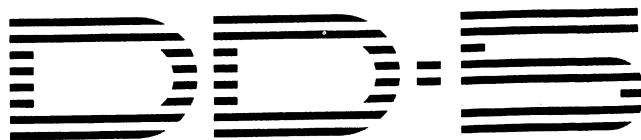
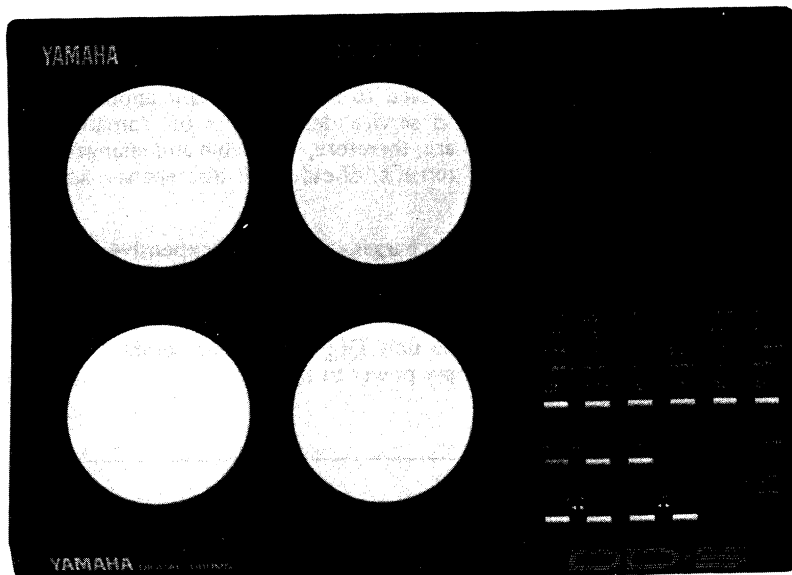


# DIGITAL DRUMS



## SERVICE MANUAL



### CONTENTS (目次)

|  |    |
|--|----|
| SPECIFICATIONS (総合仕様) .....            | 2  |
| CIRCUIT BOARD LAYOUT (ユニットレイアウト) ..... | 3  |
| PANEL LAYOUT (パネルレイアウト) .....          | 4  |
| BLOCK DIAGRAM (ブロックダイアグラム) .....       | 6  |
| DISASSEMBLY PROCEDURE (分解手順) .....     | 8  |
| REASSEMBLY PROCEDURE (組立手順) .....      | 9  |
| LSI DATA TABLE (LSI端子機能表) .....        | 10 |
| IC BLOCK DIAGRAM (ICブロック図) .....       | 11 |
| CIRCUIT BOARD (シート基板図) .....           | 12 |
| OVERALL CIRCUIT DIAGRAM (総回路図) .....   | 14 |
| MIDI IMPLEMENTATION CHART .....        | 16 |
| MIDI .....                             | 17 |
| PARTS LIST                             |    |

## IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

## ■ SPECIFICATIONS (総合仕様)

### Percussion Pads

4 pads

### Auto Rhythm Patterns

8 Beat 1, 2, 16 Beat 1, 2, Rock'n'Roll, Heavy Metal, Slow Rock, Swing, Ballad, Shuffle, Pops 1, 2, Disco 1, 2, Hard Rock, Reggae, Salsa, Bossanova, Rhumba, Samba, Cha-Cha-Cha, Afro, Country, Dixie, March/Polka, Tango, Ondo, 6/8 March, Waltz, Jazz Waltz

### Instrument Voices

Bass Drum, Snare Drum, Tom 1, 2, 3, Ride Cymbal, Conga, Hi-Hat Open, Hi-Hat Closed, Rim Shot, Cowbell, Hand Claps  
Auto Rhythm Only: Conga Low

### Controls and Indicators

Power Switch, Volume, Tempo, Start/Stop, Intro/Fill In, Pad Assign, Power/Tempo LED Indicator, Rhythm Selectors

### Other Functions

Auto Rhythm Demonstration, Touch-Level Sensitive Pads, MIDI Capability

### Auxiliary Jacks

DC 9 — 12 V In, Phones/Aux Out, MIDI Out

### Main Amplifier

2.0 W(RMS)

### Speaker

10 cm, 6 ohms

### Rated Voltage

DC 9V:

- six 1.5V SUM-2(AM-2), R-14(LR-14), "C" size or equivalent batteries
- AC Power adaptor (PA-1, PA-1B, PA-3, PA-4, PA-40)

### Dimensions (W × D × H)

380mm × 272mm × 81mm  
(15" × 10-3/4" × 3-1/8")

### Weight

2.4 kg (5.3 lbs.) excluding batteries  
Percussion Sticks

### パッド

4パッド (タッチ付き)

### リズムパターン

8ビート1、8ビート2、16ビート1、16ビート2、ロックンロール、ヘヴィー・メタル、スロー・ロック、スウィング、バラード、シャッフル、ポップス1、ポップス2、ディスコ1、ディスコ2、ハード・ロック、レゲエ、サラサ、ボサノバ、ルンバ、サンバ、チャ・チャ・チャ、アフロ、カントリー、デキシー、マーチ、タンゴ、オンド、6/8マーチ、ワルツ、ジャズ・ワルツ

### 楽器音色

バス・ドラム、スネア・ドラム、タム1、タム2、タム3、ライド・シンバル、コンガ、ハイハット・オープン、ハイハット・クローズ、リム・ショット、カウベル、ハンド・クラップス (オート・リズムのみ：コンガ・ロウ)

### コントロールとインジケータ

パワー・スイッチ、ボリューム、テンポ、スタート/ストップ、イントロ/フィルイン、パッド・アサイン、パワー/テンポ・インジケータ、リズムセレクター

### 入出力端子

DC 9-12V IN, PHONES/AUX OUT, MIDI OUT

### 寸法 (W × D × H)

380mm × 272mm × 81mm

### 重量

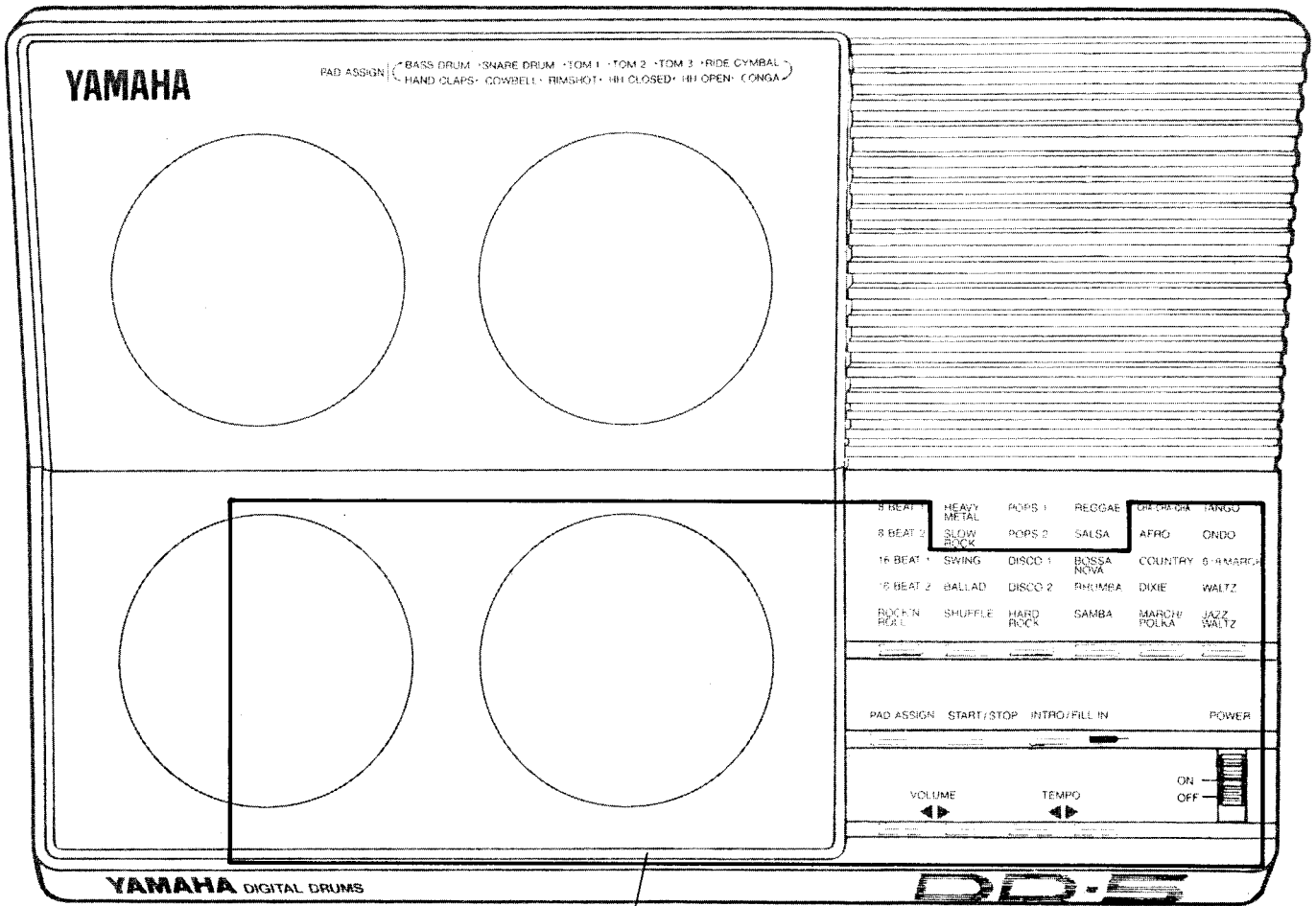
2.4kg

### 付属品

スティック

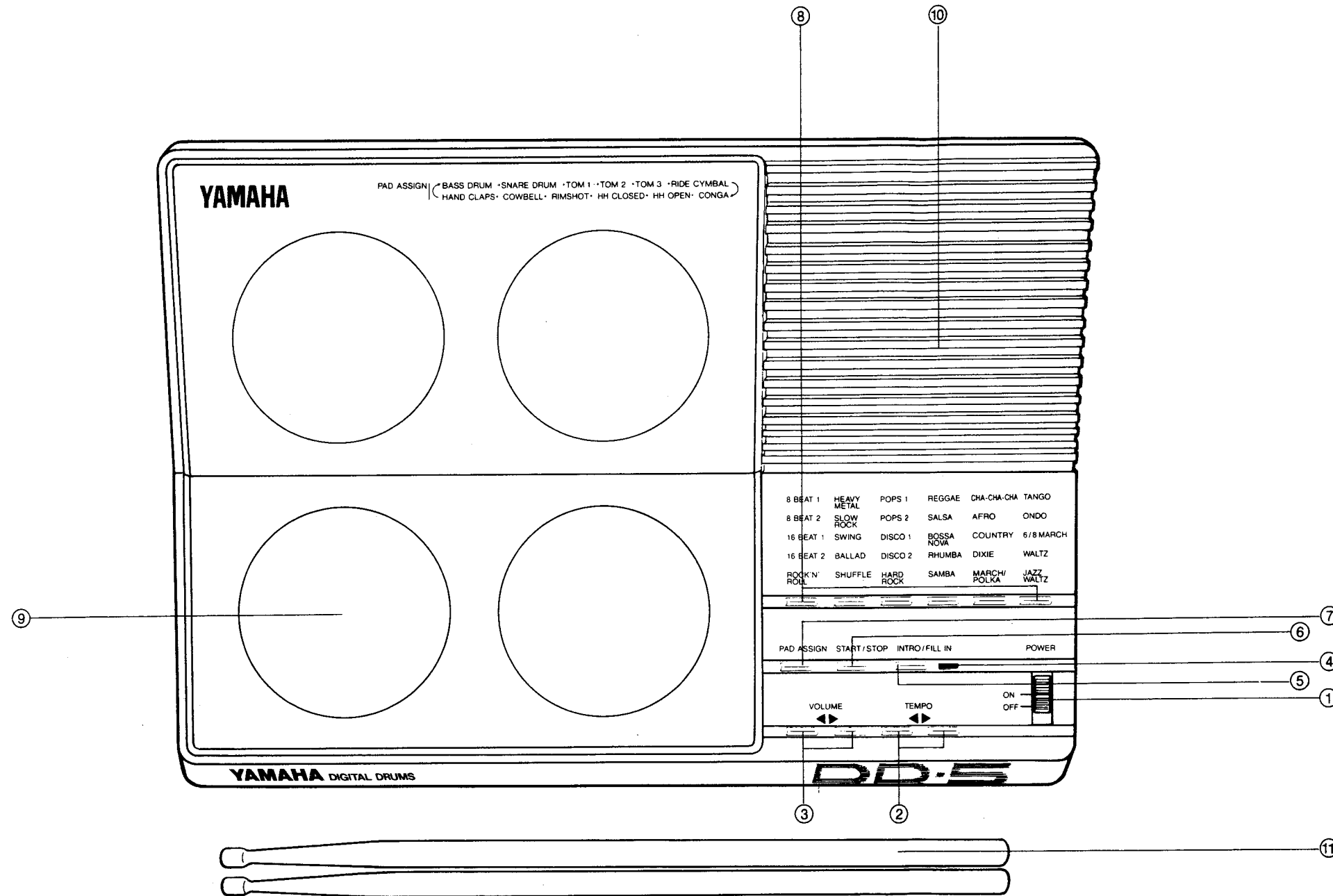
■CIRCUIT BOARD LAYOUT (ユニットレイアウト)

DD-5



M circuit board

# ■ PANEL LAYOUT (パネルレイアウト)

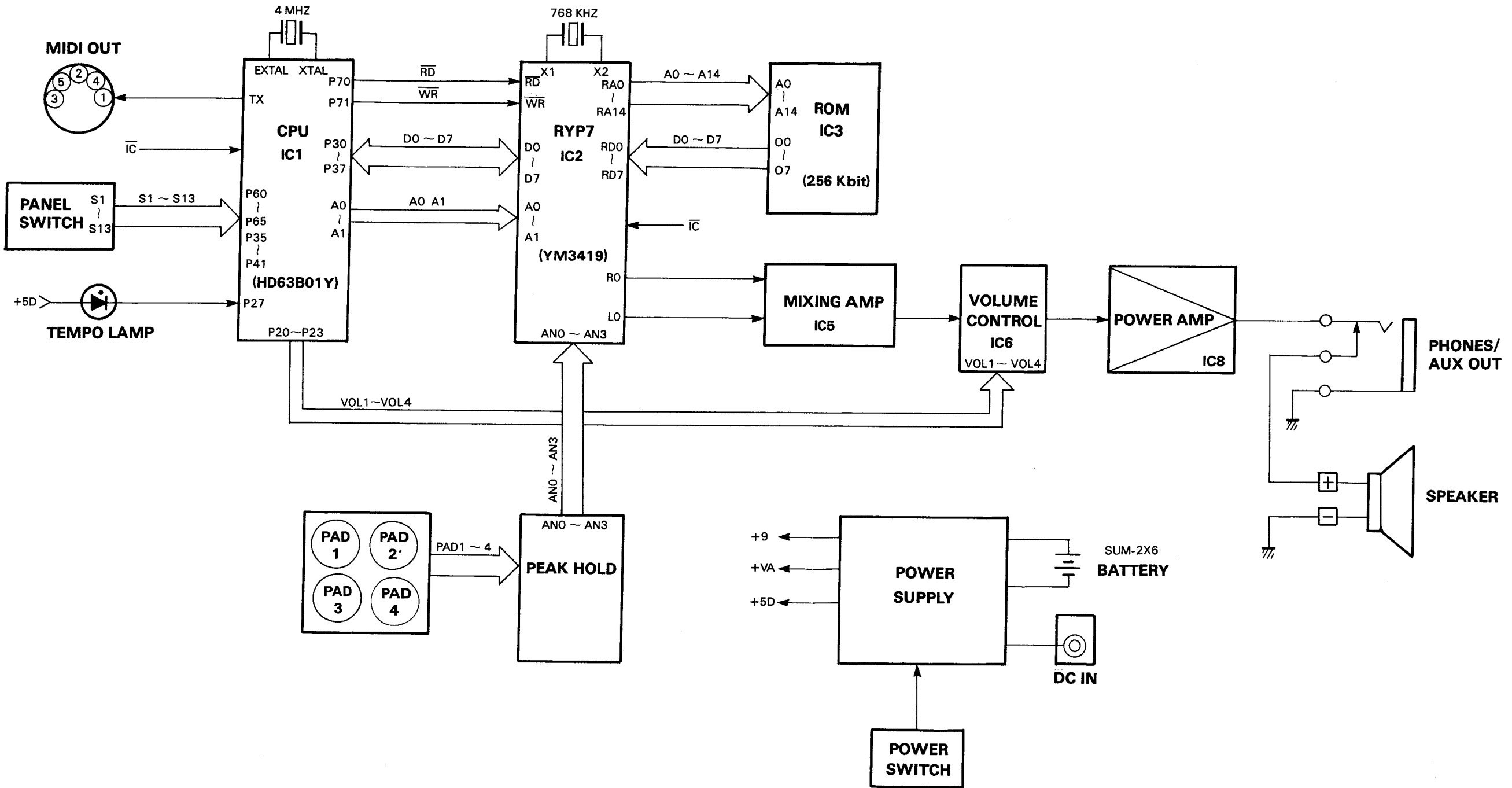


- ① Power Switch
- ② Tempo Controls
- ③ Volume Controls
- ④ Power/Tempo Indicator
- ⑤ Intro/Fill In Selector
- ⑥ Start/Stop Selector
- ⑦ Pad Assign Button
- ⑧ Rhythm Selectors
- ⑨ Percussion Pads
- ⑩ Speaker
- ⑪ Percussion Sticks

- ①パワースイッチ
- ②テンポ・コントロール
- ③ボリューム・コントロール
- ④パワー/テンポ・インジケータ
- ⑤イントロ/フィルイン・セレクター
- ⑥スタート/ストップ・セレクター
- ⑦パッド・アサイン・ボタン
- ⑧リズム・セレクター
- ⑨パーカッション・パッド
- ⑩スピーカー
- ⑪スティック

■BLOCK DIAGRAM (ブロックダイアグラム)

DD-5



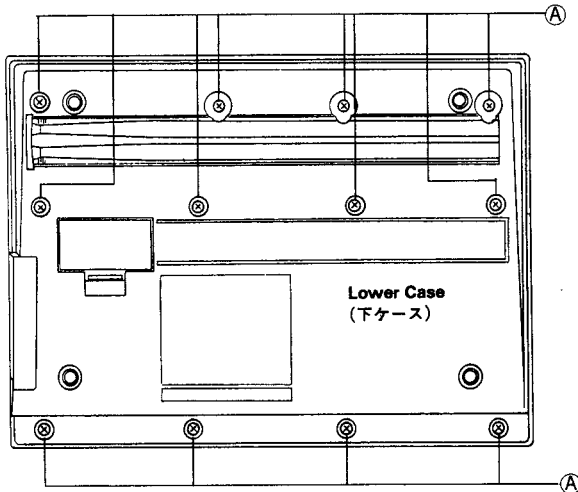
## ■ DISASSEMBLY PROCEDURE (分解手順)

### 1. Removal of Lower Case

- Remove the 12 bind tapping screws ① (3 x 12) (Fig. 1).

### 2. Removal of M Circuit Board

- Remove the lower case. (Refer to 1.)
- Remove the 11 bind tapping screws ② (3 x 8) (Fig. 2).



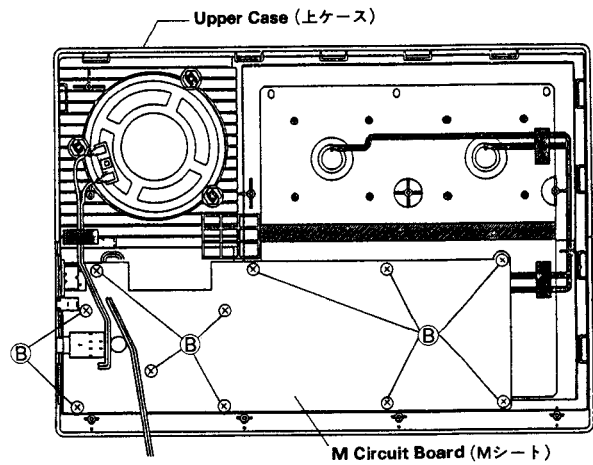
(Fig. 1)

### 1. 下ケースの外し方

- ・ バインドタッピングネジ①(3×12)12本を外し、外します。(Fig. 1)

### 2. Mシートの外し方

- ・ 下ケースを外します。(項目1参照)
- ・ バインドタッピングネジ②(3×8)11本を外し、外します。(Fig. 2)



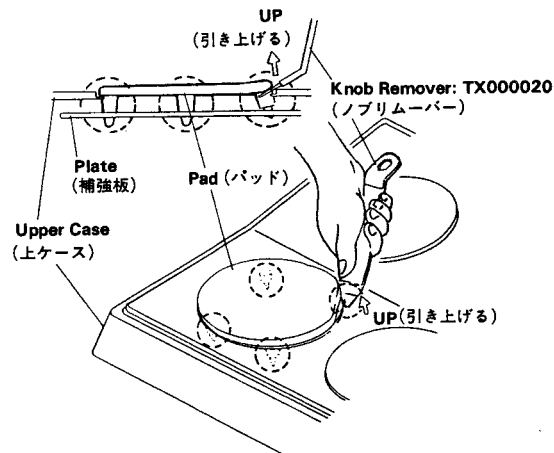
(Fig. 2)

### 3. Removal of pad

- Remove the lower case. (Refer to 1.)
- Remove the M circuit board. (Refer to 2.)
- Insert a knob Remover to space between the pad and the upper case.
- Wrench slightly and pull the pad up.

### 3. パッドの外し方

- ・ 下ケースを外します。(項目1参照)
- ・ Mシートを外します。(項目2参照)
- ・ パッドと上ケースのすき間にノブリムーバーを差し込みパッドを引き上げます。(Fig. 3)



(Fig. 3)

## REASSEMBLY PROCEDURE (組立手順)

### 1. Reassembly of the Pad

(a) In case of type ㊶ feet. (Fig. 2)

- Insert the feet of the pad into the holes on the frame through the upper case and pull each tip of the feet out from each holes of the frame by such as a wrench.

(b) In case of type ㊷ feet. (Fig. 3)

- Insert the feet of the pad into the frame as figure.

Insert a tip of the tool into the hole of the pad, while pushing the pad, pull the foot until the tip of the foot through out of the hole of the frame.

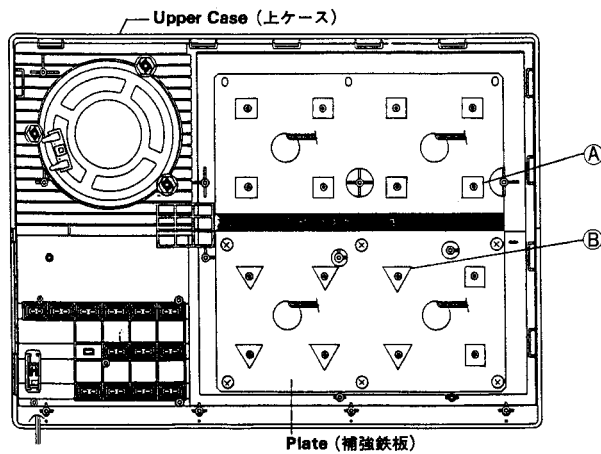
### 1. パッドの取り付け方

(a) 足㊶の場合 (Fig. 2)

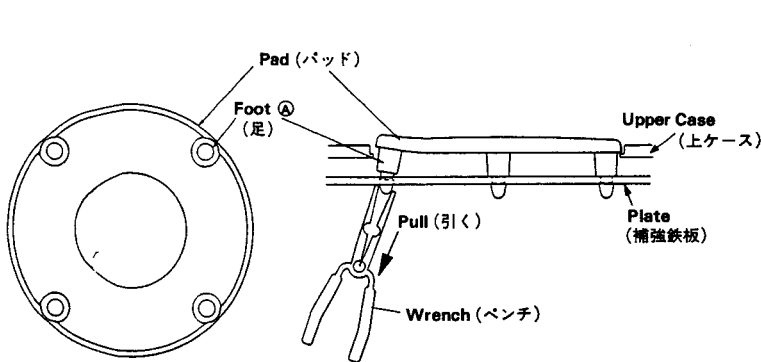
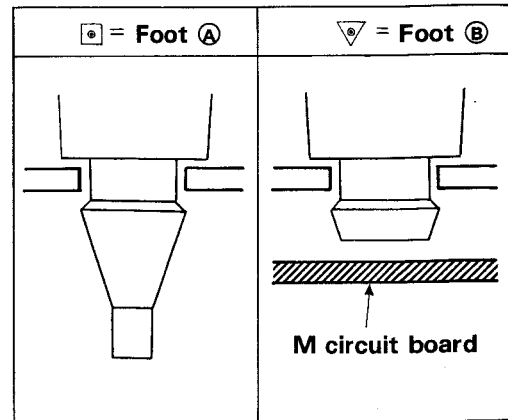
- ・パッドを上ケース側から補強鉄板に足を差し込み、補強鉄板側から出た足の先端をペンチではさみ、引っ張って取り付けます。

(b) 足㊷の場合 (Fig. 3)

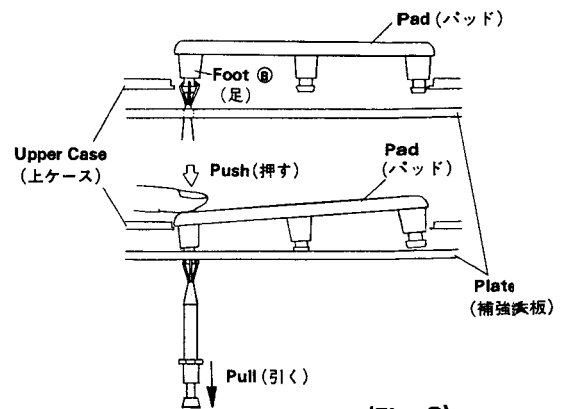
- ・補強鉄板側から取り付け穴に工具を差し込み、足の先端をはさみます。
- ・次にパッドを押しながら足の先端を補強鉄板側に引っ張って取り付けます。



(Fig. 1)



(Fig. 2)



(Fig. 3)



# LSI DATA TABLE (LSI端子機能表)

## HD63B01Y0E97 P(XE311A00) CPU

| PIN NO. | NAME            | I/O | FUNCTION               | PIN NO. | NAME            | I/O | FUNCTION        |
|---------|-----------------|-----|------------------------|---------|-----------------|-----|-----------------|
| 1       | V <sub>ss</sub> | I   | Ground                 | 33      | V <sub>cc</sub> | I   | DC Supply (+5V) |
| 2       | XTAL            | I   | Clock (8MHz)           | 34      | P47             | O   | Port 4          |
| 3       | EXTAL           | I   |                        |         |                 |     |                 |
| 4       | MP0             | I   | Mode program           | 35      | P46             | O   |                 |
| 5       | MP1             | I   |                        |         |                 |     |                 |
| 6       | RES             | I   | Reset                  | 36      | P45             | O   |                 |
| 7       | STBY            | I   | Stand-by mode signal   | 37      | P44             | O   |                 |
| 8       | NMI             | I   | Non-maskable interrupt | 38      | P43             | O   |                 |
| 9       | P20             | I/O | Port 2                 | 39      | P42             | O   |                 |
| 10      | P21             | I/O |                        |         |                 |     |                 |
| 11      | P22             | I/O |                        |         |                 |     |                 |
| 12      | P23             | I/O |                        |         |                 |     |                 |
| 13      | P24(TX)         | I/O |                        |         |                 |     |                 |
| 14      | P25             | I/O |                        |         |                 |     |                 |
| 15      | P26             | I/O |                        |         |                 |     |                 |
| 16      | P27             | I/O | Port 5                 | 40      | P41             | O   |                 |
| 17      | P50(IHQ1)       | I   |                        |         |                 |     |                 |
| 18      | P51             | I   |                        |         |                 |     |                 |
| 19      | P52             | I   |                        |         |                 |     |                 |
| 20      | P53(HALT)       | I   |                        |         |                 |     |                 |
| 21      | P54             | I   |                        |         |                 |     |                 |
| 22      | P55             | I   |                        |         |                 |     |                 |
| 23      | P56             | I   | Port 3                 | 41      | P40             | O   |                 |
| 24      | P57             | I   |                        |         |                 |     |                 |
| 25      | P60             | I/O |                        |         |                 |     |                 |
| 26      | P61             | I/O |                        |         |                 |     |                 |
| 27      | P62             | I/O |                        |         |                 |     |                 |
| 28      | P63             | I/O |                        |         |                 |     |                 |
| 29      | P64             | I/O |                        |         |                 |     |                 |
| 30      | P65             | I/O | Port 6                 | 42      | V <sub>ss</sub> | I   |                 |
| 31      | P66             | I/O |                        |         |                 |     |                 |
| 32      | P67             | I/O |                        |         |                 |     |                 |
|         |                 |     |                        | Port 7  | 43              | P17 | O               |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 44      | P16             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 45      | P15             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 46      | P14             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 47      | P13             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 48      | P12             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 49      | P11             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 50      | P10             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 51      | P37             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 52      | P36             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 53      | P35             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 54      | P34             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 55      | P33             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 56      | P32             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 57      | P31             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 58      | P30             | I/O |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 59      | P74             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 60      | P73             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 61      | P72             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 62      | P71             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 63      | P70             | O   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     | Port 7                 | 64      | E               | I   |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |
|         |                 |     |                        |         |                 |     |                 |

### ● Mode Program

|        | MP0 | MP1 |
|--------|-----|-----|
| Mode 1 | H   | L   |
| Mode 2 | L   | H   |
| Mode 3 | H   | H   |

### ● Port

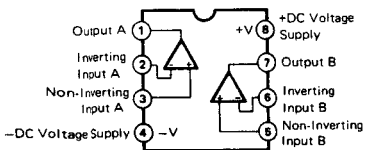
|        | Mode 1, 2   | Mode 3   |
|--------|---|----------|
| Port 1 | Address bus (A0 ~ A7)   | O Port   |
| Port 2 | I/O Port  | I/O Port |
| Port 3 | Data bus (D0 ~ D7)  | I/O Port |
| Port 4 | Address bus (A8 ~ A15)  | O Port   |
| Port 5 | I/O Port  | I Port   |
| Port 6 | I/O Port  | I/O Port |
| Port 7 | $\overline{RD}$ , $\overline{WR}$ , $\overline{R/W}$ , $\overline{LIR}$ , $\overline{BA}$ | O Port   |

YM3419 (XE193A00) RYP7

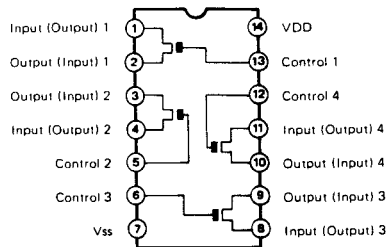
| PIN NO. | NAME            | I/O | FUNCTION            | PIN NO. | NAME             | I/O | FUNCTION            |
|---------|-----------------|-----|---------------------|---------|------------------|-----|---------------------|
| 1       | $\overline{IC}$ | I   | Initial clear       | 33      | RA14             | I/O | Address bus for ROM |
| 2       | D0              | I/O | Data bus            | 34      | RA13             | I/O |                     |
| 3       | D1              | I/O |                     |         |                  |     |                     |
| 4       | D2              | I/O |                     |         |                  |     |                     |
| 5       | D3              | I/O |                     |         |                  |     |                     |
| 6       | D4              | I/O |                     |         |                  |     |                     |
| 7       | D5              | I/O |                     |         |                  |     |                     |
| 8       | D6              | I/O |                     |         |                  |     |                     |
| 9       | D7              | I/O |                     |         |                  |     |                     |
| 10      | AGND            |     | Ground              | 41      | RA6              | I/O |                     |
| 11      | AN0             | I   | ADC data            | 42      | RA5              | I/O |                     |
| 12      | AN1             | I   |                     |         |                  |     |                     |
| 13      | AN2             | I   |                     |         |                  |     |                     |
| 14      | AN3             | I   |                     |         |                  |     |                     |
| 15      | CV              |     | Lch output          | 43      | RA4              | I/O |                     |
| 16      | LO              | O   |                     |         |                  |     |                     |
| 17      | RO              | O   | Rch output          | 44      | RA3              | I/O |                     |
| 18      | AVDD            |     | DC supply           | 45      | RA2              | I/O |                     |
| 19      | RD0             | I   | Data bus for ROM    | 46      | RA1              | I/O |                     |
| 20      | RD1             | I   |                     |         |                  |     |                     |
| 21      | RD2             | I   |                     |         |                  |     |                     |
| 22      | RD3             | I   |                     |         |                  |     |                     |
| 23      | RD4             | I   |                     |         |                  |     |                     |
| 24      | RD5             | I   |                     |         |                  |     |                     |
| 25      | RD6             | I   |                     |         |                  |     |                     |
| 26      | VDD             |     | DC supply           | 47      | $\overline{RA0}$ | I/O |                     |
| 27      | RD7             | I   |                     |         |                  |     |                     |
| 28      | RA18            | I/O | Address bus for ROM | 48      | $\overline{ROM}$ | O   | ROM enable          |
| 29      | RA17            | I/O |                     |         |                  |     |                     |
| 30      | VSS             |     |                     |         |                  |     |                     |
| 31      | RA16            | I/O |                     |         |                  |     |                     |
| 32      | RA15            | I/O |                     |         |                  |     |                     |
|         |                 |     |                     | 49      | $\overline{RAM}$ | O   | RAM enable          |
|         |                 |     |                     | 50      | $\overline{GE}$  | O   | Not used            |
|         |                 |     |                     | 51      | A15              | I   | Address bus         |
|         |                 |     |                     | 52      | A14              | I   |                     |
|         |                 |     |                     | 53      | A13              | I   |                     |
|         |                 |     |                     | 54      | A12              | I   |                     |
|         |                 |     |                     | 55      | A11              | I   |                     |
|         |                 |     |                     | 56      | A1               | I   |                     |
|         |                 |     |                     | 57      | A0               | I   |                     |
|         |                 |     |                     | 58      | VDD              |     | DC supply           |
|         |                 |     |                     | 59      | $\overline{IRQ}$ | O   | Interrupt request   |
|         |                 |     |                     | 60      | $\overline{WR}$  | I   | Write control       |
|         |                 |     |                     | 61      | $\overline{RD}$  | I   | Read control        |
|         |                 |     |                     | 62      | VSS              |     | Ground              |
|         |                 |     |                     | 63      | X1               |     | Clock               |
|         |                 |     |                     | 64      | X2               |     |                     |

IC BLOCK DIAGRAM (ICブロック図)

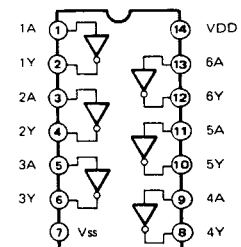
- **NJM4558DV (IG001390)**  
Dual Operational Amplifier



- **TC4016BP (IG001690)**  
Quad Bilateral Switch

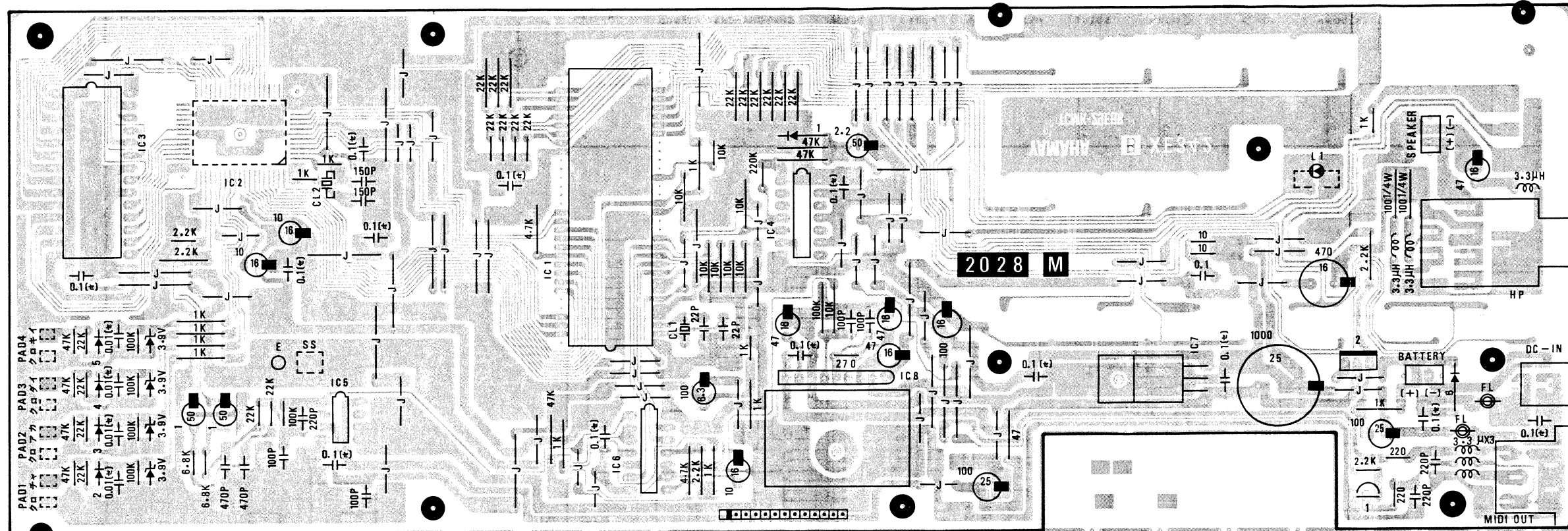


- **TC40H004P (IG051000)**  
Hex Inverter



# ■CIRCUIT BOARD (シート基板図)



## ● M Circuit Board



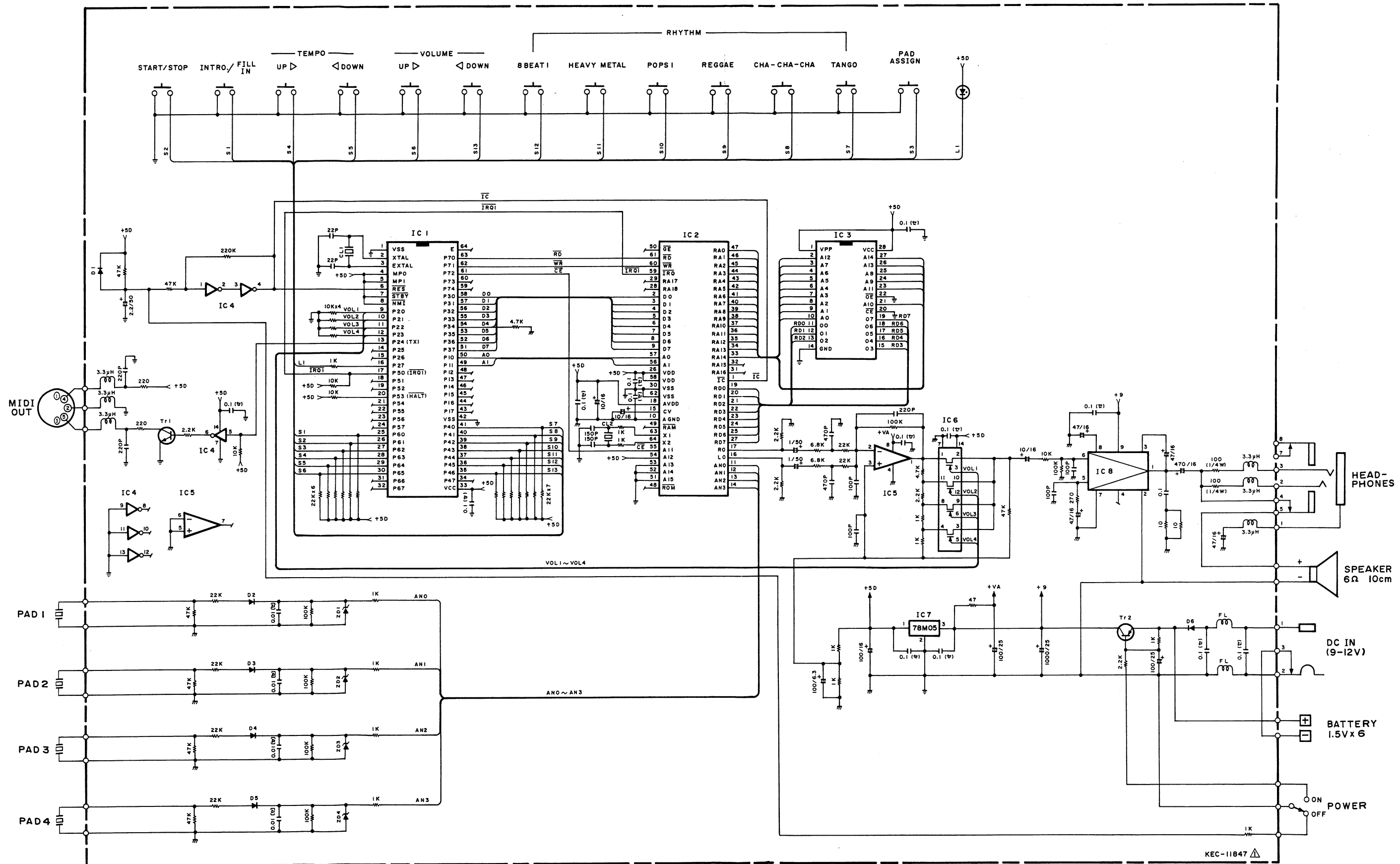
Components side (部品側)

## Notes)

\* Circuit Board: M(VF011700): XE342B0

- |                              |                                   |   |
|------------------------------|-----------------------------------|---|
| 1. IC                        |                                   | 7. Ceramic Resonator  |
| IC 1:                        | HD63B01Y0E97 P(XE311A00) CPU      | CL 1: 4.0M CSA4.0MG (QU004800)  |
| IC 2:                        | YM3419 (XE193A00) RYP7            | CL 2: 768K CSB768J (VE818300)   |
| IC 3:                        | TC53257P-7557 (XE312A00) ROM 256K | 8. Coil   |
| IC 4:                        | TC40H004P (IG051000) INV          | Marked  : FL5R200QNT (VB835000) 20µH   |
| IC 5:                        | NJM4558DV (IG001390) OP AMP.      | Marked  : LAL02TB3R3K (VD825400) 3.3µH |
| IC 6:                        | TC4016BP (IG001690) SW            |   |
| IC 7:                        | NJM78M05A (IG075600) Regulator 5V |   |
| IC 8:                        | AN7140 (IG116800) 5W 1CH          |   |
| 2. Transistor                |                                   |   |
| Tr 1:                        | 2SC1815 Y, GR (IC181580)          |   |
| Tr 2:                        | 2SA743A (IA074300)                |   |
| 3. Diode                     |                                   |   |
| DI 1~5:                      | 1SS133 (IF003450)                 |   |
| DI 6:                        | 11ES4 (VB481900)                  |   |
| 4. Zener Diode               |                                   |   |
| ZD 1~4:                      | MTZ3.9B 3.9V (IF010600)           |   |
| 5. LED                       |                                   |   |
| L 1:                         | SLP-162B RED(VA856000)            |   |
| 6. Semiconductive Cera. Cap. |                                   |   |
| Marked 0.1(ε):               | 0.1µF 16V N(FZ004110)             |   |

OVERALL CIRCUIT DIAGRAM (総回路図)



KEC-11847

[ Digital Rhythm Machine ]  
Model DD5

## MIDI Implementation Chart

Date: 1/30, 1988  
Version: 1.0

| Function         |  | Transmitted                      | Remarks                    |
|------------------|--|----------------------------------|----------------------------|
| Basic Channel    | Default Changed  | 1<br>1-16                        |                            |
| Mode             | Default Messages   | 3<br>X                           |                            |
| Note Number      | : True voice   | 0-127<br>*****                   | assigns to each instrument |
| Velocity         | Note ON<br>Note OFF  | ○ 9nH, v = 1-127<br>X 9nH, v = 0 |                            |
| After Touch      | Key's<br>Ch's  | X<br>X                           |                            |
| Pitch Bender     |  | X                                |                            |
| Control Change   |  | X                                |                            |
| Program Change   | : True #   | X<br>*****                       |                            |
| System Exclusive |  | X                                |                            |
| System Common    | : Song Pos<br>: Song Sel<br>: Tune                             | X<br>X<br>X                      |                            |
| System Real Time | : Clock<br>: Commands  | X<br>X                           |                            |
| Aux Messages     | : Local ON/OFF<br>: All Notes OFF<br>: Active Sense<br>: Reset | X<br>X<br>X<br>X                 |                            |

## Notes

Mode 1 : OMNI ON, POLY  
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO  
Mode 4 : OMNI OFF, MONO

○ : Yes  
X : No

## MIDI

### 1. MIDI Transmission Output Data

- Only Note ON/OFF message is sent out when any pad is tapped.  
The Note OFF message is sent approximately 10 msec. after the Note ON status is detected.  
If the next Note ON status occurs prior to that interval, however, the Note OFF message will be sent out at the time of that occurrence.
- Note number (ノートNo.)

| Voice    | BASS DRUM | SNARE DRUM | TOM 1 | TOM 2 | TOM 3 | RIDE CYMBAL |
|----------|-----------|------------|-------|-------|-------|-------------|
| Note No. | 45        | 52         | 53    | 50    | 48    | 63          |

| Voice    | CONGA | HH OPEN | HH CLOSE | RIMSHOT | COWBELL | HAND CLAPS |
|----------|-------|---------|----------|---------|---------|------------|
| Note No. | 65    | 59      | 57       | 51      | 55      | 54         |

### Velocity

The DD-5 is equipped with two formats, each with 15 steps of velocity.

| PAD Touch-level | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | A  | B  | C  | D  | E  | F  |
|-----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| VELOCITY 1      | 0F | 17 | 1F | 27 | 2F | 37 | 3F | 47 | 4F | 57 | 5F | 67 | 6F | 77 | 7F |
| VELOCITY 2      | 10 | 18 | 1C | 20 | 24 | 28 | 2C | 30 | 34 | 38 | 3C | 40 | 48 | 50 | 58 |

- Velocity format selection  
VEL1: DEFAULT  
VEL2: Press and hold the volume down (◀), then Power "ON".

### 2. Universal Note Mode

Each pad MIDI note is changed to the universal note mode as follows: set the MIDI note by using the VOLUME controls and pressing the PAD ASSIGN button. If you tap any pad while doing this, the MIDI note will change to the universal note mode. After this, set the MIDI note number by using the VOLUME controls and tapping the pads as you press the PAD ASSIGN button; when you release the PAD ASSIGN button, the note will be set at the corresponding number.

|        |          |         |
|--------|----------|---------|
| VOLUME | UP/DOWN  | +10/-10 |
| PAD    | EACH TAP | +1      |

Max.: 127

To cancel this mode, press both VOLUME controls while pressing and holding the PAD ASSIGN button.

You are now back to the preset status.

- When using this mode, no sound will come from DD-5's speaker.
- START/STOP (FA/FCh), Clock (F8h), SENSING SIGNAL (FEh), Rhythm Select, TEMPO, VOLUME FILL IN, other ON/OFF signals and KEY ON note while using the AUTO RHYTHM are not output by MIDI from the DD-5.

### 1. 送信データ

パッドを打った時の Key ON/OFF データのみが出力します。

Key OFF は、Key ON 後、約10 msec 後、または次の Key ON の直前に出力されます。

### ベロシティー

ベロシティーのフォーマットは2種類あり、各々15ステップからなっています。

- ベロシティーフォーマットは、次のように行います。  
VEL1: デフォルト (RX用)  
VEL2: VOLUME ◀ を押しながら電源を入れます。(PSR/DSR用)

### 2. ユニバーサル・ノート・モード

- PAD を押しながら VOLUME ▶、◀ で、note を 10、20、... 120迄 +10/-10 する。  
この状態で任意のパッドを打つと、UNIVnote モードとなります。
- このモード中は、スピーカからは音はでません。
- 以降は、PAD を押しながら1打目で現在のnoteを出力します。  
2打目からは、note を +1 して出力します。(127まで)  
PAD を離れたときの各パッドの note 番号を、以降出力します。
- PAD を押しながら ▶、◀ 両方 ON で、ノーマルモード (SP から音が出る) に戻ります。

### 3. 次のデータは出力しません。

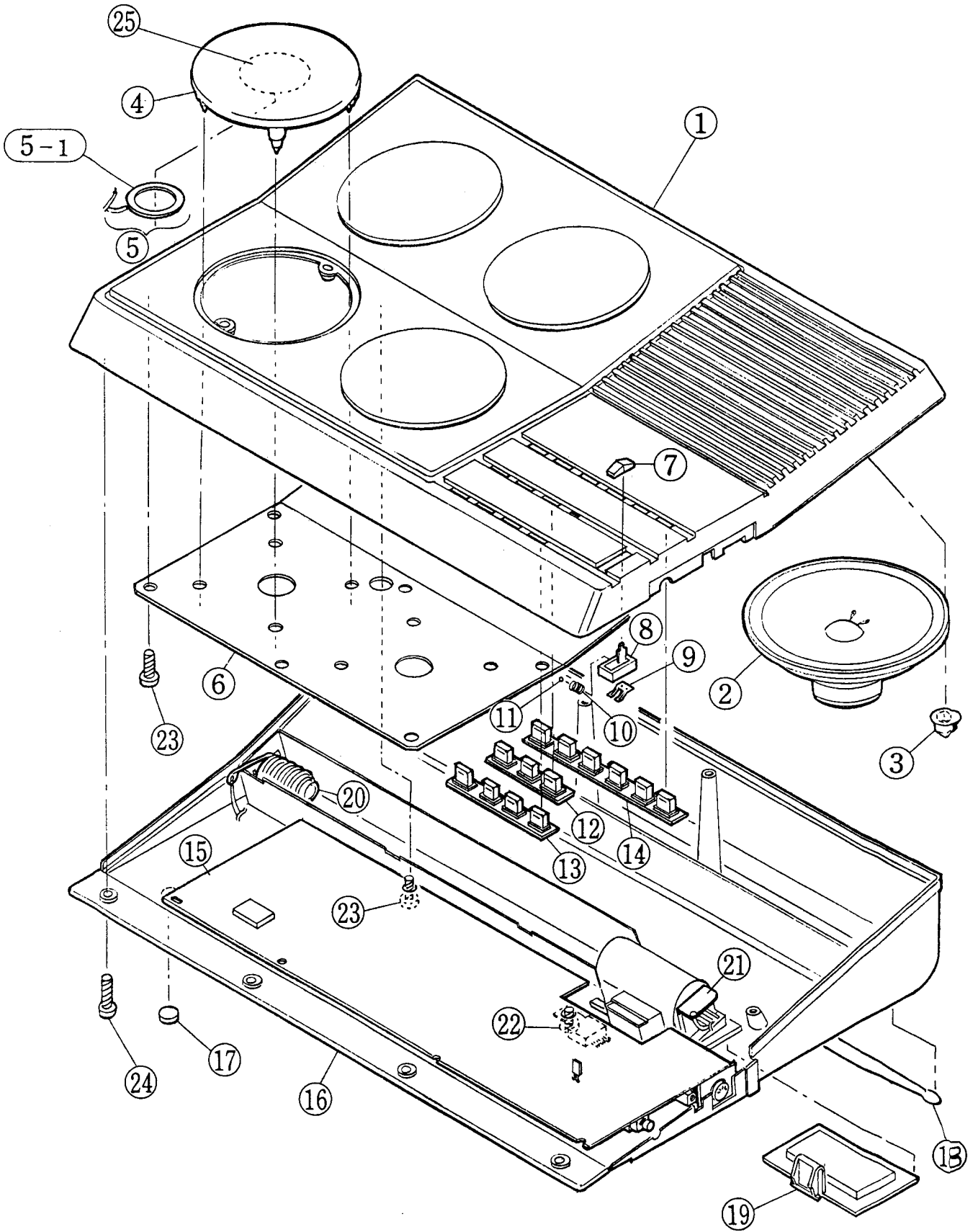
START/STOP (FA/FCh)、clock (F8h)、センス信号 (FEh) 及びリズム選択や TEMPO、VOLUME、FILL IN SW の ON/OFF、Auto リズムでの Key ON ノート。

**DIGITAL DRUMS**



**PARTS LIST**

OVERALL ASSEMBLY (総組立)





OVERALL ASSEMBLY (総組立)

| Ref. No. | Part No. | Description             |              | 部品名            | Remarks         | ランク |
|----------|----------|-------------------------|--------------|----------------|-----------------|-----|
| 1        | VF141800 | Upper Case              |              | 上ケース           |                 | 05  |
| 2        | XE445A00 | Speaker                 | 10cm 6Ω 2W   | スピーカー          |                 | 01  |
| 3        | EK003650 | Self Threading Nut      | SD250095     | セルフスレディングナット   |                 |     |
| 4        | VF125000 | Pad                     | GY           | パッド            |                 |     |
| 5        | VF142200 | Piezo Electric Element  | Ass'y (2)    | 圧電素子 Ass'y (2) |                 |     |
| 5-1      | VF182800 | Piezo Electric Element  | EFB-S29B04   | 圧電素子           |                 | 06  |
| 6        | VF124800 | Plate                   |              | 補強鉄板           |                 | 01  |
| 7        | VF008700 | Knob                    | BL/RED       | スライドツマミ        |                 | 01  |
| 8        | VA811700 | Slider                  | BL           | スライダー          |                 | 01  |
| 9        | BB005650 | Brush                   |              | ブラシ            |                 | 01  |
| 10       | VA917900 | Spring                  |              | バネ             |                 | 01  |
| 11       | EZ001530 | Steel Ball              | φ 2          | スチールボール        |                 | 01  |
| 12       | VF125600 | Key Rubber              | × 3          | キーラバー 3連       | PAD ASS,S/S,1/F |     |
| 13       | VF125500 | Key Rubber              | × 4          | キーラバー 4連       | VOLUME,TEMPO    |     |
| 14       | VF125400 | Key Rubber              | × 6          | キーラバー 6連       | RHYTHM SELECTOR |     |
| 15       | VF011700 | Circuit Board           | M            | Mシート           |                 |     |
| 16       | VF152600 | Lower Case              |              | 下ケース           |                 |     |
| 17       | CB043750 | Foot                    | BL           | ゴム脚            |                 | 01  |
| 18       | VF126200 | Stick                   |              | スティック          |                 |     |
| 19       | VE791400 | Battery Panel           | BL           | 電池フタ           |                 | 03  |
| 20       | VA914100 | Spring Terminal         | -            | 接点バネ           |                 | 01  |
| 21       | BB005570 | Terminal                | +            | 端子板            |                 | 01  |
| 22       | EI030066 | Bind Head Tapping Screw | 3.0X6 ZMC2Y  | ハインドタッピングネジ    |                 | 01  |
| 23       | EI030086 | Bind Head Tapping Screw | 3.0X8 ZMC2Y  | ハインドタッピングネジ    |                 | 01  |
| 24       | EI030126 | Bind Head Tapping Screw | 3.0X12 ZMC2Y | ハインドタッピングネジ    |                 | 01  |
| 25       | VF607900 | Tape                    |              | 粘着テープ          |                 |     |

\* : New Parts (新規部品) NR

ランク : Japan Only



# YAMAHA MUSIKINSTRUMENTE

DIN A4: 14  
DIN A3: 2  
DIN A2:  
DIN A1:

TYP: DD-5  
LFDNR: 85  
VORRAT:

PREIS SCHALTPLÄNE :  
PREIS GESAMTANLEITUNG:

HZ:

PRODUKTION: