラ コ ン | 010 |
| | LB 500270 | Connector, NH | 5P | ダ イ オ ー ド | 010 |
| | LB 602500 | Connector, NH | 7P | N H コ ネ ク タ | 010 |
| | LB 602510 | Connector, NH | 10P | 〃 | 020 |
| | LB 603020 | Connector, NH | 8P | 〃 | 020 |
| | LB 905260 | Flat Cable Connector | 26P | 〃 | 020 |
| | | | | フ ラ ッ ト ケ ー ブ ル コ ネ ク タ | 060 |
| | | | | | |
| | | <i>Power Supply Unit</i> | | | |
| | XX 802810 | P.C. Board Assembly | | 電 源 ユ ニ ッ ト | |
| | XX 802820 | P.C. Board Assembly | | プ リ ン ト 基 板 Ass'y | J,U,C ユ タ カ |
| | T1 | XX 802830 | Inverter Transformer | 〃 | G |
| | L1 | XX 802840 | Choke Coil | イ ン バ ー タ ト ラ ン ス | 〃 |
| | L2 | XX 802850 | Choke Coil | チ ョ ー ク コ イ ル | 東 大 無 線 |
| | L3 | XX 802860 | Choke Coil | 〃 | 田 村 精 工 |
| | D1 | i X 800610 | Diode Bridge | 〃 | ユ タ カ |
| | D2,4,18 | i X 550050 | Diode | ダ イ オ ー ド ブ リ ッ ジ | 新 電 元 |
| | D3 | i X 000250 | Diode | ダ イ オ ー ド | N E C |
| | D5 | i F 001700 | Zener Diode | 〃 | 〃 |
| | D6,7 | i X 000270 | Diode | ツ ェ ナ ー ダ イ オ ー ド | 〃 |
| | D8-11 | i X 800620 | Diode | ダ イ オ ー ド | 〃 |
| | D12 | i X 800630 | Diode | 〃 | 日 立 |
| | D13 | i X 800640 | Diode | 〃 | 富 士 電 気 |
| | D14-17 | i X 550260 | Diode | 〃 | 〃 |
| | | | | 〃 | オ リ ジ ン |

* : New Parts

ランク : Japan only

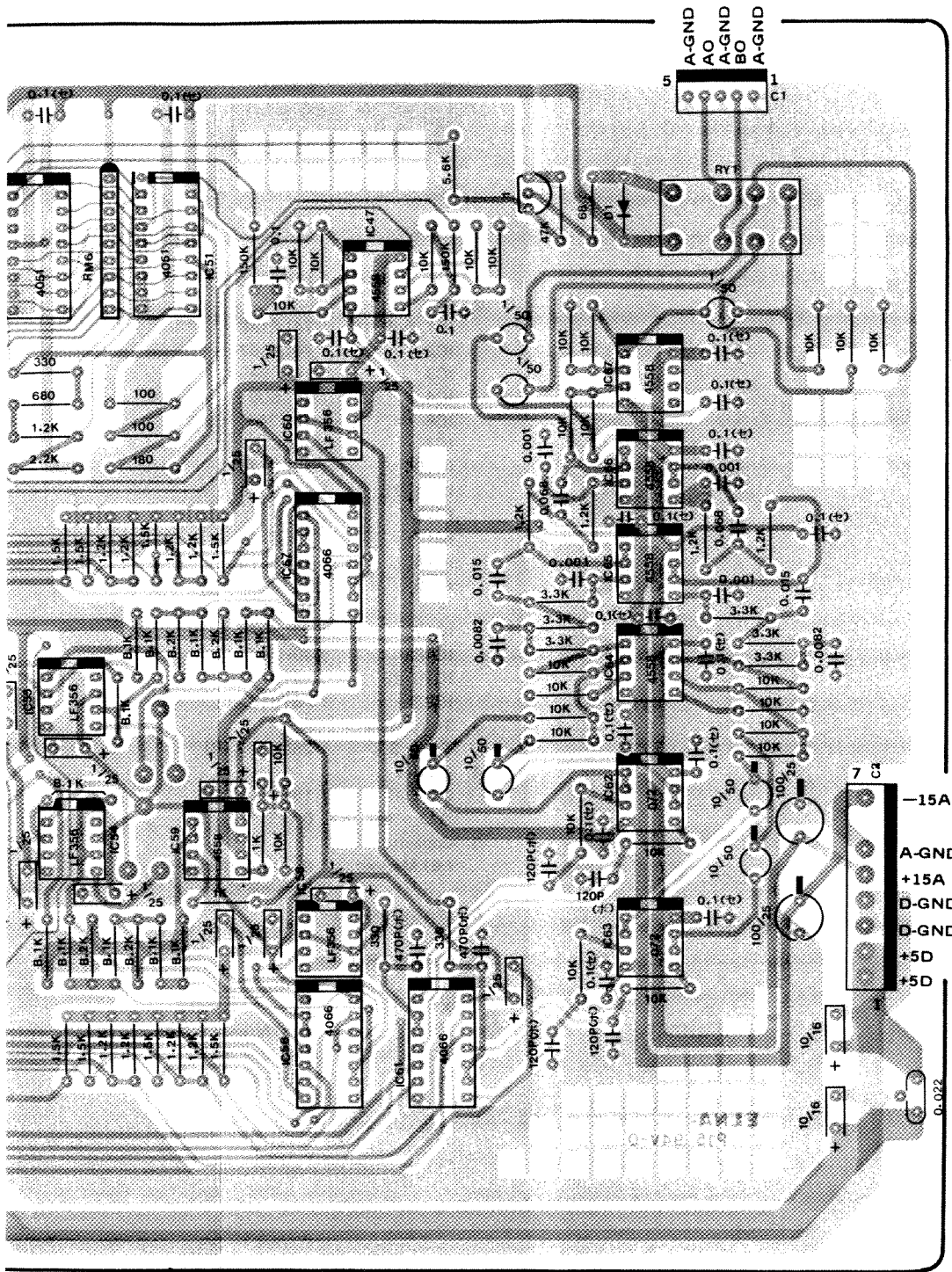
| Ref. No. | Part No. | Description | 品名 | Remarks | ランク | |
|--------------------|------------|----------------------------|---------------|-------------|--------|-----|
| D19 | i F 003440 | Zener Diode | RD6.2EB-3 | ツェナーダイオード | NEC | 010 |
| D20 | i F 001670 | Zener Diode | RD6.8EB-2 | 〃 | 〃 | 010 |
| D21 | i X 800650 | Zener Diode | RD2.7EB-3 | 〃 | 〃 | |
| Q1 | i X 800670 | Transistor | 2SA1152 | トランジスタ | 〃 | |
| Q2 | i X 800680 | Transistor | 2SC2721 | 〃 | 〃 | |
| Q3,4 | i X 800690 | FET | 2SK319 | F E T | 日立 | |
| Q5 | i X 800660 | Transistor | 2SA1010 | トランジスタ | NEC | |
| Q6 | i X 800680 | Transistor | 2SC2721 | 〃 | 〃 | |
| Q7 | i X 550410 | Transistor | 2SC2719 | 〃 | 〃 | 031 |
| IC1 | i X 800700 | IC | YD-020 | I C | ユタカ | |
| IC2,4 | i G 033250 | IC | μPC7812H | 〃 | NEC | 050 |
| IC3,5 | i G 038050 | IC | μPC7912 | 〃 | 〃 | 070 |
| PC1,2 | i X 800710 | Photo Conductor | PC-511 | フォトカプラ | シャープ | |
| CR1 | i X 800720 | Triack | AC08DGM | イライアック | NEC | |
| CR2 | i X 800730 | Thyristor | 8P2M | サイリスタ | 〃 | |
| RV1 | HX 800210 | Trim Pot. 300Ω | PN822H301V | 半固定VR,300Ω | 〃 | |
| C3 | FR 155220 | Metallized Paper Cap. | 250V 0.22μF | M P コ ン | 松下 | 050 |
| C4,37 | FT 175100 | Polypropylene Film Cap. | 100V 0.1μF | ポリプロコン | マルコン | 030 |
| C5,6 | UJ 157100 | Electrolytic Cap. | 35V 10μF | ケミコン | 〃 | 010 |
| C7,8 | FX 800050 | Electrolytic Cap. 200V 470 | CEFTW-E-2D471 | ケミコン200V470 | 〃 | |
| C9 | FX 800040 | Electrolytic Cap. 400V 220 | NM400VNSN220 | 〃 400V220 | 日ケミ | 030 |
| C11,12 18-21 | FT 913100 | Metallized Paper Cap. | 1000PF | M P コ ン | マルコン | |
| C15,16 | UJ 157100 | Electrolytic Cap. | 35V 10μF | ケミコン | 〃 | |
| C17 | UJ 457220 | Electrolytic Cap. | 35V 22μF | 〃 | 〃 | |
| C22,23 | FT 953220 | Metallized Paper Cap. | 2200PF | M P コ ン | 〃 | 030 |
| C24-27,36 | U i 949100 | Electrolytic Cap. | 25V 1000μF | ケミコン | 〃 | |
| C28 | U i 939220 | Electrolytic Cap. | 16V 2200μF | 〃 | 〃 | |
| C29-31 | UW 929470 | Electrolytic Cap. | 10V 4700μF | 〃 | 〃 | |
| C32-35 | UJ 448330 | Electrolytic Cap. | 25V 330μF | 〃 | 〃 | 020 |
| R1 | HX 800230 | Metal Film Resistor | 1/2W 680KΩ | 金属皮膜抵抗 | フィリップス | |
| R2 | HM 574100 | Cement Molded Resistor | 10W 10Ω | セメント抵抗 | 帝通 | 020 |
| R3 | HM 652470 | Cement Molded Resistor | 5W 0.47Ω | 〃 | 〃 | 020 |
| R4,40 46-48 | HU 576100 | Metal Film Resistor | 1KΩ | 金属皮膜抵抗 | タイセイ | 020 |
| R5 | HU 577220 | Metal Film Resistor | 22KΩ | 〃 | 〃 | 020 |
| R6,8 | HU 576560 | Metal Film Resistor | 5.6KΩ | 〃 | 〃 | 020 |
| R7 | HU 577100 | Metal Film Resistor | 10KΩ | 〃 | 〃 | 020 |
| R9 | HL 325220 | Metal Film Resistor | 2W 220Ω | 〃 | 松下 | 010 |
| R10 | HL 316100 | Metal Film Resistor | 1W 1KΩ | 〃 | 〃 | 010 |
| R11-13 | HX 800250 | Metal Film Resistor | 5W 15KΩ | 〃 | 〃 | |
| R14-17 25,41,45 | HU 574100 | Metal Film Resistor | 1/4W 10Ω | 〃 | タイセイ | 020 |
| R18,19 | HL 325100 | Metal Oxided Film Resistor | 2W 100Ω | 酸化金皮膜抵抗 | 松下 | 010 |
| R20 | HX 800240 | Metal Film Resistor | 2W 0.22Ω | 金属皮膜抵抗 | 〃 | |
| R21 | HU 577270 | Metal Film Resistor | 1/4W 27KΩ | 〃 | タイセイ | 020 |
| R22 | HU 576470 | Metal Film Resistor | 1/4W 4.7KΩ | 〃 | 〃 | 020 |
| R23,24 | HU 577470 | Metal Film Resistor | 1/4W 47KΩ | 〃 | 〃 | 020 |
| R26-29 | HX 800260 | Metal Film Resistor | 1/2W 56Ω | 〃 | フィリップス | |
| R30 | HU 474100 | Metal Film Resistor | 1/2W 10Ω | 〃 | 〃 | |
| R31 | HU 474220 | Metal Film Resistor | 1/2W 22Ω | 〃 | 〃 | |
| R32-35 | HU 576220 | Metal Film Resistor | 1/4W 2.2KΩ | 〃 | タイセイ | 020 |
| R42 | HU 575110 | Metal Film Resistor | 1/4W 110Ω | 〃 | 〃 | 020 |
| R43 | HU 574390 | Metal Film Resistor | 1/4W 39Ω | 〃 | 〃 | |
| R44 | HZ 002960 | Cement Molded Resistor | 5W | セメント抵抗 | 帝通 | 020 |

* : New Parts

ランク : Japan only



TG CIRCUIT BOARD & WIRING



Note)

1. Circuit Board : LC91110
2. Transistor
Tr1 : 2SC1815 (O,Y)
3. IC's
IC1, 2 : 74LS244
IC3, 23 : 74LS32
IC4 : 74LS123
IC5 : 74LS02
IC6, 7, 12, 13 : 74LS670
IC9, 15 : M5M5118P
IC8, 14 : MBM2732A - 30Z (IN00620)
IC10, 16 : HD68B09P
IC11, 17 : 74LS138
IC18, 20 : YM2129
IC19, 21, 34, 44 : iG07950 (8P DIL)
IC22 : YM5206
IC24 ~ 26, 35 ~ 37 : 74LS85
IC27 ~ 29, 38 ~ 40 : 74LS399
IC30 ~ 32, 41, 42 : 74LS174
IC33, 43 : YM2128
IC45 : 74LS377
IC46 : 74LS393
IC47, 59, 65 ~ 67 : NJM4558DV
IC48, 49 : HD7417
IC50, 51 : TC4051BP
IC52, 53 : BA9221 (20P)
IC54, 55, 58, 60 : LF356 (8P DIL)
IC56, 57, 61 : TC4066BP
IC62, 63, 64 : TL072
4. Diode
D1 : 1SS133
5. Capacitors
△ Marked : Tantalum Cap.
(♣) Marked : Ceramic Cap.
(♣) Marked : Polypropylene Cap.
0.1(♣) Marked : Semi-Conductive Ceramic Cap.
6. Resistors
(B) Marked : Metal Film Resistor 0.1%
RM6 : Resistor Module RM8-103
7. Relay
RY1 : RY5W
8. F1 : Electro Magnetic Interference 0.022

C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | A-GND | RE S | PLL-A-GND (C3-7) |
| 2 | BO | S RE | PLL-BIN (C3-8) |
| 3 | A-GND | S BR S | PLL-A-GND (C3-9) |
| 4 | AO | S BR | PLL-AIN (C3-10) |
| 5 | A-GND | - | - |

C2

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------|
| 1 | +5D | OR | DCD-+5D (C15-1) |
| 2 | +5D | OR | DCD-+5D (C15-2) |
| 3 | D-GND | GY | DCD-D-GND (C15-3) |
| 4 | D-GND | GY | DCD-D-GND (C15-4) |
| 5 | +15A | BR | DCD-+15A (C15-5) |
| 6 | A-GND | BL | DCD-A-GND (C15-6) |
| 7 | -15A | YE | DCD- -15A (C15-7) |

PX-1

C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------|
| 1 | D-GND | GY | DCD-D-GND (C22-5) |
| 2 | D-GND | GY | DCD-D-GND (C22-4) |
| 3 | D-GND | GY | DCD-D-GND (C22-3) |
| 4 | +5D | OR | DCD+5D (C22-2) |
| 5 | +5D | OR | DCD+5D (C22-1) |

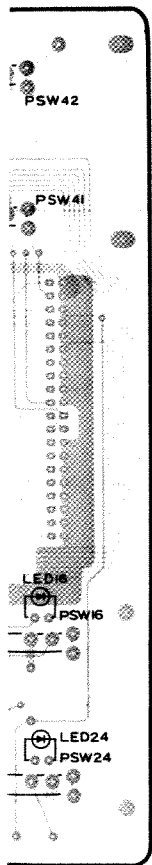
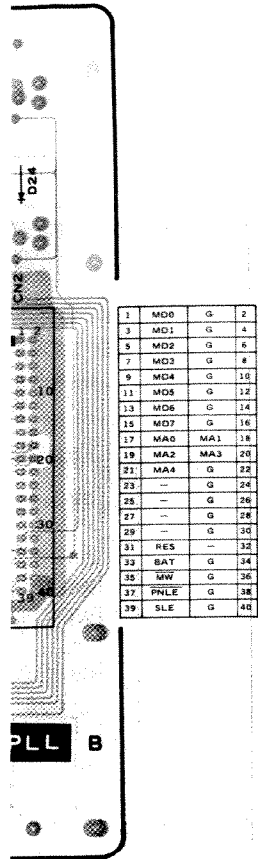
C2

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|--------------------|
| 1 | +5D | OR | DTCN2+5D (C1-1) |
| 2 | - | | |
| 3 | D-GND | GY | DTCN2-D-GND (C1-3) |

Note)

1. Circuit Board : LC91140
2. IC's
 - IC1, 5, 8, 16 : 74LS138
 - IC2 : 74LS367
 - IC3 : 74LS245
 - IC4, 9 : 74LS00
 - IC6 : 40H244
 - IC7 : 4066
 - IC10 : 74LS174
 - IC11, 21 : 74LS374
 - IC12 : 6303
 - IC13 : 74LS74
 - IC14 : 74LS373
 - IC15 : 2732A - 30Z
(IN00630)
 - IC17 : 74LS244
 - IC18 : 40H174
 - IC19, 20 : 7416
 - IC22 : PST518
3. Transistors
 - Tr1 ~ 3 : 2SD1198 (R)
4. Diodes
 - D1 ~ 42 : 1SS133
 - D43 ~ 46 : 0A95
5. Capacitor
 - (ϵ) Marked : Semi-Conductive
Ceramic Cap.
6. Resistor Module
 - RM1, 2 : RM9-472J
7. Variable Resistor
 - VR1 : B10K
8. X1 : Electro Magnetic
Interference 0.022
- X2 : Ceralock 4MHz
- X3 : NEL-D32-43

PLL CIRCUIT BOARD & WIRING



Note)

- Circuit Board : LC91151
- Transistors
 - Tr1, 3, 12 : 2SC1815 (O,Y)
 - Tr2 : 2SA509 (O,Y)
 - Tr4, 6 : 2SA1015 (Y)
 - Tr5 : 2SC2120 (Y)
 - Tr7 ~ 11 : 2SD1198 (R)
- IC's
 - IC1 ~ 12 : NJM4558DV
 - IC13 : M5899OP-1
 - IC14 : 74LS32
 - IC15 : 74LS02
 - IC16 : 74LS245
 - IC17 : 74LS367
 - IC18 : 74LS138
 - IC19 : 40H244
 - IC20 : 74LS74
 - IC21 : 40174BP
 - IC22, 23 : 7416
 - IC24 : 74LS374
- Diodes
 - D1 ~ 44, 53 ~ 57 : 1SS133
 - D45 ~ 52 : 0A95
- F1 : Electro Magnetic Interference 0.022
0.1(♣) Marked : 0.1/16V Semi-Conductive Ceramic Cap.
0.01(♣) Marked : 0.01/50V
- PC1 : Photo Coupler
- Relay
 - RY1, 2 : RZ12
 - RY3, 4 : RY5W
- ⊙ Marked : Solid Resistor
RM1 : Resistor Module RM8-472
- (F) Marked : 1% Metal Film Resistor
(B) Marked : 0.1% Metal Film Resistor
1P Marked : Metal Oxide Film Resistor

C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------|
| 1 | -15A | YE | DCD--15A (C18-7) |
| 2 | -15A | YE | DCD--15A (C18-6) |
| 3 | A-GND | BL | DCD-A-GND (C18-5) |
| 4 | A-GND | BL | DCD-A-GND (C18-4) |
| 5 | A-GND | BL | DCD-A-GND (C18-3) |
| 6 | +15A | BR | DCD+15A (C18-2) |
| 7 | +15A | BR | DCD+15A (C18-1) |

C2

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|----------------------------|
| 1 | PBV | BR | Left Endblock PBV (C2-1) |
| 2 | A-GND | RE | Left Endblock A-GND (C2-2) |
| 3 | PB | OR | Left Endblock PB (C2-3) |
| 4 | ADV | YE | Left Endblock ADV (C2-4) |
| 5 | ADV | GR | Left Endblock ADV (C1-1) |
| 6 | MW | BE | Left Endblock MW (C1-2) |
| 7 | A-GND | VI | Left Endblock A-GND (C1-3) |
| 8 | BC | S GY | HA-BC (C1-7) |
| 9 | A-GND | S GY S | HA-A-GND (C1-6) |
| 10 | AT | S RE | AT-AT (C1-3) |

C3

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-----------------|
| 1 | A-GND | S BR S | JK-A-GND (C3-2) |
| 2 | UOP | S BR | JK-P (C3-1) |
| 3 | A-GND | S RE S | JK-A-GND (C3-4) |
| 4 | UOB | S RE | JK-B (C3-3) |
| 5 | A-GND | S OR S | JK-A-GND (C3-6) |
| 6 | UOA | S OR | JK-A (C3-5) |
| 7 | A-GND | S RE S | TG-A-GND (C1-1) |
| 8 | BIN | S RE | TG-BO (C1-2) |
| 9 | A-GND | S BR S | TG-A-GND (C1-3) |
| 10 | A-IN | S BR | TG-AO (C1-4) |

C4

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------------|
| 1 | BOA3 | S WH | Balancing Output (C1-3) |
| 2 | BOA2 | S RE | Balancing Output (C1-2) |
| 3 | A-GND | S BR S | Balancing Output (C1-1) |
| 4 | A-GND | S YE S | HA-A-GND (C1-4) |
| 5 | PHONE | S YE | HA-HP (C1-5) |

C5

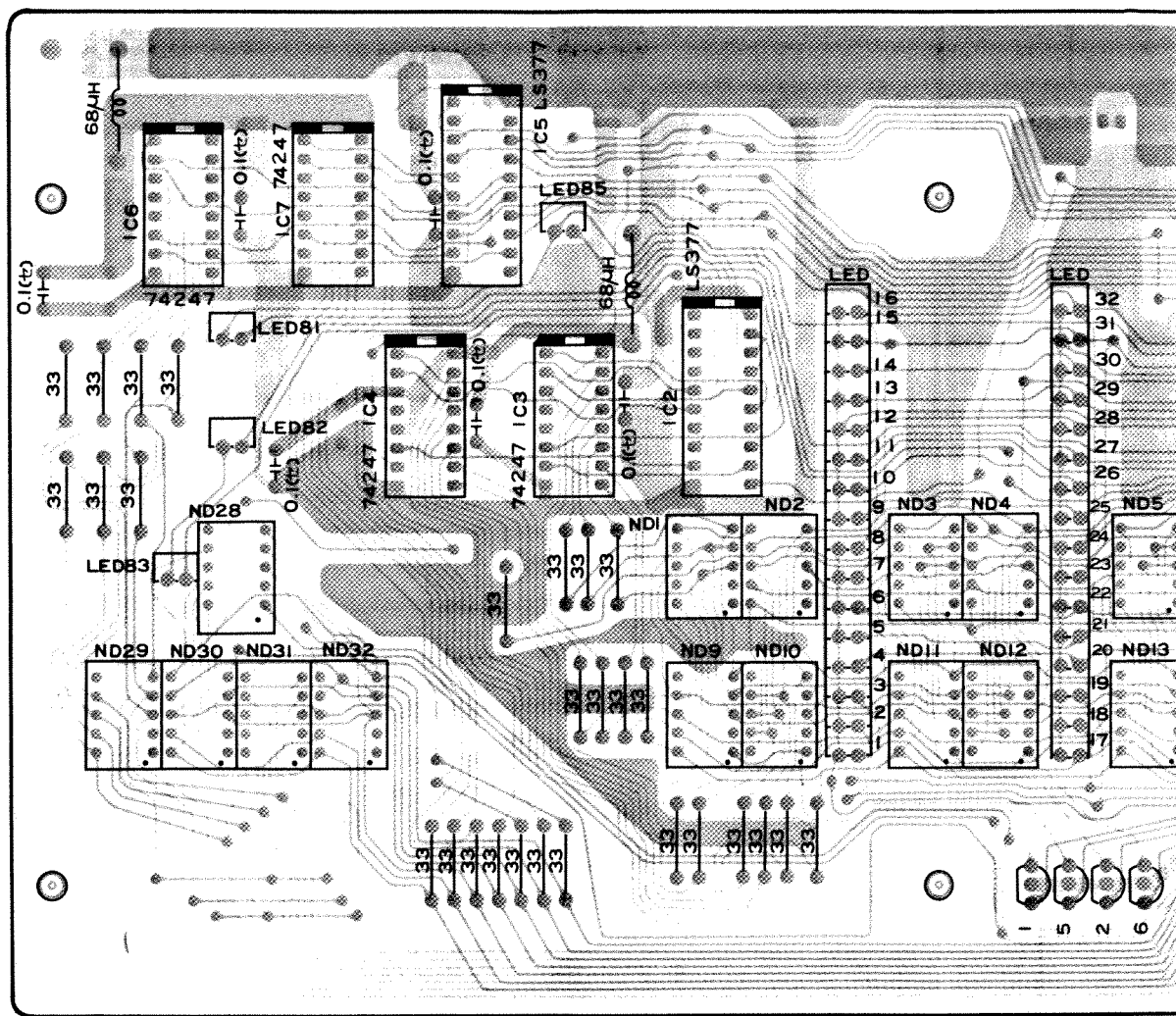
| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------------------|
| 1 | A-GND | --- | --- |
| 2 | BOP3 | S WH | Balancing Output BOP3 (C3-3) |
| 3 | BOP2 | S RE | Balancing Output BOP2 (C3-2) |
| 4 | A-GND | S RE S | Balancing Output A-GND (C3-1) |
| 5 | BOB3 | S WH | Balancing Output BOB3 (C2-3) |
| 6 | BOB2 | S RE | Balancing Output BOB2 (C2-2) |
| 7 | A-GND | S OR S | Balancing Output A-GND (C2-1) |

C6

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-----------------|
| 1 | FCV | BR | JK-FCV (C2-1) |
| 2 | FC | RE | JK-FC (C2-2) |
| 3 | A-GND | OR | JK-A-GND (C3-7) |
| 4 | EXPV | YE | JK-EXPV (C2-3) |
| 5 | EXP | GR | JK-EXP (C2-4) |
| 6 | A-GND | --- | --- |
| 7 | SUSP | S WH | JK-SUSP (C2-5) |
| 8 | PORP | S RE | JK-PORP (C2-6) |
| 9 | D-GND | S YE S | JK-D-GND (C2-7) |

C7

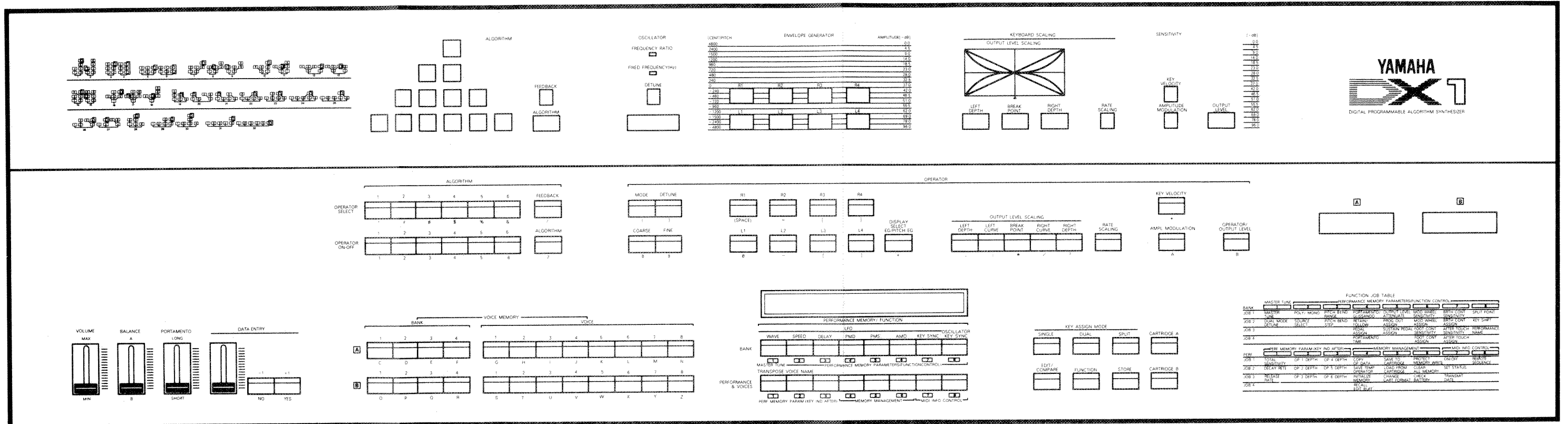
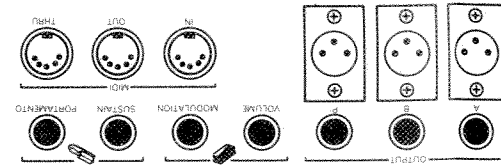
| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------|
| 1 | D-GND | GY | DCD-D-GND (C21-5) |
| 2 | D-GND | GY | DCD-D-GND (C21-4) |
| 3 | D-GND | GY | DCD-D-GND (C21-3) |
| 4 | +5D | OR | DCD+5D (C21-2) |
| 5 | +5D | OR | DCD+5D (C21-1) |



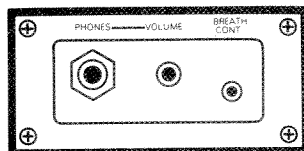
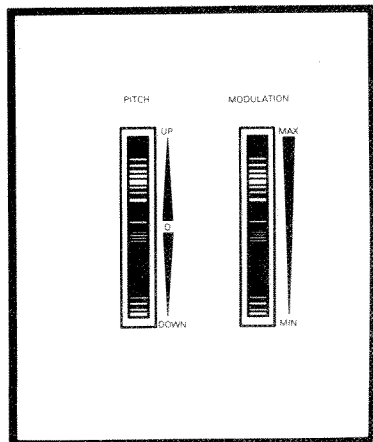
SPECIFICATIONS (仕様)

- ◆ **Keyboards** • 73 Keys E0 ~ E6
 - TOUCH CONTROL: KEY VELOCITY, AFTER TOUCH
- ◆ **Tone Generator** • FM TONE GENERATOR (6 OPERATOR x A-B)
- ◆ **Maximum number of notes** • POLYPHONIC : SINGLE 32/DUAL 16/SPLIT 16 + 16
 - MONOPHONIC: SINGLE 1/DUAL 1/SPLIT 1 + 1
- ◆ **Internal memory** • VOICE MEMORY: 4 BANK x 8 VOICE x A-B
 - PERFORMANCE MEMORY: 8 BANK x 8 PERFORMANCE
- ◆ **Controllers** • VOLUME: VOLUME SLIDER, BALANCE SLIDER, PHONES VOLUME
 - EFFECT CONTROLLER: PORTAMENTO TIME SLIDER, PITCH BEND WHEEL, MODULATION WHEEL
 - DATA ENTRY: DATA ENTRY SLIDER, +/- SW,
 - MEMORY & PARAMETER SELECT: EDIT PARAMETER (ALGORITHM, OPERATOR), VOICE MEMORY, PERFORMANCE MEMORY/FUNCTION, CARTRIDGE A-B
 - KEY ASSIGN MODE: SINGLE, DUAL, SPLIT
 - MODE SELECTOR: EDIT/COMPARE, FUNCTION, STORE
 - OTHER: OPERATOR SELECT, OPERATOR ON/OFF, DISPLAY SELECT (EG/PITCH EG)
- ◆ **Display** • LED GRAPHIC DISPLAY: EDIT PARAMETER = ALGORITHM, OPERATOR
 - LC DISPLAY: EDIT PARAMETER = LF0 etc/FUNCTION PARAMETER
- ◆ **Connections & Interface** • AUDIO OUTPUT: OUTPUT A-B-P (PHONE JACK, XLR TYPE balanced) PHONES (STEREO PHONE JACK 5 ~ 8Ω)
 - CONTROL JACK: MODULATION, VOLUME, SUSTAIN ON/OFF, PORTAMENTO ON/OFF
 - INTERFACE: MIDI IN-OUT-THRU, CARTRIDGE INSERT A-B
- ◆ **Edit Parameters** ◆ ALGORITHM
 - ALGORITHM, FEEDBACK
 - ◆ OPERATOR
 - OSCILLATOR: MODE, DETUNE, COARSE, FINE
 - ENVELOPE GENERATOR: EG (R1 ~ R4, L1 ~ L4), PITCH EG (R1 ~ R4, L1 ~ L4)
 - KEYBOARD SCALING: LEVEL SCALING (LEFT DEPTH, LEFT CURVE, BREAK POINT, RIGHT CURVE, RIGHT DEPTH), RATE SCALING
 - SENSITIVITY: KEY VELOCITY, AMPL. MODULATION
 - OPERATOR OUTPUT LEVEL
 - ◆ LF0
 - WAVE, SPEED, DELAY, PMD, PMS, AMD, KEY SYNC
 - ◆ OTHER
 - OSCILLATOR KEY SYNC, TRANSPOSE, VOICE NAME
- ◆ **Function Parameters** ◆ MASTER TUNE
 - F1: MASTER TUNE
 - ◆ PERFORMANCE MEMORY PARAMETER/FUNCTION CONTROL
 - F1: DUAL MODE DETUNE
 - F2: POLY/MONO, SOURCE SELECT
 - F3: PITCH BEND (RANGE, STEP)
 - F4: PORTAMENTO (PORTAMENTO/GLISSANDO, RETAIN/FOLLOW, PEDAL ASSIGN, TIME)
 - F5: OUTPUT LEVEL ATTENUATE PROG. OUT ASSIGN, SUSTAIN PEDAL ASSIGN
 - F6: MOD. WHEEL (SENSITIVITY, ASSIGN), FOOT CONT. (SENSITIVITY, ASSIGN)
 - F7: BRTH CONT. (SENSITIVITY, ASSIGN), AFTER TOUCH (SENSITIVITY, ASSIGN)
 - F8: SPLIT POINT, KEY SHIFT, PERFORMANCE NAME
 - ◆ PERFORMANCE MEMORY PARAMETER/KEY INDIVIDUAL AFTER TOUCH
 - F9: TOTAL SENSITIVITY, DECAY RATE, RELEASE RATE
 - F10: OP1 DEPTH, OP2 DEPTH, OP3 DEPTH
 - F11: OP4 DEPTH, OP5 DEPTH, OP6 DEPTH
 - ◆ MEMORY MANAGEMENT
 - F12: COPY OP DATA (ENVELOPE DATA, OSCILLATOR DATA), SAVE TEMP OPERATOR, INITIALIZE MEMORY (INITIALIZE VOICE, INITIALIZE PERFORMANCE), RECALL EDIT BUFF
 - F13: SAVE TO CARTRIDGE (ALL VOICE A, ALL VOICE B, ALL PERFORMANCE), LOAD FROM CARTRIDGE (ALL VOICE A, ALL VOICE B, ALL PERFORMANCE), CHANGE CART FORMAT
 - F14: PROTECT MEMORY WRITE, CLEAR ALL MEMORY, CHECK BATTERY
 - ◆ MIDI INFORMATION CONTROL
 - F15: ON/OFF, SET STATUS (BASIC EVENT DATA OUTPUT, OTHER EVENT DATA OUTPUT, SYSTEM EXCLU. COMMUNICATION, OMNI MODE, PROGRAM CHANGE MODE), TRANSMIT DATA (DUMP ALL VOICE IN A, DUMP ALL VOICE IN B, DUMP ALL PERFORMANCE)
 - F16: REMOTE SEQUENCE
- ◆ **Dimensions** • Width: 1255mm
 - Depth: 640mm
 - Height: 225mm
 - Weight: 51 kg
- ◆ **Power Consumption** AC100V, 120V, 220V, 240V 70W
- ◆ **Accessories** • FOOT SW FC-4 x 2
 - FOOT CONTROLLER FC-3A x 2
 - BREATH CONTROLLER BC-1 x 1
 - MUSIC STAND
 - POWER CABLE
 - ROM VOICE MEMORY CARTRIDGE x 4
 - ROM PERFORMANCE MEMORY CARTRIDGE x 1

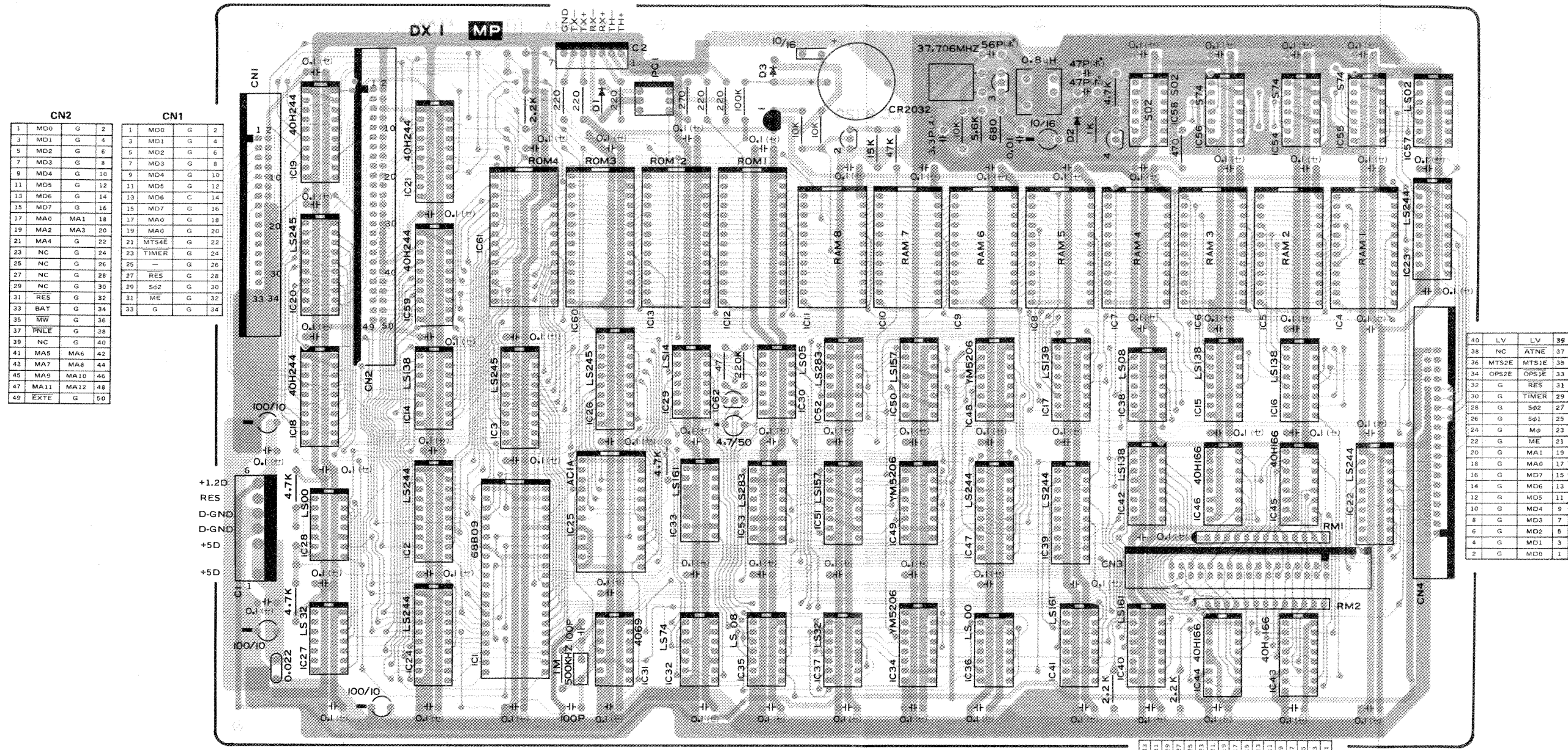
PANEL LAYOUT (パネルレイアウト)



DX-1



MP CIRCUIT BOARD & WIRING



| CN2 | | | |
|-----|------|------|----|
| 1 | MD0 | G | 2 |
| 3 | MD1 | G | 4 |
| 5 | MD2 | G | 6 |
| 7 | MD3 | G | 8 |
| 9 | MD4 | G | 10 |
| 11 | MD5 | G | 12 |
| 13 | MD6 | G | 14 |
| 15 | MD7 | G | 16 |
| 17 | MA0 | MA1 | 18 |
| 19 | MA2 | MA3 | 20 |
| 21 | MA4 | G | 22 |
| 23 | NC | G | 24 |
| 25 | NC | G | 26 |
| 27 | NC | G | 28 |
| 29 | NC | G | 30 |
| 31 | RES | G | 32 |
| 33 | BAT | G | 34 |
| 35 | MW | G | 36 |
| 37 | PNLE | G | 38 |
| 39 | NC | G | 40 |
| 41 | MA5 | MA6 | 42 |
| 43 | MA7 | MA8 | 44 |
| 45 | MA9 | MA10 | 46 |
| 47 | MA11 | MA12 | 48 |
| 49 | EXTE | G | 50 |

| CN1 | | | |
|-----|-------|---|----|
| 1 | MD0 | G | 2 |
| 3 | MD1 | G | 4 |
| 5 | MD2 | G | 6 |
| 7 | MD3 | G | 8 |
| 9 | MD4 | G | 10 |
| 11 | MD5 | G | 12 |
| 13 | MD6 | G | 14 |
| 15 | MD7 | G | 16 |
| 17 | MA0 | G | 18 |
| 19 | MA0 | G | 20 |
| 21 | MTS4E | G | 22 |
| 23 | TIMER | G | 24 |
| 25 | - | G | 26 |
| 27 | RES | G | 28 |
| 29 | S62 | G | 30 |
| 31 | ME | G | 32 |
| 33 | G | G | 34 |

| 40 | LV | LV | 39 |
|----|-------|-------|----|
| 38 | NC | ATNE | 37 |
| 36 | MTS2E | MTS1E | 35 |
| 34 | OPS2E | OPS1E | 33 |
| 32 | G | RES | 31 |
| 30 | G | TIMER | 29 |
| 28 | G | S62 | 27 |
| 26 | G | S61 | 25 |
| 24 | G | ME | 23 |
| 22 | G | ME | 21 |
| 20 | G | MA1 | 19 |
| 18 | G | MA0 | 17 |
| 16 | G | MD7 | 15 |
| 14 | G | MD6 | 13 |
| 12 | G | MD5 | 11 |
| 10 | G | MD4 | 9 |
| 8 | G | MD3 | 7 |
| 6 | G | MD2 | 5 |
| 4 | G | MD1 | 3 |
| 2 | G | MD0 | 1 |

| CN3 | | | |
|-----|------|-----|----|
| 34 | NC | C1 | 31 |
| 32 | OCT1 | C2 | 31 |
| 30 | OCT1 | B1 | 27 |
| 28 | OCT1 | B2 | 27 |
| 26 | OCT1 | A#1 | 23 |
| 24 | OCT1 | A#2 | 23 |
| 22 | OCT1 | A1 | 21 |
| 20 | OCT1 | A2 | 19 |
| 18 | NC | G#1 | 17 |
| 16 | NC | G#2 | 15 |
| 14 | C#2 | G1 | 13 |
| 12 | C#1 | G2 | 11 |
| 10 | D2 | F#1 | 9 |
| 8 | D1 | F#2 | 7 |
| 6 | D#2 | F1 | 5 |
| 4 | D#1 | F2 | 3 |
| 2 | E2 | E1 | 1 |

| C1 | | | |
|---------|----------|------------|-------------------|
| Pin No. | Pin Name | Wire Color | Destination |
| 1 | +5D | OR | DCD-+5D (C13-1) |
| 2 | +5D | OR | DCD-+5D (C13-2) |
| 3 | D-GND | GY | DCD-D-GND (C13-3) |
| 4 | D-GND | GY | DCD-D-GND (C13-4) |
| 5 | RES | - | - |
| 6 | +1.2D | PK | DCD-+1.2D (C13-6) |

| C2 | | | |
|---------|----------|------------|---------------|
| Pin No. | Pin Name | Wire Color | Destination |
| 1 | TH+ | BR | JK-TH+ (C1-6) |
| 2 | TH- | RE | JK-TH- (C1-7) |
| 3 | RX+ | OR | JK-RX+ (C1-2) |
| 4 | RX- | YE | JK-RX- (C1-3) |
| 5 | TX+ | GR | JK-TX+ (C1-4) |
| 6 | TX- | BE | JK-TX- (C1-5) |
| 7 | GND | VI | JK-GND (C1-1) |

- Note)
- Circuit Board : LC91121
 - IC's
 - IC1 : HD68B09P
 - IC2, 22 ~ 24, 39, 47 : 74LS244
 - IC3, 20, 26 : 74LS245
 - IC4 ~ 11 : M5H5118P-15
 - IC14 ~ 16, 42 : 74LS138
 - IC17 : 74LS139
 - IC25 : HC68B50P
 - IC27, 37 : 74LS32
 - IC28, 36 : 74LS00
 - IC29 : 74LS14
 - IC30 : 74LS05
 - IC31 : TC4069UBP
 - IC32 : 74LS74
 - IC33, 40, 41 : 74LS161
 - IC34, 48, 49 : YM5206
 - IC35, 38 : 74LS08
 - IC43 ~ 46 : TC40H166
 - IC50, 51 : 74LS157
 - IC52, 53 : 74LS283
 - IC54 ~ 56 : 74S74
 - IC57 : 74LS02
 - IC58 : 74S02
 - IC18, 19, 21, 59 : 40H244
 - IC62 : PST518
 - Transistors
 - Tr1 : 2SA1015 (O,Y)
 - Tr2 : 2SC1815 (O,Y)
 - Tr3, 4 : 2SC752 (Y)
 - Diodes
 - D3 : 0A95
 - D1, 2 : 1SS133
 - Capacitors
 - (*) Marked : Ceramic Cap.
 - (#) Marked : Polypropylene Cap.
 - (x) Marked : Styrol Cap.
 - (Δ) Marked : Electro Magnetic Interference 0.22
 - Battery
 - Lithium Battery: CR2032
 - Oscillate Coil
 - T1 : 0.8μH
 - Photo Coupler
 - PC1 : PC900
 - Module Resistor
 - RM1, 2 : 10K x 12
 - Vibrator
 - X1 : 37.706 MHz (Crystal)
 - X2 : 500 KHz (Ceralock)

AT CIRCUIT BOARD & WIRING

C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|----------------|
| 1 | D-GND | S RE S | PLL-C2 |
| 2 | - | - | - |
| 3 | AT | S RE | PLL-AT (C2-10) |

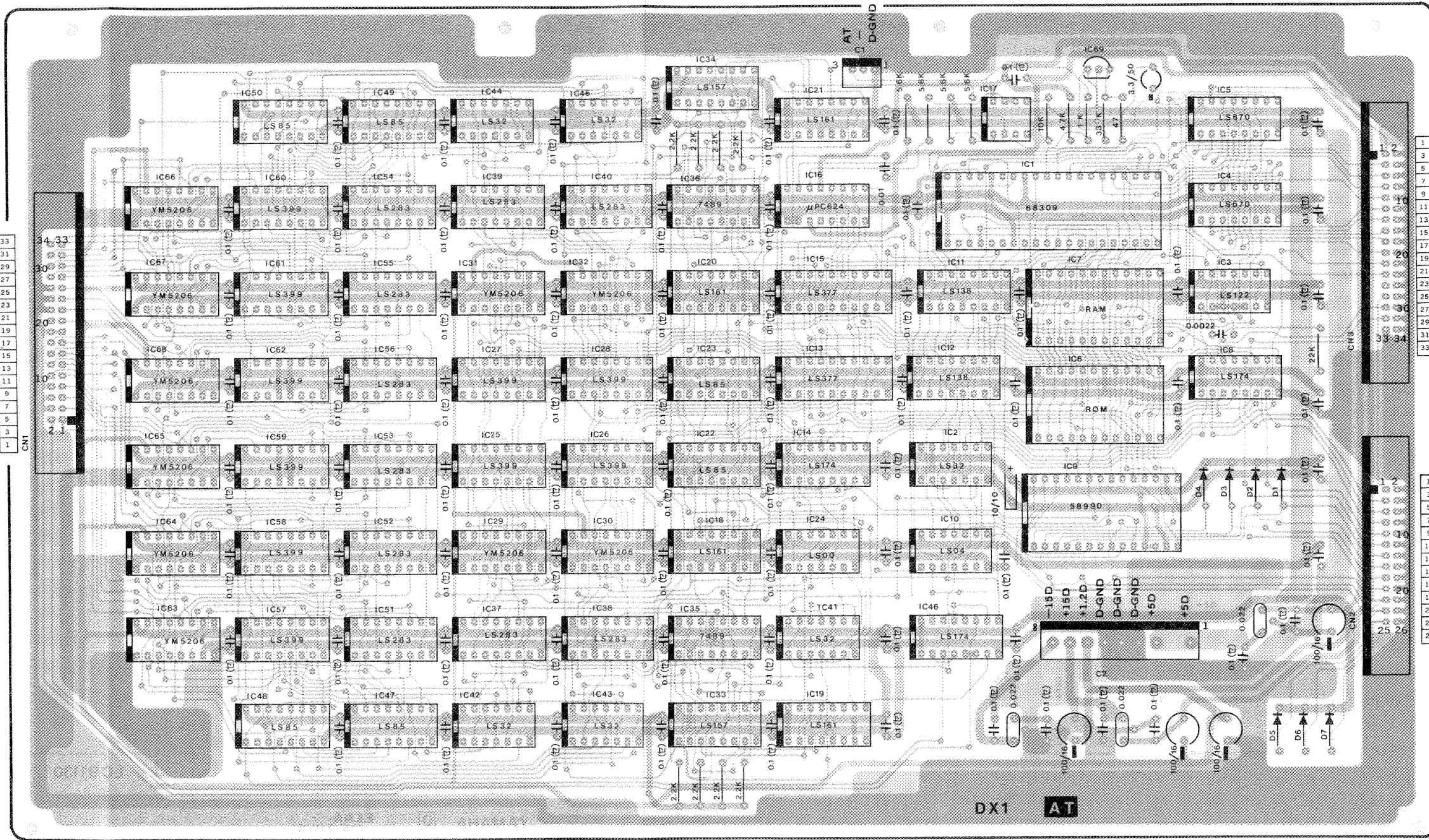
C2

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------|
| 1 | +5D | OR | DCD+5D (C14-1) |
| 2 | +5D | OR | DCD+5D (C14-2) |
| 3 | D-GND | GY | DCD-D-GND (C14-3) |
| 4 | D-GND | GY | DCD-D-GND (C14-4) |
| 5 | D-GND | GY | DCD-D-GND (C14-5) |
| 6 | +1.2D | PK | DCD+1.2D (C14-6) |
| 7 | +15D | RE | DCD+15D (C14-7) |
| 8 | -15D | BE | DCD-15D (C14-8) |

Note)

- Circuit Board : LC91130
- IC's
 - IC1 : 68B09
 - IC2, 41 ~ 45 : 74LS32
 - IC3 : 74LS122
 - IC4, 5 : 74LS670
 - IC6 : 2732 (IN00640)
 - IC7 : M5M5118P
 - IC8, 14, 46 : 74LS174
 - IC9 : M58990P-1
 - IC10, 59 : 74LS04
 - IC11, 12 : 74LS138
 - IC13, 15 : 74LS377
 - IC16 : μ PC624
 - IC17 : NJM4558DV
 - IC18 ~ 21, 57, 60 : 74LS161
 - IC22, 23, 47 ~ 50 : 74LS85
 - IC24 : 74LS00
 - IC25 ~ 28 : 74LS399
 - IC29 ~ 32, 63 ~ 68 : YM5206
 - IC33, 34 : 74LS157
 - IC35, 36 : 7489
 - IC37 ~ 40, 51 ~ 56 : 74LS283
 - IC69 : PST518
 - IC58, 61 : 74LS08
 - IC62 : 74LS21
- Diodes
 - D1 ~ 7 : 1S1555
- Capacitor
 - (*) Marked : Semi-Conductive Ceramic Cap.
- * Marked : Electro Magnetic Interference 0.022

| | | | |
|----|-------|------|----|
| 34 | KFB9 | KFB8 | 33 |
| 32 | KFB10 | KOB7 | 31 |
| 30 | KFB11 | KFB6 | 29 |
| 28 | KFB12 | KFB5 | 27 |
| 26 | G | KFB4 | 25 |
| 24 | G | KFB3 | 23 |
| 22 | G | KFB2 | 21 |
| 20 | BSY | KFB1 | 19 |
| 18 | G | G | 17 |
| 16 | KFA9 | KFA8 | 15 |
| 14 | KFA10 | KFA7 | 13 |
| 12 | KFA10 | KFA6 | 11 |
| 10 | KFA12 | KFA5 | 9 |
| 8 | G | KFA4 | 7 |
| 6 | G | KFA3 | 5 |
| 4 | G | KFA2 | 3 |
| 2 | ASY | KFA1 | 1 |



| | | | |
|----|-------|---|----|
| 1 | MD0 | G | 2 |
| 3 | MD1 | G | 4 |
| 5 | MD2 | G | 6 |
| 7 | MD3 | G | 8 |
| 9 | MD4 | G | 10 |
| 11 | MD5 | G | 14 |
| 13 | MD6 | G | 14 |
| 15 | MD7 | G | 16 |
| 17 | MA0 | G | 18 |
| 19 | MA1 | G | 20 |
| 21 | MTS4E | G | 22 |
| 23 | TIMER | G | 24 |
| 25 | - | G | 26 |
| 27 | RES | G | 28 |
| 29 | S02 | G | 30 |
| 31 | ME | G | 32 |
| 33 | G | G | 34 |

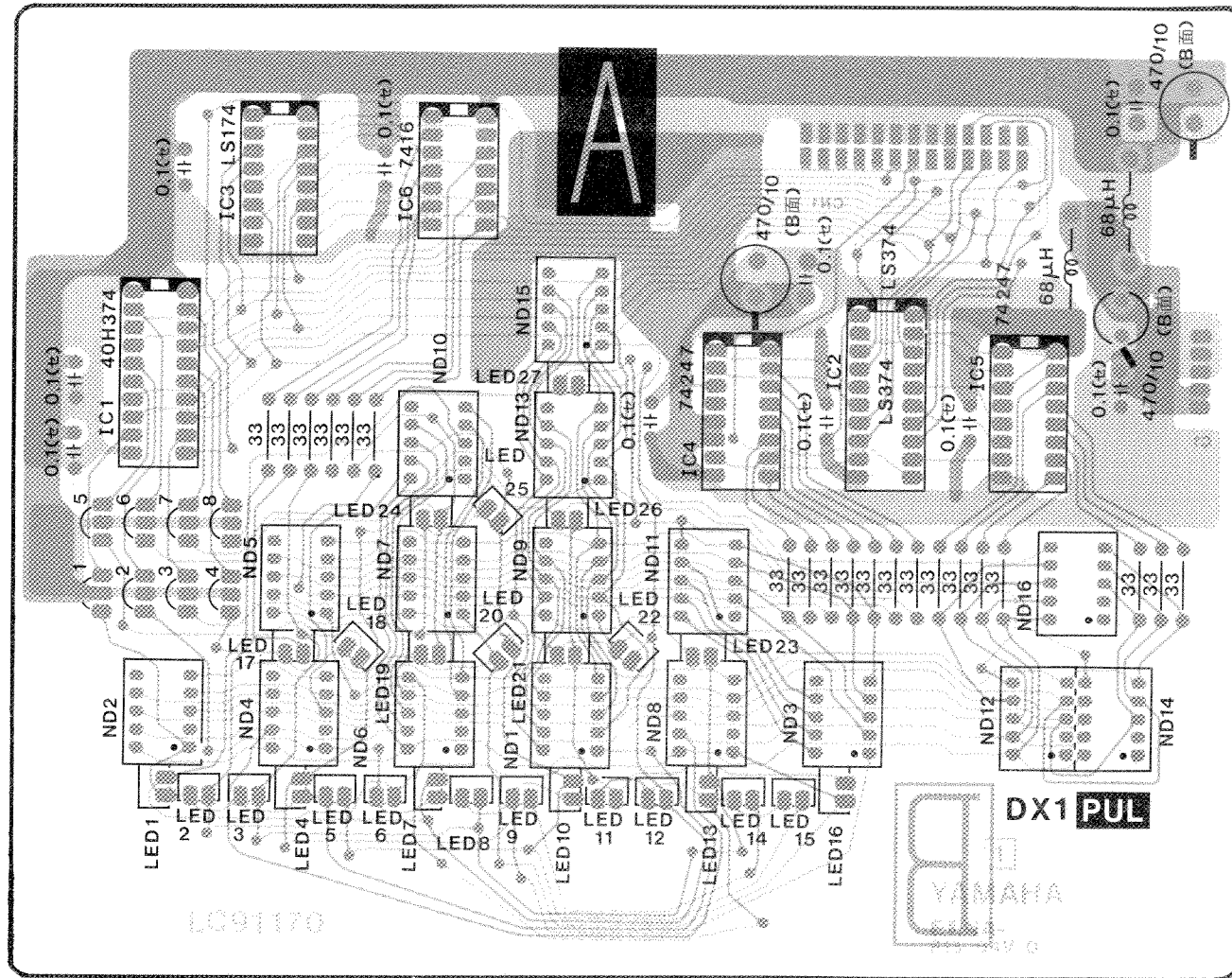
| | | | |
|----|-------|---|----|
| 1 | RES | G | 2 |
| 3 | N0 | G | 4 |
| 5 | N1 | G | 6 |
| 7 | N2 | G | 7 |
| 9 | N3 | G | 10 |
| 11 | N4 | G | 12 |
| 13 | AMPX7 | G | 14 |
| 15 | AMPX6 | G | 16 |
| 17 | AMPX5 | G | 18 |
| 19 | AMPX4 | G | 20 |
| 21 | AMPX3 | G | 22 |
| 23 | AMPX2 | G | 24 |
| 25 | AMPX1 | G | 26 |

DX-1

DX1 AT

PUL ,JK /MIDI CIRCUIT BOARD & WIRING

PUL ● View from the printed pattern side of the circuit board.

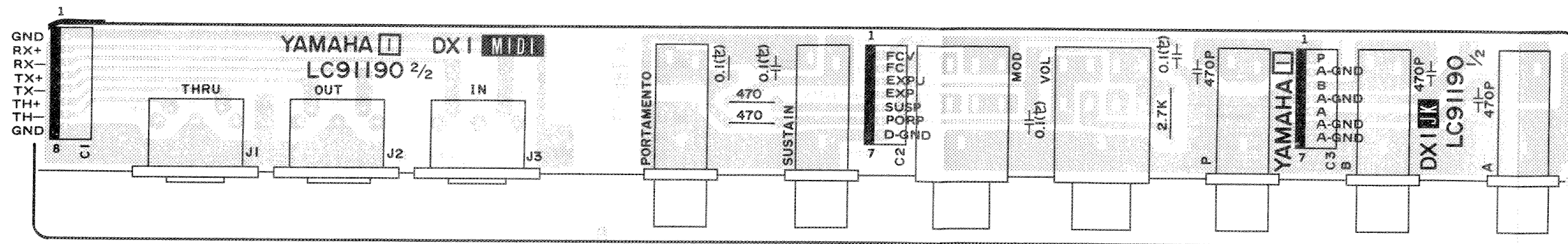


| C1 | | | |
|---------|----------|------------|-------------------|
| Pin No. | Pin Name | Wire Color | Destination |
| 1 | D-GND | GY | DCD-D-GND (C23-5) |
| 2 | D-GND | GY | DCD-D-GND (C23-4) |
| 3 | D-GND | GY | DCD-D-GND (C23-3) |
| 4 | +5D | OR | DCD-+5D (C23-2) |
| 5 | E5D | OR | DCD-+5D (C23-1) |

- Note)
- Circuit Board : LC91170
 - IC's
 - IC1 : 40H374
 - IC2 : 74LS374
 - IC3 : 74LS174
 - IC4, 5 : 74 247
 - IC6 : 7416
 - Transistors
 - Tr1 ~ 8 : 2SD1198 (R)

KEP-NA81220-33 ▲

JK / MIDI



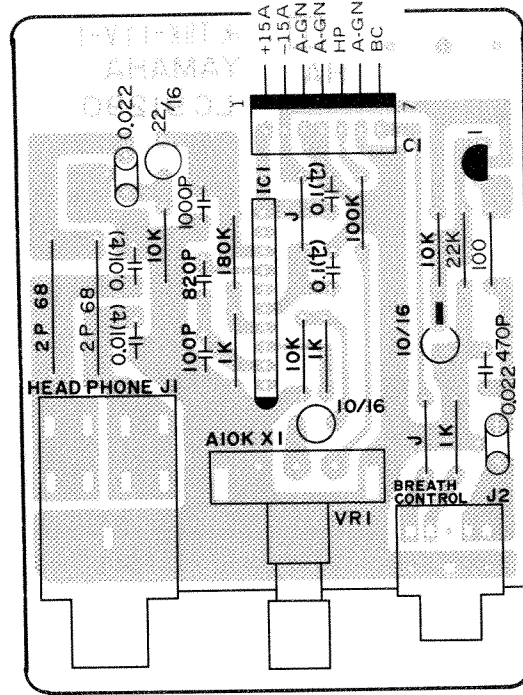
| C1 | | | |
|---------|----------|------------|-------------------|
| Pin No. | Pin Name | Wire Color | Destination |
| 1 | +15A | BR | DCD-+15A (C19-1) |
| 2 | -15A | YE | DCD- -15A (C19-3) |
| 3 | A-GND | BL | DCD-A-GND (C19-2) |
| 4 | A-GND | S YE S | PLL-A-GND (C4-4) |
| 5 | HP | S YE | PLL-PHONE (C4-5) |
| 6 | A-GND | S GY S | PLL-A-GND (C2-9) |
| 7 | BC | S GY | PLL-BC (C2-8) |

- Note)
- Circuit Board : LC91190
 - Capacitor
 - 0.1(±) Marked : Semi-Conductive Ceramic Cap.

KEP-NA81222-35 ▲

HA,DCD/AC CIRCUIT BOARD & WIRING

HA



C11

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------------------------|
| 1 | +15D | RE | Power Supply Unit Ass'y. +15D (C1-1) |
| 2 | D-GND | - | - |
| 3 | -15D | BE | Power Supply Unit Ass'y. -15D (C1-3) |
| 4 | +15A | BR | Power Supply Unit Ass'y. +15A (C1-4) |
| 5 | A-GND | BL | Power Supply Unit Ass'y. A-GND (C1-5) |
| 6 | -15A | YE | Power Supply Unit Ass'y. -15A (C1-6) |

C20

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------|
| 1 | +5D | - | TEST POINT |
| 2 | D-GND | - | TEST POINT |
| 3 | +15A | - | TEST POINT |
| 4 | A-GND | - | TEST POINT |
| 5 | -15A | - | TEST POINT |

C12

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------------------------|
| 1 | +5D | OR | Power Supply Unit Ass'y. +5D (C2-1) |
| 2 | D-GND | GY | Power Supply Unit Ass'y. D-GND (C2-2) |
| 3 | +5D | OR | Power Supply Unit Ass'y. +5D (C2-3) |
| 4 | D-GND | GY | Power Supply Unit Ass'y. D-GND (C2-4) |
| 5 | S | - | - |
| 6 | +1.2D | PK | Power Supply Unit Ass'y. 1.2D (C2-5) |
| 7 | D-GND | - | - |

C21

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | +5D | OR | PLL+5D (C7-5) |
| 2 | +5D | OR | PLL+5D (C7-4) |
| 3 | D-GND | GY | PLL-D-GND (C7-3) |
| 4 | D-GND | GY | PLL-D-GND (C7-2) |
| 5 | D-GND | GY | PLL-D-GND (C7-1) |

C13

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-----------------|
| 1 | +5D | OR | MP+5D (C1-1) |
| 2 | +5D | OR | MP+5D (C1-2) |
| 3 | D-GND | GY | MP-D-GND (C1-3) |
| 4 | D-GND | GY | MP-D-GND (C1-4) |
| 5 | S | - | - |
| 6 | +1.2D | PK | MP+1.2D (C1-6) |

C22

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | +5D | OR | PLR+5D (C1-5) |
| 2 | +5D | OR | PLR+5D (C1-4) |
| 3 | D-GND | GY | PLR-D-GND (C1-3) |
| 4 | D-GND | GY | PLR-D-GND (C1-2) |
| 5 | D-GND | GY | PLR-D-GND (C1-1) |

C14

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-----------------|
| 1 | +5D | OR | AT+5D (C2-1) |
| 2 | +5D | OR | AT+5D (C2-2) |
| 3 | D-GND | GY | AT-D-GND (C2-3) |
| 4 | D-GND | GY | AT-D-GND (C2-4) |
| 5 | D-GND | GY | AT-D-GND (C2-5) |
| 6 | +1.2D | PK | AT+1.2D (C2-6) |
| 7 | +15D | RE | AT+15D (C2-7) |
| 8 | -15D | BE | AT-15D (C2-8) |

C23

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | +5D | OR | PUL+5D (C1-5) |
| 2 | +5D | OR | PUL+5D (C1-4) |
| 3 | D-GND | GY | PUL-D-GND (C1-3) |
| 4 | D-GND | GY | PUL-D-GND (C1-2) |
| 5 | D-GND | GY | PUL-D-GND (C1-1) |

C15

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-----------------|
| 1 | +5D | OR | TG+5D (C2-1) |
| 2 | +5D | OR | TG+5D (C2-2) |
| 3 | D-GND | GY | TG-D-GND (C2-3) |
| 4 | D-GND | GY | TG-D-GND (C2-4) |
| 5 | +15A | BR | TG+15A (C2-5) |
| 6 | A-GND | BL | TG-A-GND (C2-6) |
| 7 | -15A | YE | TG-15A (C2-7) |

C24

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | +5D | OR | PUR+5D (C1-5) |
| 2 | +5D | OR | PUR+5D (C1-4) |
| 3 | D-GND | GY | PUR-D-GND (C1-3) |
| 4 | D-GND | GY | PUR-D-GND (C1-2) |
| 5 | D-GND | GY | PUR-D-GND (C1-1) |

C16

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------|
| 1 | +15D | - | TEST POINT |
| 2 | -15D | - | TEST POINT |
| 3 | -15D | - | TEST POINT |

C25

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | +5D | OR | PC2+5D (C3-5) |
| 2 | D-GND | - | - |
| 3 | D-GND | GY | PC2-D-GND (C3-4) |

C17

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|----------------|
| 1 | +15D | RE | PC2+15D (C1-2) |
| 2 | -15D | - | - |
| 3 | -15D | BE | PC2-15D (C1-6) |

C26

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------------------|
| 1 | VS1 | BR | Power Supply Unit Ass'y. (C4-1) |
| 2 | - | - | - |
| 3 | VS2 | GY | Power Supply Unit Ass'y. (C4-3) |

C18

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | +15A | BR | PLL+15A (C1-7) |
| 2 | +15A | BR | PLL+15A (C1-6) |
| 3 | A-GND | BL | PLL-A-GND (C1-5) |
| 4 | A-GND | BL | PLL-A-GND (C1-4) |
| 5 | A-GND | BL | PLL-A-GND (C1-3) |
| 6 | -15A | YE | PLL-15A (C1-2) |
| 7 | -15A | YE | PLL-15A (C1-1) |

C27

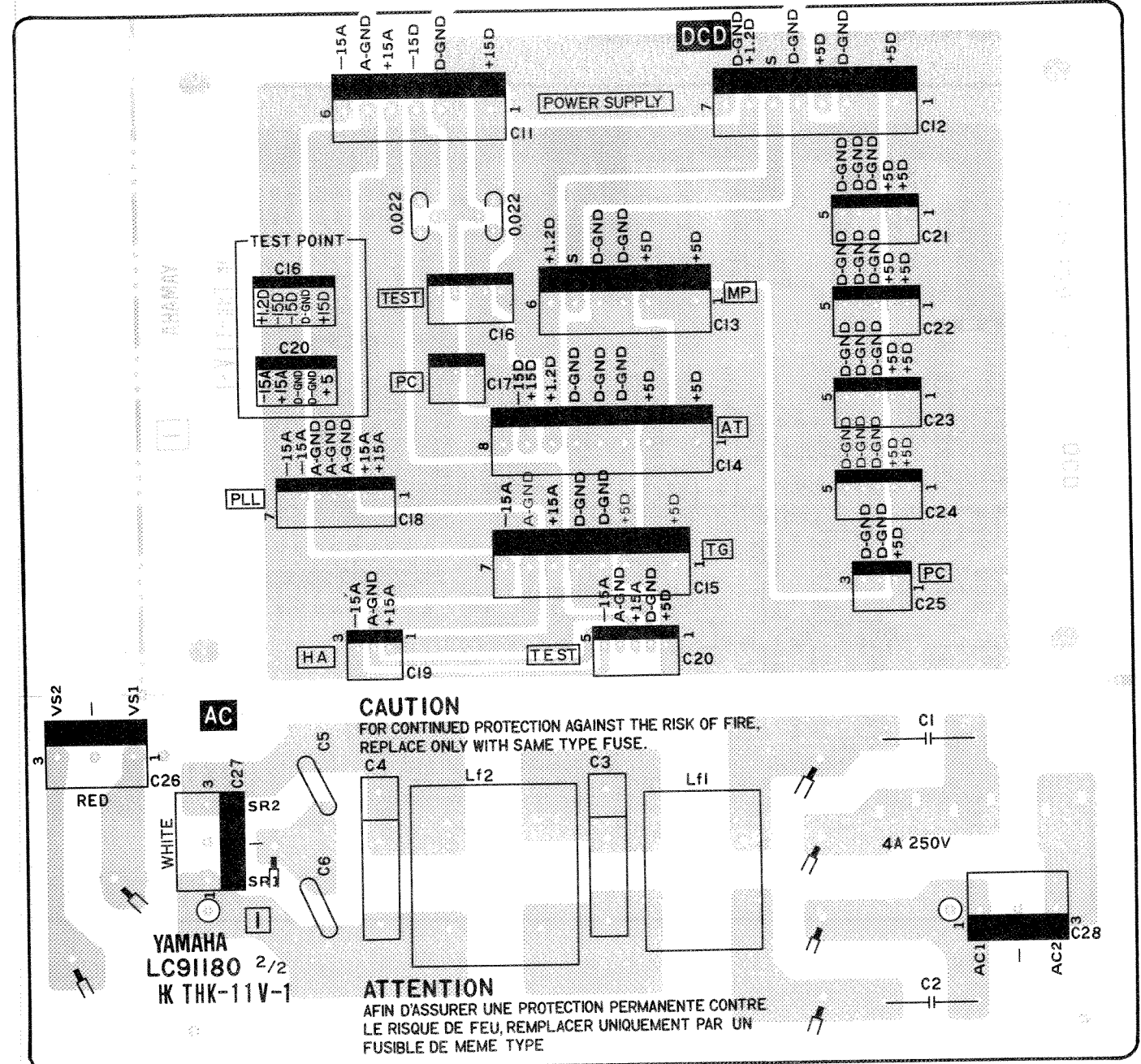
| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------------------|
| 1 | SR1 | BL | Power Supply Unit Ass'y. (C3-1) |
| 2 | - | - | - |
| 3 | SR2 | WH | Power Supply Unit Ass'y. (C3-3) |

C19

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-----------------|
| 1 | +15A | BR | HA+15A (C1-1) |
| 2 | A-GND | BL | HA-A-GND (C1-3) |
| 3 | -15A | YE | HA-15A (C1-2) |

C28

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------|
| 1 | AC1 | BL | AC Inlet |
| 2 | - | - | - |
| 3 | AC2 | WH | AC Inlet |



- Note)
- Circuit Board : LC91291
 - IC
IC1 : TA7220
 - Transistor
Tr1 : 2SA1015 (O,Y)
 - Capacitors
(τ) Marked : Semi-Conductive Ceramic Cap.
(K) Marked : Ceramic Cap. 1000P
 - Resistor
2P68 : Metal Oxide Film Resistor
 - Volume
VR1 : Rotary Volume A10K x 2

KEP-MA81227-3Y¹ Δ

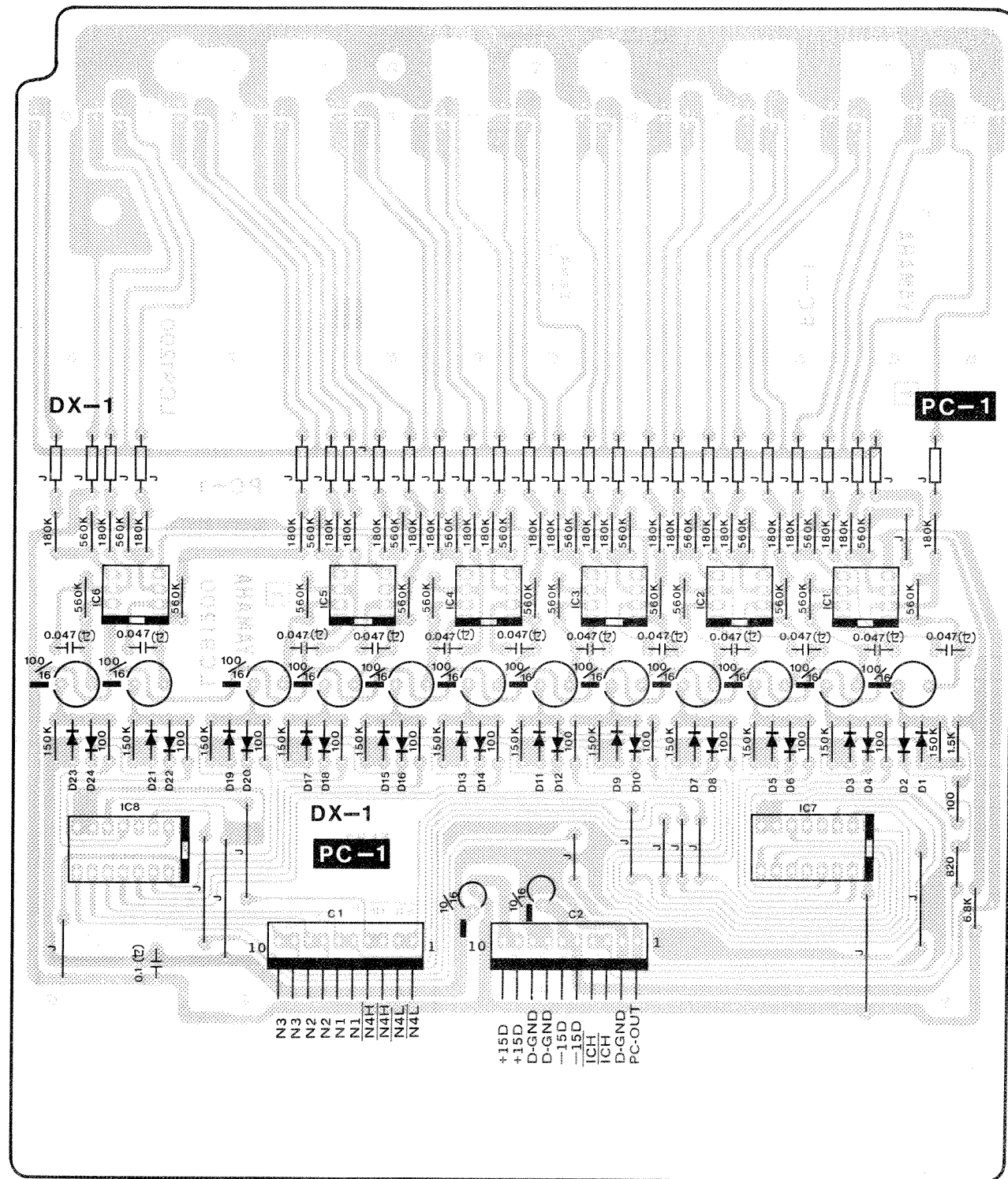
Note)

- Circuit Board : LC91180
- Capacitors
C1, 2 : 0.022 Spark Killer Cap.
C3, 4 : a) European Model
ECQ EW type 0.047
MM Polyester Cap.
b) U.S.A., Canadian,
Japanese Model
ECQU type 0.047
MM Plastic Cap.
C5, 6 : Ceramic Cap. 1000P
- Coils
Lf1 : SC-05-100 Vertical Coil
Lf2 : EE Type GP-5 Core
- * Marked : Electro Magnetic Interference 0.022

| Model | NA Number | Fuse |
|-----------------|-----------|------------|
| Japanese | NA81221 | 4A 250V |
| U.S.A. Canadian | NA81257 | 4A 250V |
| North European | NA81258 | T1.6A 250V |

KEP-NA81221-38 Δ

PC1 CIRCUIT BOARD & WIRING



| PC1 (1) | | | | PC1 (2) | | | | PC1 (3) | | | | PC1(4) | | | | PC1 (5) | | | |
|---------|----------|------------|---------------------|---------|----------|------------|---------------------|---------|----------|------------|---------------------|---------|----------|------------|---------------------|---------|----------|------------|---------------------|
| C1 | | | | C1 | | | | C1 | | | | C1 | | | | C1 | | | |
| Pin No. | Pin Name | Wire Color | Destination | Pin No. | Pin Name | Wire Color | Destination | Pin No. | Pin Name | Wire Color | Destination | Pin No. | Pin Name | Wire Color | Destination | Pin No. | Pin Name | Wire Color | Destination |
| 1 | N4L | YE | PC2-N4L (C2-4) | 1 | N4L | YE | PC1(1)-N4L (C1-2) | 1 | N4L | YE | PC1(2)-N4L (C1-2) | 1 | N4L | YE | PC1(3)-N4L (C1-2) | 1 | N4L | YE | PC1(4)-N4L (C1-2) |
| 2 | N4L | YE | PC1(2)-N4L (C1-1) | 2 | N4L | YE | PC1(3)-N4L (C1-1) | 2 | N4L | YE | PC1(4)-N4L (C1-1) | 2 | N4L | YE | PC1(5)-N4L (C1-1) | 2 | N4L | YE | PC3-N4L (C1-10) |
| 3 | N4H | GR | PC2-N4H (C2-5) | 3 | N4H | GR | PC1(1)-N4H (C1-4) | 3 | N4H | GR | PC1(2)-N4H (C1-4) | 3 | N4H | GR | PC1(3)-N4H (C1-4) | 3 | N4H | GR | PC1(4)-N4H (C1-4) |
| 4 | N4H | GR | PC1(2)-N4H (C1-3) | 4 | N4H | GR | PC1(3)-N4H (C1-3) | 4 | N4H | GR | PC1(4)-N4H (C1-3) | 4 | N4H | GR | PC1(5)-N4H (C1-3) | 4 | N4H | GR | PC1(4)-N4H (C1-4) |
| 5 | N1 | BR | PC2-N1 (C2-1) | 5 | N1 | BR | PC1(1)-N1 (C1-6) | 5 | N1 | BR | PC1(2)-N1 (C1-6) | 5 | N1 | BR | PC1(3)-N1 (C1-6) | 5 | N1 | BR | PC1(4)-N1 (C1-6) |
| 6 | N1 | BR | PC1(2)-N1 (C1-5) | 6 | N1 | BR | PC1(3)-N1 (C1-5) | 6 | N1 | BR | PC1(4)-N1 (C1-5) | 6 | N1 | BR | PC1(5)-N1 (C1-5) | 6 | N1 | BR | PC3-N1 (C1-7) |
| 7 | N2 | RE | PC2-N2 (C2-2) | 7 | N2 | RE | PC1(1)-N2 (C1-8) | 7 | N2 | RE | PC1(2)-N2 (C1-8) | 7 | N2 | RE | PC1(3)-N2 (C1-8) | 7 | N2 | RE | PC1(4)-N2 (C1-8) |
| 8 | N2 | RE | PC1(2)-N2 (C1-7) | 8 | N2 | RE | PC1(3)-N2 (C1-7) | 8 | N2 | RE | PC1(4)-N2 (C1-7) | 8 | N2 | RE | PC1(5)-N2 (C1-7) | 8 | N2 | RE | PC3-N2 (C1-8) |
| 9 | N3 | OR | PC2-N3 (C2-3) | 9 | N3 | OR | PC1(1)-N3 (C1-10) | 9 | N3 | OR | PC1(2)-N3 (C1-10) | 9 | N3 | OR | PC1(3)-N3 (C1-10) | 9 | N3 | OR | PC1(4)-N3 (C1-10) |
| 10 | N3 | OR | PC1(2)-N3 (C1-7) | 10 | N3 | OR | PC1(3)-N3 (C1-9) | 10 | N3 | OR | PC1(4)-N3 (C1-9) | 10 | N3 | OR | PC1(5)-N3 (C1-9) | 10 | N3 | OR | PC3-N3 (C1-9) |
| C2 | | | | C2 | | | | C2 | | | | C2 | | | | C2 | | | |
| 1 | PC-OUT | BR | PC2-OCT1 (C4-1) | 1 | PC-OUT | RE | PC2-OCT2 (C4-3) | 1 | PC-OUT | OR | PC2-OCT3 (C4-5) | 1 | PC-OUT | YE | PC2-OCT4 (C4-7) | 1 | PC-OUT | GR | PC2-OCT5 (C3-1) |
| 2 | D-GND | - | - | 2 | D-GND | - | - | 2 | D-GND | - | - | 2 | D-GND | - | - | 2 | D-GND | - | - |
| 3 | ICH | VI | PC2-ICH (C1-1) | 3 | ICH | VI | PC1(1)-ICH (C2-4) | 3 | ICH | VI | PC1(2)-ICH (C2-4) | 3 | ICH | VI | PC1(3)-ICH (C2-4) | 3 | ICH | VI | PC1(4)-ICH (C2-4) |
| 4 | ICH | VI | PC1(2)-ICH (C2-3) | 4 | ICH | VI | PC1(3)-ICH (C2-3) | 4 | ICH | VI | PC1(4)-ICH (C2-3) | 4 | ICH | VI | PC1(5)-ICH (C2-3) | 4 | ICH | VI | PC3-ICH (C1-6) |
| 5 | -15D | BE | PC2--15D (C1-7) | 5 | -15D | BE | PC1(1)--15D (C2-6) | 5 | -15D | BE | PC1(2)--15D (C2-6) | 5 | -15D | BE | PC1(3)--15D (C2-6) | 5 | -15D | BE | PC1(4)--15D (C2-6) |
| 6 | -15D | BE | PC1(2)--15D (C2-8) | 6 | -15D | BE | PC1(3)--15D (C2-6) | 6 | -15D | BE | PC1(4)--15D (C2-6) | 6 | -15D | BE | PC1(5)--15D (C2-6) | 6 | -15D | BE | PC3--15D (C1-3) |
| 7 | D-GND | GY | PC2-D-GND (C1-5) | 7 | D-GND | GY | PC1(1)-D-GND (C2-8) | 7 | D-GND | GY | PC1(2)-D-GND (C2-8) | 7 | D-GND | GY | PC1(3)-D-GND (C2-8) | 7 | D-GND | GY | PC1(4)-D-GND (C2-8) |
| 8 | D-GND | GY | PC1(2)-D-GND (C2-7) | 8 | D-GND | GY | PC1(3)-D-GND (C2-7) | 8 | D-GND | GY | PC1(4)-D-GND (C2-7) | 8 | D-GND | GY | PC1(5)-D-GND (C2-7) | 8 | D-GND | GY | PC3-D-GND (C1-2) |
| 9 | +15D | RE | PC2+15D (C1-3) | 9 | +15D | RE | PC1(1)+15D (C2-10) | 9 | +15D | RE | PC1(2)+15D (C2-10) | 9 | +15D | RE | PC1(3)+15D (C2-10) | 9 | +15D | RE | PC1(4)+15D (C2-10) |
| 10 | +15D | RE | PC1(2)+15D (C2-9) | 10 | +15D | RE | PC1(3)+15D (C2-9) | 10 | +15D | RE | PC1(4)+15D (C2-9) | 10 | +15D | RE | PC1(5)+15D (C2-9) | 10 | +15D | RE | PC3+15D (C1-1) |

- Note)
- Circuit Board : LC91200
 - IC's
 IC1 ~ 6 : NJM4558DV
 IC7 ~ 8 : TC4051BP
 - Diodes
 D1 ~ 24 : 1SS133
 - Capacitors
 (♣) Marked : Ceramic Cap.
 0.1(♣) Marked : Semi-Conductive Ceramic Cap. 0.1/16V

PC2,PC3 CIRCUIT BOARD & WIRING

PC2

C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------|
| 1 | ICH | V1 | PC1(1)-ICH (C2-3) |
| 2 | +15D | RE | DCD-+15D (C17-1) |
| 3 | +15D | RE | PC1(1)-+15D (C2-9) |
| 4 | D-GND | - | - |
| 5 | D-GND | GY | PC1(1)-D-GND (C2-7) |
| 6 | -15D | BE | DCD-15D (C17-3) |
| 7 | -15D | BE | PC1(1)-15D (C2-5) |

C2

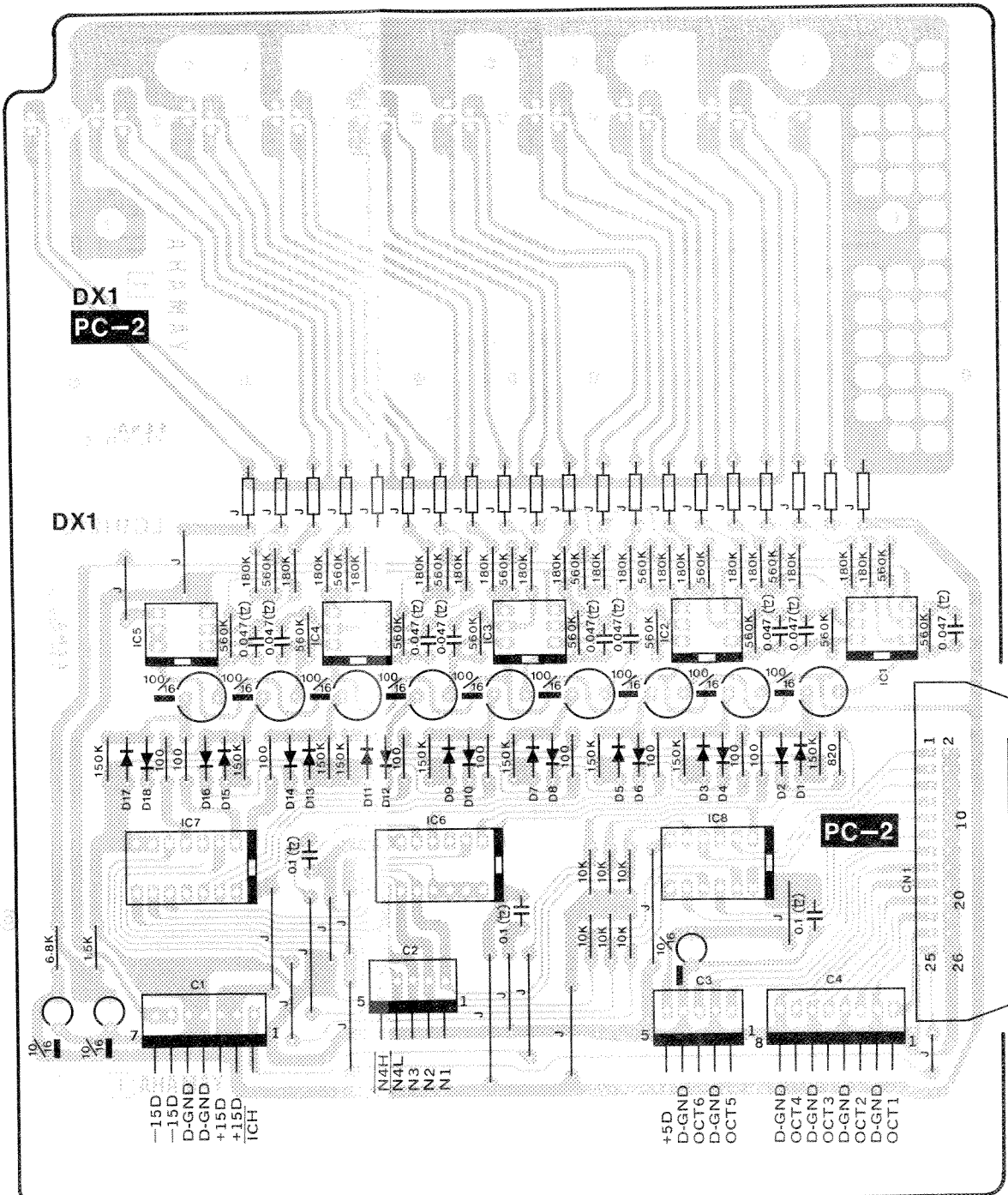
| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|------------------|
| 1 | N1 | BR | PC1(1)-N1 (C1-5) |
| 2 | N2 | RE | PC1(1)-N1 (C1-7) |
| 3 | N3 | OR | PC1(1)-N1 (C1-9) |
| 4 | N4L | YE | PC1(1)-N1 (C1-1) |
| 5 | N4H | GR | PC1(1)-N1 (C1-3) |

C3

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------|
| 1 | OCT5 | GR | PC1(5)-PCOUT (C2-1) |
| 2 | D-GND | - | - |
| 3 | OCT6 | BE | PC3-OCT6 (C1-4) |
| 4 | D-GND | GY | DCD-D-GND (C25-3) |
| 5 | +5D | OR | DCD-+5D (C25-1) |

C4

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------|
| 1 | OCT1 | BR | PC1(1)-PCOUT (C2-1) |
| 2 | D-GND | - | - |
| 3 | OCT2 | RE | PC1(2)-PCOUT (C2-1) |
| 4 | D-GND | - | - |
| 5 | OCT3 | OR | PC1(3)-PCOUT (C2-1) |
| 6 | D-GND | - | - |
| 7 | OCT4 | YE | PC1(4)-PCOUT (C2-1) |
| 8 | D-GND | - | - |

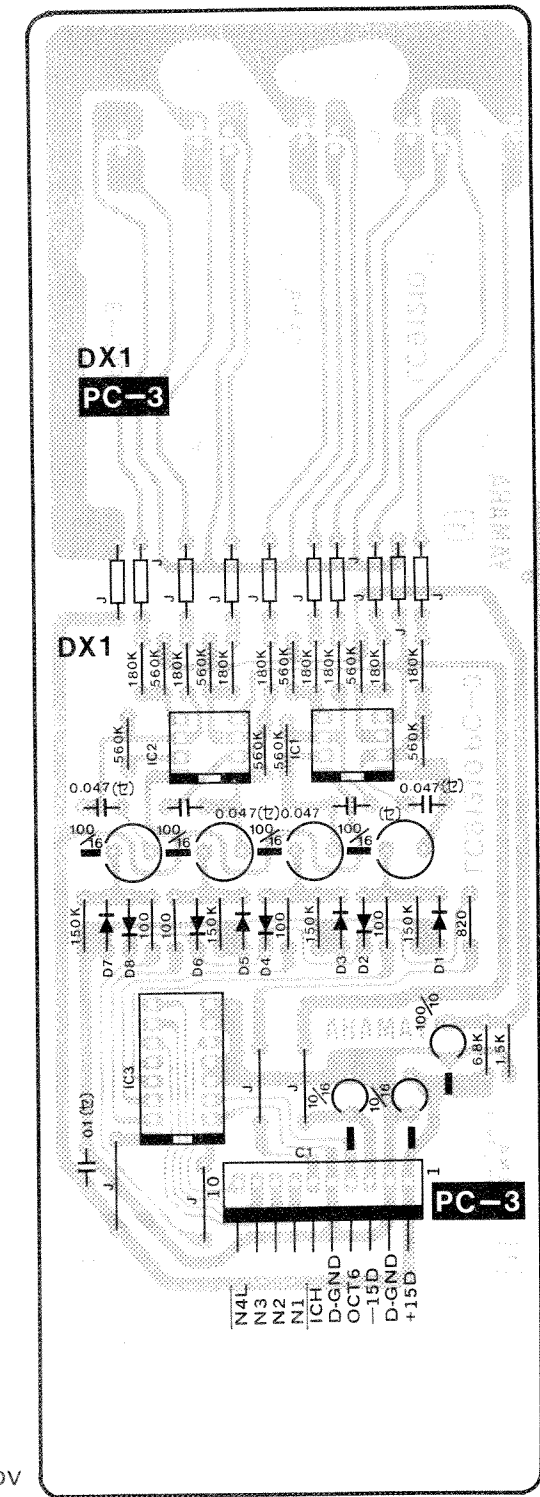


| | | | |
|----|------|---|----|
| 1 | ICH | G | 2 |
| 3 | N1 | G | 4 |
| 5 | N2 | G | 6 |
| 7 | N3 | G | 8 |
| 9 | N4L | G | 10 |
| 11 | N4H | G | 12 |
| 13 | OCT6 | G | 14 |
| 15 | OCT6 | G | 16 |
| 17 | OCT4 | G | 18 |
| 19 | OCT3 | G | 20 |
| 21 | OCT2 | G | 22 |
| 23 | OCT1 | G | 24 |
| 25 | | G | 26 |

PC3

C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|---------------------|
| 1 | +15D | RE | PC1(5)-+15D (C2-10) |
| 2 | D-GND | GY | PC1(5)-D-GND (C2-8) |
| 3 | -15D | BE | PC1(5)-15D (C2-6) |
| 4 | OCT6 | BE | PC2-OCT6 (C3-3) |
| 5 | D-GND | - | - |
| 6 | ICH | V1 | PC1(5)-ICH (C2-4) |
| 7 | N1 | BR | PC1(5)-N1 (C1-6) |
| 8 | N2 | RE | PC1(5)-N2 (C1-8) |
| 9 | N3 | OR | PC1(5)-N3 (C1-10) |
| 10 | N4L | YE | PC1(5)-N4L (C1-2) |



- Note)
- Circuit Board : LC91210
 - IC'S
IC1, 2 : NJM4558DV
IC3 : TC4051BP
 - Diodes
D1 ~ 8 : 1SS133
 - Capacitors
(♣) Marked : Ceramic Cap.
0.1 (♣) Marked : Semi-Conductive
Ceramic Cap. 0.1/16V

- Note)
- Circuit Board : LC91210
 - IC's
IC1 ~ 5 : NJM4558DV
IC6, 7 : TC4051BP
IC8 : 7417
 - Diodes
D1 ~ 18 : 1SS133
 - Capacitors
(♣) Marked : Ceramic Cap.
0.1 (♣) Marked : Semi-Conductive
Ceramic Cap. 0.1/16V

PLR CIRCUIT BOARD & WIRING

C1

| Pin Name | Wire Color | Destination |
|----------|------------|-------------------|
| D-GND | GY | DCD-D-GND (C22-5) |
| D-GND | GY | DCD-D-GND (C22-4) |
| D-GND | GY | DCD-D-GND (C22-3) |
| +5D | OR | DCD+5D (C22-2) |
| +5D | OR | DCD+5D (C22-1) |

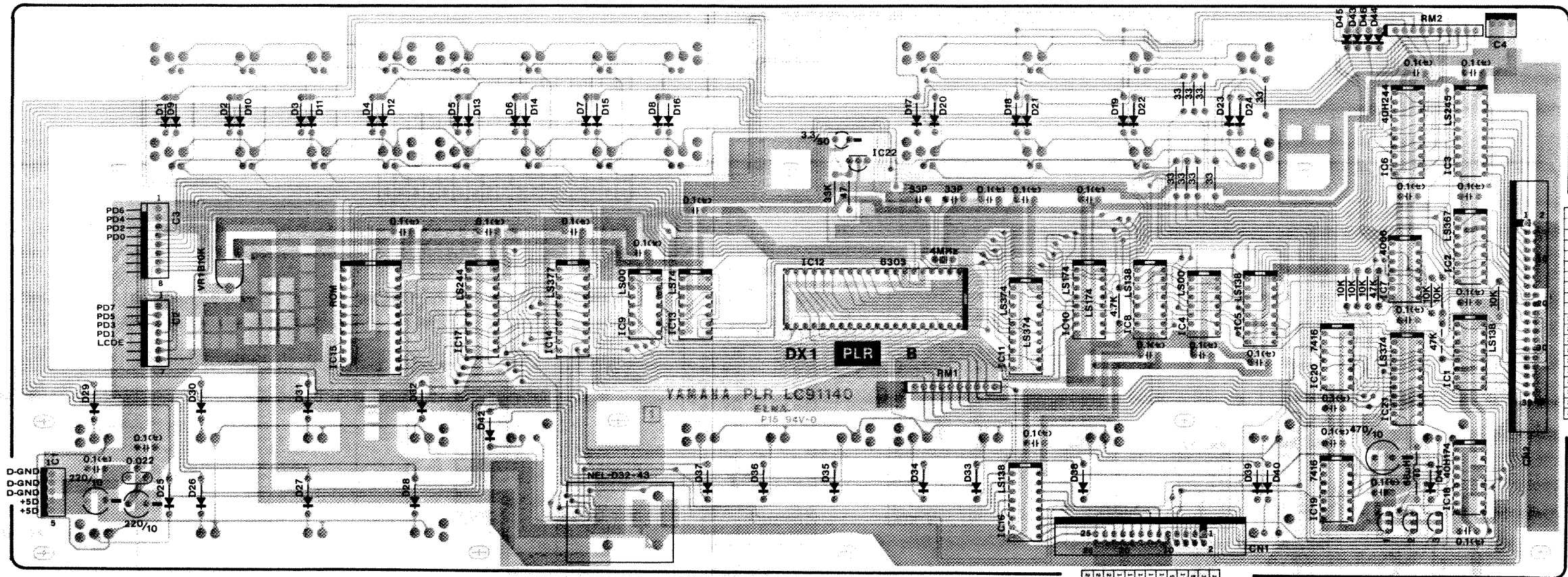
C2

| Pin Name | Wire Color | Destination |
|----------|------------|--------------------|
| +5D | OR | DTCN2+5D (C1-1) |
| - | | |
| D-GND | GY | DTCN2-D-GND (C1-3) |

- cuit Board : LC91140
- 1, 5, 8, 16 : 74LS138
 - 2 : 74LS367
 - 3 : 74LS245
 - 4, 9 : 74LS00
 - 5 : 40H244
 - 7 : 4066
 - 10 : 74LS174
 - 11, 21 : 74LS374
 - 12 : 6303
 - 13 : 74LS74
 - 14 : 74LS373
 - 15 : 2732A - 30Z (IN00630)
 - 17 : 74LS244
 - 18 : 40H174
 - 19, 20 : 7416
 - 22 : PST518

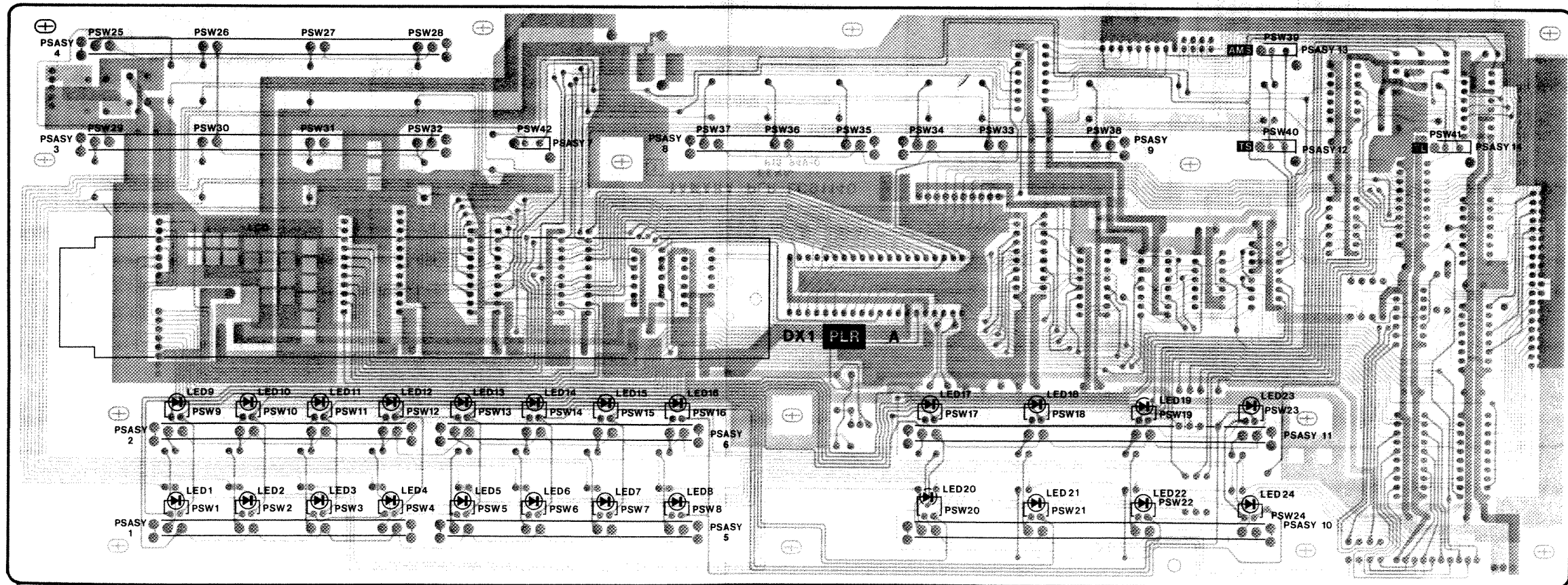
- ansistors
- 1 ~ 3 : 2SD1198 (R)
- odes
- ~ 42 : 1SS133
 - 43 ~ 46 : 0A95
- apacitor
- Marked : Semi-Conductive
 - : Ceramic Cap.

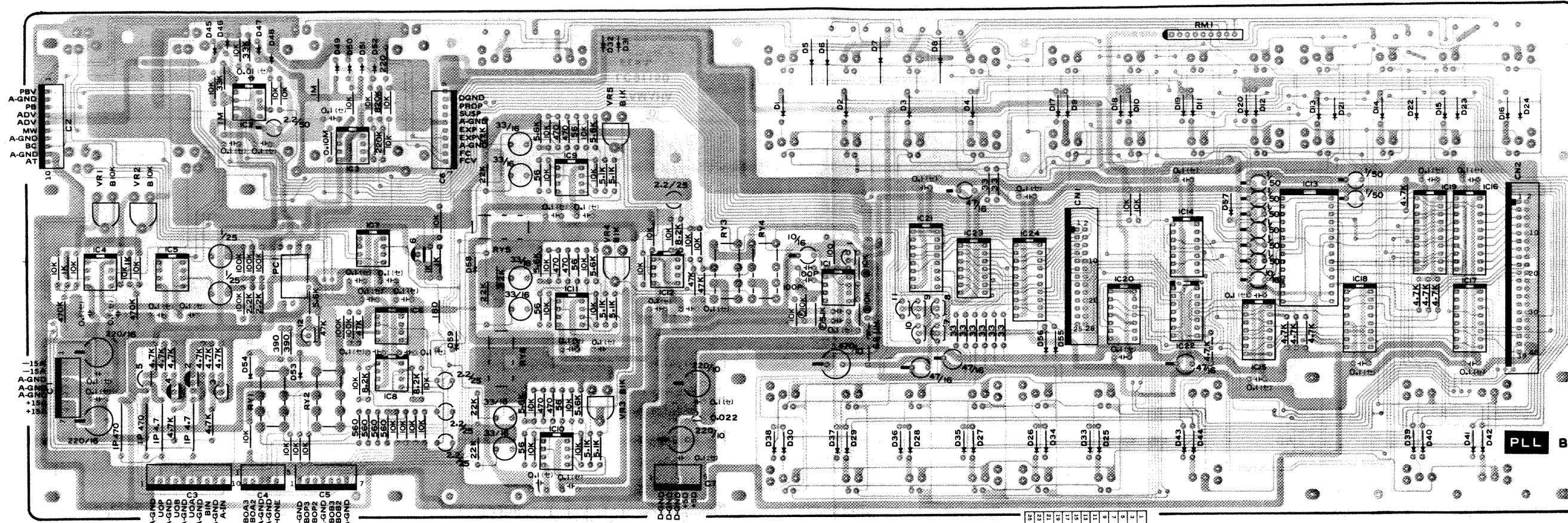
- istor Module
- M1, 2 : RM9-472J
- riable Resistor
- R1 : B10K
 - : Electro Magnetic Interference 0.022
 - 2 : Ceralock 4MHz
 - 3 : NEL-D32-43



| | | | |
|----|------|------|----|
| 1 | MD0 | G | 2 |
| 2 | MD1 | G | 4 |
| 3 | MD2 | G | 6 |
| 4 | MD3 | G | 8 |
| 5 | MD4 | G | 10 |
| 6 | MD5 | G | 12 |
| 7 | MD6 | G | 14 |
| 8 | MD7 | G | 16 |
| 9 | MD8 | MA1 | 18 |
| 10 | MD9 | MA2 | 20 |
| 11 | MD10 | MA3 | 22 |
| 12 | MD11 | MA4 | 24 |
| 13 | MD12 | MA5 | 26 |
| 14 | MD13 | MA6 | 28 |
| 15 | MD14 | MA7 | 30 |
| 16 | MD15 | MA8 | 32 |
| 17 | MD16 | MA9 | 34 |
| 18 | MD17 | MA10 | 36 |
| 19 | MD18 | MA11 | 38 |
| 20 | MD19 | MA12 | 40 |

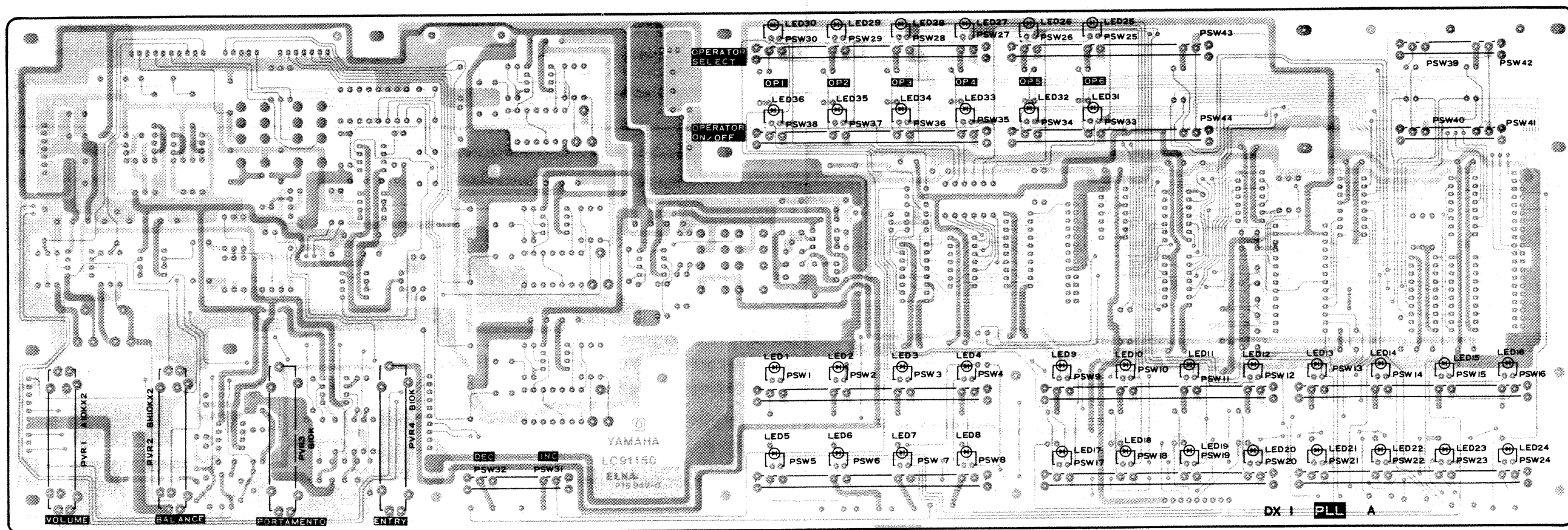
| | | | |
|----|------|------|----|
| 1 | MD0 | G | 2 |
| 2 | MD1 | G | 4 |
| 3 | MD2 | G | 6 |
| 4 | MD3 | G | 8 |
| 5 | MD4 | G | 10 |
| 6 | MD5 | G | 12 |
| 7 | MD6 | G | 14 |
| 8 | MD7 | G | 16 |
| 9 | MD8 | MA1 | 18 |
| 10 | MD9 | MA2 | 20 |
| 11 | MD10 | MA3 | 22 |
| 12 | MD11 | MA4 | 24 |
| 13 | MD12 | MA5 | 26 |
| 14 | MD13 | MA6 | 28 |
| 15 | MD14 | MA7 | 30 |
| 16 | MD15 | MA8 | 32 |
| 17 | MD16 | MA9 | 34 |
| 18 | MD17 | MA10 | 36 |
| 19 | MD18 | MA11 | 38 |
| 20 | MD19 | MA12 | 40 |



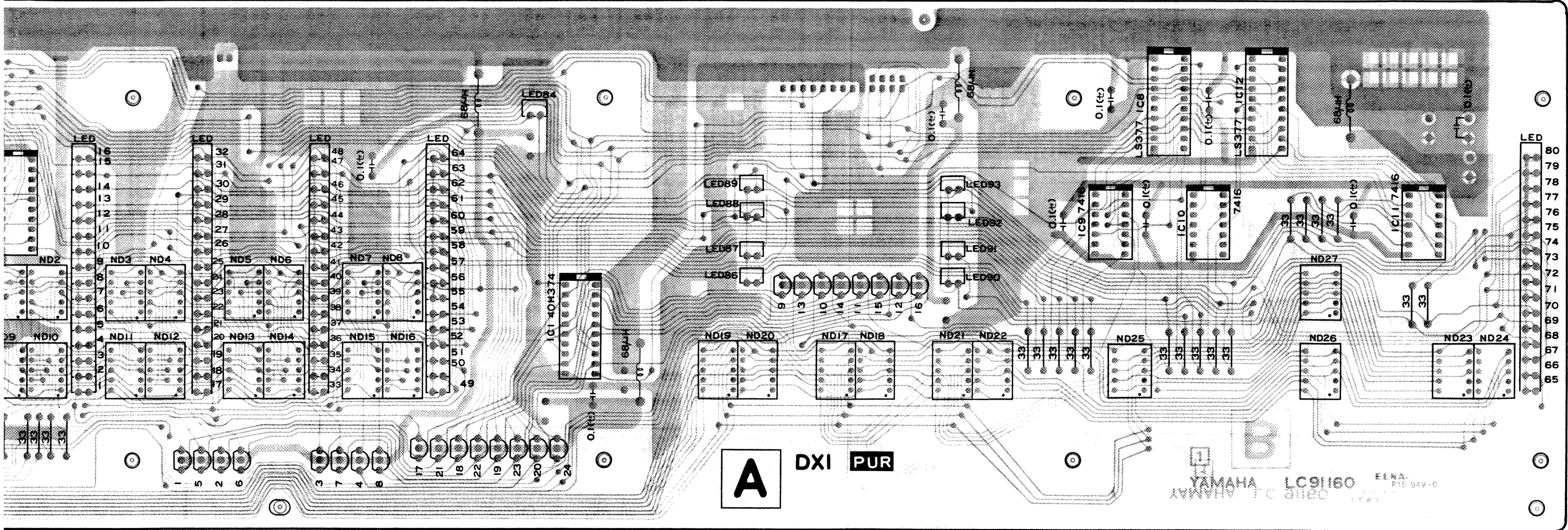


| | | | |
|----|------|-----|----|
| 1 | MD0 | G | 2 |
| 3 | MD1 | G | 4 |
| 5 | MD3 | G | 8 |
| 7 | MD3 | G | 8 |
| 9 | MD4 | G | 10 |
| 11 | MD5 | G | 12 |
| 13 | MD6 | G | 14 |
| 15 | MD7 | G | 16 |
| 17 | MA0 | MA1 | 18 |
| 19 | MA2 | MA3 | 20 |
| 21 | MA4 | MA5 | 22 |
| 23 | - | G | 24 |
| 25 | - | G | 26 |
| 27 | - | G | 28 |
| 29 | - | G | 30 |
| 31 | PES | - | 32 |
| 33 | BAT | G | 14 |
| 35 | MR | G | 36 |
| 37 | PNLE | G | 38 |
| 39 | SLE | G | 40 |

| | | |
|----|------|---|
| 1 | PS1 | 1 |
| 2 | PS2 | 1 |
| 3 | PS3 | 1 |
| 4 | PS4 | 1 |
| 5 | PS5 | 1 |
| 6 | PS6 | 1 |
| 7 | PS7 | 1 |
| 8 | PS8 | 1 |
| 9 | PS9 | 1 |
| 10 | PS10 | 1 |
| 11 | PS11 | 1 |
| 12 | PS12 | 1 |
| 13 | PS13 | 1 |
| 14 | PS14 | 1 |
| 15 | PS15 | 1 |
| 16 | PS16 | 1 |
| 17 | PS17 | 1 |
| 18 | PS18 | 1 |
| 19 | PS19 | 1 |
| 20 | PS20 | 1 |
| 21 | PS21 | 1 |
| 22 | PS22 | 1 |
| 23 | PS23 | 1 |
| 24 | PS24 | 1 |
| 25 | PS25 | 1 |
| 26 | PS26 | 1 |
| 27 | PS27 | 1 |
| 28 | PS28 | 1 |
| 29 | PS29 | 1 |
| 30 | PS30 | 1 |
| 31 | PS31 | 1 |
| 32 | PS32 | 1 |
| 33 | PS33 | 1 |
| 34 | PS34 | 1 |
| 35 | PS35 | 1 |
| 36 | PS36 | 1 |
| 37 | PS37 | 1 |
| 38 | PS38 | 1 |
| 39 | PS39 | 1 |
| 40 | PS40 | 1 |
| 41 | PS41 | 1 |
| 42 | PS42 | 1 |
| 43 | PS43 | 1 |
| 44 | PS44 | 1 |
| 45 | PS45 | 1 |
| 46 | PS46 | 1 |
| 47 | PS47 | 1 |
| 48 | PS48 | 1 |
| 49 | PS49 | 1 |
| 50 | PS50 | 1 |
| 51 | PS51 | 1 |
| 52 | PS52 | 1 |
| 53 | PS53 | 1 |
| 54 | PS54 | 1 |
| 55 | PS55 | 1 |
| 56 | PS56 | 1 |
| 57 | PS57 | 1 |
| 58 | PS58 | 1 |
| 59 | PS59 | 1 |
| 60 | PS60 | 1 |
| 61 | PS61 | 1 |
| 62 | PS62 | 1 |
| 63 | PS63 | 1 |
| 64 | PS64 | 1 |
| 65 | PS65 | 1 |
| 66 | PS66 | 1 |
| 67 | PS67 | 1 |
| 68 | PS68 | 1 |
| 69 | PS69 | 1 |
| 70 | PS70 | 1 |
| 71 | PS71 | 1 |
| 72 | PS72 | 1 |
| 73 | PS73 | 1 |
| 74 | PS74 | 1 |
| 75 | PS75 | 1 |
| 76 | PS76 | 1 |
| 77 | PS77 | 1 |
| 78 | PS78 | 1 |
| 79 | PS79 | 1 |
| 80 | PS80 | 1 |



PUR CIRCUIT BOARD & WIRING



- Note)
1. Circuit Board : LC91160
 2. IC's
 IC1 : 40H374
 IC2, 5, 8, 12 : 74LS377
 IC3, 4, 6, 7 : 74 247
 IC9 ~ 11 : 7416
 3. Transistors
 Tr1 ~ 24 : 2SD1198 (R)

C1

| Pin No. | Pin Name | Wire Color | Destination |
|---------|----------|------------|-------------------|
| 1 | D-GND | GY | DCD-D-GND (C24-5) |
| 2 | D-GND | GY | DCD-D-GND (C24-4) |
| 3 | D-GND | GY | DCD-D-GND (C24-3) |
| 4 | +5D | OR | DCD+5D (C24-2) |
| 5 | +5D | OR | DCD+5D (C24-1) |