

# Easy Guitar

# EZ-AG

## SERVICE MANUAL



### ■ CONTENTS

|                                 |    |
|---------------------------------|----|
| SPECIFICATIONS .....            | 3  |
| PANEL LAYOUT .....              | 4  |
| CIRCUIT BOARD LAYOUT .....      | 5  |
| BLOCK DIAGRAM .....             | 6  |
| DISASSEMBLY PROCEDURE .....     | 7  |
| LSI PIN DESCRIPTION .....       | 9  |
| IC BLOCK DIAGRAM .....          | 11 |
| CIRCUIT BOARDS .....            | 12 |
| TEST PROGRAM .....              | 16 |
| INSPECTION .....                | 18 |
| MIDI IMPLEMENTATION CHART ..... | 19 |
| PARTS LIST                      |    |
| OVERALL CIRCUIT DIAGRAM         |    |

### 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 :** This 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 principal-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 bus in the unit (heavy gauge black wires connect to this bus.)

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

### WARNING: CHEMICAL CONTENT NOTICE!


The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (Where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

**DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER EVER!**

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

## ■ WARNING

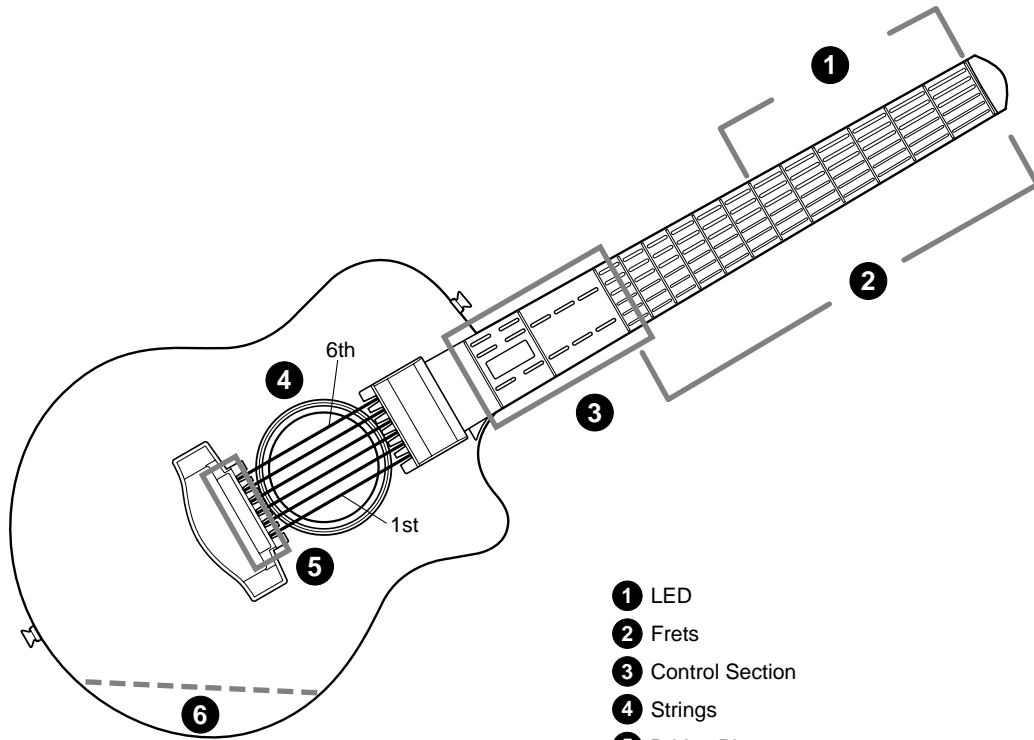
Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

## ■ SPECIFICATIONS

|                               |  |
|-------------------------------|--|
| <b>Strings</b>                | 6  |
| <b>Frets</b>                  | 12   |
| <b>Displays</b>               | LED display, 6 x 6 fret LEDs   |
| <b>Sounds</b>                 | 9 guitar, 8 bass, 3 others   |
| <b>Play Modes</b>             | STRUM (right hand), CHORD (left hand), BOTH (both hands)   |
| <b>Controls</b>               | [STANDBY/ON] switch, [STRUM] button, [CHORD] button, [BOTH] button, [DEMO] button, [SOUND] button, [SONG] button, [TEMPO] button, [VOLUME] button, [CAPO] button, [TUNING] button, VALUE [+]/[-] buttons |
| <b>Songs</b>                  | 25 (additional songs can be loaded into internal memory from a computer)   |
| <b>Tempo Range</b>            | 32 - 280   |
| <b>Volume Range</b>           | 0 - 127  |
| <b>Balance Range</b>          | 0 - 127  |
| <b>Capo Range</b>             | 0 - 6  |
| <b>Tuning</b>                 | 28 tuning settings in addition to normal   |
| <b>Connectors</b>             | DC IN 12V, PHONES/OUTPUT, MIDI IN and MIDI OUT   |
| <b>Maximum Output Power</b>   | 3.3 W (When using PA-3C AC adaptor)<br>1.4 W (batteries)   |
| <b>PHONES/OUTPUT</b>          | Output impedance: 77 $\Omega$  |
| <b>Speaker</b>                | 10 cm  |
| <b>Power Supply</b>           | PA-3B or PA-3C AC Power Adaptor<br>Six 1.5 V LR6, ALKALINE "AA" SIZE   |
| <b>Power Consumption</b>      | 6.5 W (using the PA-3C)  |
| <b>Dimensions (w x d x h)</b> | 863 x 307 x 81 mm (34" x 12" x 3-1/4")   |
| <b>Weight</b>                 | 1.9 kg (4 lbs. 3oz.) (w/o batteries)   |

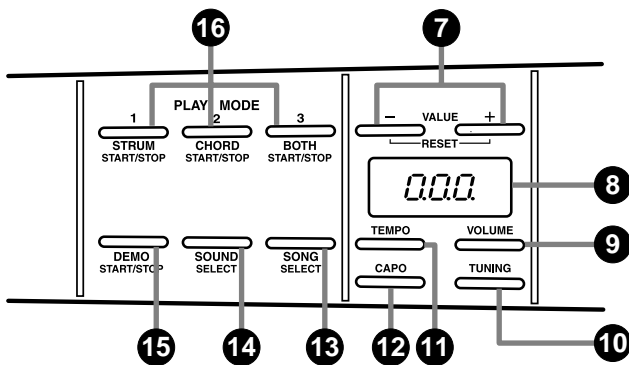
# ■ PANEL LAYOUT

## • Body



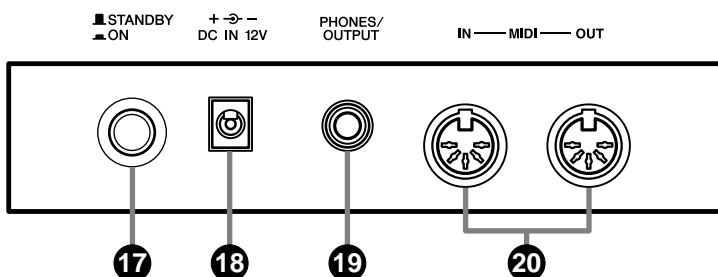
- 1 LED
- 2 Frets
- 3 Control Section
- 4 Strings
- 5 Bridge Plate
- 6 Connector & Power Switch Section

## • Control Section



- 7 VALUE [+]/[-] buttons
- 8 Display
- 9 [VOLUME] button
- 10 [TUNING] button
- 11 [TEMPO] button
- 12 [CAPO] button
- 13 [SONG] button
- 14 [SOUND] button
- 15 [DEMO] button
- 16 PLAY MODE  
[1]/[STRUM], [2]/[CHORD], [3]/[BOTH] buttons

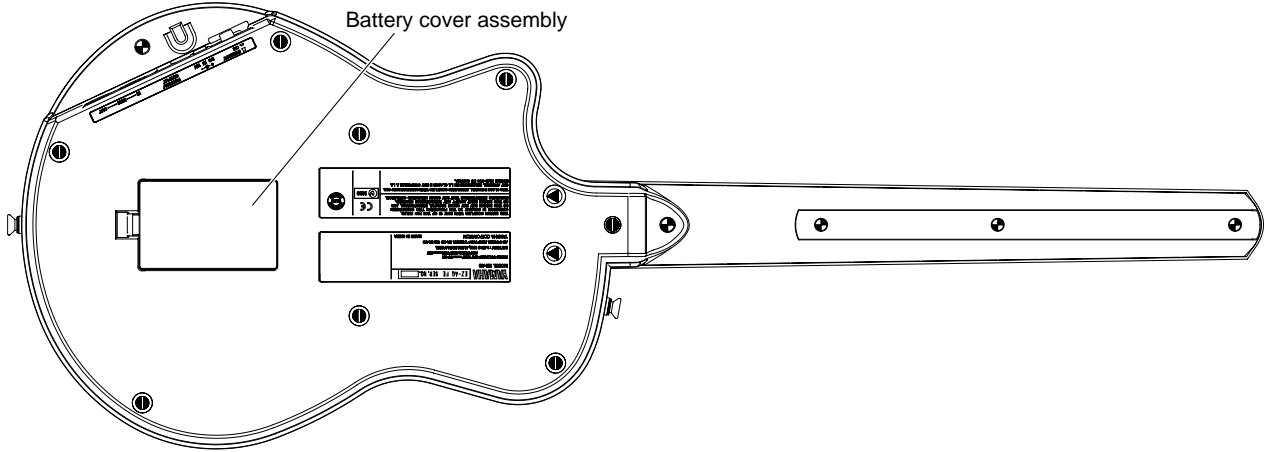
## • Connector & Power Switch Section



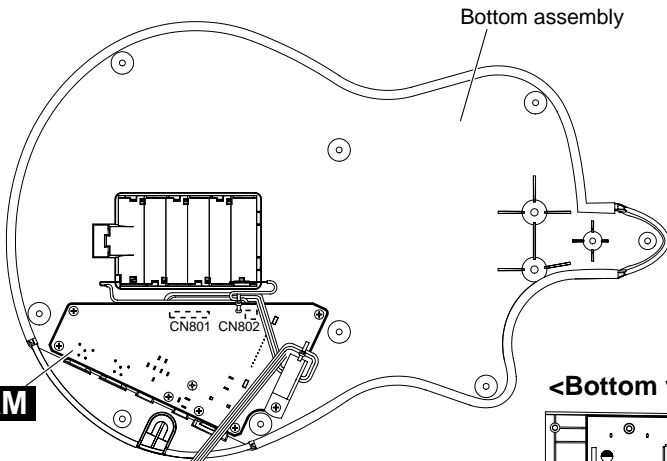
- 17 Power Switch ([STANDBY/ON])
- 18 DC IN 12V jack
- 19 PHONES/OUTPUT jack
- 20 MIDI IN/MIDI OUT connectors

# CIRCUIT BOARD LAYOUT

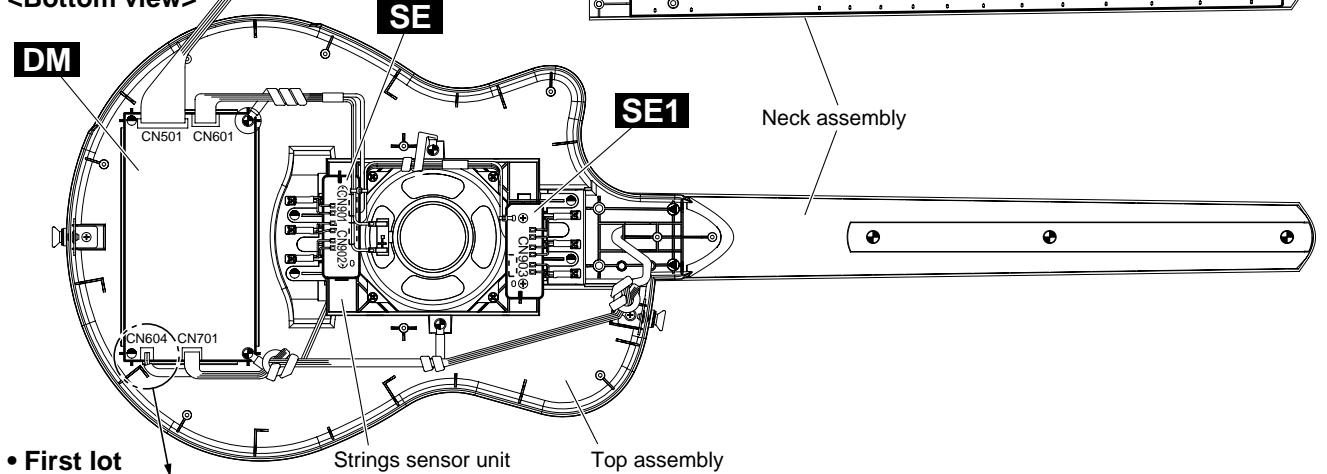
<Bottom view>



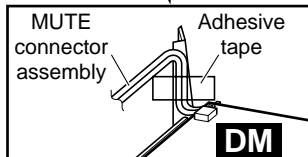
<Top view>



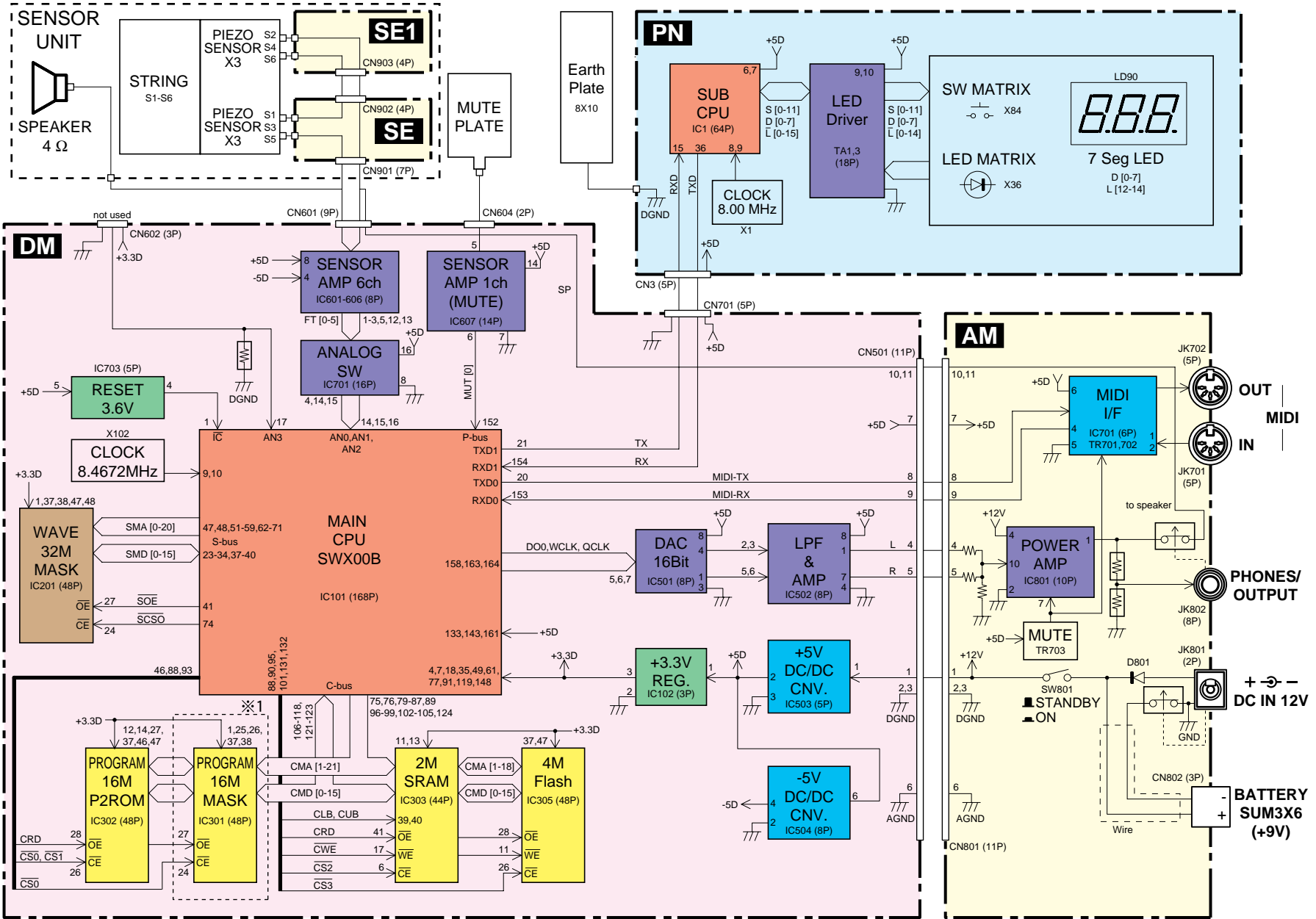
<Bottom view>



• First lot



BLOCK DIAGRAM



\*1: IC301 or IC302 are mounted.

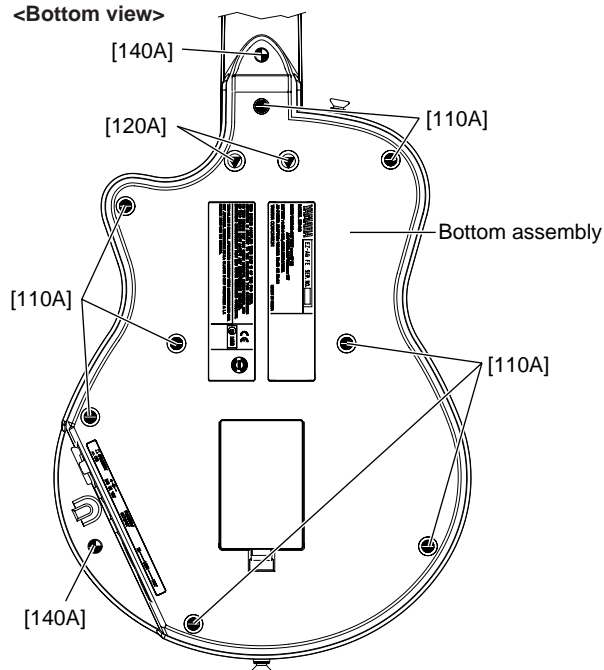
□: solder

## DISASSEMBLY PROCEDURE

**Caution:** Be sure to attach the removed filament tape just as it was before removal.

### 1. Bottom Assembly (Time required: About 2 minutes)

- 1-1 Remove the eight (8) screws marked [110A], the two (2) screws marked [120A] and the two (2) screws marked [140A]. The bottom assembly can then be removed. (Fig. 1)



[110A]: Bind Head Tapping Screw-B 3.0X12 MFZN2Y (VE683000)  
 [120A]: Bind Head Tapping Screw-B 4.0X35 MFZN2Y (WB535600)  
 [140A]: Bind Head Tapping Screw-B 3.0X12 MFZN2BL (VQ074600)

(Fig. 1)

### 3. DM Circuit Board (Time required: About 3 minutes)

- 3-1 Remove the bottom assembly. (See procedure 1.)  
 3-2 Remove the two (2) screws marked [130A] and the two (2) screws marked [140B]. The DM circuit board can then be removed. (Fig. 3)

### 4. SE (SE+SE1) Circuit Board, Speaker

- 4-1 Remove the bottom assembly. (See procedure 1.)  
 4-2 **SE (SE+SE1) Circuit Board**

(Time required: About 4 minutes):

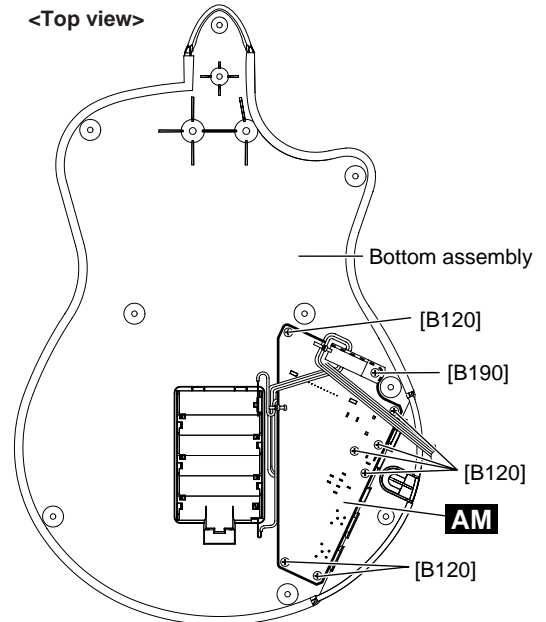
- 4-2-1 Remove the four (4) screws marked [110B]. (Fig. 3)  
 4-2-2 Remove the solder from the two locations shown as A (the speaker terminals) and then remove the solder from the twelve locations shown as B (the sensor wire). The SE (SE+SE1) circuit board can then be removed. (Fig. 3)

- 4-3 **Speaker (Time required: About 3 minutes):**

- 4-3-1 Remove the four (4) screws marked [110C]. The speaker can then be removed. (Fig. 3)

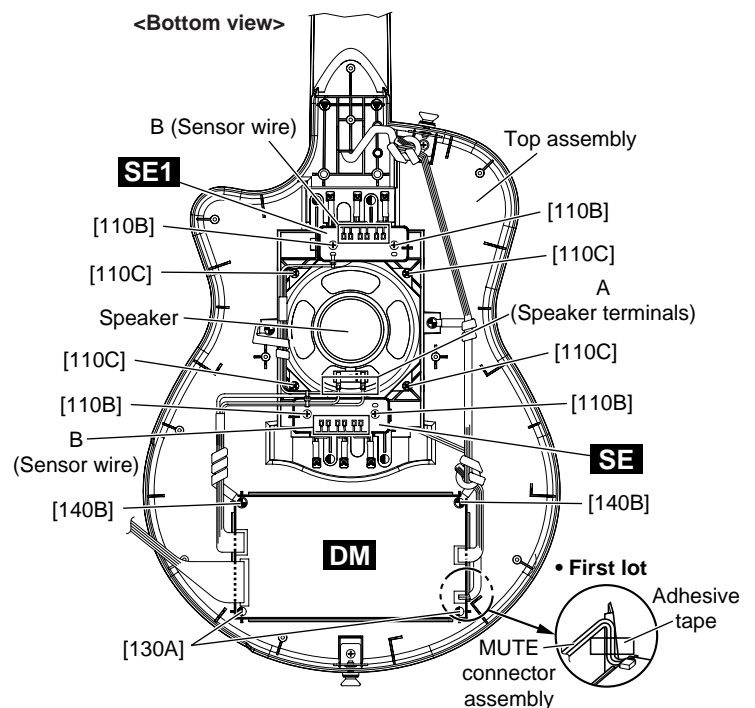
### 2. AM Circuit Board (Time required: About 4 minutes)

- 2-1 Remove the bottom assembly. (See procedure 1.)  
 2-2 Remove the seven (7) screws marked [B120] and the screw marked [B190]. The AM circuit board can then be removed. (Fig. 2)



[B120]: Bind Head Tapping Screw-B 3.0X8 MFZN2Y (EP600250)  
 [B190]: Bind Head Tapping Screw-B 3.0X12 MFZN2BL (VQ074600)

(Fig. 2)



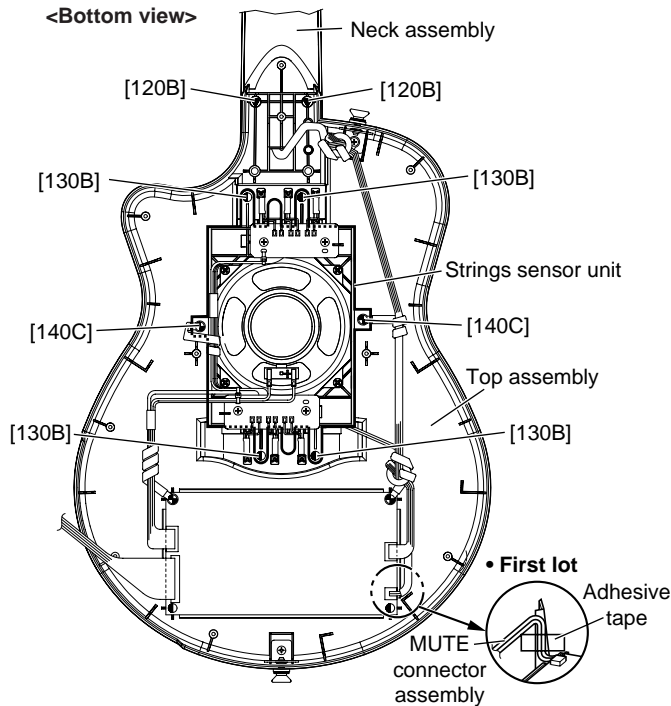
[110]: Bind Head Tapping Screw-B 3.0X8 MFZN2Y (EP600250)  
 [130A]: Bind Head Tapping Screw-B 3.0X8 MFZN2Y (EP600250)  
 [140B]: Bind Head Tapping Screw-B 3.0X12 MFZN2BL (VQ074600)

(Fig. 3)

**5. Strings Sensor Unit**

(Time required: About 3 minutes)

- 5-1 Remove the bottom assembly. (See procedure 1.)
- 5-2 Remove the four (4) screws marked [130B] and the two (2) screws marked [140C]. The strings sensor unit can then be removed. (Fig. 4)



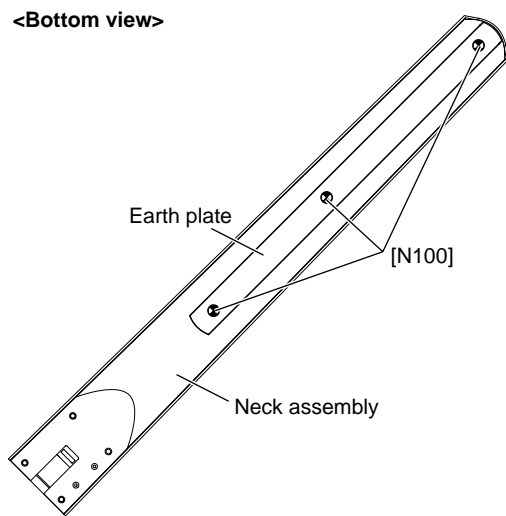
- [120B]: Bind Head Tapping Screw-B 4.0X35 MFZN2Y (WB535600)
- [130B]: Bind Head Tapping Screw-B 3.0X8 MFZN2Y (EP600250)
- [140C]: Bind Head Tapping Screw-B 3.0X12 MFZN2BL (VQ074600)

(Fig. 4)

**6. PN Circuit Board, Key Top Rubber**

(Time required: About 4 minutes)

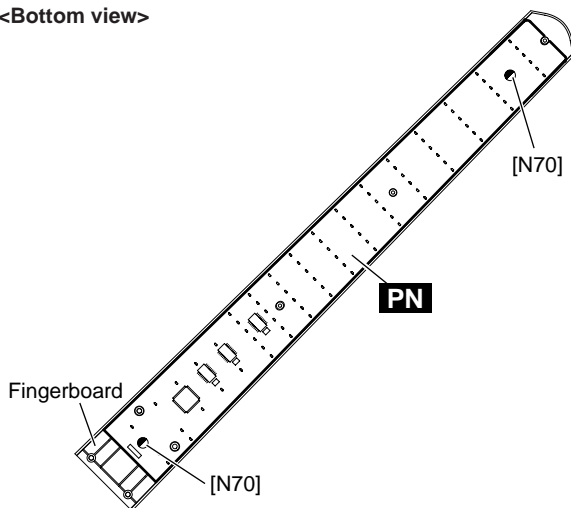
- 6-1 Remove the bottom assembly. (See procedure 1.)
- 6-2 Remove the three (3) screws marked [N100]. The earth plate can then be removed. (Fig. 5)
- 6-3 Remove the two (2) screws marked [120B]. The neck assembly can then be removed. (Fig. 4) (Come off the wire from the connector of the neck assembly side.)
- 6-4 Remove the two (2) screws marked [N70] from the fingerboard. The PN circuit board and the key top rubber can then be removed. (Fig. 6, 7)



- [N100]: Flat Head Tapping Screw-B 3.0X16 MFZN2BL (WB329400)

(Fig. 5)

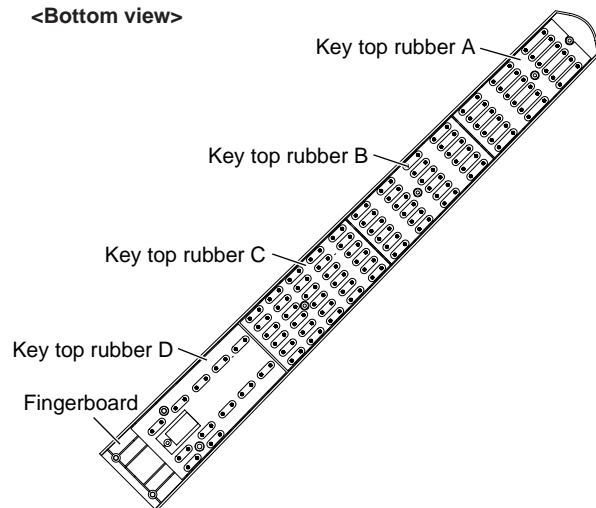
<Bottom view>



- [N70]: Bind Head Tapping Screw-B 3.0X8 MFZN2Y (EP600250)

(Fig. 6)

<Bottom view>



(Fig. 7)



# LSI PIN DESCRIPTION

## ● MN101C027YB (XS711200) CPU

PN: IC001

| PIN NO. | NAME  | I/O | FUNCTION             | PIN NO. | NAME | I/O                         | FUNCTION             |
|---------|-------|-----|----------------------|---------|------|-----------------------------|----------------------|
| 1       | S1    | I   | } Switch matrix data | 33      | S12  | I                           | } Switch matrix data |
| 2       | S2    | I   |                      | 34      | S13  | I                           |                      |
| 3       | S3    | I   |                      | 35      | S14  | I                           |                      |
| 4       | S4    | I   |                      | 36      | TXD  | O                           | MIDI transmit data   |
| 5       | S5    | I   |                      | 37      | S15  | I                           | } Switch matrix data |
| 6       | VREF+ | -   | 38                   | S16     | I    |                             |                      |
| 7       | VDD   | -   | 39                   | S17     | I    |                             |                      |
| 8       | OSC2  | O   | 40                   | S18     | I    | } Switch matrix data        |                      |
| 9       | OSC1  | I   | 41                   | L16     | O    |                             |                      |
| 10      | VSS   | -   | 42                   | L17     | O    |                             |                      |
| 11      | XI    | I   | 43                   | L18     | O    | } LED drive data            |                      |
| 12      | XO    | O   | 44                   | L19     | O    |                             |                      |
| 13      | MMOD  | I   | 45                   | L8      | O    |                             |                      |
| 14      | RD0   | O   | 46                   | L9      | O    | } LED drive data            |                      |
| 15      | RXD   | I   | 47                   | L10     | O    |                             |                      |
| 16      | D0    | O   | 48                   | L11     | O    |                             |                      |
| 17      | D1    | O   | 49                   | L12     | O    | } LED and switch drive data |                      |
| 18      | D2    | O   | 50                   | L13     | O    |                             |                      |
| 19      | D3    | O   | 51                   | L14     | O    |                             |                      |
| 20      | D4    | O   | 52                   | L15     | O    | } LED and switch drive data |                      |
| 21      | /RST  | I   | 53                   | L7      | O    |                             |                      |
| 22      | D5    | O   | 54                   | L6      | O    |                             |                      |
| 23      | D6    | O   | 55                   | L5      | O    | } LED and switch drive data |                      |
| 24      | D7    | O   | 56                   | L4      | O    |                             |                      |
| 25      | D8    | O   | 57                   | L3      | O    |                             |                      |
| 26      | D9    | O   | 58                   | L2      | O    | } LED and switch drive data |                      |
| 27      | S6    | I   | 59                   | L1      | O    |                             |                      |
| 28      | S7    | I   | 60                   | L0      | O    |                             |                      |
| 29      | S8    | I   | 61                   | VREF    | -    | Grounded                    |                      |
| 30      | S9    | I   | 62                   | AD0     | I    | Analog input                |                      |
| 31      | S10   | I   | 63                   | AD1     | I    | Analog input                |                      |
| 32      | S11   | I   | 64                   | S0      | I    | Switch matrix data          |                      |

## ● HG73C205AFD (XU947C00) SWX00B (Tone Generator)

DM: IC101

| PIN NO. | NAME     | I/O | FUNCTION             | PIN NO. | NAME   | I/O | FUNCTION                   |
|---------|----------|-----|----------------------|---------|--------|-----|----------------------------|
| 1       | ICN      | I   | Initial clear        | 85      | CMA3   | O   | Program address bus        |
| 2       | RFCLKI   | I   | PLL Clock            | 86      | CMA8   | O   | Program address bus        |
| 3       | TM2      | I   | PLL Control          | 87      | CMA2   | O   | Program address bus        |
| 4       | AVDD_PLL |     | Power supply         | 88      | CRD    | O   | read signal                |
| 5       | AVSS_PLL |     | Ground               | 89      | CMA1   | O   | Program address bus        |
| 6       | MODE0    | I   | SWX dual mode        | 90      | CUB    | O   | high byte effective signal |
| 7       | VCC7     |     | Power supply         | 91      | VCC91  |     | Power supply               |
| 8       | GND8     |     | Ground               | 92      | GHND92 |     | Ground                     |
| 9       | XIN      | I   | crystal oscillator   | 93      | CS1    | O   | CS signal                  |
| 10      | XOUT     | O   | crystal oscillator   | 94      | CMA0   | O   | Program address bus        |
| 11      | MODE1    | I   | SWX separate mode    | 95      | CLB    | O   | low byte effective signal  |
| 12      | TEST0    | I   | TEST pin             | 96      | CMA12  | O   | Program address bus        |
| 13      | TESTON   | I   | TEST pin             | 97      | CMA11  | O   | Program address bus        |
| 14      | AN0-P40  | I   | A/D converter        | 98      | CMA10  | O   | Program address bus        |
| 15      | AN1-P41  | I   | A/D converter        | 99      | CMA9   | O   | Program address bus        |
| 16      | AN2-P42  | I   | A/D converter        | 100     | GND100 |     | Ground                     |
| 17      | AN3-P43  | I   | A/D converter        | 101     | CWE    | O   | write signal               |
| 18      | AVDD_AN  |     | Power supply         | 102     | CMA16  | O   | Program address bus        |
| 19      | AVSS_AN  |     | Ground               | 103     | CMA15  | O   | Program address bus        |
| 20      | TXD0     | O   | for MIDI or TO-HOST  | 104     | CMA14  | O   | Program address bus        |
| 21      | TXD1     | O   | for MIDI             | 105     | CMA13  | O   | Program address bus        |
| 22      | EXCLK    | O   | PORT-E2              | 106     | CMD8   | I/O | Program memory Data bus    |
| 23      | SMD11    | I/O | Wave memory data bus | 107     | CMD7   | I/O | Program memory Data bus    |
| 24      | SMD4     | I/O | Wave memory data bus | 108     | CMD9   | I/O | Program memory Data bus    |
| 25      | SMD3     | I/O | Wave memory data bus | 109     | CMD6   | I/O | Program memory Data bus    |
| 26      | SMD12    | I/O | Wave memory data bus | 110     | CMD10  | I/O | Program memory Data bus    |
| 27      | SMD10    | I/O | Wave memory data bus | 111     | CMD5   | I/O | Program memory Data bus    |
| 28      | SMD5     | I/O | Wave memory data bus | 112     | CMD11  | I/O | Program memory Data bus    |
| 29      | SMD2     | I/O | Wave memory data bus | 113     | CMD4   | I/O | Program memory Data bus    |
| 30      | SMD13    | I/O | Wave memory data bus | 114     | CMD12  | I/O | Program memory Data bus    |
| 31      | SMD9     | I/O | Wave memory data bus | 115     | CMD3   | I/O | Program memory Data bus    |
| 32      | SMD6     | I/O | Wave memory data bus | 116     | CMD13  | I/O | Program memory Data bus    |
| 33      | SMD1     | I/O | Wave memory data bus | 117     | CMD2   | I/O | Program memory Data bus    |
| 34      | SMD14    | I/O | Wave memory data bus | 118     | CMD14  | I/O | Program memory Data bus    |
| 35      | VCC35    |     | Power supply         | 119     | VCC119 |     | Power supply               |
| 36      | GND36    |     | Ground               | 120     | GND115 |     | Ground                     |
| 37      | SMD8     | I/O | Wave memory data bus | 121     | CMD1   | I/O | Program memory Data bus    |
| 38      | SMD7     | I/O | Wave memory data bus | 122     | CMD15  | I/O | Program memory Data bus    |
| 39      | SMD0     | I/O | Wave memory data bus | 123     | CMD0   | I/O | Program memory Data bus    |
| 40      | SMD15    | I/O | Wave memory data bus | 124     | CMA21  | O   | Program address bus        |
| 41      | SOE      | O   | read signal          | 125     | PDT15  | I/O | SWX access data bus        |
| 42      | SWE      | O   | write signal         | 126     | PDT14  | I/O | SWX access data bus        |
| 43      | SRAS     | O   | RAS signal           | 127     | PDT13  | I/O | SWX access data bus        |
| 44      | SCAS     | O   | CAS signal           | 128     | PDT12  | I/O | SWX access data bus        |
| 45      | REFRESH  | O   | REFRESH signal       | 129     | PDT11  | I/O | SWX access data bus        |
| 46      | CS0      | O   | CS signal            | 130     | PDT10  | I/O | SWX access data bus        |
| 47      | SMA0     | O   | Memory address bus   | 131     | PDT9   | I/O | SWX access data bus        |
| 48      | SMA16    | O   | Memory address bus   | 132     | PDT8   | I/O | SWX access data bus        |
| 49      | VCC49    |     | Power supply         | 133     | VCC133 |     | Power supply               |
| 50      | GND50    |     | Ground               | 134     | GND134 |     | Ground                     |
| 51      | SMA1     | O   | Memory address bus   | 135     | PDT7   | I/O | SWX access data bus        |
| 52      | SMA15    | O   | Memory address bus   | 136     | PDT6   | I/O | SWX access data bus        |
| 53      | SMA2     | O   | Memory address bus   | 137     | PDT5   | I/O | SWX access data bus        |
| 54      | SMA14    | O   | Memory address bus   | 138     | PDT4   | I/O | SWX access data bus        |
| 55      | SMA3     | O   | Memory address bus   | 139     | PDT3   | I/O | SWX access data bus        |
| 56      | SMA13    | O   | Memory address bus   | 140     | PDT2   | I/O | SWX access data bus        |
| 57      | SMA4     | O   | Memory address bus   | 141     | PDT1   | I/O | SWX access data bus        |
| 58      | SMA12    | O   | Memory address bus   | 142     | PDT0   | I/O | SWX access data bus        |
| 59      | SMA5     | O   | Memory address bus   | 143     | VCA143 |     | Power supply               |
| 60      | GND60    |     | Ground               | 144     | GND144 |     | Ground                     |
| 61      | VCC61    |     | Power supply         | 145     | PAD2   | I   | SWX access address bus     |
| 62      | SMA11    | O   | Memory address bus   | 146     | PAD1   | I   | SWX access address bus     |
| 63      | SMA6     | O   | Memory address bus   | 147     | PAD0   | I   | SWX access address bus     |
| 64      | SMA10    | O   | Memory address bus   | 148     | VCC148 |     | Power supply               |
| 65      | SMA7     | O   | Memory address bus   | 149     | GND149 |     | Ground                     |
| 66      | SMA9     | O   | Memory address bus   | 150     | PCS    | I   | Chip select                |
| 67      | SMA17    | O   | Memory address bus   | 151     | PWR    | I   | write enable               |
| 68      | SMA8     | O   | Memory address bus   | 152     | PRD    | I   | read enable                |
| 69      | SMA18    | O   | Memory address bus   | 153     | RXD0   | I   | for Midi or TO-HOST        |
| 70      | SMA19    | O   | Memory address bus   | 154     | RXD1   | I   | for Midi or Key scan       |
| 71      | SMA20    | O   | Memory address bus   | 155     | SCLKI  | I   | EXT Clock                  |
| 72      | SMA21    | O   | Memory address bus   | 156     | ADIN   | I   | A/D converter              |
| 73      | SMA22    | O   | Memory address bus   | 157     | ADLR   | O   | A/D converter LR clock     |
| 74      | SMA23    | O   | Memory address bus   | 158     | DO0    | O   | DAC                        |
| 75      | CMA20    | O   | Program address bus  | 159     | DO1    | O   | DAC                        |
| 76      | CMA19    | O   | Program address bus  | 160     | SYSCLK | O   | 1/2 clock                  |
| 77      | VCC77    |     | Power supply         | 161     | VCC161 |     | Power supply               |
| 78      | GND78    |     | Ground               | 162     | GND162 |     | Ground                     |
| 79      | CMA18    | O   | Program address bus  | 163     | WCLK   | O   | for DAC LR clock           |
| 80      | CMA17    | O   | Program address bus  | 164     | QCLK   | O   | 1/12 clock                 |
| 81      | CMA5     | O   | Program address bus  | 165     | BCLK   | O   | IIS-DAC clock              |
| 82      | CMA6     | O   | Program address bus  | 166     | SYI    | I   | Synch signal               |
| 83      | CMA4     | O   | Program address bus  | 167     | IRQ0   | I   | Interrupt request          |
| 84      | CMA7     | O   | Program address bus  | 168     | NMI    | I   | Interrupt request          |

# IC BLOCK DIAGRAM

- **74HCU04DT** (XZ110A00)

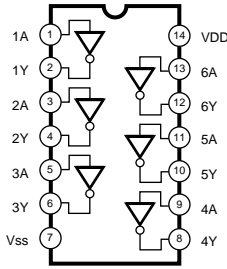
DM: IC607

- **TC74HCT04AF-T1** (XI297A00)

- **MM74HCU04SJX** (X0294A00)

DM: IC702

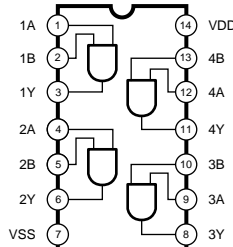
Hex Inverter



- **HD74LVC08FP** (XU720A00)

DM: IC306

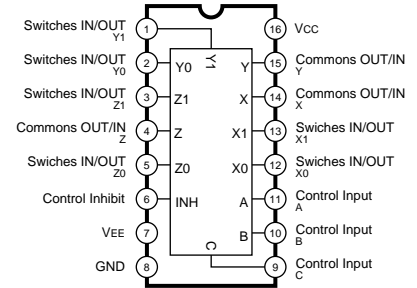
Quad 2 Input AND



- **SN74LV4053APWR** (X2719A00)

DM: IC701

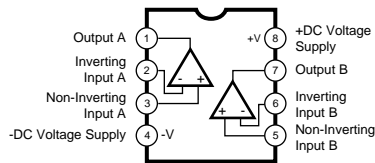
Triple 2-Channel Multiplexer/Demultiplexer



- **NJM4580E-T1** (XQ178A00)

DM: IC502

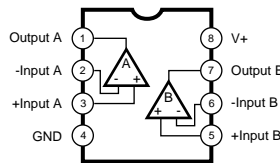
Dual Operational Amplifier



- **NJM12904V(TE1)** (X3836A00)

DM: IC601-606

Dual Operational Amplifier

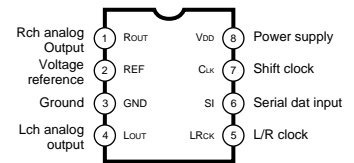


- **μPD6379AGR** (XR998A00)

- **μPD6379AGR-E1** (XS027A00)

DM: IC501

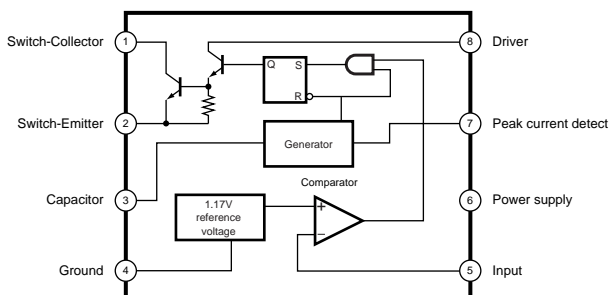
D/A Converter



- **M5291FP-600C** (XR858A00)

DM: IC504

DC-DC Converter



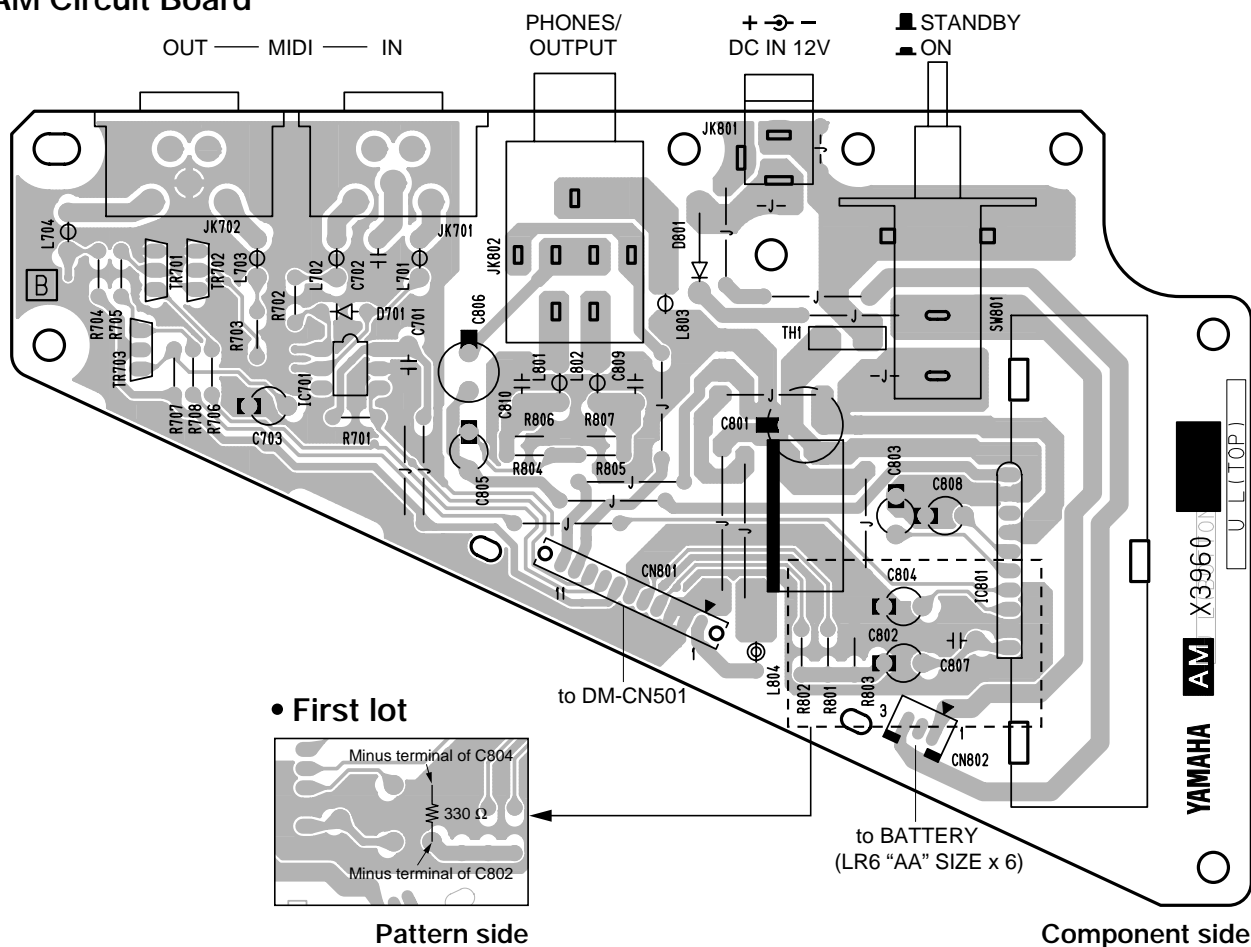
# CIRCUIT BOARDS

● CONTENTS

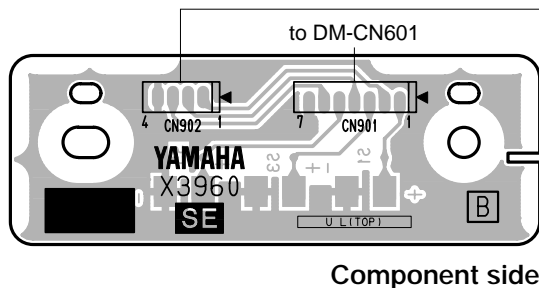
- AM Circuit Board (X3960B0) ..... 12
- DM Circuit Board (X4489B0) ..... 13
- PN Circuit Board (X3961B0) ..... 14/15
- SE Circuit Board (X3960B0) ..... 12
- SE1 Circuit Board (X3960B0) ..... 12

Note: See parts list for details of circuit board component parts.

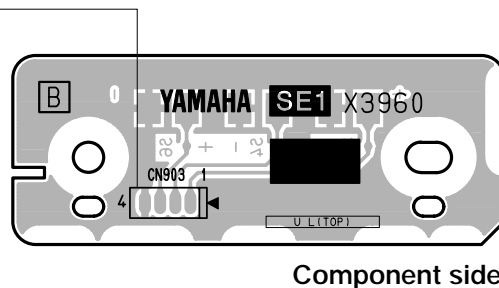
● AM Circuit Board



● SE Circuit Board

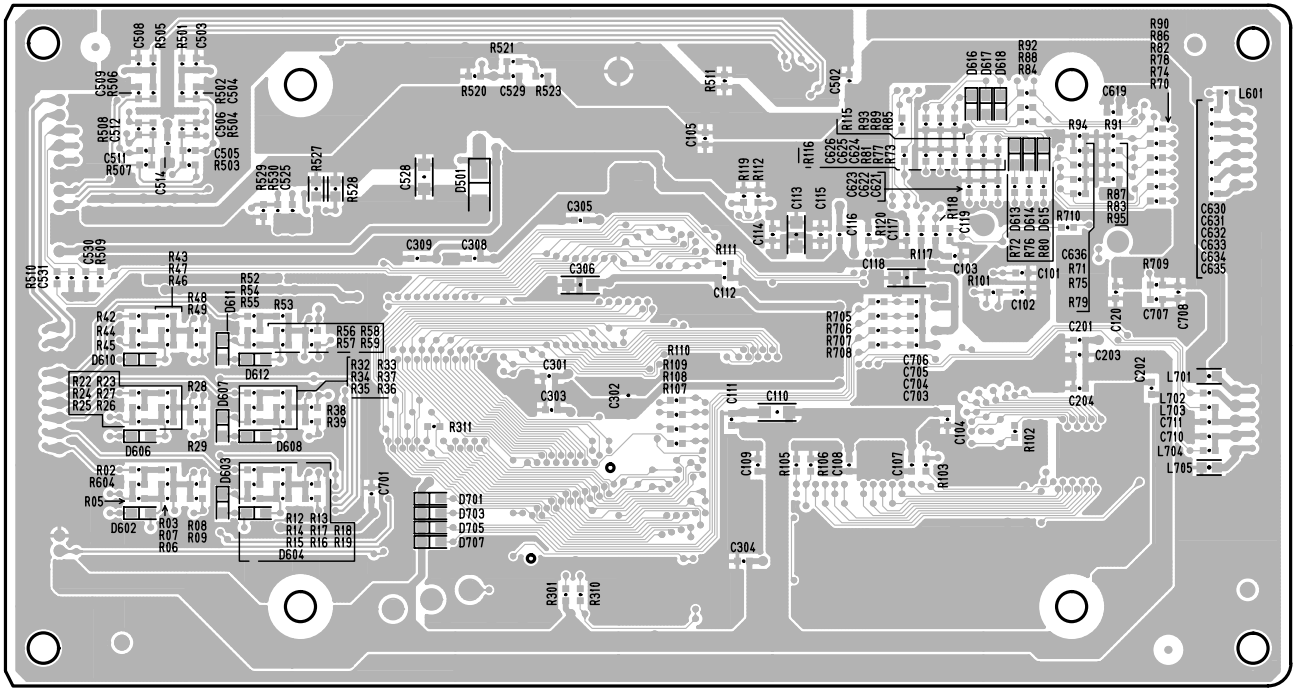
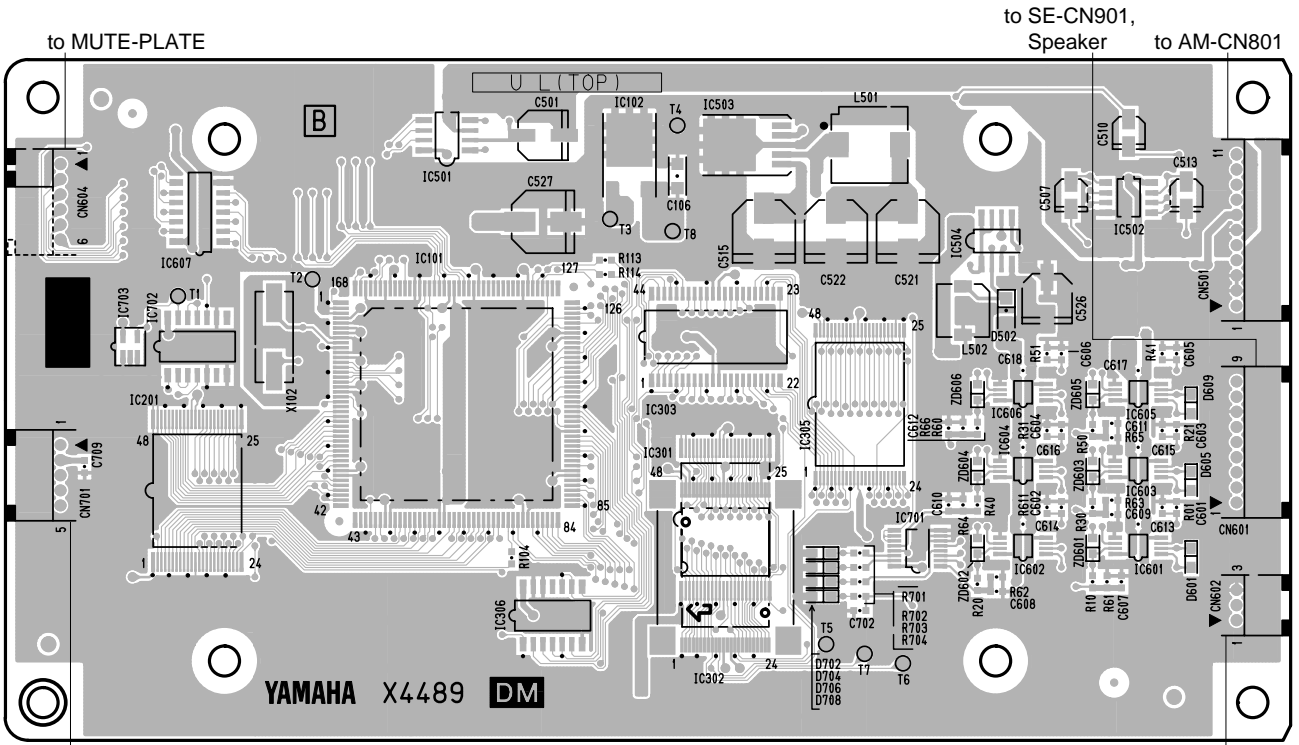


● SE1 Circuit Board

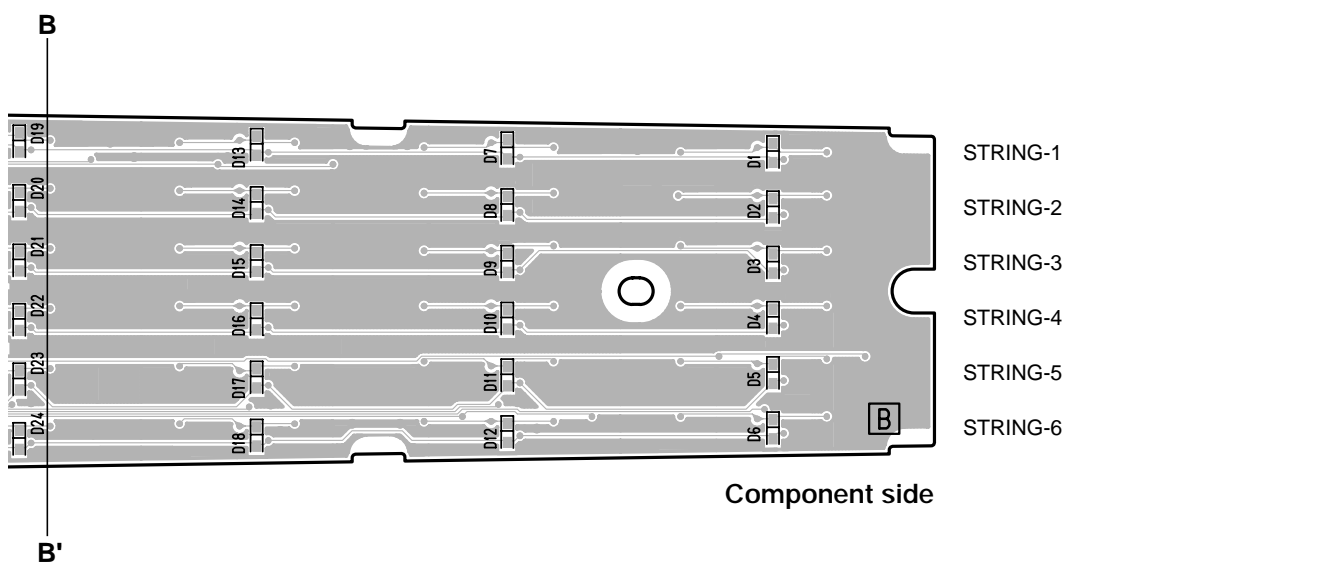
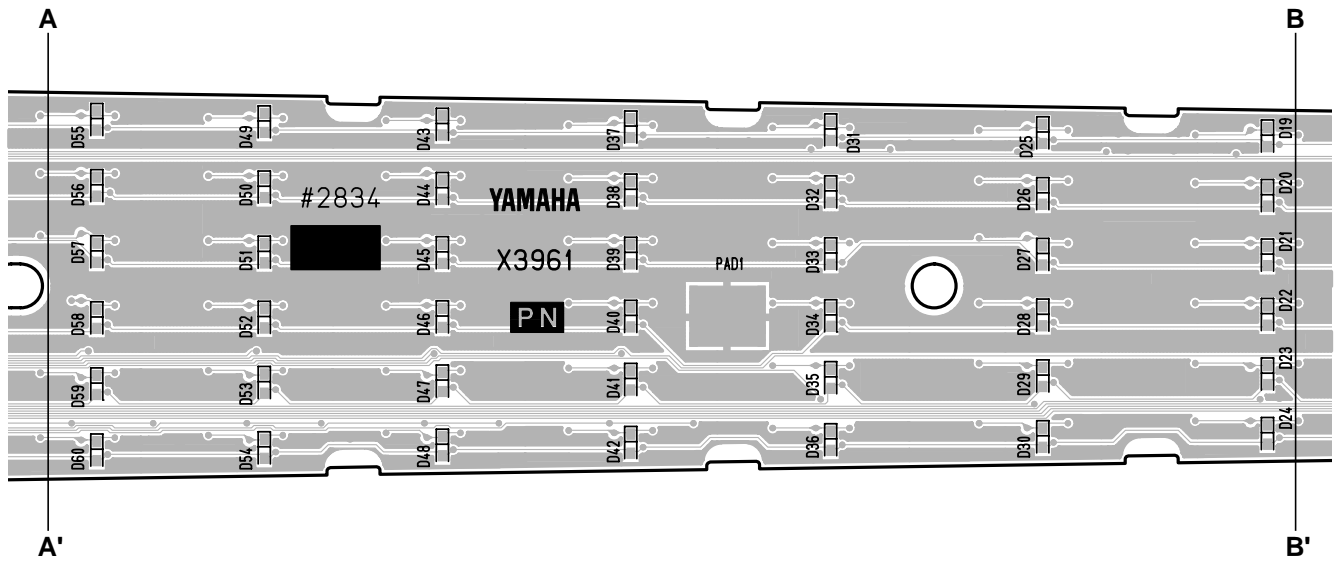
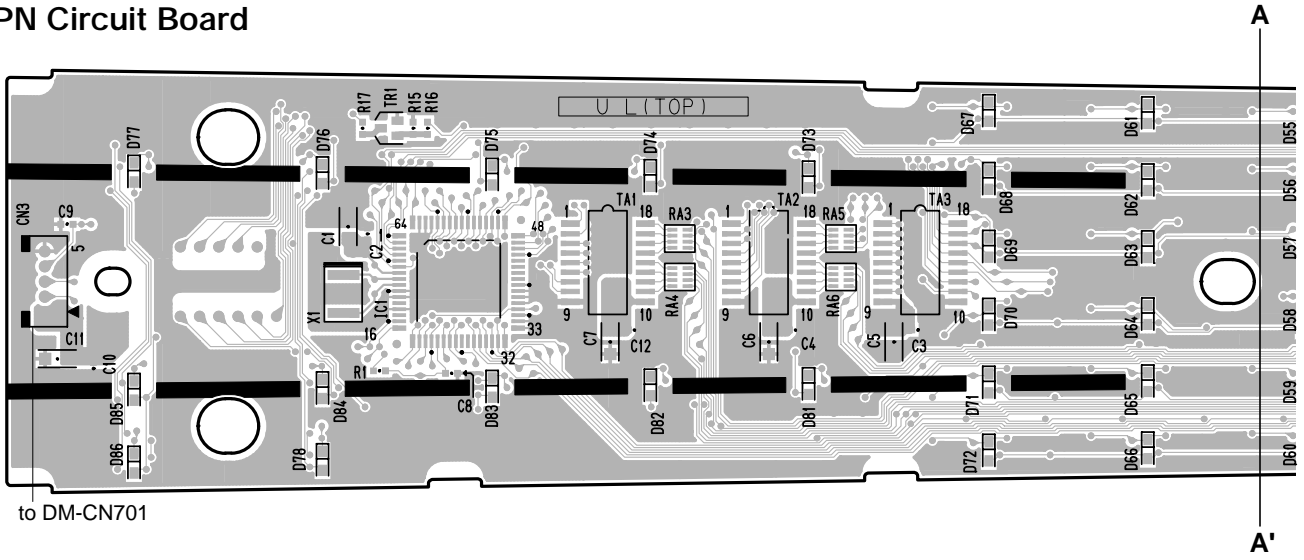


AM, SE, SE1: 2NA-WA83390

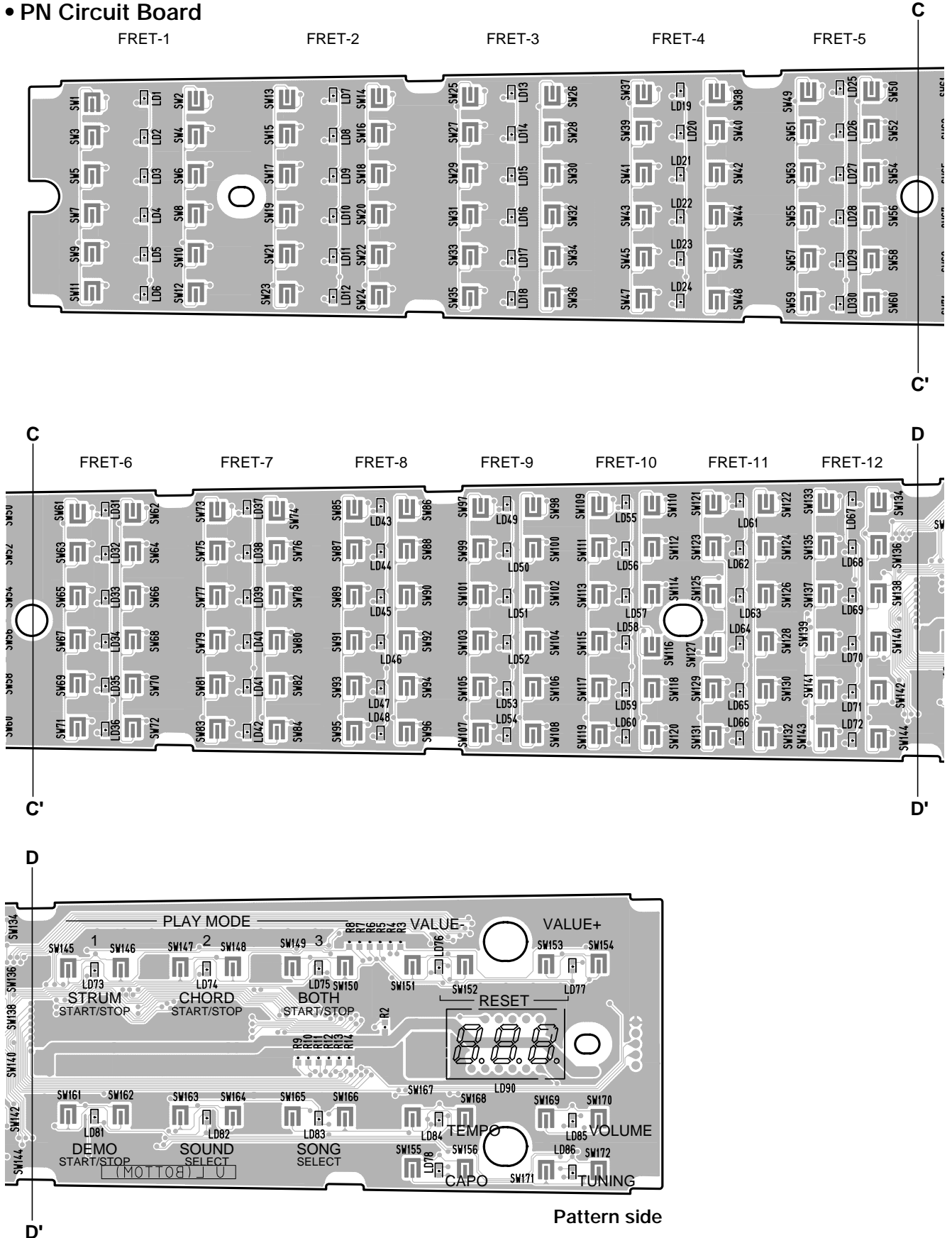
• DM Circuit Board



• PN Circuit Board



• PN Circuit Board



## ■ TEST PROGRAM

### 1. Preparation

PA-3C, PA-32 (AC adaptor) is used.

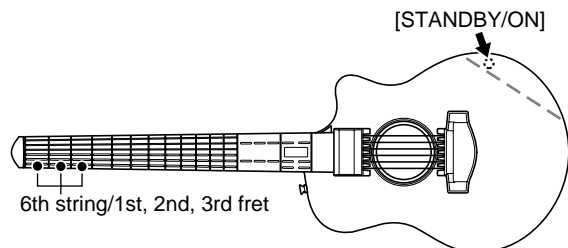
Jigs: Frequency counter, level meter (with JIS-C filter), MIDI cable

**Note) Connect a stereo plug to the [PHONES/OUTPUT] jack at 33 ohms.**

### 2. How to enter the Test Mode

While pressing the 1st fret, 2nd fret and 3rd fret of 6th string, turn the [STANDBY/ON] switch on.

When the test mode is activated, the sign “*f 5f*” is indicated on the 7-seg. LED display.



### 3. Proceeding through the Test Program

1) Select the test item to be executed by pressing the [+] or [-] button.

(Use the [+] button to advance and the [-] button to return.)

2) Select the test item, then press the [STRUM] button to execute testing.

When the test result is OK, press the [STRUM] button and the currently completed test No. will be displayed. The device will then return to the test item selection mode.

**\* The dot will be added to the test No. display for the test item that has been completed. (Ex. *f 0 . 1*.)**

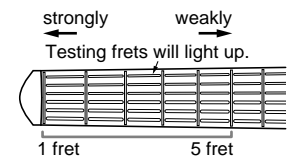
When the test result is NG, press the [DEMO] button to return to the test items for selection.

### 4. Test items list

| TEST No. | 7-seg. LED for Each Test |                              | Test Function and Judgment criteria  |
|----------|--------------------------|------------------------------|--|
| 1        | <i>f 0 1</i>             | <i>P 1 0 / 8 1 0</i>         | Displays the ROM version.<br>ROM (Program, Wave) versions are displayed alternately on the LED.  |
| 2        | <i>f 0 2</i>             | <i>P A S</i> or <i>E r r</i> | Check the ROM. (IC302)<br>Checks the ROM that is connected to the CPU bus. (simplicity check)  |
| 3        | <i>f 0 3</i>             | <i>P A S</i> or <i>E r r</i> | Check the RAM. (IC303)<br>Checks the RAM that is connected to the CPU bus. (simplicity check)  |
| 4        | <i>f 0 4</i>             | <i>P A S</i> or <i>E r r</i> | Check the WAVE ROM. (IC201)<br>Checks the WAVE ROM that is connected to the CPU bus. (simplicity check)  |
| 6        | <i>f 0 6</i>             | <i>P A S</i> or <i>E r r</i> | Check the FLASH ROM. (IC305)<br>Checks the FLASH ROM that is connected to the CPU bus. (simplicity check)<br>It takes about 3 seconds.   |
| 11       | <i>f 1 1</i>             | <i>f 0 1</i>                 | Check the Sound Source (Autoscaling).<br>Outputs the sine wave from E2 to B4. Check the sound by hearing that there is not noise or abnormal sound.  |
| 13       | <i>f 1 3</i>             |                              | Check the pitch.<br>Connect the frequency counter to the [PHONES/OUTPUT] jack (either L or R).<br>(440.0 Hz +/- 1.76 Hz)   |
| 14       | <i>f 1 4</i>             |                              | Check the output level (R) (1 kHz).<br>Connect the level meter to the [PHONES/OUTPUT] jack (R) and measure. (33 ohm load)<br>R side: -10.9 dBm +/- 2 dB<br>Disconnect the [PHONES/OUTPUT] jack and then check that only the speakers create sound. |
| 15       | <i>f 1 5</i>             |                              | Check the output level (L) (1 kHz).<br>Connect the level meter to the [PHONES/OUTPUT] jack (L) and measure. (33 ohm load)<br>L side: -10.9 dBm +/- 2 dB  |
| 19       | <i>f 1 9</i>             |                              | Check the noise.<br>Connect the level meter (with JIS-C filter) to the [PHONES/OUTPUT] jack (L, R) and measure. (33 ohm load)<br>L, R: less than -78.0 dBm   |



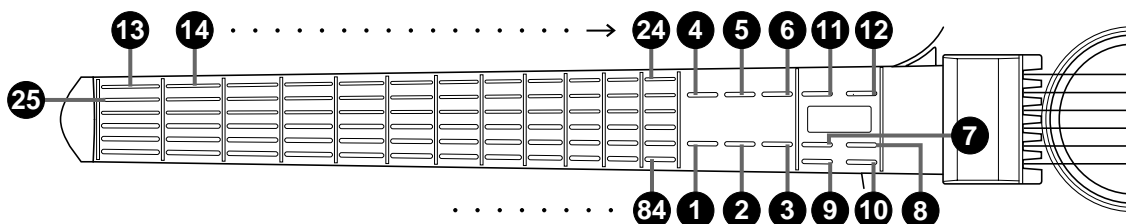
| TEST No. | 7-seg. LED for Each Test |                   | Test Function and Judgment criteria   |
|----------|--------------------------|-------------------|---|
| 20       | <i>r20</i>               | <i>PAS or Err</i> | Check the switches and the LEDs on the panel.<br>Press the switches as shown on the LEDs in the sequence indicated in TABLE 1 (P.18). A sound is generated while the fret switch is pressed. (No key stick is existed.)<br>Press the [DEMO] button to interrupt operation.  |
| 21       | <i>r21</i>               |                   | Check that all the 7-seg. LEDs on the panel light up.<br>Make sure that all 7-seg. LEDs on the panel light up.  |
| 25       | <i>r25</i>               |                   | Check that all the fret LEDs light up.<br>LED from 1st fret to 6th fret is to be turned on in each string. Then thing that brightness isn't equal too much. Press [E5] (1st string, 12th fret) and then move to the next string.<br>All the fret LEDs will go out.<br>Check that the all the fret LEDs go out when the [DEMO] button is pressed.  |
| 30       | <i>r30</i>               | <i>PAS</i>        | String check 1. (The case of plays the string strongly)<br>Play the strings in sequence from the 1st string (the string from the row that lights up the 6th fret LED). Check that the level it was played is the maximum and that the LED for 6th fret for the next row (2nd string) lights up. Then move to checking the 2nd string. (Then play the 3rd, 4th, 5th and 6th strings.)<br>Last 2 digits on the 7-seg. LED display the intensity of playing. (MAX. 7F)<br>* Be careful not to bend strings by strong playing.<br>String check 2. (The case of plays the string weakly)<br>After it was "PAS" to the decision. When picking 1st through 6th strings simultaneously with the same strength (at the level that the 4th fret lights up), check that any extremely different frets are not lighted up.<br>Use LED of fret 1st~5th show the datum of scaling done with peak value. Note that the if a string is not played for more than 0.8 seconds, the peak value is reset.<br>Check for the lighting-up of one of 3rd to 5th fret LEDs on each string. |
| 36       | <i>r36</i>               | <i>PAS</i>        | Mute check.<br>While touching on the earth plate of the neck back, in the condition where it actuated with the dry cell battery it touches on the MUTE plate.<br>Check that the 6th fret LED from 1st to 6th string is turned on.   |
| 37       | <i>r37</i>               | <i>PAS or Err</i> | Check the MIDI.<br>After connecting the [MIDI IN] jack and [MIDI OUT] jack with a MIDI cable, execute the test. Check that the C4 note is output.   |
| 41       | <i>r41</i>               | <i>PAS or Err</i> | Check the ROM. (IC302)<br>Checks the ROM that is connected to the CPU bus. It takes about 3 seconds.  |
| 42       | <i>r42</i>               | <i>PAS or Err</i> | Check the RAM. (IC303)<br>Checks the RAM that is connected to the CPU bus. It takes about 3 seconds.  |
| 43       | <i>r43</i>               | <i>PAS or Err</i> | Check the WAVE ROM. (IC201)<br>Checks the WAVE ROM that is connected to the CPU bus. It takes about 15 seconds.   |
| 45       | <i>r45</i>               | <i>PAS or Err</i> | Check the FLASH ROM. (IC305)<br>Checks the FLASH ROM that is connected to the CPU bus. It takes about a minute.   |
| 48       | <i>r48</i>               | <i>1</i>          | End the test mode.<br>Exit from the test program when executing this test.  |



\* NOTE: Time is required to complete the checks performed by test No. 41–45.

&lt;TABLE1&gt;

|          |         |        |                          |                          |                           |                          |                           |        |
|----------|---------|--------|--------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--------|
| ① DEMO   | ② SOUND | ③ SONG | ④ STRUM                  | ⑤ CHORD                  | ⑥ BOTH                    | ⑦ TEMPO                  | ⑧ VOLUME                  | ⑨ CAPO |
| de       | Sud     | Sng    | Str                      | Chd                      | bot                       | tPo                      | bln                       | cAP    |
| ⑩ TUNING | ⑪ -     | ⑫ +    | ⑬ 1st fret of 1st string | ⑭ 2nd fret of 1st string | ⑮ 12th fret of 1st string | ⑯ 1st fret of 2nd string | ⑰ 12th fret of 6th string |        |
| tun      | --      | -+     | 101                      | 102 ~ 1.12               | 2.01 ~ 6.12               |                          |                           |        |



## INSPECTION

(Preparation) PA-3C, PA-32 (AC adaptor) is used.  
Jigs: Oscilloscope, voltmeter

Turn on the [STANDBY/ON] switch.

(1) **VOLUME check.**

Operate the [VOLUME] from its highest (127) setting to its lowest (0) setting. Check that there is no static and that the operation can be performed smoothly.

(2) **Check the sound source.**

While pressing the [SOUND] button, use the [+] and [-] buttons to select the tones from No. 1 to No.5. Then at each tone, generate a sound for each string. Check that the tone changes for each No. and that there are no other abnormalities.

(3) **Pop noise check.**

Connect an oscilloscope to the [PHONES/OUTPUT] jack and then turn the [STANDBY/ON] switch on and off. Check that the pop noise is less than 1.0 Vp-p. (Load: 33 ohms)

(4) **Battery operation check.**

Insert a battery into the battery case. Then unplug the AC adaptor from the DC-IN jack. Check that the unit performs normally by battery.

(5) **Battery charger check.**

Plug the AC adapter into the DC-IN jack. Then measure the voltage of the battery terminal. Check that the main unit operates normally and that there is no voltage at the battery terminal.

(6) **Static check.**

Select Sound No. 5 and play all strings (with the [VOLUME] set to maximum and all other switches at their default settings). Check that there is no static.

(7) **Check the levelness of the neck.**

Place the instrument on a level surface and check for neck deformation. Make sure there is no obvious neck deformation.

(8) **Check for foreign objects inside the main body.**

With the power on, lift the unit up and then shake it up and down and from side to side. Check that the unit is clean and operating properly and that there is no foreign material inside the unit or the LED.

(9) **Visual inspection of the main body.**

Visually inspect the condition of the entire unit including areas such as the neck switch section and the space between the fingerboard and the upper case.

Check that there are no scratches and that the unit is clean. Also check that the tops of the switches are aligned and that none of the switches is tilted or raised up.

Turn off the power supply to complete the inspection.

# ■ MIDI IMPLEMENTATION CHART

 YAMAHA [ EZ GUITAR ]  
 Model EZ-AG

MIDI Implementation Chart

 Date: 11-June-2003  
 Version : 1.0

| Function...   | Transmitted  | Recognized   | Remarks   |
|---|--|--|---|
| Basic Default<br>Channel Changed  | 1 - 6<br>x   | 1 - 16     *1<br>1 - 16     *1   |   |
| Mode Default<br>Messages<br>Altered   | 3<br>x<br>*****  | 3<br>x<br>x  |   |
| Note<br>Number : True voice   | 28 - 88<br>*****   | 0 - 127<br>0 - 127   |   |
| Velocity Note ON<br>Note OFF  | o 9nH,v=1-127<br>o 9nH,v=0   | o 9nH,v=1-127<br>o 9nH,v=0 or 8nH  |   |
| After Key's<br>Touch Ch's   | x<br>x   | x<br>x   |   |
| Pitch Bend  | x  | o  |   |
| Control<br>Change   | 0,32 o<br>1 x<br>6,38 x<br>7 o<br>10 o<br>11 x<br>64 x<br>71 x<br>72 x<br>73 x<br>74 x<br>84 o<br>91,93,94 x<br>96,97 x<br>100,101 x | o<br>o<br>o<br>o<br>o<br>o<br>o<br>o<br>o<br>o<br>o<br>o<br>o<br>o<br>x<br>o<br>o<br>o | Bank Select<br>Modulation wheel<br>Data Entry<br>Part Volume<br>Pan<br>Expression<br>Sustain<br>Harmonic Content<br>Release Time<br>Attack Time<br>Brightness<br>Portamento Cntrl<br>Effect Depth<br>RPN Inc,Dec<br>RPN LSB,MSB<br>*2 |
| Prog<br>Change : True #   | o 0 - 127<br>*****   | o 0 - 127  |   |
| System Exclusive  | o           *3   | o           *3   |   |
| : Song Pos.<br>Common : Song Sel.<br>: Tune   | x<br>x<br>x  | x<br>x<br>x  |   |
| System : Clock<br>Real Time: Commands   | o           *4<br>o           *4   | o           *4<br>o           *4   |   |
| Aux :All Sound OFF<br>:Reset All Cntrls<br>:Local ON/OFF<br>:All Notes OFF<br>Mes- :Active Sense<br>sages:Reset | x<br>x<br>x<br>x<br>o<br>x   | o(120,126,127)<br>o(121)<br>o(122)<br>o(123-125)<br>o<br>x                             |   |

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

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

 o : Yes  
 x : No

**NOTE:**

\*1 EZ-AG functions as a 16-channel multi-timbral tone generator, and incoming data does not affect the panel voices or panel settings. However, the MIDI messages listed below do affect the panel voices and songs.

- MIDI Master Tuning

\*2 Control change

<RPN>

The EZ-AG receives and responds to the following messages.

- Pitch Bend Range.
- Fine Tuning.
- Coarse Tuning.

\*3 Exclusive

<GM System ON>

F0H, 7EH, 7FH, 09H, 01H, F7H

- This message automatically restores all default settings for the instrument, with the exception of MIDI Master Tuning.

<MIDI Master Volume>

F0H, 7FH, 7FH, 04H, 01H, ll, mm, F7H

- This message allows the volume of all channels to be changed simultaneously (Universal System Exclusive).
- The values of "mm" is used for MIDI Master Tuning. (Values for "ll" are ignored.)

<MIDI Master Tuning>

F0H, 43H, 1nH, 27H, 30H, 00H, 00H, mm, ll, cc, F7H

- This message simultaneously changes the tuning value of all channels.
- The values of "mm" and "ll" are used for MIDI Master Tuning.
- The default value of "mm" and "ll" are 08H and 00H, respectively. Any values can be used for "cc."

<EZ-AG Native Parameter Change>

F0H, 43H, 7FH, 00H, 00H, ll, mm, nn, F7H

- The value which ll, mm and nn is Fuction ID, ctr 1 and ctr 2, respectively.

| Transmitted | Recognized |                                   |                                  | Function ID | ctr 1      | ctr 2      |
|-------------|------------|-----------------------------------|----------------------------------|-------------|------------|------------|
| X           | O          | Clock                             | Internal Clock<br>External Clock | 00<br>00    | 01<br>01   | 00<br>7F   |
| O           | X          | Fret Switch on<br>Fret Switch off |                                  | 01<br>02    | str<br>str | kno<br>kno |
| O           | O          | Fret LED on<br>Fret LED off       |                                  | 03<br>04    | str<br>str | kno<br>kno |
| O           | X          | String Data                       |                                  | 05          | str        | vel        |
| O           | X          | Switch Data (Control)             | [+]ON<br>[+]OFF                  | 06<br>06    | 00<br>00   | 7F<br>00   |
|             |            |                                   | [-]ON<br>[-]OFF                  | 06<br>06    | 01<br>01   | 7F<br>00   |
| O           | X          | Switch Data (Enter)               | [SOUND]ON<br>[SOUND]OFF          | 07<br>07    | 00<br>00   | 7F<br>00   |
|             |            |                                   | [SONG]ON<br>[SONG]OFF            | 07<br>07    | 01<br>01   | 7F<br>00   |

[Note] str : string number(see below)

vel : velocity of played note(00 is muted)

kno : MIDI note number(see below)

The value which is function ID, ctr 1, ctr 2, str and kno are hexadecimal form.

• str (String number) and kno (Note number)

| Fret |    | String (str) |    |    |    |    |    |    |    |    |    |    |    |    |
|------|----|--------------|----|----|----|----|----|----|----|----|----|----|----|----|
|      |    | 0            | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 |
| 1    | 01 | 40           | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 4A | 4B | 4C |
| 2    | 02 | 3B           | 3C | 3D | 3E | 3F | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
| 3    | 03 | 37           | 38 | 39 | 3A | 3B | 3C | 3D | 3E | 3F | 40 | 41 | 42 | 43 |
| 4    | 04 | 32           | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 3A | 3B | 3C | 3D | 3E |
| 5    | 05 | 2D           | 2E | 2F | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 6    | 06 | 28           | 29 | 2A | 2B | 2C | 2D | 2E | 2F | 30 | 31 | 32 | 33 | 34 |

\*4 When the song is started, an FAH message is transmitted.

When song is stopped, an FCH message is transmitted. When the clock is set to External, both FAH (song start) and FCH(song stop) are recognized.

\*5 Local ON/OFF

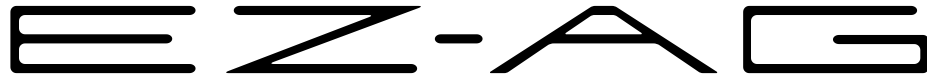
<Local ON> Bn, 7A, 7F

<Local OFF> Bn, 7A, 00

- Value for "n" is ignored

\*6 Song data is not transmitted.

# Easy Guitar



## PARTS LIST


### ■ CONTENTS

|                           |      |
|---------------------------|------|
| OVERALL ASSEMBLY .....    | 2    |
| STRINGS SENSOR UNIT ..... | 4    |
| ELECTRICAL PARTS .....    | 6-11 |

### Notes : DESTINATION ABBREVIATIONS

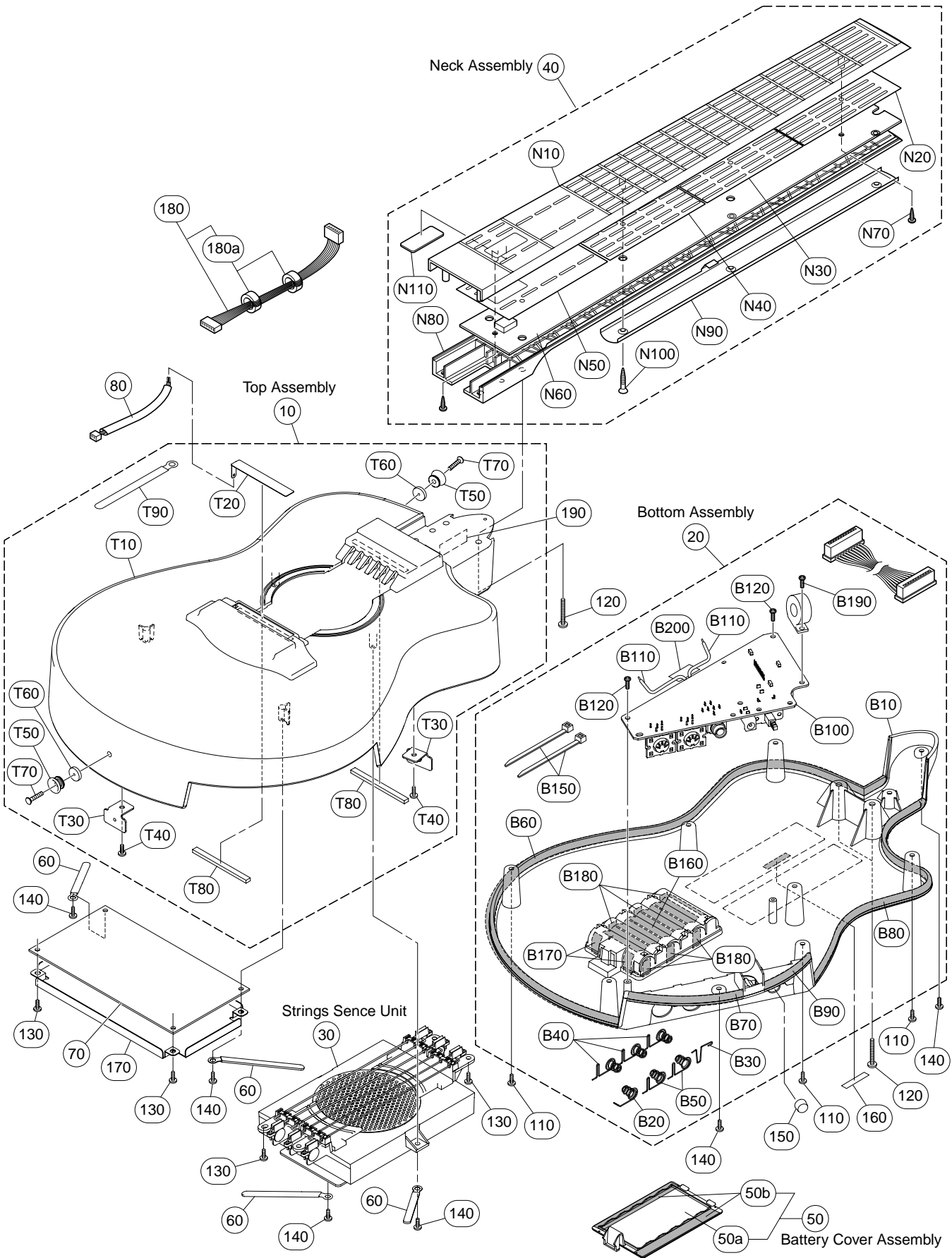
|                          |                                 |
|--------------------------|---------------------------------|
| A : Australian model     | M: South African model          |
| B : British model        | O : Chinese model               |
| C : Canadian model       | Q : South-east Asia model       |
| D : German model         | T : Taiwan model                |
| E : European model       | U : U.S.A. model                |
| F : French model         | V : General export model (110V) |
| H : North European model | W: General export model (220V)  |
| I : Indonesian model     | N,X: General export model       |
| J : Japanese model       | Y : Export model                |
| K : Korean model         |                                 |

### ■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

- The numbers "QTY" show quantities for each unit.
- The parts with "--" in "PART NO." are not available as spare parts.
- This mark "}" in the REMARKS column means these parts are interchangeable.
- The second letter of the shaded (■) part number is O, not zero.
- The second letter of the shaded (■) part number is I, not one.

# OVERALL ASSEMBLY

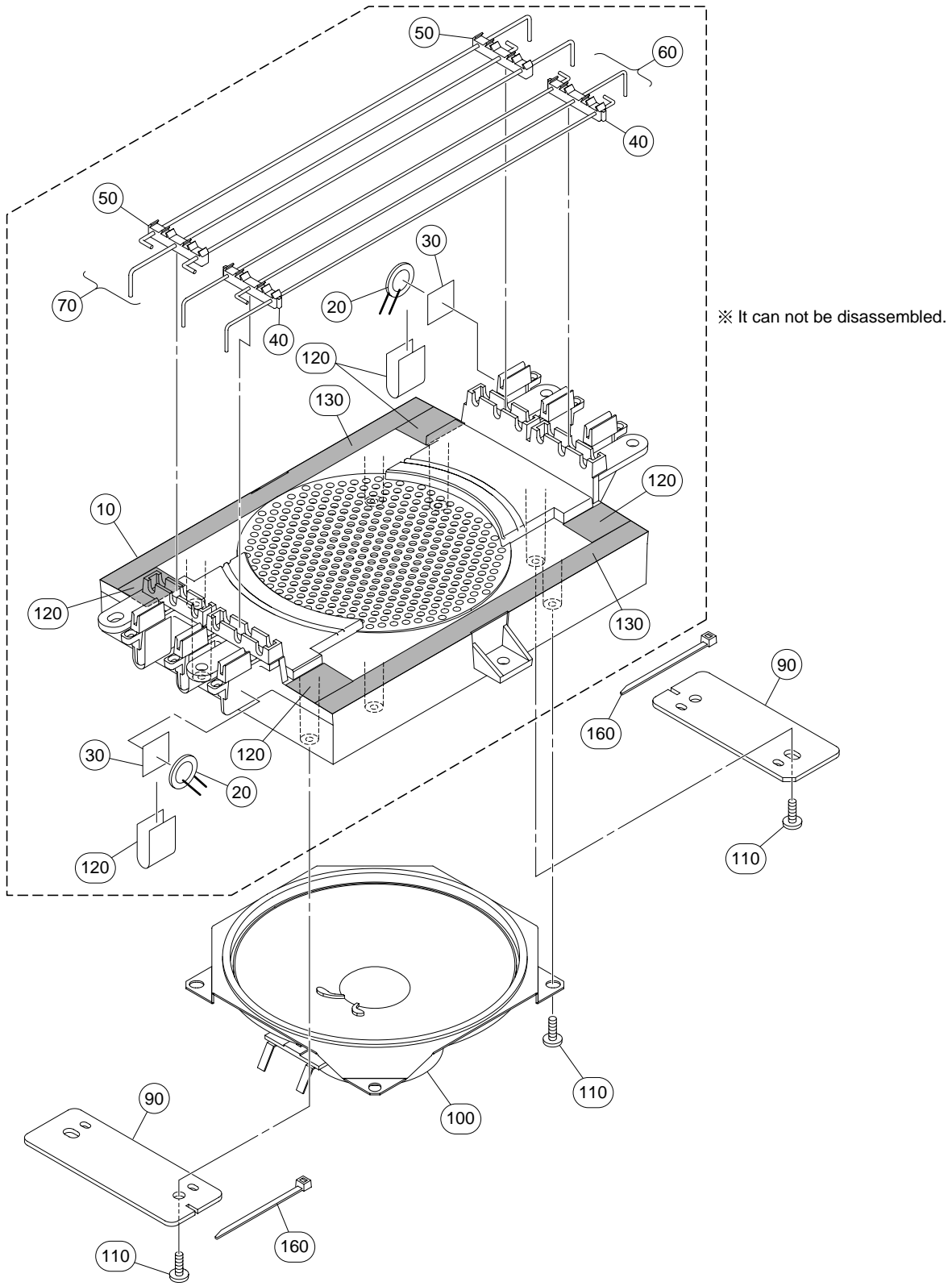


| REF NO. | PART NO. | DESCRIPTION               |                     | REMARKS         | QTY | RANK |
|---------|----------|---------------------------|---------------------|-----------------|-----|------|
|         | --       | OVERALL ASSEMBLY          |                     | EZ-AG (WA61820) |     |      |
| 10      | --       | Top Assembly              |                     | (WB41840)       |     |      |
| 20      | --       | Bottom Assembly           |                     | (WB41850)       |     |      |
| * 30    | WA968200 | Strings Sensor Unit       |                     |                 |     |      |
| 40      | --       | Neck Assembly             |                     | (WB41820)       |     |      |
| * 50    | WB768000 | Battery Cover Assembly    |                     |                 |     |      |
| 50a     | --       | Battery Cover Black       |                     | (WB63990)       |     |      |
| 50b     | --       | Nonwoven Fabric Cloth     | 84X15X0.7           | (WB76790)       | 2   |      |
| * 60    | WA441500 | Cord Binder               | HT018-01            |                 | 4   |      |
| * 70    | WA849300 | Circuit Board             | DM                  |                 |     |      |
| 80      | --       | Connector Assembly        | MUTE PH-2P 208L     | (WA87540)       |     |      |
| 110     | VE683000 | Bind Head Tapping Screw-B | 3.0X12 MFZN2Y       |                 | 8   | 01   |
| * 120   | WB535600 | Bind Head Tapping Screw-B | 4.0X35 MFZN2Y       |                 | 4   |      |
| 130     | EP600250 | Bind Head Tapping Screw-B | 3.0X8 MFZN2Y        |                 | 6   | 01   |
| 140     | VQ074600 | Bind Head Tapping Screw-B | 3.0X12 MFZN2BL      |                 | 6   | 01   |
| 150     | V7151200 | Push Knob Black           |                     | STANDBY/ON      |     | 01   |
| 160     | --       | Label                     | FE                  | (WB56960)       |     |      |
| 170     | --       | Shield Cover              |                     | (WC10300)       |     |      |
| * 180   | WA875700 | Connector Assembly        | PN PH-5P 500L       |                 |     |      |
| 180a    | --       | Ferrite Core              | ESD-R-19SD 16X10X10 | (V941160)       | 2   |      |
| 190     | VA126100 | Adhesive Tape             | 12X50               |                 |     | 03   |
|         | --       | Top Assembly              |                     | (WB41840)       |     |      |
| * T10   | WB453200 | Upper Case                |                     |                 |     | 07   |
| * T20   | WB420800 | Plate                     |                     |                 |     | 03   |
| T30     | --       | End Pin Stay              |                     | (WB16470)       | 2   |      |
| T40     | EP600250 | Bind Head Tapping Screw-B | 3.0X8 MFZN2Y        |                 | 2   | 01   |
| * T50   | WB742800 | End Pin                   |                     |                 | 2   | 04   |
| * T60   | WB742900 | Felt                      |                     |                 | 2   | 03   |
| * T70   | WC961600 | Flat Head Tapping Screw-B | 3.0X20 MFZN2BL      |                 | 2   |      |
| T80     | --       | Cushion                   | GS 63X5X3.48        | (WC30690)       | 2   |      |
| * T90   | WA441500 | Cord Binder               | HT018-01            |                 |     |      |
|         | --       | Bottom Assembly           |                     | (WB41850)       |     |      |
| * B10   | WA619200 | Lower Case                |                     |                 |     | 05   |
| * B20   | WA654400 | Spring Terminal A         | (-)                 |                 |     | 01   |
| * B30   | WA654600 | Spring Terminal B         | (+)                 |                 |     | 01   |
| * B40   | WA654700 | Spring Terminal C         | (+/-)               |                 | 3   | 01   |
| * B50   | WA654800 | Spring Terminal D         | (+/-)               |                 | 2   | 01   |
| B60     | --       | Cushion                   | PE 645X15X1.0       | (WB44900)       |     |      |
| B70     | --       | Cushion                   | PE 100X15X1.0       | (V679150)       |     |      |
| B80     | --       | Cushion                   | PE 320X15X1.0       | (WB44920)       |     |      |
| B90     | --       | Cushion                   | PE 60X15X1.0        | (V956150)       |     |      |
| * B100  | WA849400 | Circuit Board             | AM                  |                 |     |      |
| B110    | --       | Connector Assembly        | BAT PH-3P 80L/145L  | (WA87560)       |     |      |
| B120    | EP600250 | Bind Head Tapping Screw-B | 3.0X8 MFZN2Y        |                 | 7   | 01   |
| B150    | CB069250 | Cord Holder               | BK-1                |                 |     | 01   |
| B160    | --       | Cushion                   | PE 30X7.5X1.0       | (WB76740)       | 6   |      |
| B170    | --       | Cushion                   | PE 7.5X7.5X1.0      | (WB76750)       | 2   |      |
| B180    | --       | Nonwoven Fabric Cloth     | 10.5X7X0.25         | (WC47890)       | 6   |      |
| B190    | VQ074600 | Bind Head Tapping Screw-B | 3.0X12 MFZN2BL      |                 |     | 01   |
| B200    | VA119300 | Adhesive Tape             | 12X25               |                 |     | 01   |
|         | --       | Neck Assembly             |                     | (WB41820)       |     |      |
| * N10   | WB446600 | Fingerboard               |                     |                 |     | 06   |
| N20     | V8520400 | Key Top Rubber A          |                     | 1F-3F           |     | 05   |
| N30     | V8520600 | Key Top Rubber B          |                     | 4F-7F           |     | 05   |
| N40     | V8520700 | Key Top Rubber C          |                     | 8F-12F          |     | 05   |
| N50     | V8520900 | Key Top Rubber D          |                     | Control buttons |     | 05   |
| * N60   | WA849700 | Circuit Board             | PN                  |                 |     |      |
| N70     | EP600250 | Bind Head Tapping Screw-B | 3.0X8 MFZN2Y        |                 | 2   | 01   |
| * N80   | WB544000 | Neck                      |                     |                 |     | 03   |
| N90     | V8519700 | Earth Plate               |                     |                 |     | 05   |
| * N100  | WB329400 | Flat Head Tapping Screw-B | 3.0X16 MFZN2BL      |                 | 3   | 01   |
| N110    | V8526800 | LED Cover                 |                     |                 |     | 03   |

\* New Parts

RANK: Japan only

# ■ STRINGS SENSOR UNIT





| REF NO. | PART NO. | DESCRIPTION                        |                | REMARKS   | QTY       | RANK |
|---------|----------|------------------------------------|----------------|-----------|-----------|------|
| *       | 10       | WA968200 STRINGS SENSOR UNIT       |                | EZ-AG     |           |      |
|         | --       | Sensor Base                        |                | (WA89330) |           |      |
|         | 20       | Sensor                             | 7BB-12-9A6     | Piezo     | (V905470) | 6    |
|         | 30       | Adhesive Tape                      | 15X15X0.16     |           | (WB45000) | 6    |
|         | 40       | Bracket                            | 1.0            |           | (V852360) | 2    |
|         | 50       | Bracket                            | 1.2            |           | (V852740) | 2    |
|         | 60       | String                             | 1.0 GS         |           | (WA96890) | 3    |
|         | 70       | String                             | 1.2 GS         |           | (WA96900) | 3    |
| *       | 90       | WA849500 Circuit Board             | SE (SE+SE1)    |           |           |      |
|         | 100      | X2519A00 Speaker                   | 10.0cm 4ohm 3W |           |           | 03   |
|         | 110      | EP600250 Bind Head Tapping Screw-B | 3.0X8 MFZN2Y   |           |           | 01   |
|         | 120      | -- Cushion                         | PE 25X15X1.0   |           | (WB44930) | 10   |
|         | 130      | -- Cushion                         | PE 150X7.5X1.0 |           | (WB44940) | 2    |
|         | 160      | CB069250 Cord Holder               | BK-1           |           |           | 01   |
|         | 180      | TX920280 Grease                    | G-31KA 50g     |           | (VE96850) | 10   |

\*: New Parts

RANK: Japan only

# ELECTRICAL PARTS

| REF NO. | PART NO. | DESCRIPTION                |                    | REMARKS             | QTY | RANK |
|---------|----------|----------------------------|--------------------|---------------------|-----|------|
|         |          | ELECTRICAL PARTS           |                    | EZ-AG               |     |      |
| *       | WA849400 | Circuit Board              | AM                 | (WA83390)(X3960B0)  |     |      |
| *       | WA849500 | Circuit Board              | SE (SE+SE1)        | (WA83390)(X3960B0)  |     |      |
| *       | WA849300 | Circuit Board              | DM                 | (WA83340)(X4489B0)  |     |      |
| *       | WA849700 | Circuit Board              | PN                 | (WA83470)(X3961B0)  |     |      |
|         |          |                            |                    |                     |     |      |
| *       | WA849400 | Circuit Board              | AM                 | (WA83390)(X3960B0)  |     |      |
| *       | WA849500 | Circuit Board              | SE (SE+SE1)        | (WA83390)(X3960B0)  |     |      |
|         | --       | Jumper Wire                | 0.55               | (VA07890)           |     |      |
|         | --       | Heat Sink                  |                    | (WB45620)           |     |      |
| 1       | EP600250 | Bind Head Tapping Screw-B  | 3.0X8 MFZN2Y       |                     |     | 01   |
| 3       | --       | Silicon Grease             | X-113A G746        | (VA79810)           |     |      |
| C0701   | VC694800 | Semiconductive Cera. Cap.  | 0.1000 25V Z       |                     |     | 01   |
| C0702   | UA354100 | Mylar Capacitor            | 0.0100 50V J       |                     |     | 01   |
| C0702   | VS884000 | Mylar Capacitor            | 0.0100 100V K      |                     |     | 01   |
| C0703   | UR838100 | Electrolytic Cap.          | 100.00 16.0V       |                     |     | 01   |
| C0801   | UR849100 | Electrolytic Cap.          | 1000 25.0V         |                     |     | 01   |
| C0802   | UR866470 | Electrolytic Cap.          | 4.70 50.0V         |                     |     | 01   |
| -0804   | UR866470 | Electrolytic Cap.          | 4.70 50.0V         |                     |     | 01   |
| C0805   | UR838100 | Electrolytic Cap.          | 100.00 16.0V       |                     |     | 01   |
| C0806   | UR838470 | Electrolytic Cap.          | 470.00 16.0V       |                     |     | 01   |
| C0807   | UA353150 | Mylar Capacitor            | 1500P 50V J        |                     |     | 01   |
| C0808   | UR838100 | Electrolytic Cap.          | 100.00 16.0V       |                     |     | 01   |
| C0809   | UA354330 | Mylar Capacitor            | 0.0330 50V J       |                     |     | 01   |
| C0810   | UA354330 | Mylar Capacitor            | 0.0330 50V J       |                     |     | 01   |
| CN801   | --       | Connector Assembly         | AM PH&SAN 11P 370L | (WA87520)           |     |      |
| CN802   | VB389900 | Connector Base Post        | PH 3P TE           |                     |     | 01   |
| CN901   | --       | Connector Assembly         | SE PH9P&SAN7P 195L | (WA87530)           |     |      |
| D0701   | VD631600 | Diode                      | 1SS133,176,HSS104  |                     |     | 01   |
| D0801   | VV731400 | Diode                      | 2A02M              |                     |     | 01   |
| IC701   | WA645200 | Photo Coupler              | PC-900VONSZX       |                     |     | 04   |
| IC801   | XT868A00 | IC                         | LA4600             | POWER AMP. 4.0W 2CH |     | 03   |
| JK701   | VJ107200 | DIN Connector              | JACK 5P YKF51-5050 | MIDI IN             |     | 01   |
| JK701   | VZ085800 | DIN Connector              | 5P HDC-052S-01     |                     |     | 01   |
| JK702   | VJ107200 | DIN Connector              | JACK 5P YKF51-5050 | MIDI OUT            |     | 01   |
| JK702   | VZ085800 | DIN Connector              | 5P HDC-052S-01     |                     |     | 01   |
| JK801   | V6557600 | Connector                  | HTJ-020-05AZ       | DC IN 12V           |     | 04   |
| JK802   | LB101870 | Phone Jack                 | JACK YKB21-5006    | PHONES/OUTPUT       |     | 03   |
| JK802   | VV943300 | Phone Jack                 | JACK HTJ-064-04A   |                     |     | 02   |
| L0701   | VB835000 | Coil                       | FL5R200QNT 20uH    |                     |     | 01   |
| -0704   | VB835000 | Coil                       | FL5R200QNT 20uH    |                     |     | 01   |
| L0801   | VB835000 | Coil                       | FL5R200QNT 20uH    |                     |     | 01   |
| L0802   | VB835000 | Coil                       | FL5R200QNT 20uH    |                     |     | 01   |
| L0803   | --       | Jumper Wire                | 0.55               | (VA07890)           |     |      |
| L0804   | VN381200 | Coil                       | SNT-D20TF 10uH     |                     |     | 03   |
| R0701   | HF456100 | Carbon Resistor            | 1.0K 1/4 J         |                     |     | 01   |
| R0702   | HF455220 | Carbon Resistor            | 220.0 1/4 J        |                     |     | 01   |
| -0704   | HF455220 | Carbon Resistor            | 220.0 1/4 J        |                     |     | 01   |
| R0705   | HF457100 | Carbon Resistor            | 10.0K 1/4 J        |                     |     | 01   |
| R0706   | HF457220 | Carbon Resistor            | 22.0K 1/4 J        |                     |     | 01   |
| R0707   | HF455470 | Carbon Resistor            | 470.0 1/4 J        |                     |     | 01   |
| R0708   | HF456180 | Carbon Resistor            | 1.8K 1/4 J         |                     |     | 01   |
| R0801   | HF456270 | Carbon Resistor            | 2.7K 1/4 J         |                     |     | 01   |
| R0802   | HF456270 | Carbon Resistor            | 2.7K 1/4 J         |                     |     | 01   |
| R0803   | HF455120 | Carbon Resistor            | 120.0 1/4 J        |                     |     | 01   |
| R0804   | HF455100 | Carbon Resistor            | 100.0 1/4 J        |                     |     | 01   |
| R0805   | HF455100 | Carbon Resistor            | 100.0 1/4 J        |                     |     | 01   |
| R0806   | HF455330 | Carbon Resistor            | 330.0 1/4 J        |                     |     | 01   |
| R0807   | HF455330 | Carbon Resistor            | 330.0 1/4 J        |                     |     | 01   |
| SW801   | VY980400 | Push Switch                | SDDL B1 J,UC,CEE   | STANDBY/ON          |     | 03   |
| SW801   | V9661700 | Push Switch                | SY16-32-4(U99S2)/T |                     |     | 03   |
| TH001   | VV457600 | Protector Switch           | RUE090 0.90A 30V   |                     |     | 02   |
| TR701   | IC174020 | Transistor                 | 2SC1740S R,S       |                     |     | 01   |
| -703    | IC174020 | Transistor                 | 2SC1740S R,S       |                     |     | 01   |
| TR701   | VH800600 | Transistor                 | 2SC3311A Q,R,S     |                     |     | 01   |
| -703    | VH800600 | Transistor                 | 2SC3311A Q,R,S     |                     |     | 01   |
| W1      | --       | Connector Assembly         | SE1 SAN 4P 220L    | (WA87550)           |     |      |
|         |          |                            |                    |                     |     |      |
| *       | WA849300 | Circuit Board              | DM                 | (WA83340)(X4489B0)  |     |      |
| C0101   | US061270 | Ceramic Capacitor-CH(chip) | 27P 50V J          |                     |     | 01   |

\*: New Parts

RANK: Japan only

| REF NO. | PART NO. | DESCRIPTION                |                    | REMARKS | QTY | RANK |
|---------|----------|----------------------------|--------------------|---------|-----|------|
| C0102   | US061270 | Ceramic Capacitor-CH(chip) | 27P 50V J          |         |     | 01   |
| C0103   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0104   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0105   | US145100 | Ceramic Capacitor-F (chip) | 0.1000 25V Z       |         |     | 01   |
| C0106   | VV020700 | Monolithic Ceramic Cap.    | 10.000 10V K       |         |     | 01   |
| C0107   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| -0109   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0110   | V4297100 | Monolithic Ceramic Cap.    | 1.000 16V K        |         |     | 01   |
| C0111   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0112   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0113   | V4297100 | Monolithic Ceramic Cap.    | 1.000 16V K        |         |     | 01   |
| C0114   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| -0117   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0118   | V4297100 | Monolithic Ceramic Cap.    | 1.000 16V K        |         |     | 01   |
| C0119   | US145100 | Ceramic Capacitor-F (chip) | 0.1000 25V Z       |         |     | 01   |
| C0120   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0201   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0202   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0203   | US063100 | Ceramic Capacitor-B (chip) | 1000P 50V K        |         |     | 01   |
| C0204   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0301   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| -0305   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0306   | V4297100 | Monolithic Ceramic Cap.    | 1.000 16V K        |         |     | 01   |
| C0308   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0309   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0501   | UF037470 | Electrolytic Cap. (chip)   | 47 16V             |         |     | 01   |
| C0502   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0503   | US063220 | Ceramic Capacitor-B (chip) | 2200P 50V K        |         |     | 01   |
| C0504   | US062330 | Ceramic Capacitor-SL(chip) | 330P 50V J         |         |     | 01   |
| C0505   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J         |         |     | 01   |
| C0506   | US063220 | Ceramic Capacitor-B (chip) | 2200P 50V K        |         |     | 01   |
| C0507   | UF037100 | Electrolytic Cap. (chip)   | 10 16V             |         |     | 01   |
| C0508   | US063220 | Ceramic Capacitor-B (chip) | 2200P 50V K        |         |     | 01   |
| C0509   | US062330 | Ceramic Capacitor-SL(chip) | 330P 50V J         |         |     | 01   |
| C0510   | UF037100 | Electrolytic Cap. (chip)   | 10 16V             |         |     | 01   |
| C0511   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J         |         |     | 01   |
| C0512   | US063220 | Ceramic Capacitor-B (chip) | 2200P 50V K        |         |     | 01   |
| C0513   | UF037100 | Electrolytic Cap. (chip)   | 10 16V             |         |     | 01   |
| C0514   | US145100 | Ceramic Capacitor-F (chip) | 0.1000 25V Z       |         |     | 01   |
| C0515   | UF148100 | Electrolytic Cap. (chip)   | 100 25V UUR1E1     |         |     | 01   |
| C0521   | UF128220 | Electrolytic Cap. (chip)   | 220 10V UUR1A2     | }       |     | 01   |
| C0521   | V9816500 | Electrolytic Cap. (chip)   | 220 10V ECEV1AA221 |         |     |      |
| C0522   | UF128220 | Electrolytic Cap. (chip)   | 220 10V UUR1A2     | }       |     | 01   |
| C0522   | V9816500 | Electrolytic Cap. (chip)   | 220 10V ECEV1AA221 |         |     |      |
| C0525   | US062820 | Ceramic Capacitor-B (chip) | 820P 50V K         |         |     | 01   |
| C0526   | UF037470 | Electrolytic Cap. (chip)   | 47 16V             |         |     | 01   |
| C0527   | UF128220 | Electrolytic Cap. (chip)   | 220 10V UUR1A2     | }       |     | 01   |
| C0527   | V9816500 | Electrolytic Cap. (chip)   | 220 10V ECEV1AA221 |         |     |      |
| C0528   | V4297100 | Monolithic Ceramic Cap.    | 1.000 16V K        |         |     | 01   |
| C0529   | US063220 | Ceramic Capacitor-B (chip) | 2200P 50V K        |         |     | 01   |
| C0530   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J         |         |     | 01   |
| C0531   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J         |         |     | 01   |
| C0601   | US062330 | Ceramic Capacitor-SL(chip) | 330P 50V J         |         |     | 01   |
| -0606   | US062330 | Ceramic Capacitor-SL(chip) | 330P 50V J         |         |     | 01   |
| C0607   | US135330 | Ceramic Capacitor-F (chip) | 0.3300 16V Z       |         |     | 01   |
| -0612   | US135330 | Ceramic Capacitor-F (chip) | 0.3300 16V Z       |         |     | 01   |
| C0613   | US145100 | Ceramic Capacitor-F (chip) | 0.1000 25V Z       |         |     | 01   |
| -0618   | US145100 | Ceramic Capacitor-F (chip) | 0.1000 25V Z       |         |     | 01   |
| C0619   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0621   | US135330 | Ceramic Capacitor-F (chip) | 0.3300 16V Z       |         |     | 01   |
| C0630   | V9760900 | Varistor (chip)            | VCM18RN260DS1L     |         |     | 01   |
| C0636   | US135330 | Ceramic Capacitor-F (chip) | 0.3300 16V Z       |         |     | 01   |
| C0701   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0703   | RD355680 | Carbon Resistor (chip)     | 680.0 63M J        |         |     | 01   |
| C0704   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J         |         |     | 01   |
| -0707   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J         |         |     | 01   |
| C0708   | US064100 | Ceramic Capacitor-B (chip) | 0.0100 50V K       |         |     | 01   |
| C0709   | US063100 | Ceramic Capacitor-B (chip) | 1000P 50V K        |         |     | 01   |
| C0711   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J         |         |     | 01   |
| CN501   | VB389600 | Connector Base Post        | PH 11P SE          |         |     | 01   |

\*: New Parts

RANK: Japan only

| REF NO. | PART NO. | DESCRIPTION            |                    | REMARKS           | QTY | RANK |
|---------|----------|------------------------|--------------------|-------------------|-----|------|
| CN601   | VB858800 | Connector Base Post    | PH 9P SE           |                   |     | 01   |
| CN604   | VB858100 | Connector Base Post    | PH 2P SE           |                   |     | 01   |
| CN701   | VB858400 | Connector Base Post    | PH 5P SE           |                   |     | 01   |
| D0501   | VZ060500 | Diode                  | SFPB-62V           |                   |     | 01   |
| D0502   | VV925900 | Diode                  | RLS-73 TE-11       |                   |     | 01   |
| D0601   | VT332900 | Diode                  | 1SS355 TE-17       |                   |     | 01   |
| -0613   | VT332900 | Diode                  | 1SS355 TE-17       |                   |     | 01   |
| D0701   | VV617300 | Diode                  | RB751V-40 TE17     |                   |     | 01   |
| -0706   | VV617300 | Diode                  | RB751V-40 TE17     |                   |     | 01   |
| IC101   | XU947C00 | IC                     | HG73C205AFD        | SWX00B            |     | 09   |
| IC102   | X0638A00 | IC                     | UPC2933AT-E1       | REGULATOR +3.3V   |     | 03   |
| IC201   | X2363100 | IC                     | MX23L3211TC-10     | MASK ROM 32M WAVE |     | 08   |
| * IC302 | X5073100 | IC                     | MR27V1602F-1U8TN08 | P2ROM 16M PROGRAM |     |      |
| IC303   | X2343A00 | IC                     | CY62136VLL-70ZIT   | SRAM 2M(128KX16)  |     | 08   |
| IC303   | X3226A00 | IC                     | M5M5V216ATP-55HI   |                   |     | 08   |
| IC305   | X2310A00 | IC                     | MX29LV400BTC-70    | FLASH 4M(256KX16) |     | 06   |
| IC306   | XU720A00 | IC                     | HD74LVC08FP        | AND               |     | 01   |
| IC501   | XR998A00 | IC                     | UPD6379AGR         | DAC               |     | 04   |
| IC501   | XS027A00 | IC                     | UPD6379AGR-E1      |                   |     | 04   |
| IC502   | XQ178A00 | IC                     | NJM4580E-T1        | OP AMP            |     | 01   |
| IC503   | XR404A00 | IC                     | PQ1CZ1T            | DC-DC CONVERTER   |     | 05   |
| IC504   | XR858A00 | IC                     | M5291FP-600C       | DC-DC CONVERTER   |     | 03   |
| IC601   | X3836A00 | IC                     | NJM12904V(Te1)     | OP AMP            |     | 01   |
| -606    | X3836A00 | IC                     | NJM12904V(Te1)     | OP AMP            |     | 01   |
| IC607   | XZ110A00 | IC                     | 74HCU04DT          | INVERTER          |     | 01   |
| IC701   | X2719A00 | IC                     | SN74LV4053APWR     | MULTIPLEXER       |     | 02   |
| IC702   | XI297A00 | IC                     | TC74HCT04AF-T1     | INVERTER          |     | 01   |
| IC702   | X0294A00 | IC                     | MM74HCT04SJX       |                   |     | 01   |
| * IC703 | X4374A00 | IC                     | S-80136ANMC-JCV-T2 | SYSTEM RESET      |     |      |
| L0501   | V8589900 | Choke Coil             | 150U SLF10145T-151 |                   |     | 02   |
| L0502   | V8589700 | Choke Coil             | 330U SLF7045T-331M |                   |     | 02   |
| L0601   | VY656700 | Chip Inductance        | 600U BK1608HS601   |                   |     | 01   |
| L0701   | VL139600 | Chip Solid Inductance  | BLM21B050SPT 5ohm  |                   |     | 01   |
| L0702   | RD355220 | Carbon Resistor (chip) | 220.0 63M J        |                   |     | 01   |
| L0703   | VY656700 | Chip Inductance        | 600U BK1608HS601   |                   |     | 01   |
| L0704   | VY656700 | Chip Inductance        | 600U BK1608HS601   |                   |     | 01   |
| L0705   | VL139600 | Chip Solid Inductance  | BLM21B050SPT 5ohm  |                   |     | 01   |
| R0001   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J       |                   |     | 01   |
| R0002   | RD350000 | Carbon Resistor (chip) | 0 63M J            |                   |     | 01   |
| R0003   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| R0005   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| -0007   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| R0008   | RD358560 | Carbon Resistor (chip) | 560.0K 63M J       |                   |     | 01   |
| R0009   | RD358560 | Carbon Resistor (chip) | 560.0K 63M J       |                   |     | 01   |
| R0010   | RD356560 | Carbon Resistor (chip) | 5.6K 63M J         |                   |     | 01   |
| R0012   | RD350000 | Carbon Resistor (chip) | 0 63M J            |                   |     | 01   |
| R0013   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| -0017   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| R0018   | RD358560 | Carbon Resistor (chip) | 560.0K 63M J       |                   |     | 01   |
| R0019   | RD358560 | Carbon Resistor (chip) | 560.0K 63M J       |                   |     | 01   |
| R0020   | RD356560 | Carbon Resistor (chip) | 5.6K 63M J         |                   |     | 01   |
| R0021   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J       |                   |     | 01   |
| R0022   | RD350000 | Carbon Resistor (chip) | 0 63M J            |                   |     | 01   |
| R0023   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| -0027   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| R0028   | RD358560 | Carbon Resistor (chip) | 560.0K 63M J       |                   |     | 01   |
| R0029   | RD358560 | Carbon Resistor (chip) | 560.0K 63M J       |                   |     | 01   |
| R0030   | RD356560 | Carbon Resistor (chip) | 5.6K 63M J         |                   |     | 01   |
| R0031   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J       |                   |     | 01   |
| R0032   | RD350000 | Carbon Resistor (chip) | 0 63M J            |                   |     | 01   |
| R0033   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| -0037   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| R0038   | RD358390 | Carbon Resistor (chip) | 390.0K 63M J       |                   |     | 01   |
| R0039   | RD358390 | Carbon Resistor (chip) | 390.0K 63M J       |                   |     | 01   |
| R0040   | RD356560 | Carbon Resistor (chip) | 5.6K 63M J         |                   |     | 01   |
| R0041   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J       |                   |     | 01   |
| R0042   | RD350000 | Carbon Resistor (chip) | 0 63M J            |                   |     | 01   |
| R0043   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| -0047   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J        |                   |     | 01   |
| R0048   | RD358390 | Carbon Resistor (chip) | 390.0K 63M J       |                   |     | 01   |

\*: New Parts

RANK: Japan only

| REF NO. | PART NO. | DESCRIPTION            | REMARKS          | QTY | RANK |
|---------|----------|------------------------|------------------|-----|------|
| R0049   | RD358390 | Carbon Resistor (chip) | 390.0K 63M J     |     | 01   |
| R0050   | RD356560 | Carbon Resistor (chip) | 5.6K 63M J       |     | 01   |
| R0051   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J     |     | 01   |
| R0052   | RD350000 | Carbon Resistor (chip) | 0 63M J          |     | 01   |
| R0053   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J      |     | 01   |
| -0057   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J      |     | 01   |
| R0058   | RD358390 | Carbon Resistor (chip) | 390.0K 63M J     |     | 01   |
| R0059   | RD358390 | Carbon Resistor (chip) | 390.0K 63M J     |     | 01   |
| R0060   | RD356560 | Carbon Resistor (chip) | 5.6K 63M J       |     | 01   |
| R0061   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J     |     | 01   |
| -0066   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J     |     | 01   |
| R0070   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J     |     | 01   |
| R0071   | RD35A100 | Carbon Resistor (chip) | 10.0M 63M J      |     | 01   |
| R0072   | RD356100 | Carbon Resistor (chip) | 1.0K 63M J       |     | 01   |
| R0073   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J     |     | 01   |
| R0075   | RD359470 | Carbon Resistor (chip) | 4.7M 63M J       |     | 01   |
| R0077   | RD357220 | Carbon Resistor (chip) | 22.0K 63M J      |     | 01   |
| R0079   | RD359470 | Carbon Resistor (chip) | 4.7M 63M J       |     | 01   |
| R0081   | RD357220 | Carbon Resistor (chip) | 22.0K 63M J      |     | 01   |
| R0083   | RD359470 | Carbon Resistor (chip) | 4.7M 63M J       |     | 01   |
| R0085   | RD357220 | Carbon Resistor (chip) | 22.0K 63M J      |     | 01   |
| R0087   | RD359470 | Carbon Resistor (chip) | 4.7M 63M J       |     | 01   |
| R0089   | RD357220 | Carbon Resistor (chip) | 22.0K 63M J      |     | 01   |
| R0091   | RD359470 | Carbon Resistor (chip) | 4.7M 63M J       |     | 01   |
| R0093   | RD357220 | Carbon Resistor (chip) | 22.0K 63M J      |     | 01   |
| R0094   | RD356390 | Carbon Resistor (chip) | 3.9K 63M J       |     | 01   |
| R0095   | RD356100 | Carbon Resistor (chip) | 1.0K 63M J       |     | 01   |
| R0101   | RD355220 | Carbon Resistor (chip) | 220.0 63M J      |     | 01   |
| R0102   | RD354560 | Carbon Resistor (chip) | 56.0 63M J       |     | 01   |
| -0104   | RD354560 | Carbon Resistor (chip) | 56.0 63M J       |     | 01   |
| R0105   | RD357470 | Carbon Resistor (chip) | 47.0K 63M J      |     | 01   |
| R0106   | RD357470 | Carbon Resistor (chip) | 47.0K 63M J      |     | 01   |
| R0107   | RD354560 | Carbon Resistor (chip) | 56.0 63M J       |     | 01   |
| -0110   | RD354560 | Carbon Resistor (chip) | 56.0 63M J       |     | 01   |
| R0111   | RD357470 | Carbon Resistor (chip) | 47.0K 63M J      |     | 01   |
| R0112   | RD357470 | Carbon Resistor (chip) | 47.0K 63M J      |     | 01   |
| R0113   | RD354560 | Carbon Resistor (chip) | 56.0 63M J       |     | 01   |
| -0116   | RD354560 | Carbon Resistor (chip) | 56.0 63M J       |     | 01   |
| R0117   | RD357470 | Carbon Resistor (chip) | 47.0K 63M J      |     | 01   |
| -0120   | RD357470 | Carbon Resistor (chip) | 47.0K 63M J      |     | 01   |
| R0301   | RD356470 | Carbon Resistor (chip) | 4.7K 63M J       |     | 01   |
| R0310   | RD350000 | Carbon Resistor (chip) | 0 63M J          |     | 01   |
| R0311   | RD350000 | Carbon Resistor (chip) | 0 63M J          |     | 01   |
| R0501   | RD356220 | Carbon Resistor (chip) | 2.2K 63M J       |     | 01   |
| R0502   | RD357220 | Carbon Resistor (chip) | 22.0K 63M J      |     | 01   |
| R0503   | RD357100 | Carbon Resistor (chip) | 10.0K 63M J      |     | 01   |
| R0504   | RD356220 | Carbon Resistor (chip) | 2.2K 63M J       |     | 01   |
| R0505   | RD356220 | Carbon Resistor (chip) | 2.2K 63M J       |     | 01   |
| R0506   | RD357220 | Carbon Resistor (chip) | 22.0K 63M J      |     | 01   |
| R0507   | RD357100 | Carbon Resistor (chip) | 10.0K 63M J      |     | 01   |
| R0508   | RD356220 | Carbon Resistor (chip) | 2.2K 63M J       |     | 01   |
| R0509   | RD354470 | Carbon Resistor (chip) | 47.0 63M J       |     | 01   |
| R0510   | RD354470 | Carbon Resistor (chip) | 47.0 63M J       |     | 01   |
| R0511   | RD354100 | Carbon Resistor (chip) | 10.0 63M J       |     | 01   |
| R0520   | RD356100 | Carbon Resistor (chip) | 1.0K 63M J       |     | 01   |
| R0521   | RD355270 | Carbon Resistor (chip) | 270.0 63M J      |     | 01   |
| R0523   | RD356270 | Carbon Resistor (chip) | 2.7K 63M J       |     | 01   |
| R0527   | RD253100 | Carbon Resistor (chip) | 1.0 0.1 J        |     | 01   |
| R0528   | RD253100 | Carbon Resistor (chip) | 1.0 0.1 J        |     | 01   |
| R0529   | RD356330 | Carbon Resistor (chip) | 3.3K 63M J       |     | 01   |
| R0530   | RD356100 | Carbon Resistor (chip) | 1.0K 63M J       |     | 01   |
| R0604   | RD357560 | Carbon Resistor (chip) | 56.0K 63M J      |     | 01   |
| R0611   | RD358100 | Carbon Resistor (chip) | 100.0K 63M J     |     | 01   |
| R0701   | RD356470 | Carbon Resistor (chip) | 4.7K 63M J       |     | 01   |
| -0703   | RD356470 | Carbon Resistor (chip) | 4.7K 63M J       |     | 01   |
| R0705   | RD355680 | Carbon Resistor (chip) | 680.0 63M J      |     | 01   |
| -0707   | RD355680 | Carbon Resistor (chip) | 680.0 63M J      |     | 01   |
| R0709   | RD357100 | Carbon Resistor (chip) | 10.0K 63M J      |     | 01   |
| R0710   | RD355220 | Carbon Resistor (chip) | 220.0 63M J      |     | 01   |
| X0102   | VZ703600 | Quartz Crystal Unit    | 8.4672MHz SMD-49 |     | 03   |

\*: New Parts

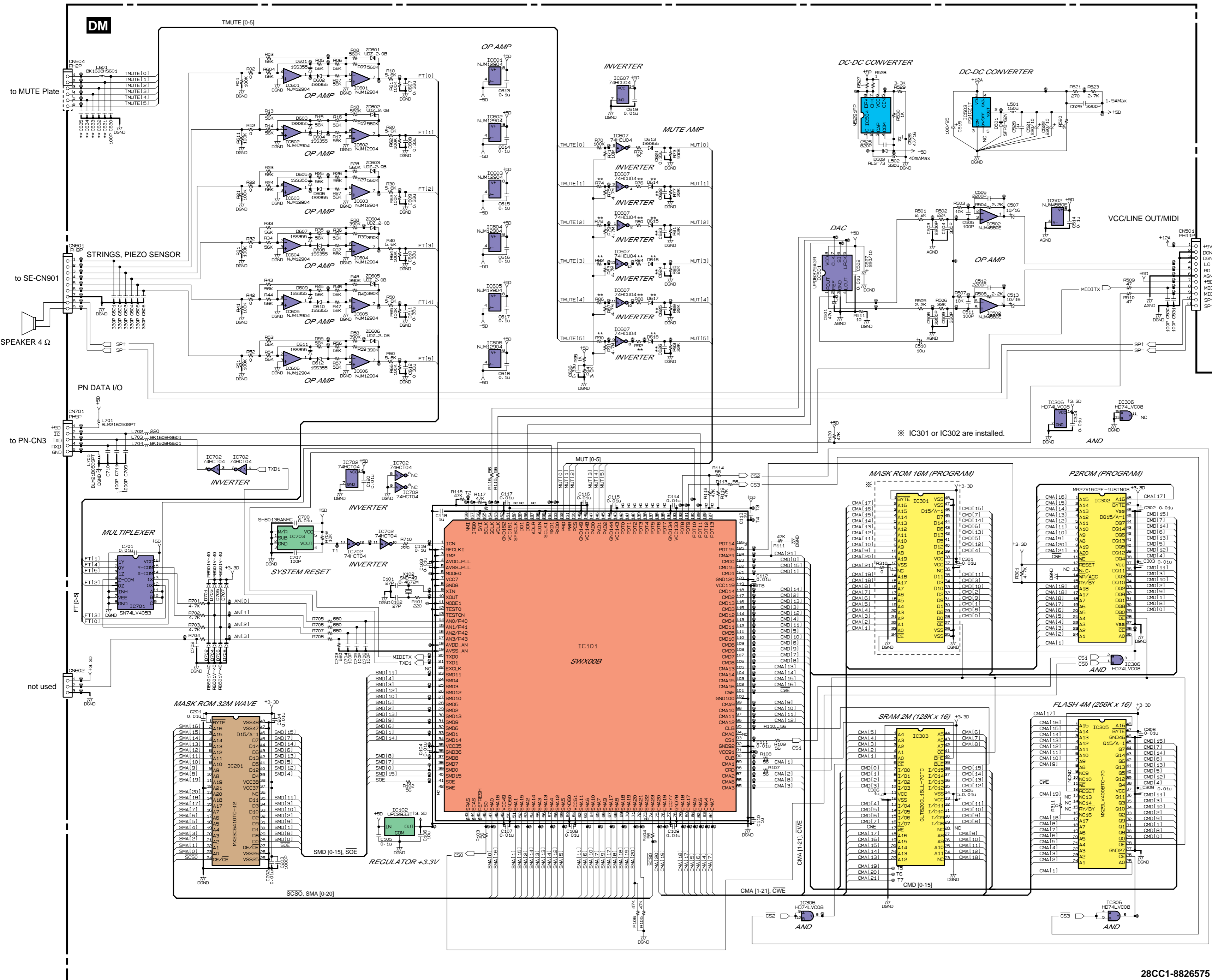
RANK: Japan only

| REF NO. | PART NO. | DESCRIPTION                |                      | REMARKS            | QTY | RANK |
|---------|----------|----------------------------|----------------------|--------------------|-----|------|
| * ZD601 | WB426000 | Zener Diode                | RD2.0S-T1 2.0V       |                    |     |      |
| * -606  | WB426000 | Zener Diode                | RD2.0S-T1 2.0V       |                    |     |      |
| *       | WA849700 | Circuit Board              | PN                   | (WA83470)(X3961B0) |     |      |
| C0001   | VV020700 | Monolithic Ceramic Cap.    | 10.000 10V K         |                    |     | 01   |
| C0005   | VV020700 | Monolithic Ceramic Cap.    | 10.000 10V K         |                    |     | 01   |
| C0007   | VV020700 | Monolithic Ceramic Cap.    | 10.000 10V K         |                    |     | 01   |
| C0008   | US145100 | Ceramic Capacitor-F (chip) | 0.1000 25V Z         |                    |     | 01   |
| C0009   | US062100 | Ceramic Capacitor-SL(chip) | 100P 50V J           |                    |     | 01   |
| C0011   | VV020700 | Monolithic Ceramic Cap.    | 10.000 10V K         |                    |     | 01   |
| CN003   | VB390100 | Connector Base Post        | PH 5P TE             |                    |     | 01   |
| D0001   | VT332900 | Diode                      | 1SS355 TE-17         |                    |     | 01   |
| -0078   | VT332900 | Diode                      | 1SS355 TE-17         |                    |     | 01   |
| D0081   | VT332900 | Diode                      | 1SS355 TE-17         |                    |     | 01   |
| -0086   | VT332900 | Diode                      | 1SS355 TE-17         |                    |     | 01   |
| IC001   | XS711200 | IC                         | MN101C027YB          | CPU                |     | 06   |
| * LD001 | V9261200 | LED Red (chip)             | SML-311UTT86         | 1Fret-1String      |     | 01   |
| * LD002 | V9261200 | LED Red (chip)             | SML-311UTT86         | 1Fret-2String      |     | 01   |
| * LD003 | V9261200 | LED Red (chip)             | SML-311UTT86         | 1Fret-3String      |     | 01   |
| * LD004 | V9261200 | LED Red (chip)             | SML-311UTT86         | 1Fret-4String      |     | 01   |
| * LD005 | V9261200 | LED Red (chip)             | SML-311UTT86         | 1Fret-5String      |     | 01   |
| * LD006 | V9261200 | LED Red (chip)             | SML-311UTT86         | 1Fret-6String      |     | 01   |
| * LD007 | V9261200 | LED Red (chip)             | SML-311UTT86         | 2Fret-1String      |     | 01   |
| * LD008 | V9261200 | LED Red (chip)             | SML-311UTT86         | 2Fret-2String      |     | 01   |
| * LD009 | V9261200 | LED Red (chip)             | SML-311UTT86         | 2Fret-3String      |     | 01   |
| * LD010 | V9261200 | LED Red (chip)             | SML-311UTT86         | 2Fret-4String      |     | 01   |
| * LD011 | V9261200 | LED Red (chip)             | SML-311UTT86         | 2Fret-5String      |     | 01   |
| * LD012 | V9261200 | LED Red (chip)             | SML-311UTT86         | 2Fret-6String      |     | 01   |
| * LD013 | V9261200 | LED Red (chip)             | SML-311UTT86         | 3Fret-1String      |     | 01   |
| * LD014 | V9261200 | LED Red (chip)             | SML-311UTT86         | 3Fret-2String      |     | 01   |
| * LD015 | V9261200 | LED Red (chip)             | SML-311UTT86         | 3Fret-3String      |     | 01   |
| * LD016 | V9261200 | LED Red (chip)             | SML-311UTT86         | 3Fret-4String      |     | 01   |
| * LD017 | V9261200 | LED Red (chip)             | SML-311UTT86         | 3Fret-5String      |     | 01   |
| * LD018 | V9261200 | LED Red (chip)             | SML-311UTT86         | 3Fret-6String      |     | 01   |
| * LD019 | V9261200 | LED Red (chip)             | SML-311UTT86         | 4Fret-1String      |     | 01   |
| * LD020 | V9261200 | LED Red (chip)             | SML-311UTT86         | 4Fret-2String      |     | 01   |
| * LD021 | V9261200 | LED Red (chip)             | SML-311UTT86         | 4Fret-3String      |     | 01   |
| * LD022 | V9261200 | LED Red (chip)             | SML-311UTT86         | 4Fret-4String      |     | 01   |
| * LD023 | V9261200 | LED Red (chip)             | SML-311UTT86         | 4Fret-5String      |     | 01   |
| * LD024 | V9261200 | LED Red (chip)             | SML-311UTT86         | 4Fret-6String      |     | 01   |
| * LD025 | V9261200 | LED Red (chip)             | SML-311UTT86         | 5Fret-1String      |     | 01   |
| * LD026 | V9261200 | LED Red (chip)             | SML-311UTT86         | 5Fret-2String      |     | 01   |
| * LD027 | V9261200 | LED Red (chip)             | SML-311UTT86         | 5Fret-3String      |     | 01   |
| * LD028 | V9261200 | LED Red (chip)             | SML-311UTT86         | 5Fret-4String      |     | 01   |
| * LD029 | V9261200 | LED Red (chip)             | SML-311UTT86         | 5Fret-5String      |     | 01   |
| * LD030 | V9261200 | LED Red (chip)             | SML-311UTT86         | 5Fret-6String      |     | 01   |
| * LD031 | V9261200 | LED Red (chip)             | SML-311UTT86         | 6Fret-1String      |     | 01   |
| * LD032 | V9261200 | LED Red (chip)             | SML-311UTT86         | 6Fret-2String      |     | 01   |
| * LD033 | V9261200 | LED Red (chip)             | SML-311UTT86         | 6Fret-3String      |     | 01   |
| * LD034 | V9261200 | LED Red (chip)             | SML-311UTT86         | 6Fret-4String      |     | 01   |
| * LD035 | V9261200 | LED Red (chip)             | SML-311UTT86         | 6Fret-5String      |     | 01   |
| * LD036 | V9261200 | LED Red (chip)             | SML-311UTT86         | 6Fret-6String      |     | 01   |
| LD090   | V9366300 | LED Display                | LB-303VK             | 7-seg. Display     |     | 07   |
| R0001   | RD356100 | Carbon Resistor (chip)     | 1.0K 63M J           |                    |     | 01   |
| R0002   | RD350000 | Carbon Resistor (chip)     | 0 63M J              |                    |     | 01   |
| R0003   | RD357100 | Carbon Resistor (chip)     | 10.0K 63M J          |                    |     | 01   |
| -0014   | RD357100 | Carbon Resistor (chip)     | 10.0K 63M J          |                    |     | 01   |
| R0015   | RD357470 | Carbon Resistor (chip)     | 47.0K 63M J          |                    |     | 01   |
| R0016   | RD356220 | Carbon Resistor (chip)     | 2.2K 63M J           |                    |     | 01   |
| R0017   | RD355100 | Carbon Resistor (chip)     | 100.0 63M J          |                    |     | 01   |
| RA003   | RE045100 | Resistor Array             | 100X4                |                    |     | 01   |
| RA004   | RE045100 | Resistor Array             | 100X4                |                    |     | 01   |
| TA001   | V7723400 | Transistor Array           | TD62381F(EL)         |                    |     | 04   |
| TA003   | V8566600 | Transistor Array           | TD62785F(EL)         |                    |     | 01   |
| TR001   | VJ927100 | Transistor                 | 2SC2712 Y            |                    |     | 01   |
| TR001   | VV556400 | Transistor                 | 2SC2412K Q,R,S       |                    |     | 01   |
| TR001   | V4767500 | Transistor                 | 2SD601A-(TX) Q,R,S   |                    |     | 01   |
| X0001   | VY681200 | Ceramic Resonator          | 8MHz CSTCC8M00G53-R0 |                    |     | 01   |
|         | X2519A00 | Speaker                    | 10.0cm 4ohm 3W       |                    |     | 03   |

\*: New Parts

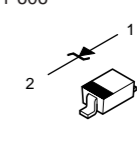
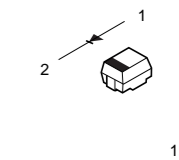
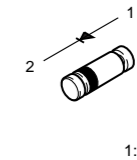
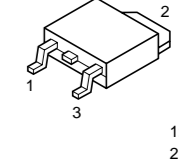
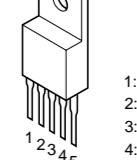
RANK: Japan only



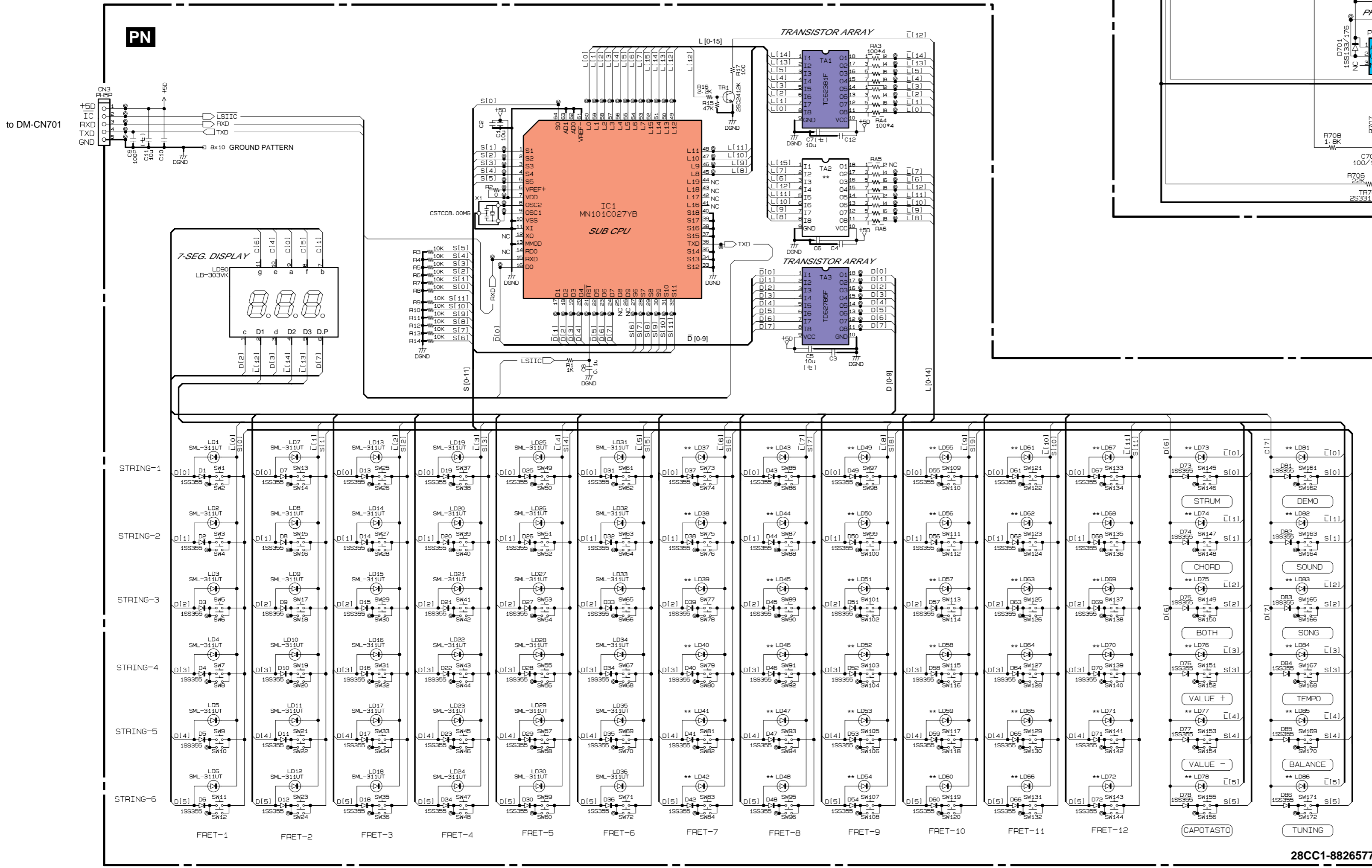
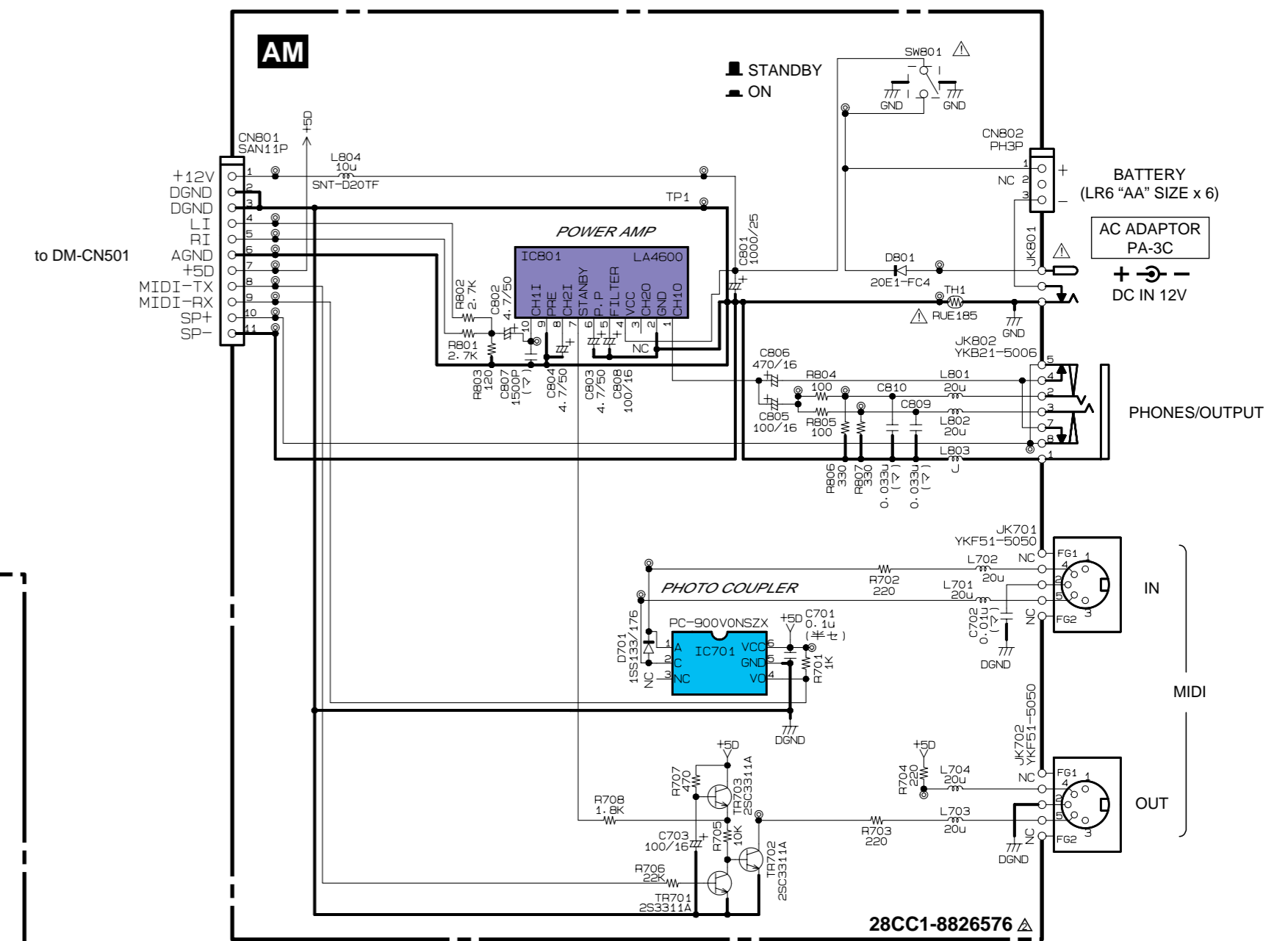
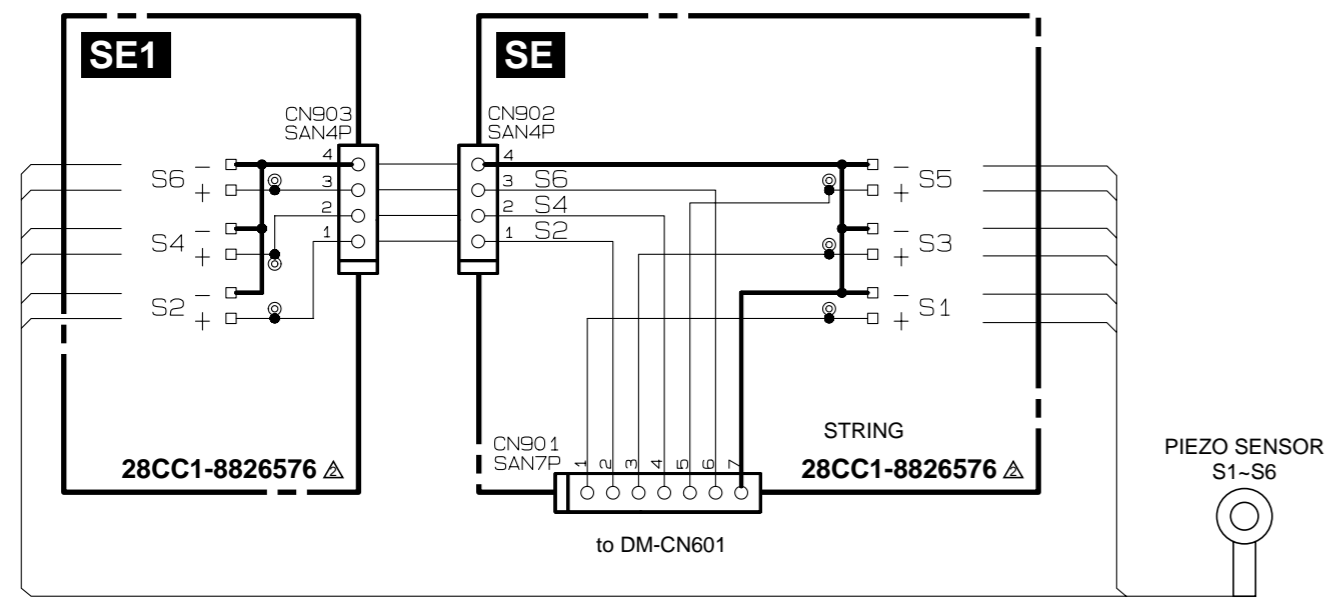


\*\* : not installed  
 Note: See parts list for details of circuit board component parts.

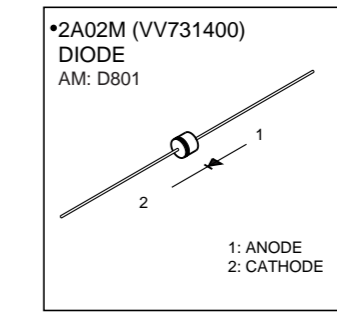
- PQ1CZ1T (XR404A00) DC-DC CONVERTER IC503
- µPC2933AT-E1 (X0638A00) REGULATOR +3.3V IC102
- RLS-73 TE-11 (V925900) DIODE D502
- SFPB-62V (VZ060500) DIODE D501
- RD2.0S-T1 2.0 (WB426000) ZENER DIODE ZD601-606







- (M): Mylar Capacitor
- (SC): Semiconductive Ceramic Capacitor
- (C): Ceramic Capacitor
- (S): Solder



**TO SERVICE PERSONNEL**  
Critical Components Information  
Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.

Note: See parts list for details of circuit board component parts.

\*\* : not installed