MZ-E77

SERVICE MANUAL

E Model
Tourist Model

Ver 1.0 2000. 03

Photo: Silver type

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Model Name Using Similar Mechanism	MZ-E90
MD Mechanism Type	MT-MZE90-166
Optical Pick-up Mechanism Type	LCX-2E

SPECIFICATIONS

System

Audio playing system
MiniDisc digital audio system
Laser diode properties
Material: GaAlAs
Wavelength: λ = 790 nm
Emission duration: continuous
Laser output: less than 44.6 µW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.
Revolutions
600 rpm to 2250 rpm
Error correction
Advanced Cross Interleave Reed Solomon Code (ACIRC)
Sampling frequency
44.1 kHz
Coding
Adaptive TRansform Acoustic Coding (ATRAC)
Modulation system
EFM (Eight to Fourteen Modulation)
Number of channels
2 stereo channels
1 monaural channel
Frequency response
20 to 20,000 Hz ± 3 dB
Wow and Flutter
Below measurable limit
Outputs
Headphones: stereo mini-jack, maximum output level 5 mW + 5 mW, load impedance 16 ohms

General

Power requirements
Nickel metal hydride rechargeable battery NH-14WM (supplied)
One LR6 (size AA) battery (not supplied)
Sony AC Power Adaptor AC-E15L* (not supplied) connected to the DC IN 1.5V jack

Battery operation time
Battery life*

Batteries	Playback
Ni-MH rechargeable battery (NH-14WM)	Approx. 21 hours**
One LR6 (size AA) alkaline battery	Approx. 31 hours
One LR6 (size AA) alkaline battery and a Ni-MH rechargeable battery (NH-14WM)	Approx. 56 hours**

* The battery life may be shorter depending on operating conditions and the temperature of the location.

** With a fully charged battery

Dimensions
Approx. 78.3 × 13.9 × 71.4 mm (w/h/d) ($3\,^1/_8 \times 9/_{16} \times 2\,^7/_8$ in.) not including projecting parts and controls
Mass
Approx. 85 g (3.0 oz.) the player only
Approx. 128 g (4.5 oz.) incl. a premastered MD and a nickel metal hydride rechargeable battery NH-14WM
Supplied accessories
Battery Charger (1)
Rechargeable battery (1)
Rechargeable battery carrying case (1)
Headphones with a remote control (1)
Dry battery case (1)
Carrying pouch (1)

Design and specifications are subject to change without notice.

PORTABLE MINIDISC PLAYER

SONY®

TABLE OF CONTENTS

Features

- **Small body almost the size of a MiniDisc jacket**
  Ideal weight and size; fits in your shirt pocket.
- **Personalized sound through Digital Sound Preset functions**
  You can store two sets of sound quality adjustments (made during playback) to two switches.
- **Low power-consumption design enables extended battery life.**
- **Simple "One-Touch Eject" function for easy MiniDisc handling**
  A single press of the OPEN button causes the player lid to open and the MiniDisc to eject.
- **Easy-to-operate headphones remote control with backlit LCD**
  The LCD displays disc and track information, playback mode as well as battery condition. Keep the main unit in your pocket and operate the MiniDisc player through the "slim stick" remote control.
- **Shock-resistant memory offsets up to 40 seconds of optical read errors.**

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

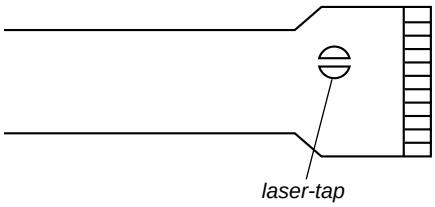
The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (LCX-2E)

The laser diode in the optical pick-up block may suffer electrostatic break-down easily. When handling it, perform soldering bridge to the laser-tap on the flexible board. Also perform measures against electrostatic break-down sufficiently before the operation. The flexible board is easily damaged and should be handled with care.



OPTICAL PICK-UP FLEXIBLE BOARD

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

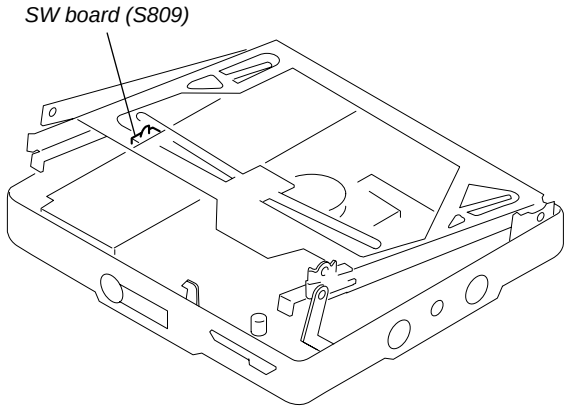
Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

- When repairing this set with the power on, if you remove the upper panel assy, this set stops working.
  In this case, you can work without the set stopping by fastening the hook of the open/close detect switch (SW board (S809)) with tape.

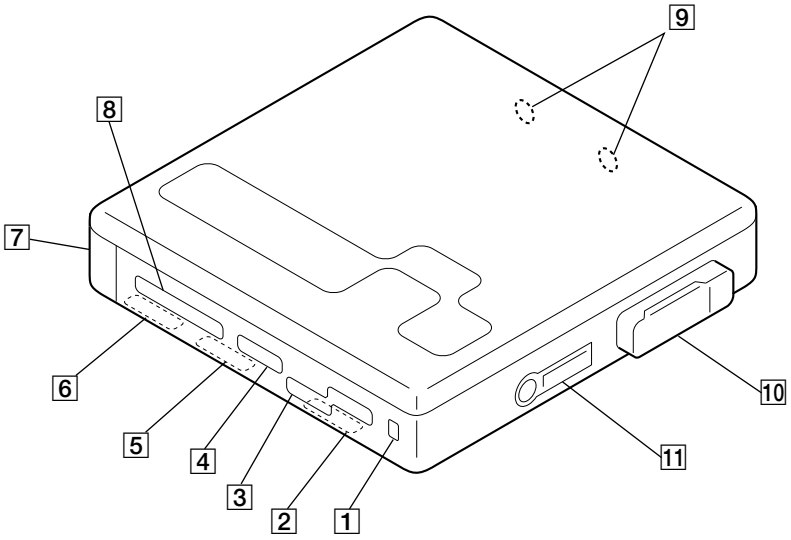


- This set is designed to perform automatic adjustment for each adjustment and write its value to EEPROM. Therefore, when EEPROM (IC802) has been replaced in service, be sure to perform automatic adjustment and write resultant values to the new EEPROM.
  After EEPROM (IC802) is replaced, digital sound preset setting value for display is changed to “00”. Please make sure to check that digital sound preset setting value for display is “01”. (Refer to page 14)

- Replacement of CXD2661GA-2 (IC601) and CXR701080-010GA (IC801) used in this set requires a special tool. Therefore, they cannot be replaced.

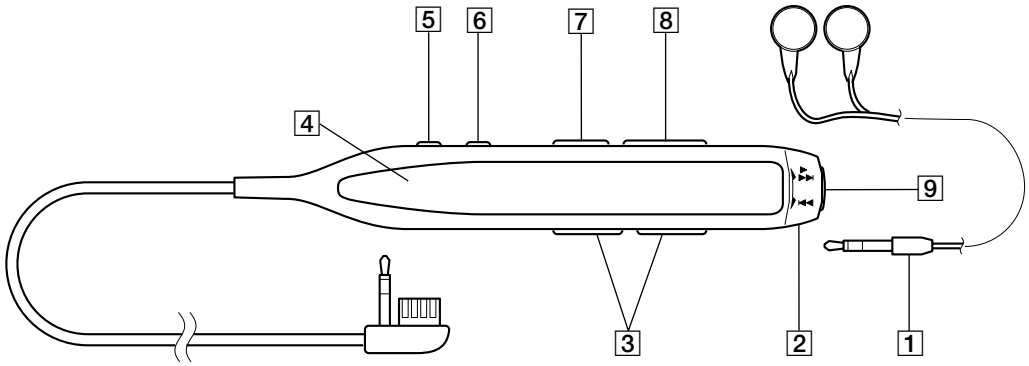
SECTION 2
GENERAL

LOCATION OF CONTROLS



1 OPR indicator
2 HOLD switch
3 ▶▶I/▶ and I◀◀ keys
4 ■ key
5 DIGITAL SOUND PRESET switch
6 AVLS switch
7 Battery cover
8 VOLUME +/– keys
9 External battery terminal
10 OPEN button
11 ∩ (headphone) jack

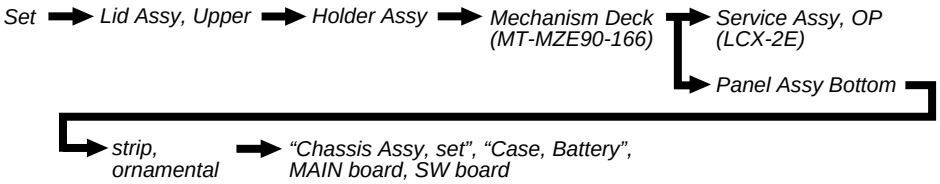
Remote commander with headphones



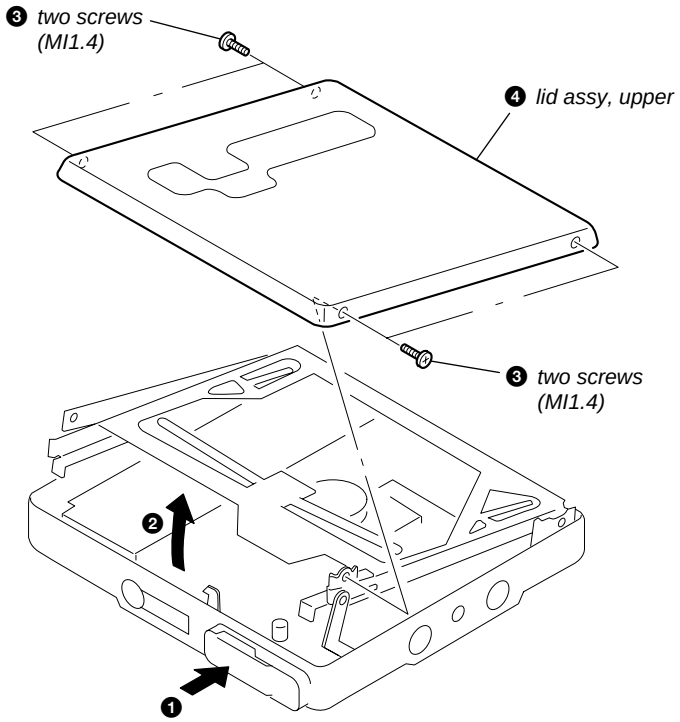
1 Headphone
2 ▶ ▶▶I and I◀◀ keys
3 VOL +/– keys
4 Display window
5 DISPLAY key
6 PLAYMODE key
7 ▮▮ key
8 HOLD switch
9 ■ key

SECTION 3
DISASSEMBLY

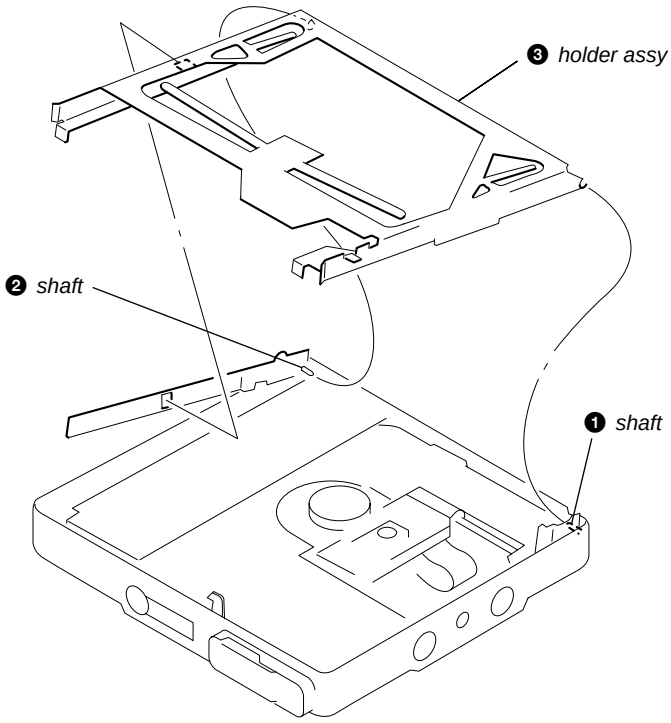
Note: This set can be disassemble according to the following sequence.



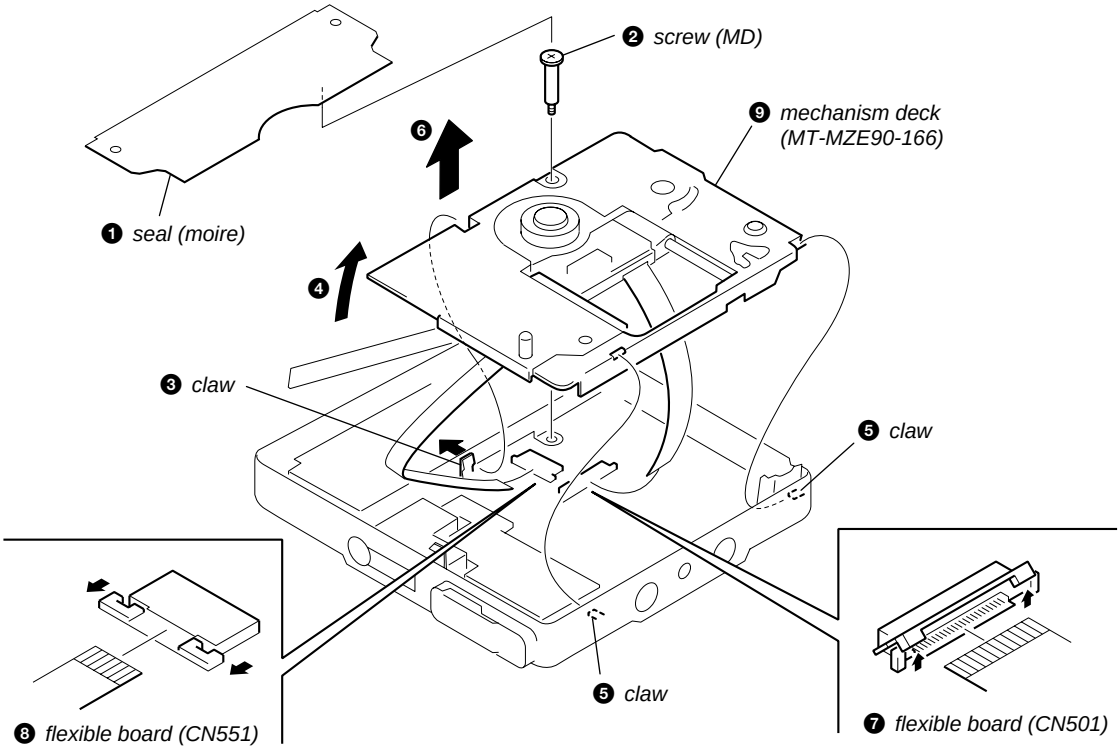
LID ASSY, UPPER



HOLDER ASSY

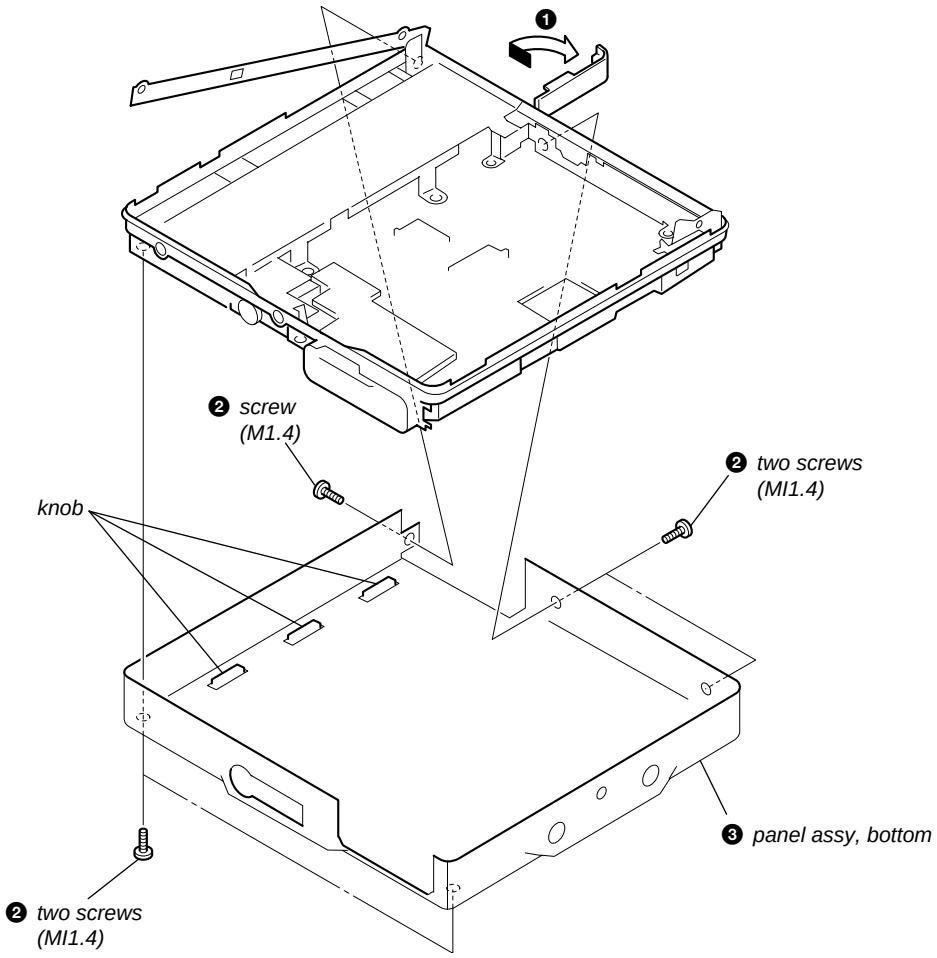


MECHANISM DECK (MT-MZE90-166)

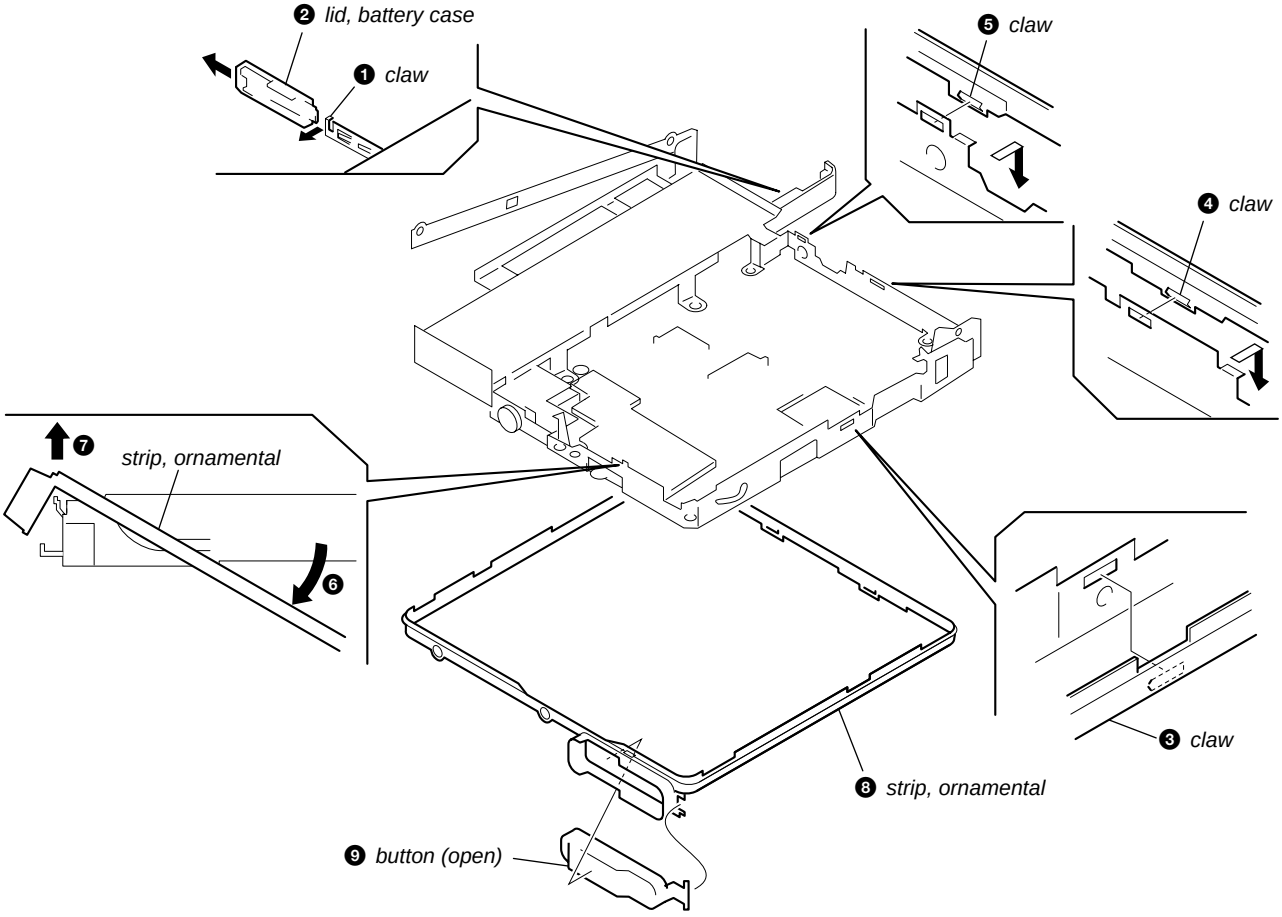


PANEL ASSY, BOTTOM

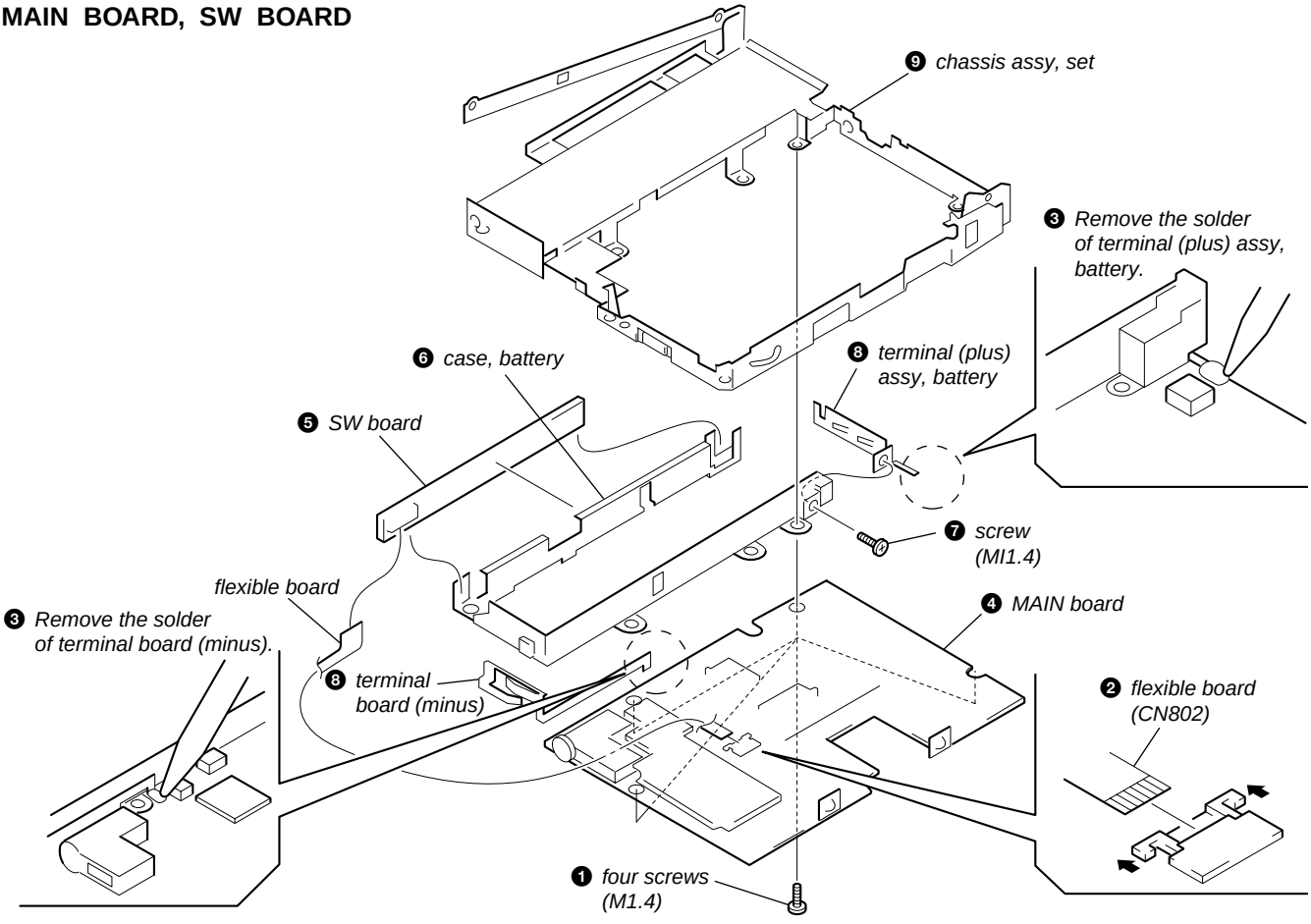
Note: When installing, fit three knobs.



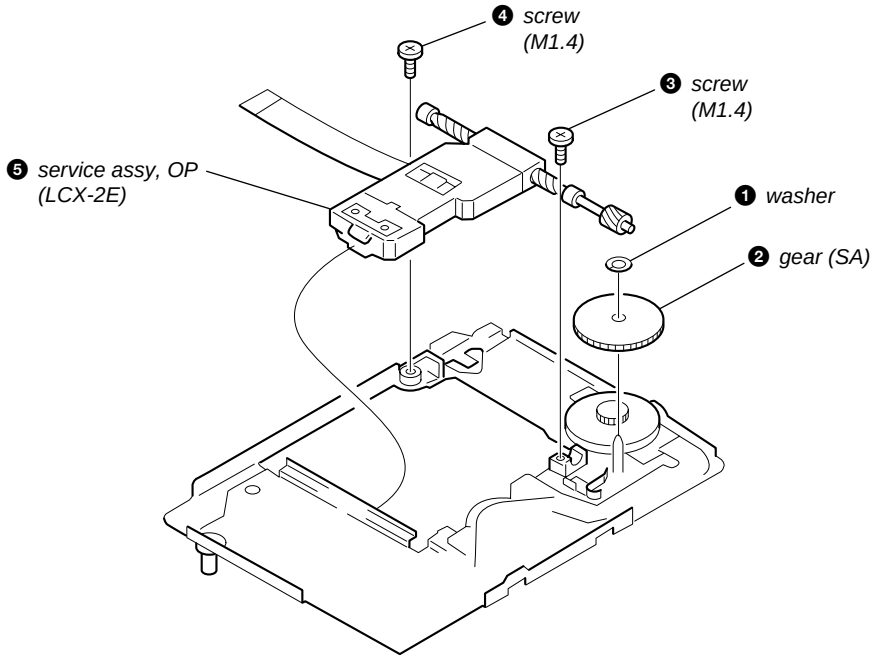
STRIP, ORNAMENTAL



“CHASSIS ASSY, SET”, “CASE, BATTERY”, MAIN BOARD, SW BOARD



SERVICE ASSY, OP
(LCX-2E)



SECTION 4
TEST MODE

Outline

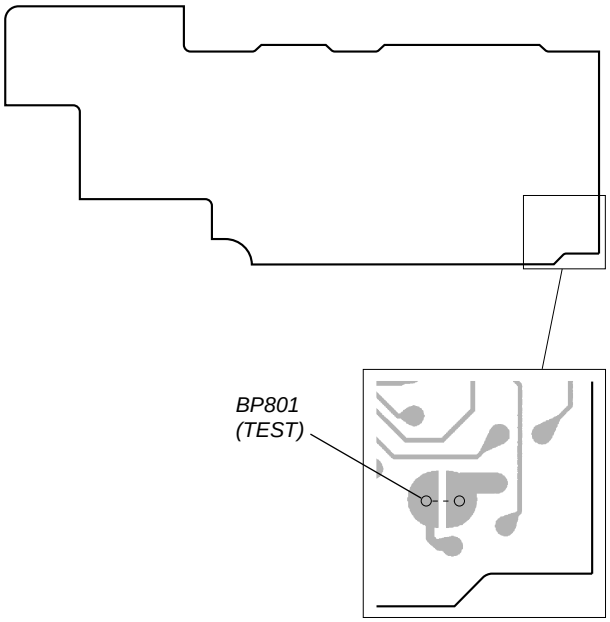
- This set provides the Overall adjustment mode that allows CD and MO discs to be automatically adjusted when in the test mode. In this overall adjustment mode, the disc is discriminate between CD and MO, and each adjustment is automatically executed in order. If a fault is found, the system displays its location. Also, the manual mode allows each individual adjustment to be automatically adjusted.
- Operation in the test mode is performed with the remote commander. A key having no particular description in the text, indicates a remote commander key.

Setting Method of Test Mode

There are two different methods to set the test mode:

① Short BP801 (TEST) on the SYSTEM board with a solder bridge (connect pin ⑥⓪ of IC801 to the ground). Then, turn on the power.

– SYSTEM BOARD (Component Side) –



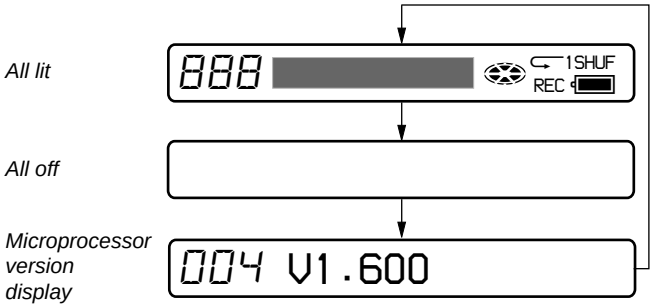
② In the normal mode, turn on the HOLD switch on the set. While pressing the ■ key on the set, press the following remote commander keys in the following order:

▶▶| → ▶▶| → |◀◀ → |◀◀ → ▶▶| →
|◀◀ → ▶▶| → |◀◀ → ❚❚ → ❚❚

Operation in Setting the Test Mode

- When the test mode becomes active, first the display check mode is selected. (Press the ■ key once, when the display check mode is not active)
- Other mode can be selected from the display check mode.
- When the test mode is set, the LCD repeats the following display.

LCD display



- When the ❚❚ key is pressed and hold down, the display at that time is held so that display can be checked.

Releasing the Test Mode

For test mode set with the method ①:

Turn off the power and open the solder bridge on BP801 (TEST) on the SYSTEM board.

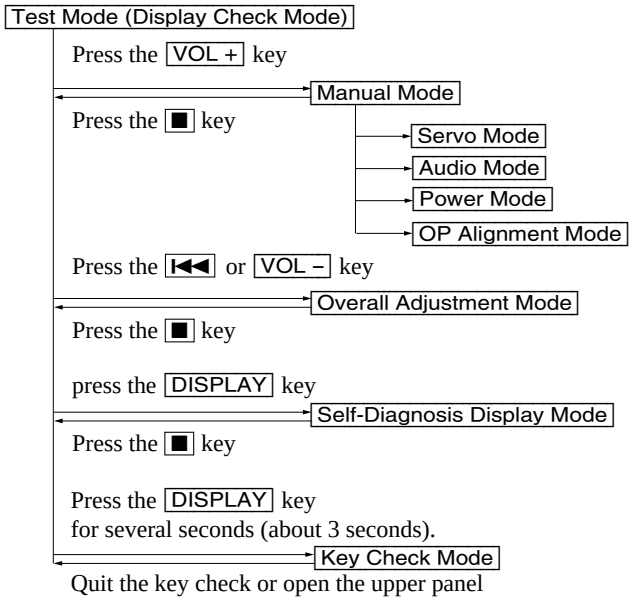
Note: Remove the solders completely. Remaining could be shorted with the chassis, etc.

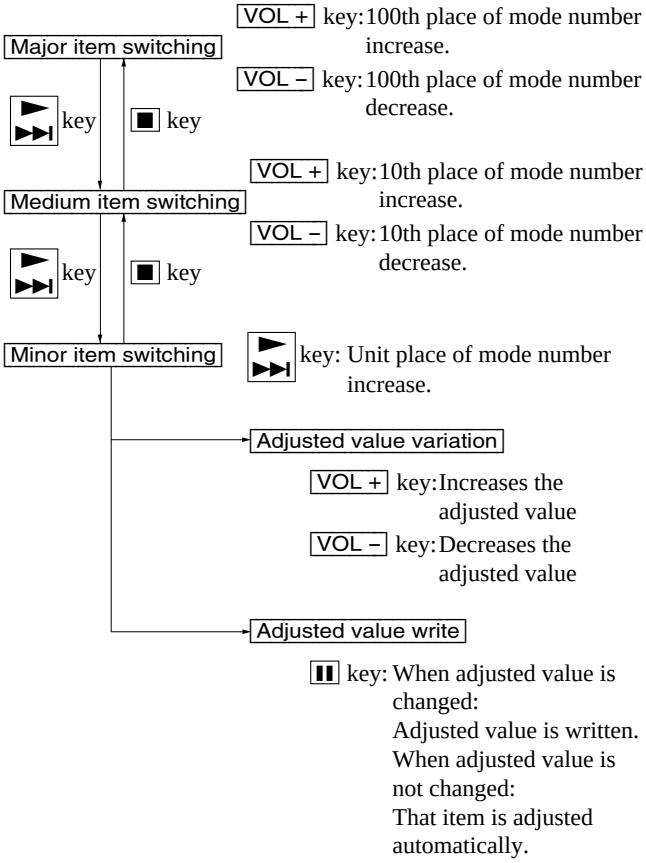
For test mode set with the method ②:

Turn off the power.

Note: If electrical adjustment (see page 14) has not been finished completely, always start in the test mode. (The set cannot start in normal mode)

Configuration of Test Mode





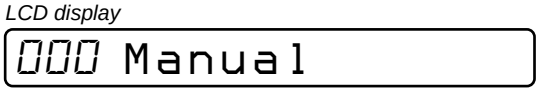
Manual Mode

Mode to adjust or check the operation of the set by function. Normally, the adjustment in this mode is not executed. However, the Manual mode is used to clear the memory before performing automatic adjustments in the Overall Adjustment mode.

• Transition method in Manual Mode

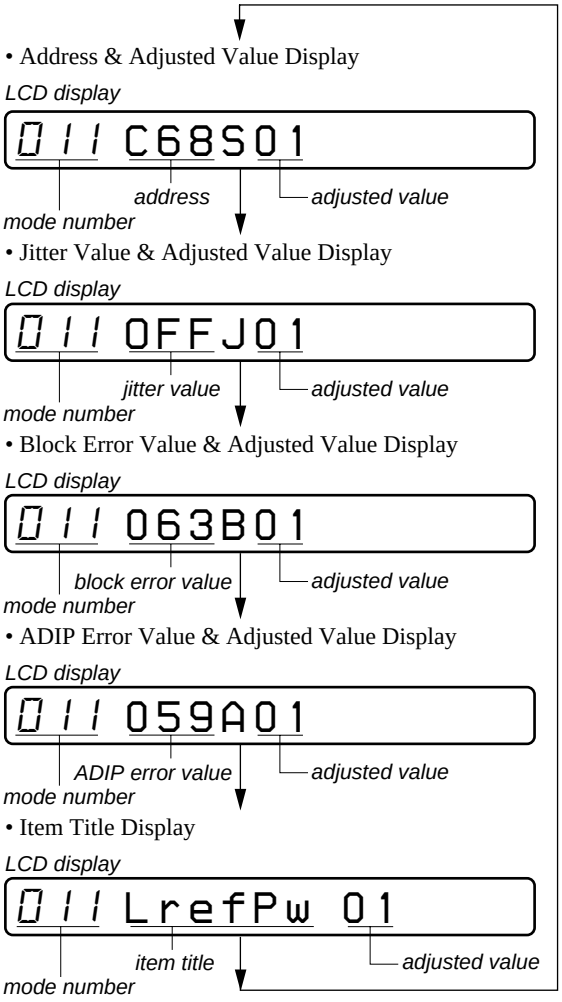
1. Setting the test mode. (See page 9)
2. Press the VOL + key activates the manual mode where the LCD display as shown below.

LCD display



3. During each test, the optical pick-up moves outward or inward while the ► ▶▶| or |◀◀ key is pressed for several seconds respectively.
4. Each test item is assigned with a 3-digit mode number; 100th place is a major item, 10th place is a medium item, and unit place is a minor item.

5. The display changes a shown below each time the DISPLAY key is pressed.



However in the power mode (mode number 700's), only the item is displayed.

6. Quit the manual mode, and press the ■ key to return to the test mode (display check mode).

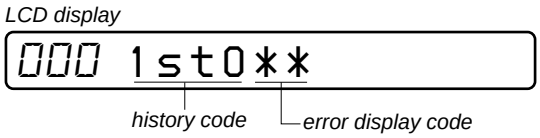
Overall Adjustment Mode

Mode to adjust the servo automatically in all items.
Normally, automatic adjustment is executed in this mode at the repair.
For further information, refer to "Section 5 Electrical Adjustments". (See page 14)

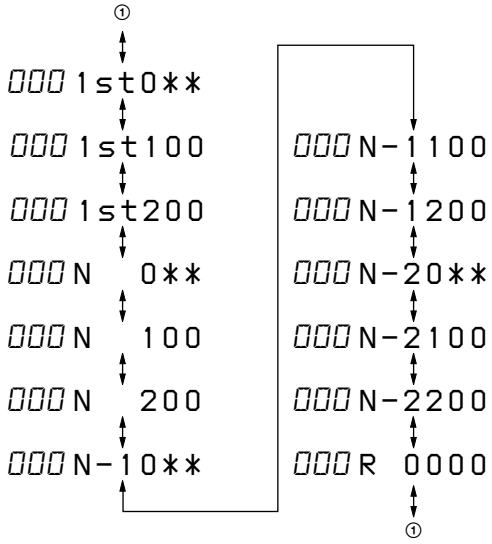
Self-Diagnosis Display Mode

- This set uses the self-diagnosis system in which if an error occurs in playback mode, the error is detected by the model control and power control blocks of the microprocessor and information on the cause is stored as history in EEPROM.
  By viewing this history in test mode, it helps you to analyze a fault and determine its location.

1. Setting the test mode. (See page 9)
2. In the display check mode, press the DISPLAY key activates the self-diagnosis display mode where the LCD display as shown below.



3. Then, each time the ►► key is pressed, LCD display descends by one as shown below. Also, the LCD display ascends by one when the ◄◄ key is pressed.



4. Quit the self-diagnosis display mode, and press the ■ key to return to the test mode (display check mode).

• Description of Indication History

History code number	Description
1st 0	The first error
1st 1	Displays “00”
1st 2	Displays “00”
N 0	The last error
N 1	Displays “00”
N 2	Displays “00”
N-1 0	One error before the last.
N-1 1	Displays “00”
N-1 2	Displays “00”
N-2 0	Two errors before the last.
N-2 1	Displays “00”
N-2 2	Displays “00”
REC	Total recording time (Displays “0000” in this set)

• Description of Error Indication Codes

Problem	Indication code	Meaning of code	Description
No error	00	No error	Normal condition
Servo error	01	Illegal access target address was specified	Attempt to access an abnormal address
	02	High temperture	High temperture
	03	Focus error	Forcus could not be applied
	04	Spindle error	Abnormal lotation of disc
Power error	21	Initial low battery	Abnormal voltage at initialization
	22	Low battery	Momentary interruption detected
	23	Low battery NI	Momentary interruption detected (NiMH)
	24	Low battery AM	Momentary interruption detected (AM)

Reset the error display code

After servicing, reset the error display code.

1. Setting the test mode. (See page 9)
2. Press the DISPLAY key activates the self-diagnosis display mode.
3. To reset the error display code, press the ▮▮ key (2 times) when the code is displayed (except “R0000”). (All the data on the 1st, N, N-1, and N-2 will be reset)

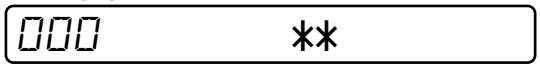
Key Check Mode

This set can check if the set and remote commander function normally.

• Setting Method of Key Check Mode

1. Setting the test mode. (See page 9)
2. Press the [DISPLAY] key for several seconds (about 3 seconds) activates the key check mode. (At the last two digits, AD value of remote commander key line is displayed in hexadecimal)

LCD display

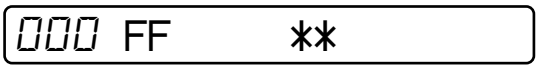


**: AD value of the remote commander key (hexadecimal 00 to FF)

3. When each key on the set and on remote commander is pressed, its name is displayed on the LCD. (The operated position is displayed for 4 seconds after the slide switch is operated. If any other key is pressed during this display, the LCD switches to its name display.)

Example1: When [▶▶I/►] key on the set is pressed:

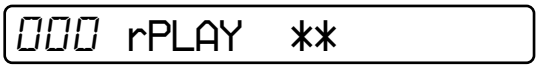
LCD display



**: AD value of the remote commander key (hexadecimal 00 to FF)

Example2: When [► ▶▶I] key on the remote commander is pressed:

LCD display



**: AD value of the remote commander key (hexadecimal 00 to FF)

4. When all the keys on the set and on the remote commander are considered as OK, the following displays are shown for 4 seconds.
(The key pressed to enter the Key Check mode has been checked even if it is not pressed in this mode)

Example1: When the keys on the set are considered as OK:

LCD display

**: AD value of the remote commander key (hexadecimal 00 to FF)

Example2: When the keys on the remote commander are considered as OK:

LCD display

**: AD value of the remote commander key (hexadecimal 00 to FF)

5. When all the key have been checked or when the top panel is opened during this checking, the system terminates the Key Check mode and return to the test mode (display check mode).

SECTION 5
ELECTRICAL ADJUSTMENTS

Outline

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode. (See page 9)
  However, before starting automatic adjustment, the memory clear and power adjustment must be performed in the manual mode.
- A key having no particular description in the text, indicates a remote commander key.

Precautions for Adjustment

1. Adjustment must be done in the test mode only.
   After adjusting, release the test mode.
2. Use the following tools and measuring instruments.
   - Test CD disc TDYS-1
     (Part No. : 4-963-646-01)
   - Recorded MO disc PTDM-1
     (Part No. : J-2501-054-A)
     Available SONY MO disc (recorded)
   - Digital voltmeter
3. Unless specified otherwise, supply DC 1.2V from the DC IN jack.
4. Switch position
   AVLS switch ..... NORM
   DIGITAL SOUND PRESET switch ..... OFF
   HOLD switch ..... OFF

Adjustment Sequence

Adjustment must be done with the following steps.

1. NV Reset (Memory clear)
   ↓
2. Digital Sound Preset Setting
   ↓
3. Power Supply Manual Adjustment

} Manual Mode

   ↓
4. CD Overall Adjustment
   ↓
5. MO Overall Adjustment

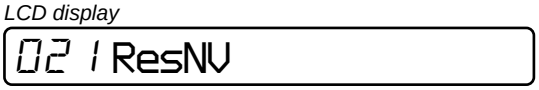
} Overall Mode

NV Reset

• Setting method of NV reset

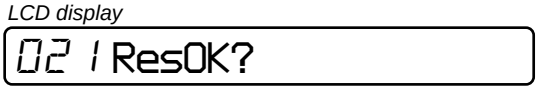
1. Select the manual mode of test mode, and set mode number 021NV Reset. (See page 10)

   LCD display

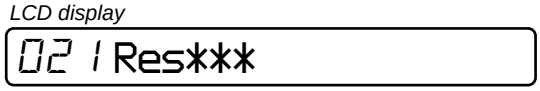
2. Press the [II] key.

   LCD display

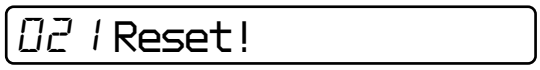
   

3. Press the [II] key once more.

   LCD display

   NV reset (after several seconds)

4. Press the [■] key to quit the manual mode, and activate the test mode.

Digital Sound Preset Setting

1. Select the manual mode of the test mode, and set the item number 045. (See page 10)

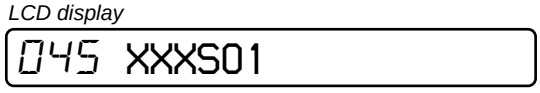
   LCD display

   **: Adjustment value of digital sound preset set up.

2. Adjust [VOL +] key so that the adjustment value becomes 01.

   LCD display

3. Press the [II] key to write the adjusted value.

Power Supply Manual Adjustment

• Adjustment sequence

Adjustment must be done with the following steps.

1. Vc PWM Duty (L) adjustment (item number: 762)
   ↓
2. Vrem PWM Duty (L) adjsutment (item number: 764)
   ↓
3. Vc PWM Duty (H) adjustment (item number: 765)
   ↓
4. Vrem PWM Duty (H) adjustment (item number: 766)

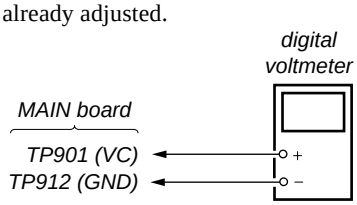
- **Adjustment method of Vc PWM Duty (L) (item number: 762)**

1. Select the manual mode of the test mode, and set the item number 762. (See page 10)

LCD display

762 Vc1PWM

2. Connect a digital voltmeter to the TP901 (VC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes $2.32^{+0.005}_{-0.01}$ V. Proceed to the next adjustment without pressing the [▮▮] key if voltage is already adjusted.



3. Press the [▮▮] key to write the adjusted value.

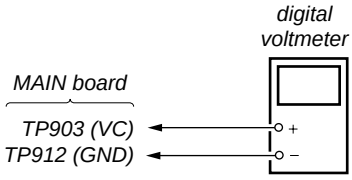
- **Adjustment method of Vrem PWM Duty (L) (item number: 764)**

1. Select the manual mode of the test mode, and set the item number 764. (See page 10)

LCD display

764 Vr1Vc1

2. Connect a digital voltmeter to the TP903 (VR) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes $2.25^{+0.005}_{-0.01}$ V. Proceed to the next adjustment without pressing the [▮▮] key if voltage is already adjusted.



3. Press the [▮▮] key to write the adjusted value.

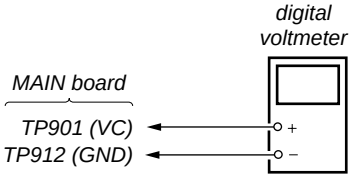
- **Adjustment method of Vc PWM Duty (H) (item number: 765)**

1. Select the manual mode of the test mode, and set the item number 765. (See page 10)

LCD display

765 VchPWM

2. Connect a digital voltmeter to the TP901 (VC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 2.75 ± 0.015 V. Proceed to the next adjustment without pressing the [▮▮] key if voltage is already adjusted.



3. Press the [▮▮] key to write the adjusted value.

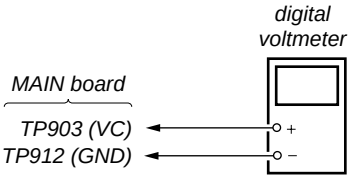
- **Adjustment method of Vrem PWM Duty (H) (item number: 766)**

1. Select the manual mode of the test mode, and set the item number 766. (See page 10)

LCD display

766 VrhVch

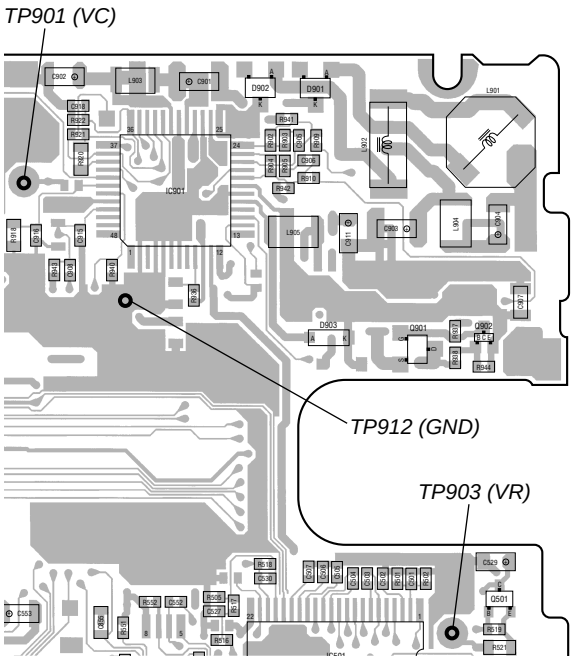
2. Connect a digital voltmeter to the TP903 (VR) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 2.6 ± 0.015 V. Proceed to the next adjustment without pressing the [▮▮] key if voltage is already adjusted.



3. Press the [▮▮] key to write the adjusted value.

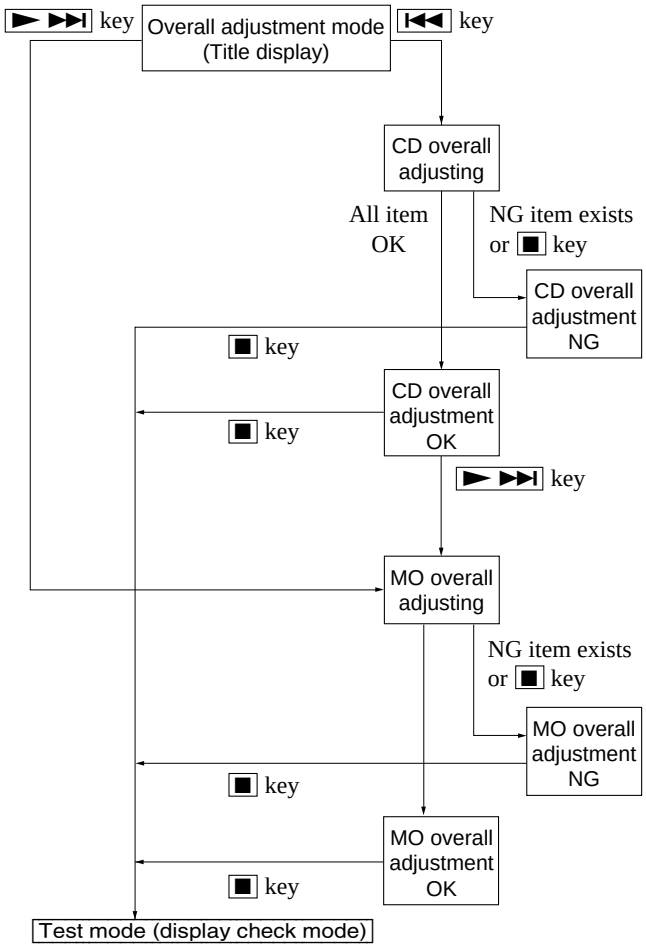
Adjustment and Connection Location:

– MAIN Board (Component side) –



Overall Adjustment Mode

- **Configuration of overall adjustment**



Note: Adjust the CD first, when performing adjustment.

- **Adjustment Method of Overall CD and MO Adjustment Mode**

1. Setting the test mode. (See page 9)
2. Press the VOL – key activates the overall adjustment mode.

LCD display

000 AssyFF

3. Insert CD disc in the set, and press the |◀◀ key to set the Overall CD Adjustment mode. Automatic adjustments are made.

LCD display

XXX CD RUN

XXX: Item number for which an adjustment is being executed.

4. If NG in the overall CD adjustments, return to Reset NV and perform the adjustment again.

LCD display

000 *** NG

***: NG item number.

5. If OK through the overall CD adjustments, then perform overall MO adjustments.

LCD display

000 CD OK

6. Insert MO disc in the set, and press the ► ▶▶| key to set the Overall MO Adjustment mode. Automatic adjustments are made.

LCD display

XXX MO RUN

XXX: Item number for which an adjustment is being executed.

7. If NG in the overall MO adjustments, return to Reset NV and perform the adjustment again.

LCD display

000 *** NG

***: NG item number.

8. If OK through the overall MO adjustments, press the ■ key to return to the test mode and terminate the Overall Adjustment mode.

LCD display

000 MO OK

- **Overall CD and MO adjustment items**

1. Overall CD adjustment items

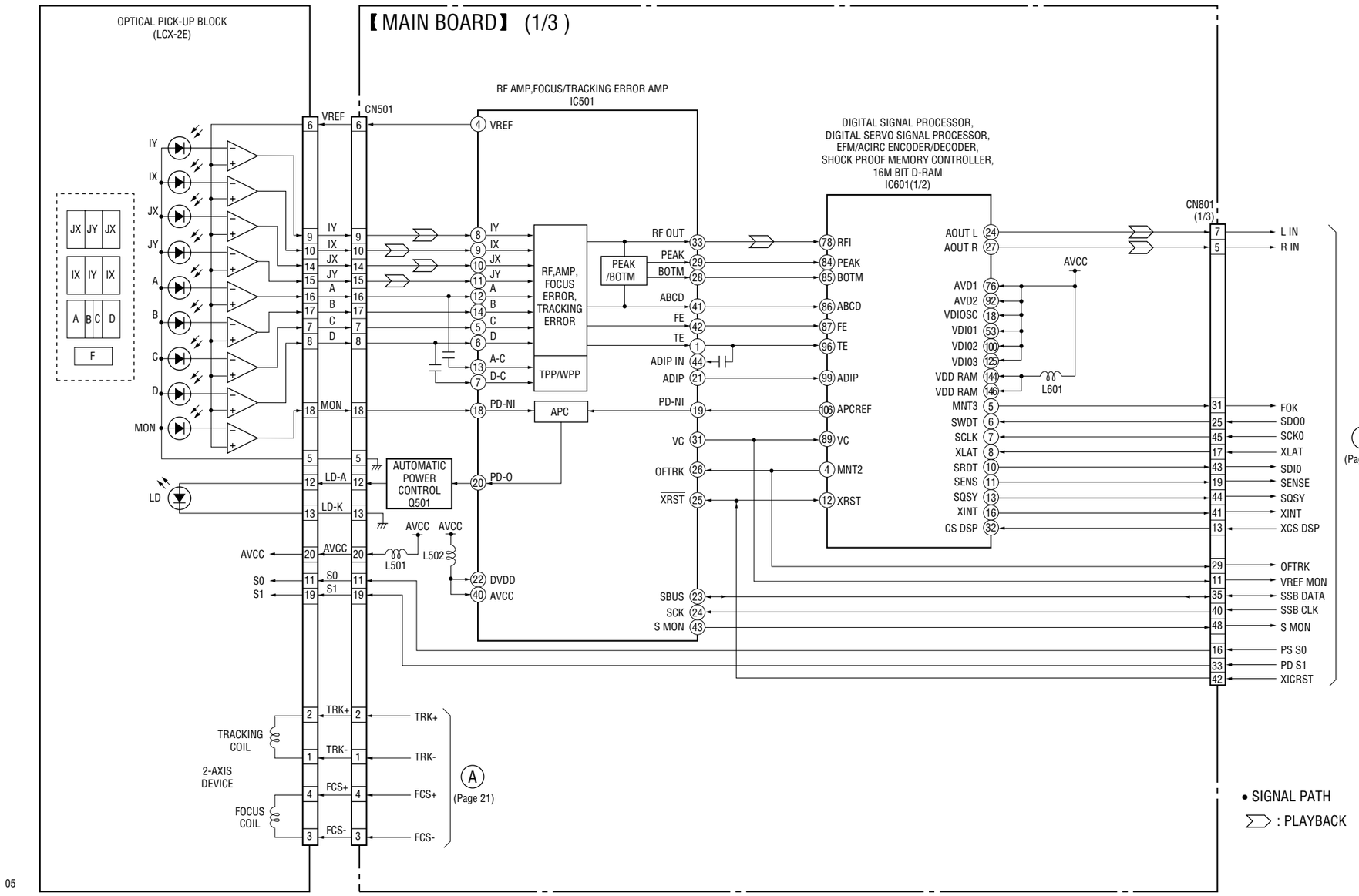
Item No.	Description
312 313 314	CD electrical offset adjustment
328	CD TWPP gain adjustment
321	CD tracking error gain adjustment
323 332	CD tracking error offset adjustment
336	CD ABCD level adjustment
344	CD focus gain adjustment
345	CD tracking gain adjustment
521 522	CD two-axis sensitivity adjustment
341	CD focus bias adjustment

2. Overall MO adjustment items

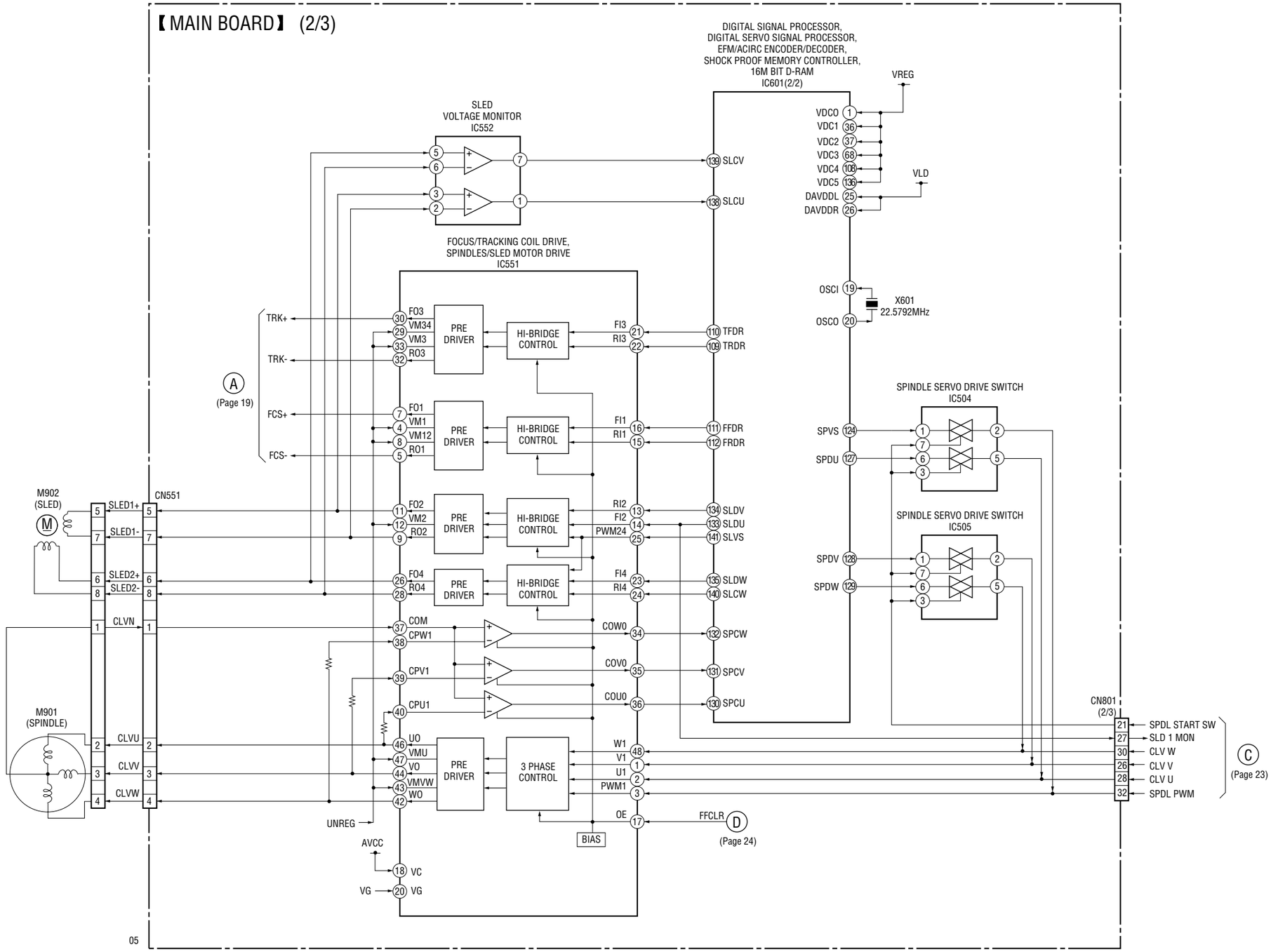
Item No.	Description
112 113 114 118	MO electrical offset adjustment
221	Low reflective CD tracking error gain adjustment
223 232	Low reflective CD tracking error offset adjustment
236	Low reflective CD ABCD level adjustment
244	Low reflective CD focus gain adjustment
245	Low reflective CD tracking gain adjustment
121	MO tracking error gain adjustment
122	MO tracking error offset adjustment
134	MO TWPP gain adjustment
131 132	MO double speed read TWPP offset adjustment
136	MO ABCD level adjustment
144	MO focus gain adjustment
145	MO tracking gain adjustment
141	MO focus bias adjustment

SECTION 6
DIAGRAMS

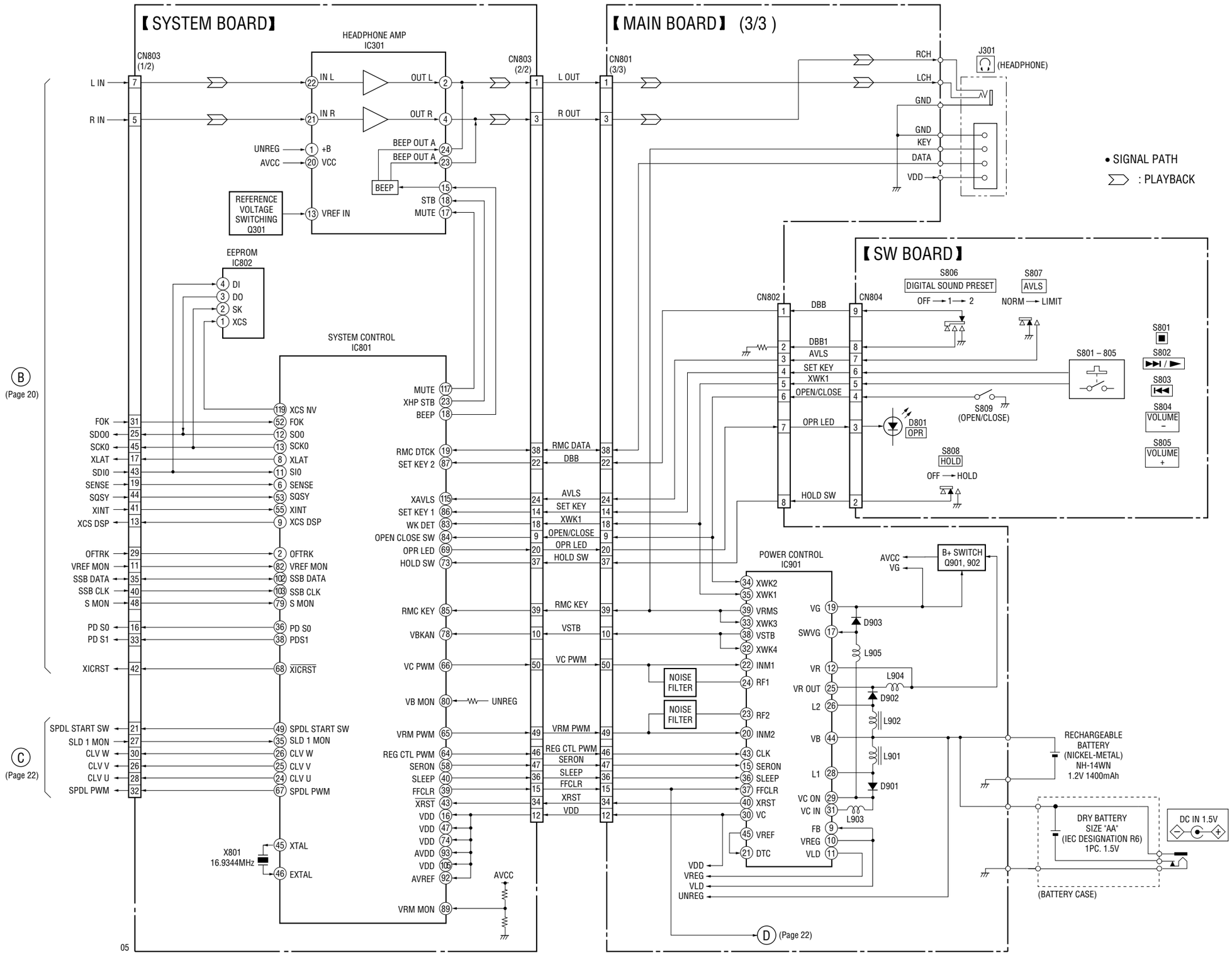
6-1. BLOCK DIAGRAM – RF Section –



6-2. BLOCK DIAGRAM – SERVO Section –



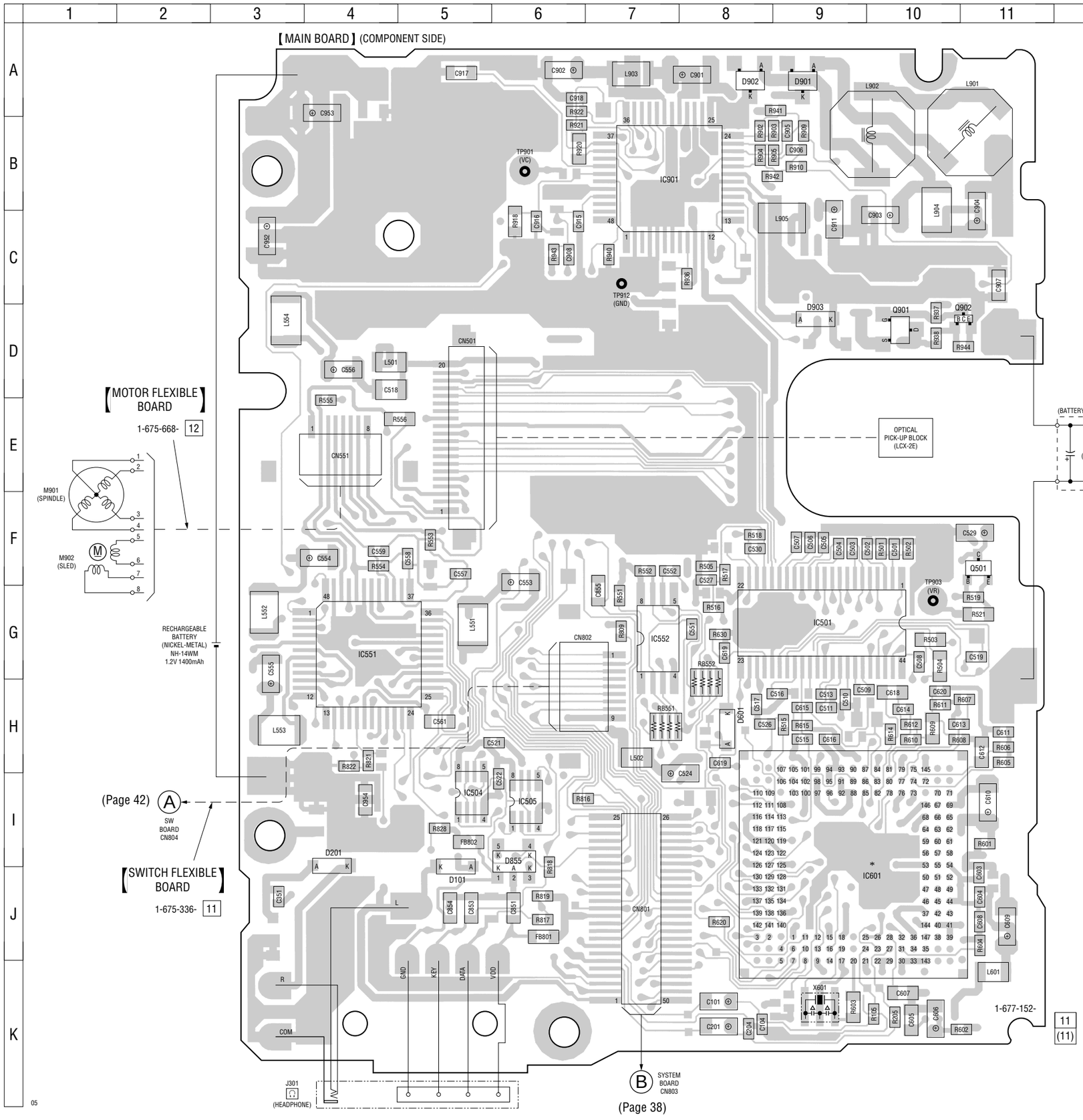
6-3. BLOCK DIAGRAM – MAIN Section –



6-4. PRINTED WIRING BOARD – MAIN Board (Component Side) –

- **Semiconductor Location**

Ref. No.	Location
D101	J-5
D201	I-4
D601	H-8
D855	I-6
D901	A-9
D902	A-8
D903	D-9
IC501	G-9
IC504	I-5
IC505	I-6
IC551	G-4
IC552	G-7
IC601	J-9
IC901	B-7
Q501	F-11
Q901	D-10
Q902	D-11



Note on Printed Wiring Board:

- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

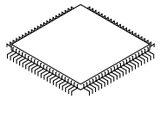
(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

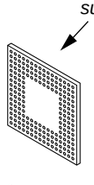
- Main board is four-layer printed board. However, the patterns of layers 2 and 3 have not been included in this diagrams.

∗ IC601 is not replaceable

- Lead Layouts

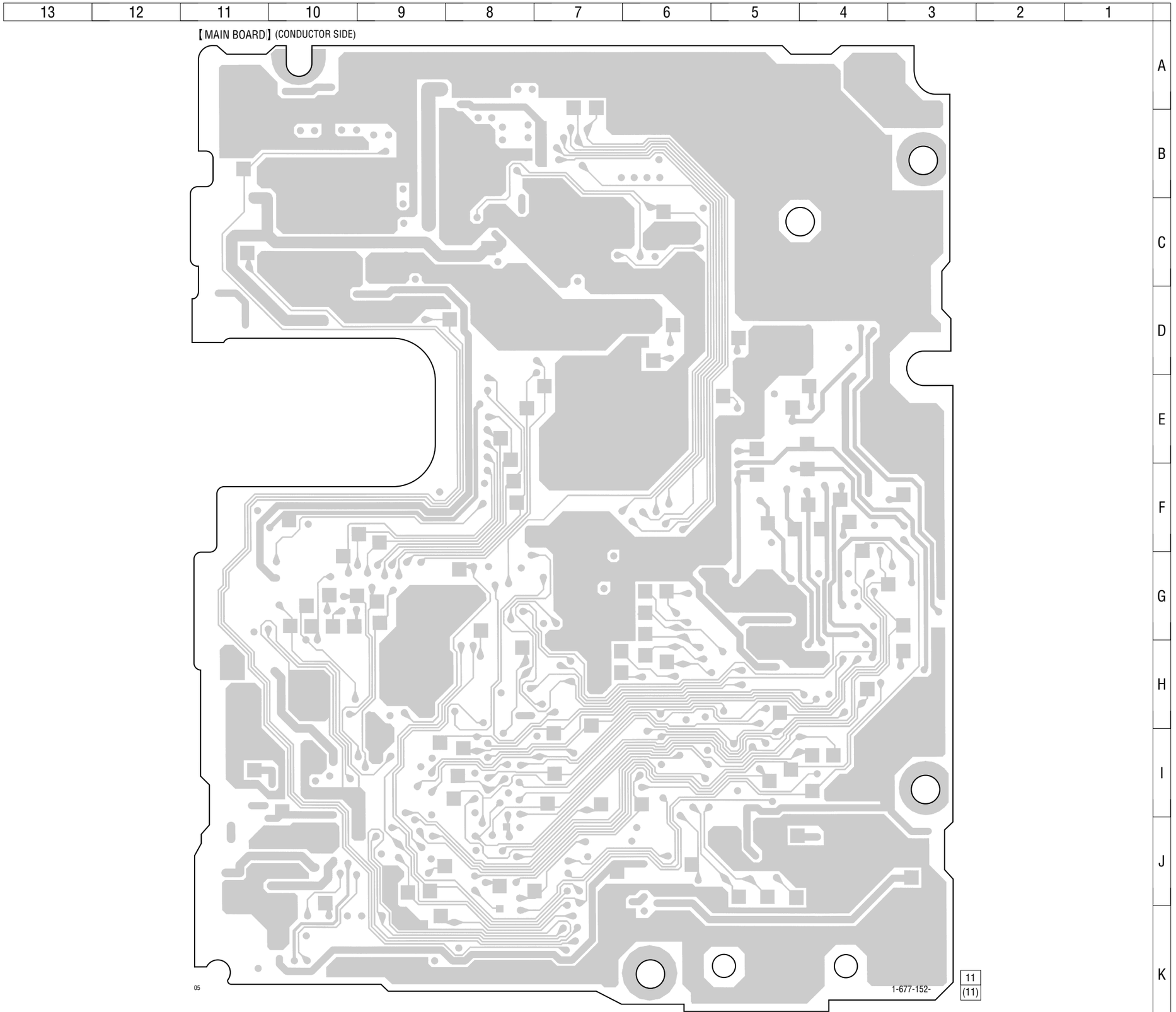


Lead layout of conventional IC

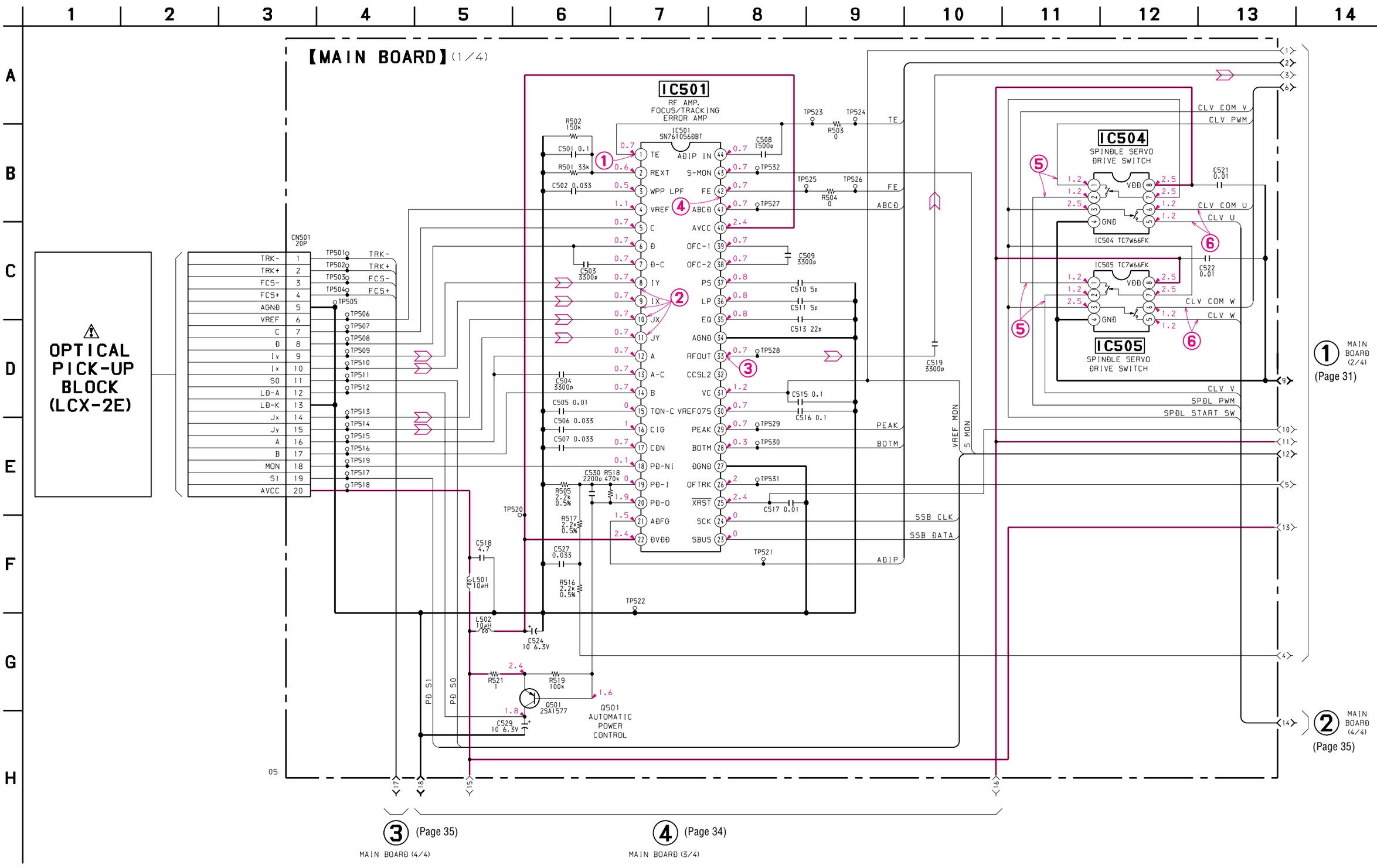


CSP (chip size package)

6-5. PRINTED WIRING BOARD – MAIN Board (Conductor Side) –



6-6. SCHEMATIC DIAGRAM – MAIN Board (1/4) – • See page 45 for Waveforms. • See page 46 for IC Block Diagram.

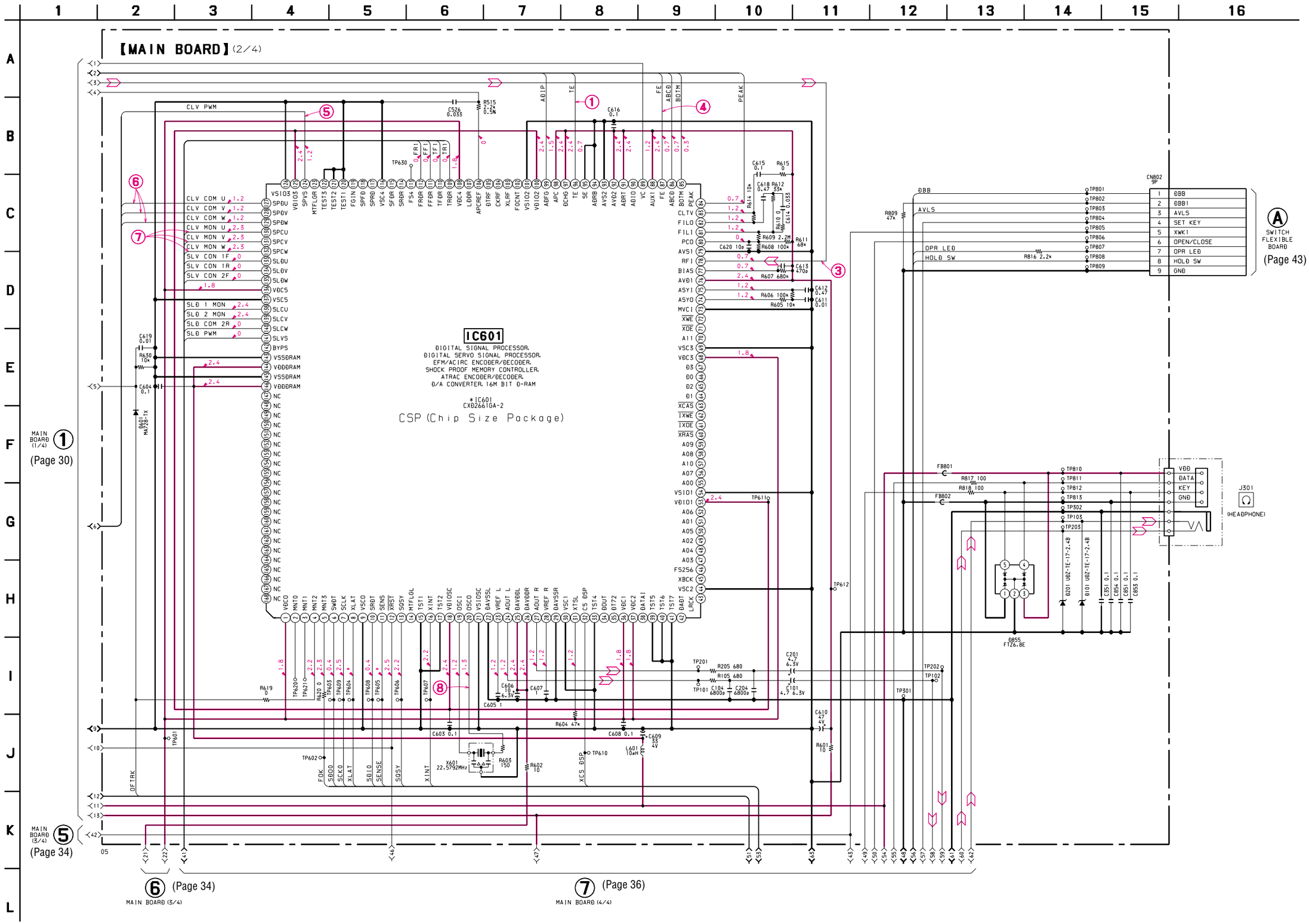


Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▬▬ : B+ Line.
- Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground in playback mode.
  no mark : PLAYBACK
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  Σ : PLAYBACK

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

6-7. SCHEMATIC DIAGRAM – MAIN Board (2/4) – • See page 45 for Waveforms.



Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▭ : panel designation.

- ▬▬ : B+ Line.
- Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground in playback mode.
  no mark : PLAYBACK
  * : Impossible to measure

- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

- Signal path.
  Σ : PLAYBACK

∗ IC601 is not replaceable

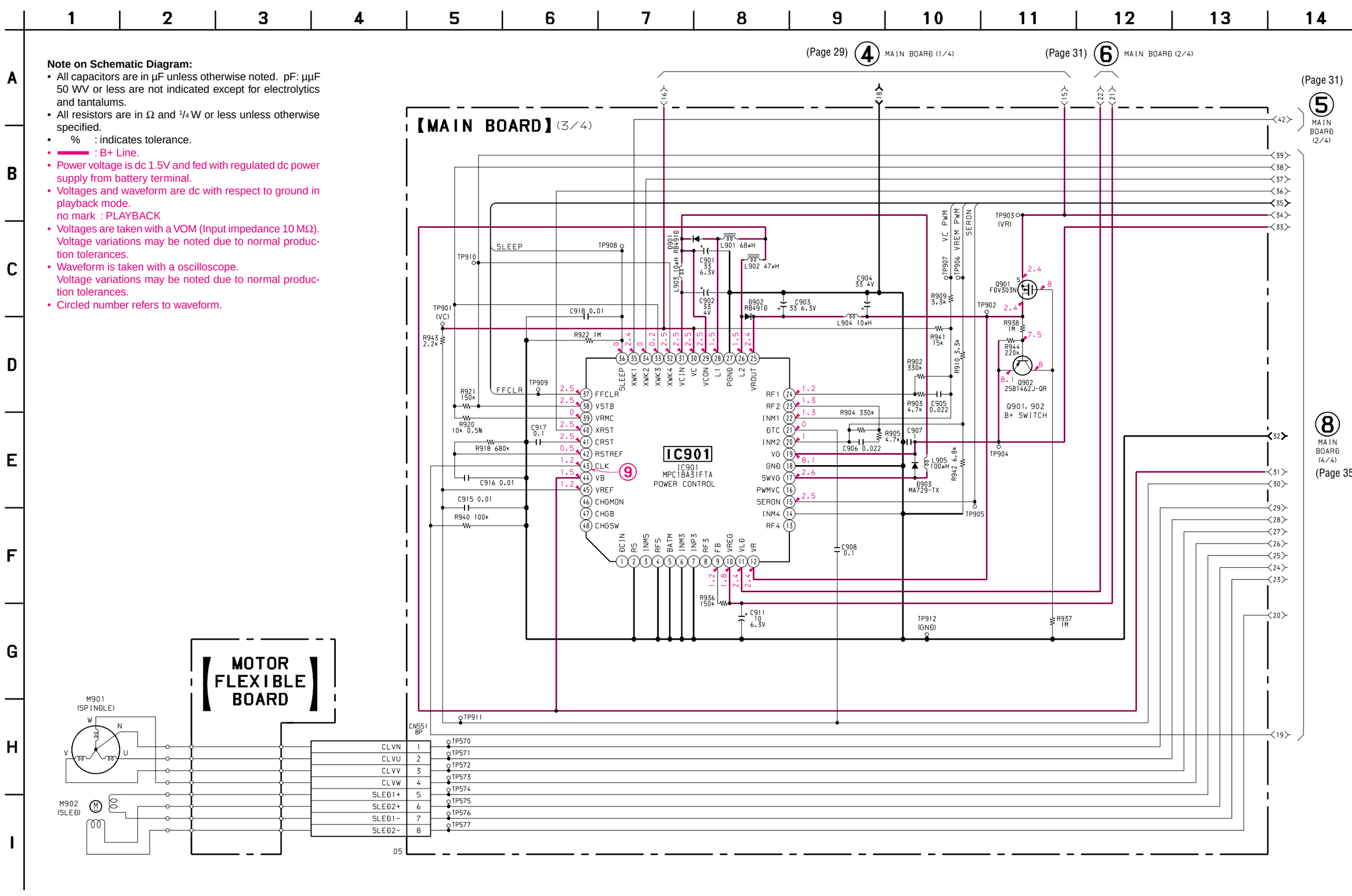
- The voltage and waveform of CSP (chip size package) cannot be measured, because its lead layout is different form that of conventional IC.

6-8. SCHEMATIC DIAGRAM – MAIN Board (3/4) –

• See page 45 for Waveform. • See page 48 for IC Block Diagram.

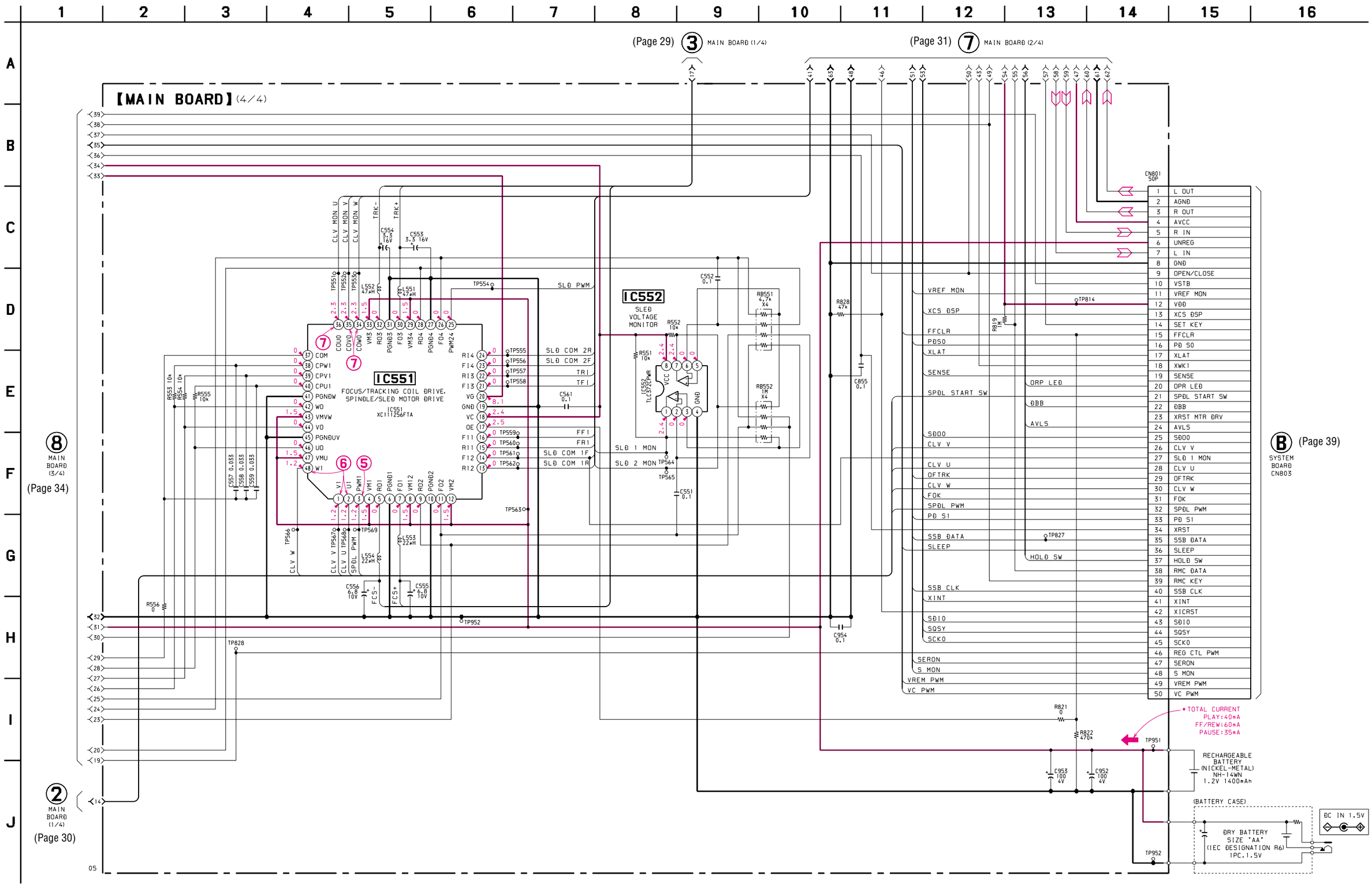
Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▬▬ : B+ Line.
- Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
- Voltages and waveform are dc with respect to ground in playback mode.
  no mark : PLAYBACK
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveform is taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled number refers to waveform.



6-9. SCHEMATIC DIAGRAM – MAIN Board (4/4) –

• See page 45 for Waveforms. • See page 47 for IC Block Diagram.



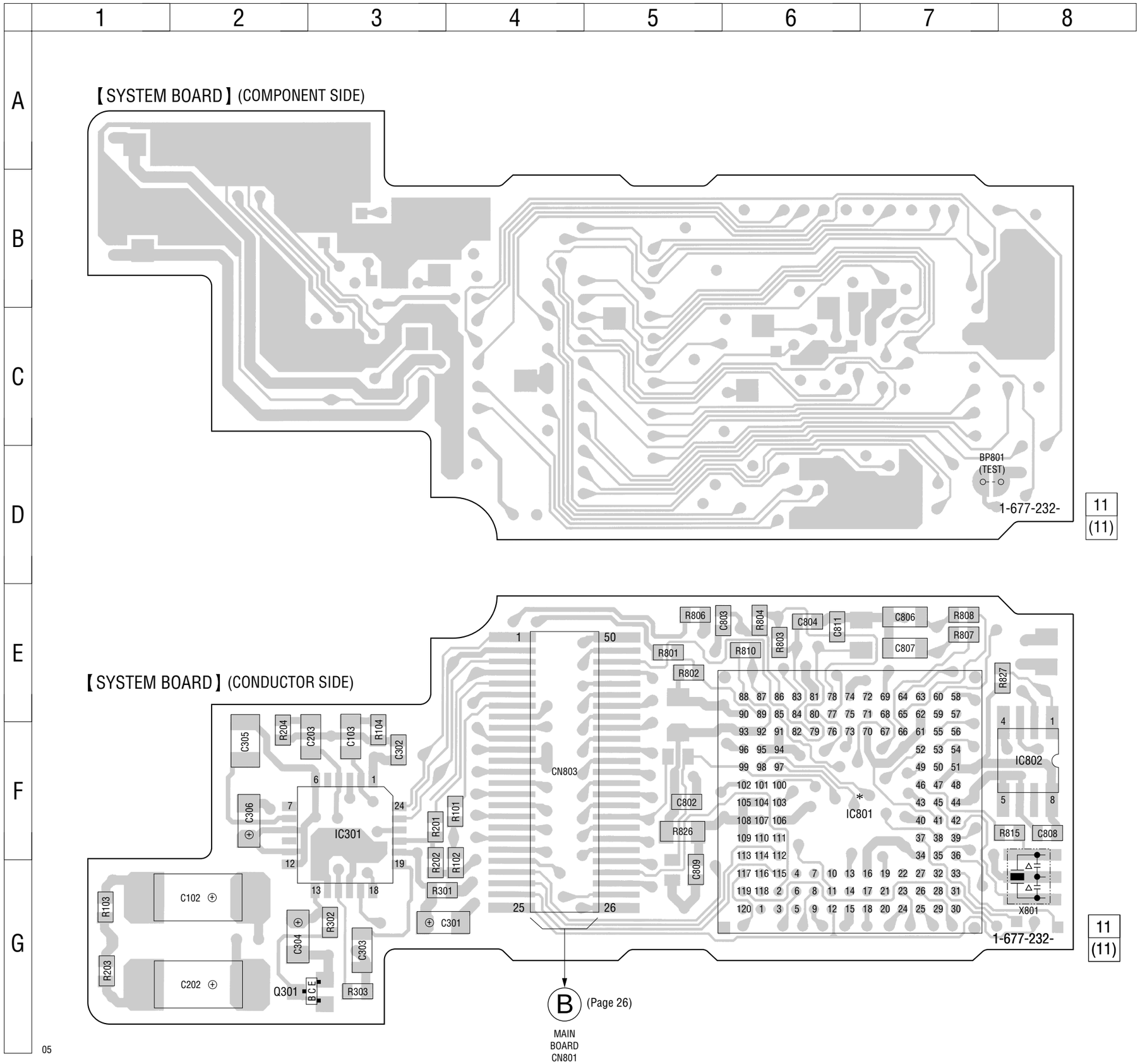
Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- ▬ : B+ Line.
- Total current is measured with MD installed.
- Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground in playback mode.
  no mark : PLAYBACK
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  Σ : PLAYBACK

6-10. PRINTED WIRING BOARD – SYSTEM Board –

- **Semiconductor Location**

Ref. No.	Location
IC301	F-3
IC801	F-6
IC802	F-8
Q301	G-3



Note on Printed Wiring Board:

- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

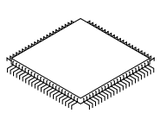
(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

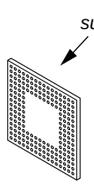
- System board is four-layer printed board. However, the patterns of layers 2 and 3 have not been included in this diagrams.

∗ IC801 is not replaceable

- Lead Layouts



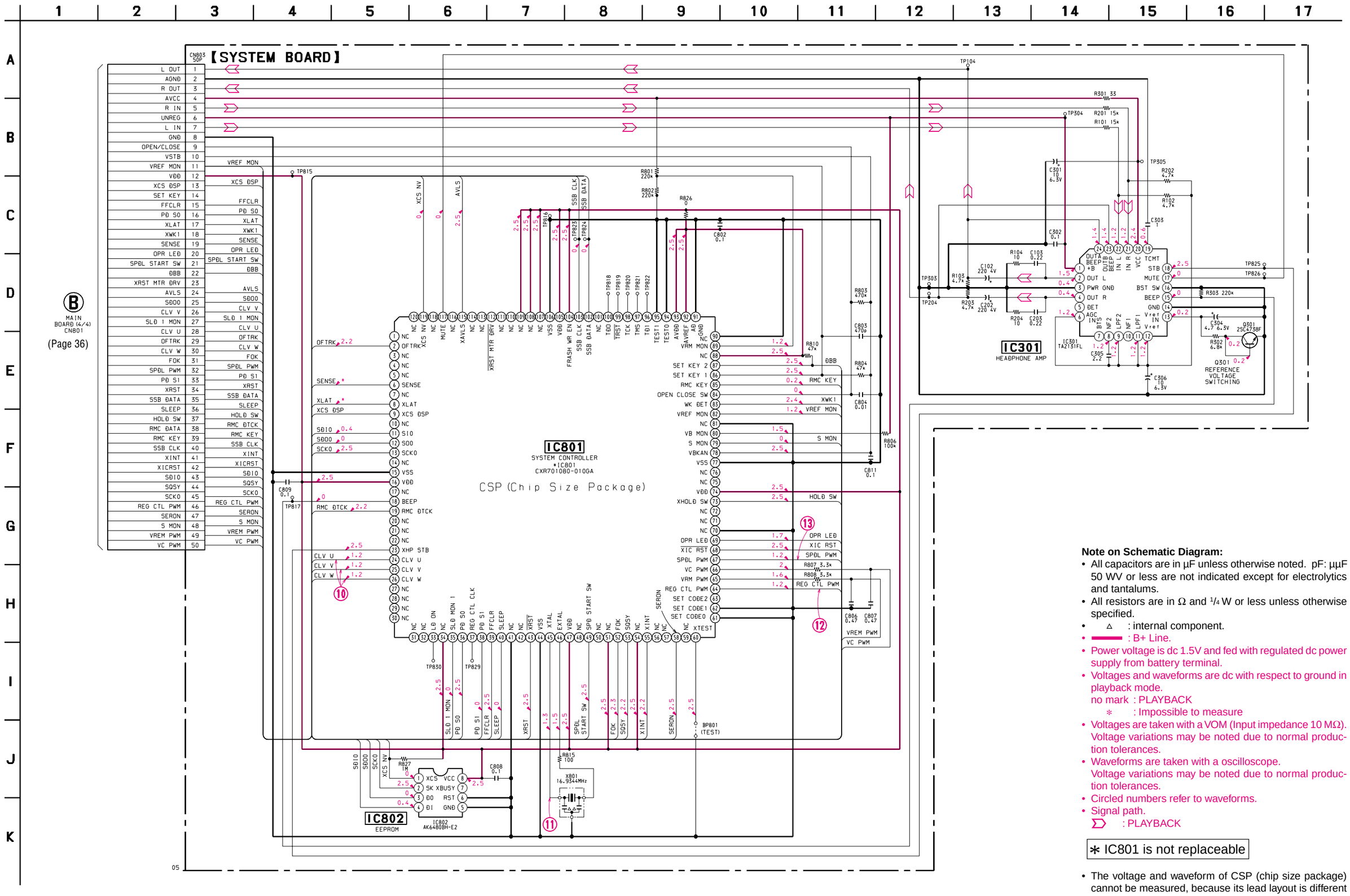
Lead layout of conventional IC



CSP (chip size package)

05

6-11. SCHEMATIC DIAGRAM – SYSTEM Board – • See page 45 for Waveforms. • See page 48 for IC Block Diagram.



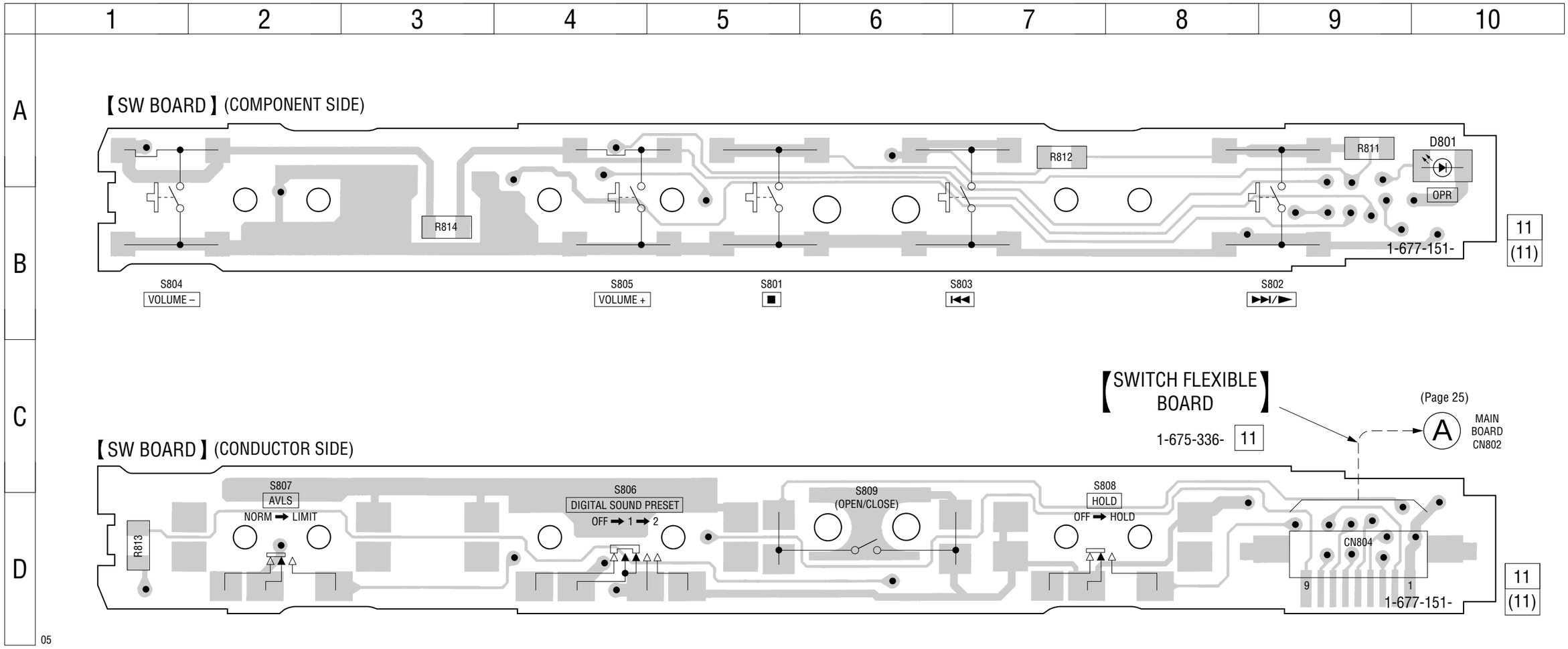
Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▬ : B+ Line.
- Power voltage is dc 1.5V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground in playback mode.
  no mark : PLAYBACK
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  Σ : PLAYBACK

* IC801 is not replaceable

- The voltage and waveform of CSP (chip size package) cannot be measured, because its lead layout is different form that of conventional IC.

6-12. PRINTED WIRING BOARD – SW Board –



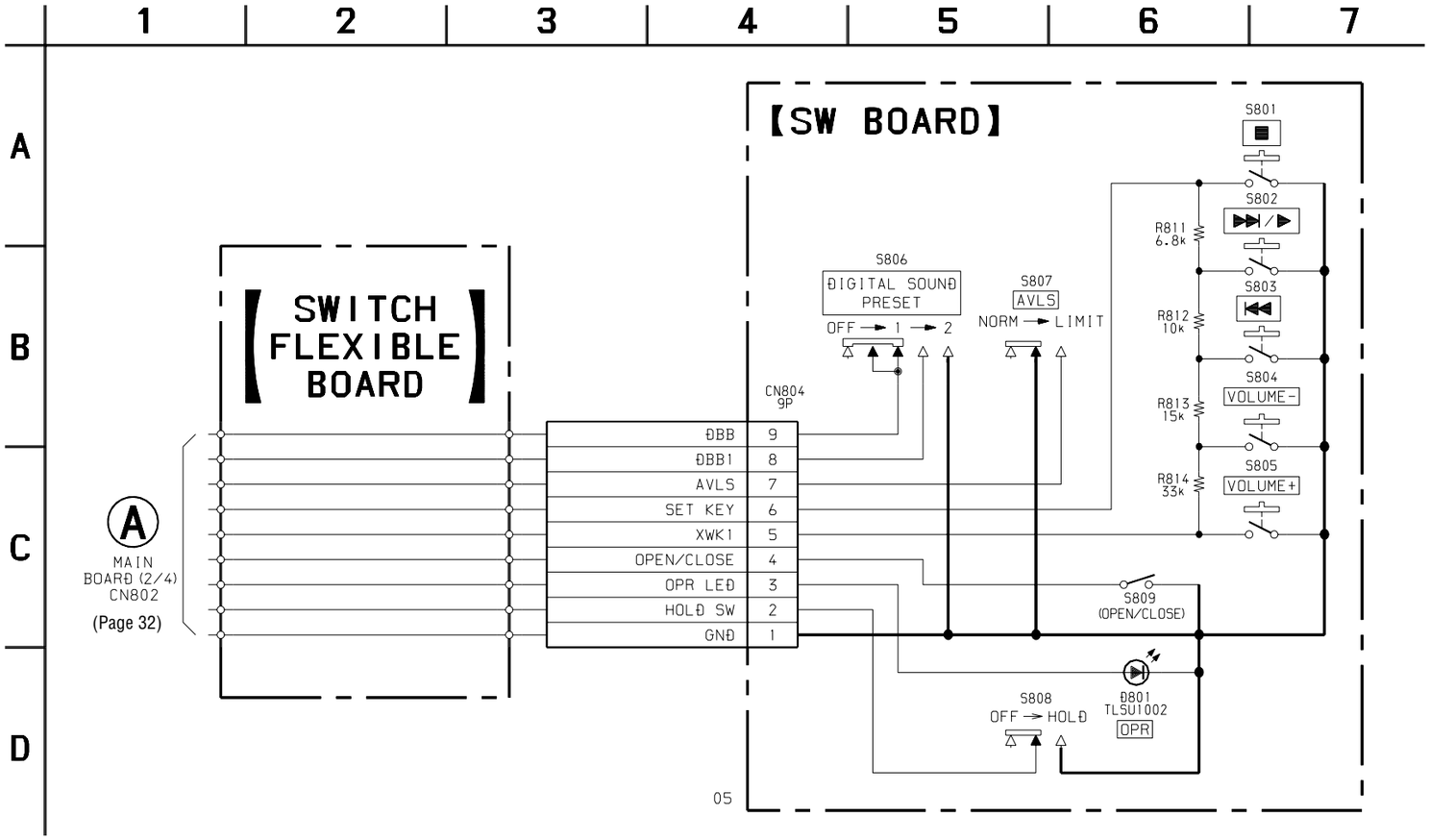
Note on Printed Wiring Board:

- ——— : parts extracted from the conductor side.
- ● : Through hole.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

6-13. SCHEMATIC DIAGRAM – SW Board –



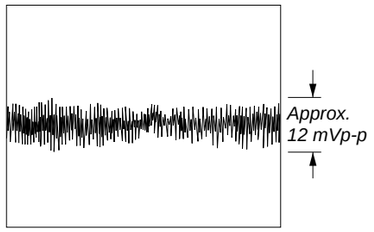
Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.

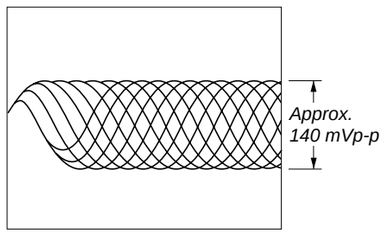
• Waveforms

– MAIN Board –

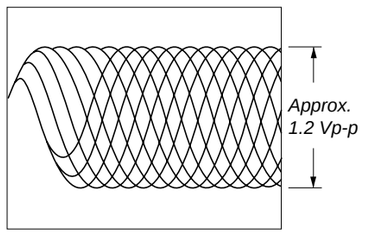
❶ IC501 ① (TE), IC601 ⑯ (TE)
(PLAYBACK mode)
100 mV/DIV, 1 µs/DIV



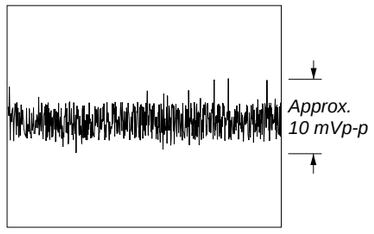
❷ IC501 ⑧, ⑨, ⑩, ⑪ (IY, IX, JX, JY)
(PLAYBACK mode)
100 mV/DIV, 5 µs/DIV



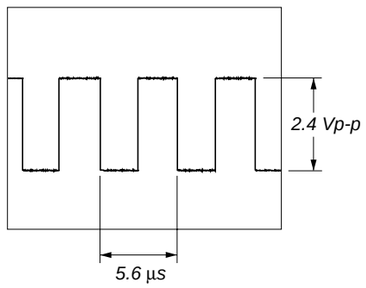
❸ IC501 ㉝ (RF OUT),
IC601 ⑱ (RFI) (PLAYBACK mode)
500 mV/DIV, 10 µs/DIV



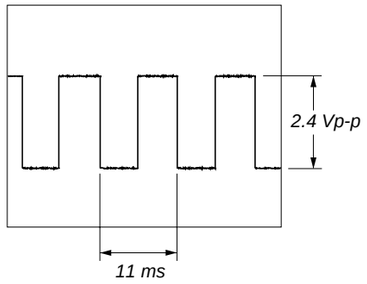
❹ IC501 ㊷ (FE),
IC601 ⑰ (FE) (PLAYBACK mode)
100 mV/DIV, 1 µs/DIV



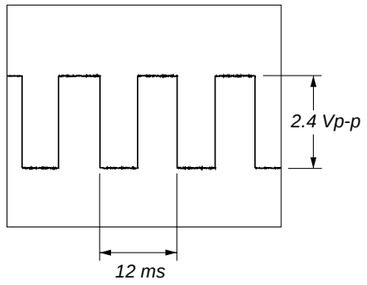
❺ IC504 ①, ②, IC551 ③ (PWM1),
IC601 ⑫⓪ (SPVS) (PLAYBACK mode)
1 V/DIV, 2 µs/DIV



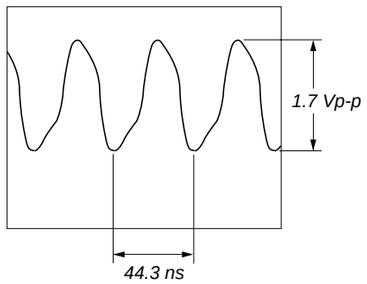
❻ IC504 ⑤, ⑥, IC505 ①, ②, ⑤, ⑥,
IC551 ①, ②, ㊽ (V1, U1, W1)
IC601 ⑫⑦, ⑫⑧, ⑫⑨ (SPDU, SPDV, SPDW)
(PLAYBACK mode)
1 V/DIV, 5 ms/DIV



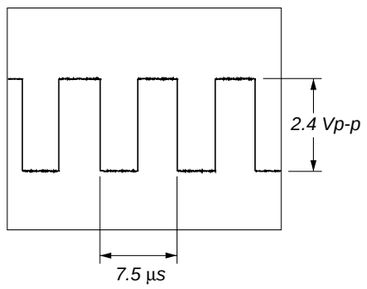
❼ IC551 ㉞, ㉟, ㊱ (COW0, COV0, COU0)
IC601 ⑬⓪, ⑬①, ⑬② (SPCU, SPCV, SPCW)
(PLAYBACK mode)
1 V/DIV, 5 ms/DIV



❽ IC601 ⑳ (OSCO)
500 mV/DIV, 20 ns/DIV

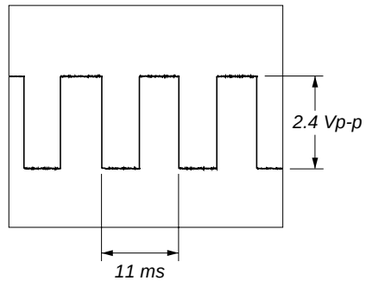


❾ IC901 ㊸ (CLK)
1 V/DIV, 2 µs/DIV

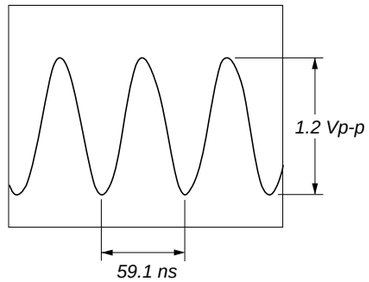


– SYSTEM Board –

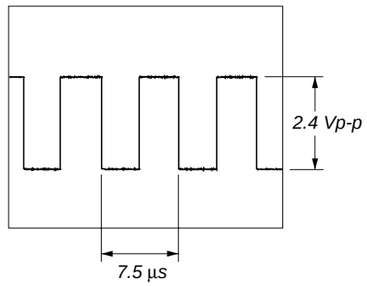
❿ IC801 ㉔, ㉕, ㉖ (CLV U, CLV V, CLV W)
(PLAYBACK mode)
1 V/DIV, 5 ms/DIV



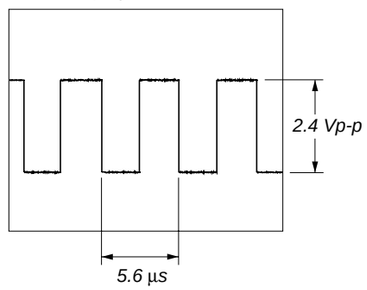
⓫ IC801 ㊺ (XTAL)
1 V/DIV, 20 ns/DIV



⓬ IC801 ⑥④ (REG CTL PWM)
1 V/DIV, 2 µs/DIV



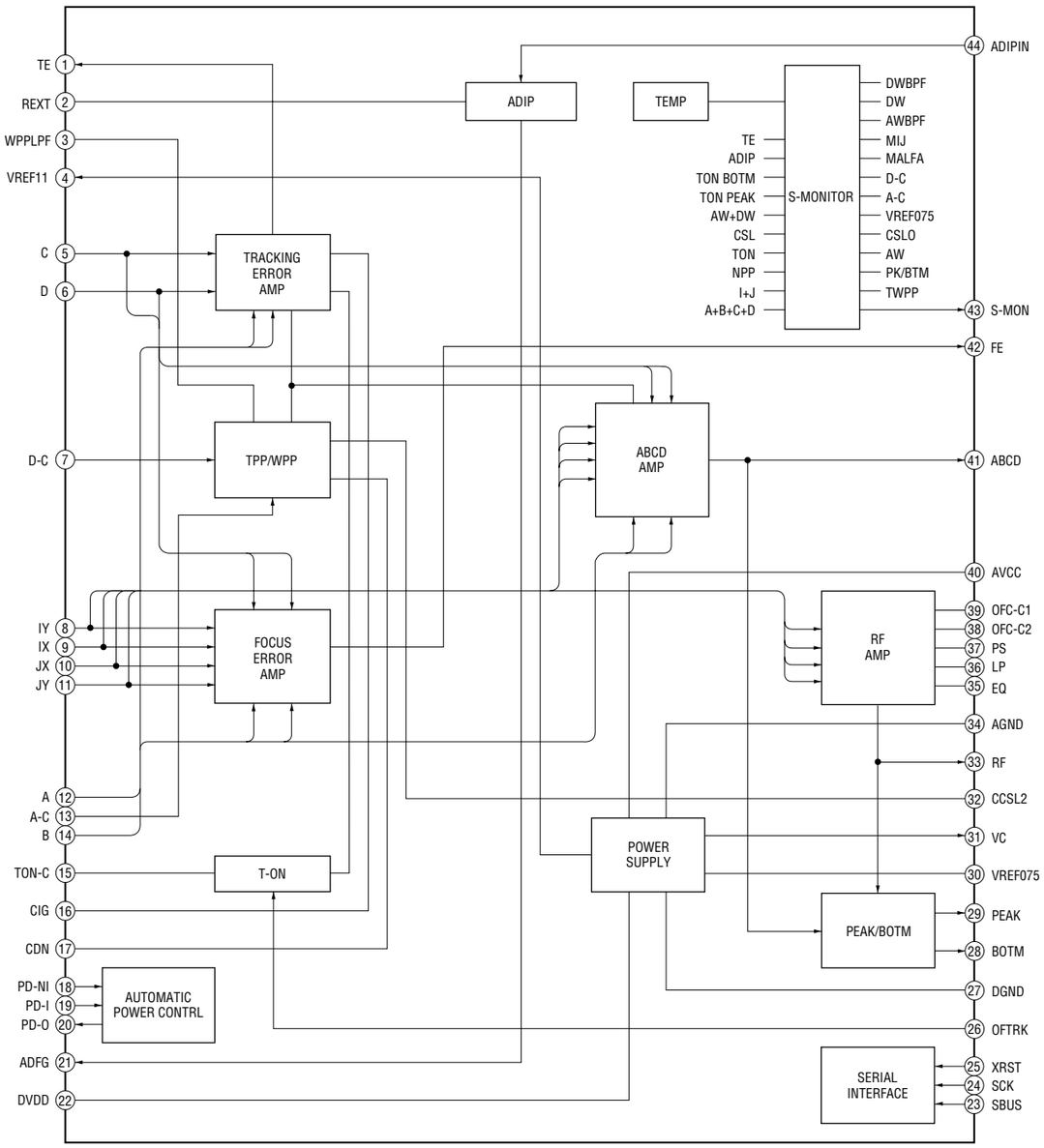
⓭ IC801 ⑥⑦ (SPDL PWM)
(PLAYBACK mode)
1 V/DIV, 2 µs/DIV



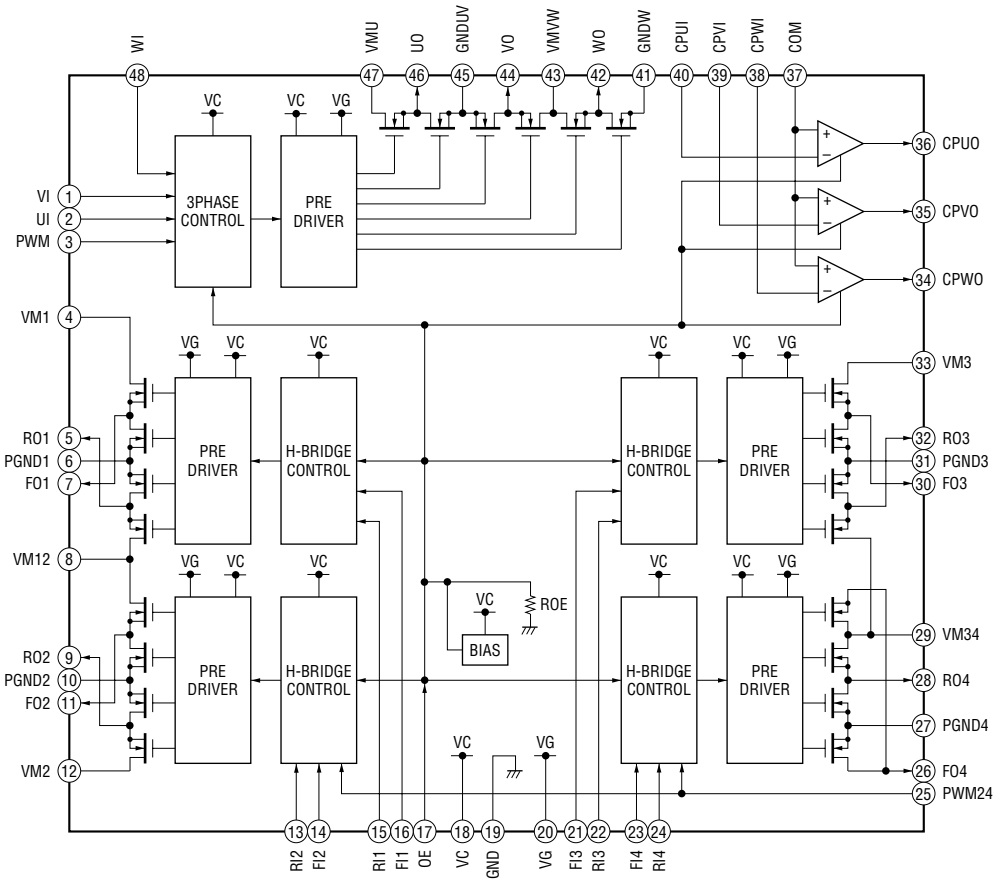
• IC Block Diagrams

– MAIN Board –

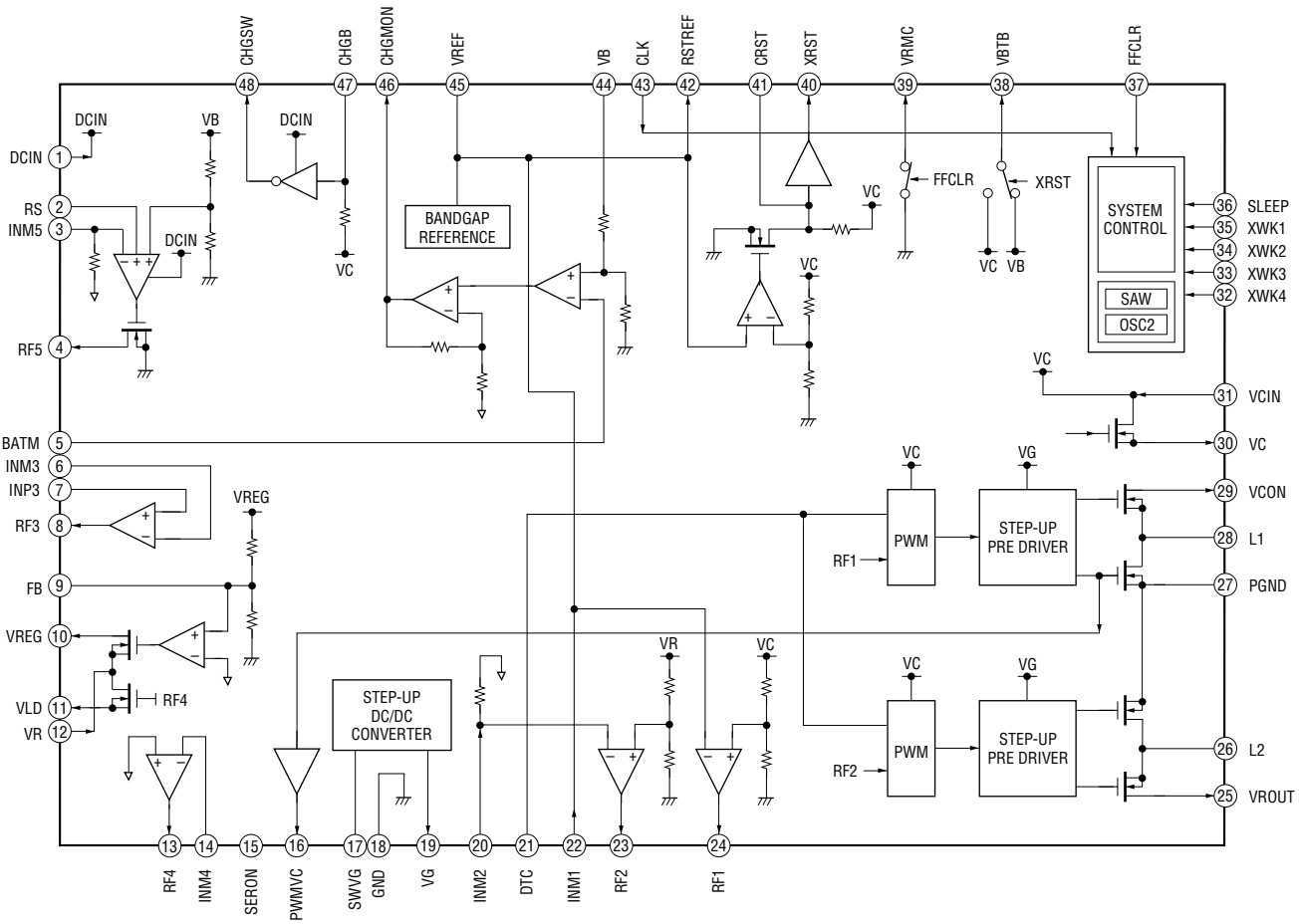
IC501 SN761056DBT



IC551 XC111256FTA

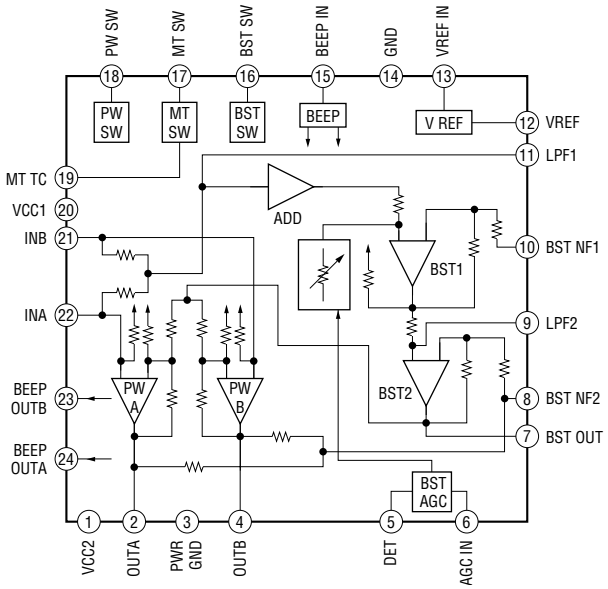


IC901 MPC18A31FTA



– SYSTEM Board –

IC301 TA2131FL (EL)



6-14. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC501 SN761056DBT (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Description
1	TE	O	Tracking error signal output to the CXD2661GA (IC601)
2	REXT	—	Connected to the external resistor for the ADIP amplifier control
3	WPPLPF	—	Connected to the external capacitor for low-pass filter of the TPP/WPP
4	VREF11	O	Reference voltage output terminal (+1.1V)
5	C	I	Signal (C) input from the optical pick-up detector
6	D	I	Signal (D) input from the optical pick-up detector
7	D-C	I	Signal (D) input from the optical pick-up detector (AC input)
8	IY	I	I-V converted RF signal (IY) input from the optical pick-up block detector
9	IX	I	I-V converted RF signal (IX) input from the optical pick-up block detector
10	JX	I	I-V converted RF signal (JX) input from the optical pick-up block detector
11	JY	I	I-V converted RF signal (JY) input from the optical pick-up block detector
12	A	I	Signal (A) input from the optical pick-up detector
13	A-C	I	Signal (A) input from the optical pick-up detector (AC input)
14	B	I	Signal (B) input from the optical pick-up detector
15	TON-C	—	Connected to the external capacitor for the TON hold
16	CIG	—	Connected to the external capacitor for low-pass filter of the NPP divider denominator
17	CDN	—	Connected to the external capacitor for low-pass filter of the CSL divider denominator
18	PD-NI	I	Light amount monitor input terminal (non-invert input)
19	PD-I	I	Light amount monitor input terminal (invert input)
20	PD-O	O	Light amount monitor output terminal
21	ADFG	O	ADIP duplex FM signal (22.05 kHz ± 1 kHz) output to the CXD2661GA (IC601)
22	DVDD	—	Power supply terminal (+2.4V) (digital system)
23	SBUS	I/O	Two-way SSB serial data bus with the system controller (IC801)
24	SCK	I	SSB serial clock signal input from the system controller (IC801)
25	$\overline{\text{XRST}}$	I	Reset signal input from the system controller (IC801) “L”: reset
26	OFTRK	I	Off track signal input from the CXD2661GA (IC601)
27	DGND	—	Ground terminal (digital system)
28	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2661GA (IC601)
29	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2661GA (IC601)
30	VREF075	—	Connected to the external capacitor for the internal reference voltage
31	VC	O	Middle point voltage (+1.2V) generation output terminal
32	CCSL2	—	Connected to the external capacitor for low-pass filter of the TPP/WPP
33	RF OUT	O	Playback EFM RF signal output to the CXD2661GA (IC601)
34	AGND	—	Ground terminal (analog system)
35	EQ	—	Connected to the external capacitor for the RF equalizer
36	LP	—	Connected to the external capacitor for the RF equalizer
37	PS	—	Connected to the external capacitor for the RF equalizer
38	OFC-2	—	Connected to the external capacitor for the RF AC coupling
39	OFC-1	—	Connected to the external capacitor for the RF AC coupling
40	AVCC	—	Power supply terminal (+2.4V) (analog system)
41	ABCD	O	Light amount signal (ABCD) output to the CXD2661GA (IC601)
42	FE	O	Focus error signal output to the CXD2661GA (IC601)
43	S-MON	O	Servo signal monitor output to the system controller (IC801)
44	ADIP-IN	I	ADIP duplex FM signal (22.05 kHz ± 1 kHz) input terminal Not used

• **MAIN BOARD IC601 CXD2661GA-2**
(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO SIGNAL PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, D/A CONVERTER, 16M BIT D-RAM)

Pin No.	Pin Name	I/O	Description
1	VDCO	—	Power supply terminal (+1.8V) (for internal logic)
2, 3	MNT0, MNT1	O	Operation monitor signal output terminal Not used (open)
4	MNT2	O	Off track signal output to the SN761056DBT (IC501) and system controller (IC801)
5	MNT3	O	Focus OK signal output to the system controller (IC801) "H" is output when focus is on ("L": NG)
6	SWDT	I	Serial data input from the system controller (IC801) and EEPROM (IC802)
7	SCLK	I	Serial clock signal input from the system controller (IC801)
8	XLAT	I	Serial data latch pulse input from the system controller (IC801)
9	VSCO	—	Ground terminal (for internal logic)
10	SRDT	O	Serial data output to the system controller (IC801) and EEPROM (IC802)
11	SENS	O	Internal status (SENSE) output to the system controller (IC801)
12	$\overline{\text{XRST}}$	I	Reset signal input from the system controller (IC801) "L": reset
13	SQSY	O	Subcode Q sync (SCOR) output to the system controller (IC801) "L" is output every 13.3 msec Almost all, "H" is output
14	MTFLGL	O	Muting applied to analog signal input in non-signal status causes the signal to be "H" automatically Not used (open)
15	TST1	I	Input terminal for the test (normally : fixed at "L")
16	XINT	O	Interrupt status output to the system controller (IC801)
17	TST2	I	Input terminal for the test (normally : fixed at "L")
18	VDIOSC	—	Power supply terminal (+2.4V) (for oscillator cell)
19	OSCI	I	System clock input terminal (22.5792 MHz)
20	OSCO	O	System clock output terminal (22.5792 MHz)
21	VSIOSC	—	Ground terminal (for oscillator cell)
22	DAVSSL	—	Ground terminal (for internal D/A converter L-ch)
23	VREFL	O	Reference voltage output terminal (for internal D/A converter L-ch)
24	AOUTL	O	Playback analog signal (L-ch) output to the headphone amp (IC301)
25	DAVDDL	—	Power supply terminal (+2.4V) (for internal D/A converter L-ch)
26	DAVDDR	—	Power supply terminal (+2.4V) (for internal D/A converter R-ch)
27	AOUTR	O	Playback analog signal (R-ch) output to the headphone amp (IC301)
28	VREFR	O	Reference voltage output terminal (for internal D/A converter R-ch)
29	DAVSSR	—	Ground terminal (for internal D/A converter R-ch)
30	VSC1	—	Ground terminal (for internal logic)
31	XTSL	I	Input terminal for the system clock frequency setting "L": 45.1584 MHz, "H": 22.5792 MHz (fixed at "H" in this set)
32	CD DSP	I	Chip select signal input from the system controller (IC801)
33	TST4	I	Input terminal for the test (normally : fixed at "L")
34	DOUT	O	Digital audio signal output terminal when playback mode Not used (open)
35	DT72	O	Not used (open)
36, 37	VDC1, VDC2	—	Power supply terminal (+1.8V) (for internal logic)
38	DATAI	I	Input terminal of external audio data to the internal D/A converter Not used (open)
39 to 41	TST5 to TST7	I	Input terminal for the test (normally : fixed at "L")
42	DADT	O	Playback data signal output to the external D/A converter Not used (open)
43	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the external D/A converter Not used (open)
44	VSC2	—	Ground terminal (for internal logic)
45	XBCK	O	Bit clock signal (2.8224 MHz) output to the external D/A converter Not used (open)

Pin No.	Pin Name	I/O	Description
46	FS256	O	Clock signal (11.2896 MHz) output to the external D/A converter Not used (open)
47 to 52	A03, A04, A02, A05, A01, A06	O	Address signal output to the external D-RAM Not used (open)
53	VDIO1	—	Power supply terminal (+2.4V) (for I/O cell)
54	VSIO1	—	Ground terminal (for I/O cell)
55 to 59	A00, A07, A10, A08, A09	O	Address signal output to the external D-RAM Not used (open)
60	$\overline{\text{XRAS}}$	O	Row address strobe signal output to the external D-RAM "L" active Not used (open)
61	$\overline{\text{IXOE}}$	O	Output enable signal output terminal "L" active Not used (open)
62	$\overline{\text{IXWE}}$	O	Data write enable signal output terminal "L" active Not used (open)
63	$\overline{\text{XCAS}}$	O	Column address strobe signal output to the external D-RAM "L" active Not used (open)
64 to 67	D1, D2, D0, D3	I/O	Two-way data bus with the external D-RAM Not used (open)
68	VDC3	—	Power supply terminal (+1.8V) (for internal logic)
69	VSC3	—	Ground terminal (for internal logic)
70	A11	O	Address signal output to the external D-RAM Not used (open)
71	$\overline{\text{XOE}}$	O	Output enable signal output to the external D-RAM "L" active Not used (open)
72	$\overline{\text{XWE}}$	O	Data write enable signal output to the external D-RAM "L" active Not used (open)
73	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at "L")
74	ASYO	O	Playback EFM full-swing output terminal
75	ASYI	I	Playback EFM asymmetry comparator voltage input terminal
76	AVD1	—	Power supply terminal (+2.4V) (analog system)
77	BIAS	I	Playback EFM asymmetry circuit constant current input terminal
78	RFI	I	Playback EFM RF signal input from the SN761056DBT (IC501)
79	AVS1	—	Ground terminal (analog system)
80	PCO	O	Phase comparison output for master clock of the recording/playback EFM master PLL
81	FILI	I	Filter input for master clock of the recording/playback EFM master PLL
82	FILO	O	Filter output for master clock of the recording/playback EFM master PLL
83	CLTV	I	Internal VCO control voltage input of the recording/playback EFM master PLL
84	PEAK	I	Light amount signal (RF/ABCD) peak hold input from the SN761056DBT (IC501)
85	BOTM	I	Light amount signal (RF/ABCD) bottom hold input from the SN761056DBT (IC501)
86	ABCD	I	Light amount signal input from the SN761056DBT (IC501)
87	FE	I	Focus error signal input from the SN761056DBT (IC501)
88	AUX1	I	Auxiliary signal input terminal Not used (fixed at "H")
89	VC	I	Middle point voltage (+1.2V) input terminal
90	ADIO	O	Monitor output of the A/D converter input signal Not used (open)
91	ADRT	I	A/D converter operational range upper limit voltage input terminal (fixed at "H" in this set)
92	AVD2	—	Power supply terminal (+2.4V) (analog system)
93	AVS2	—	Ground terminal (analog system)
94	ADRB	I	A/D converter operational range lower limit voltage input terminal (fixed at "L" in this set)
95	SE	I	Sled error signal input terminal Not used (open)
96	TE	I	Tracking error signal input from the SN761056DBT (IC501)
97	DCHG	I	Connected to the +2.4V power supply
98	APC	I	Error signal input for the laser automatic power control Not used (fixed at "H")
99	ADFG	I	ADIP duplex FM signal (22.05 kHz ± 1 kHz) input from the SN761056DBT (IC501)
100	VDIO2	—	Power supply terminal (+2.2V) (for I/O cell)
101	VSIO2	—	Ground terminal (for I/O cell)
102	F0CNT	O	Center frequency control signal output terminal of internal circuit filter Not used (open)

Pin No.	Pin Name	I/O	Description
103	XLRF	O	Serial latch signal output terminal Not used (open)
104	CKRF	O	Serial clock signal output terminal Not used (open)
105	DTRF	O	Write data output terminal Not used (open)
106	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
107	LDDR	O	PWM signal output for the laser automatic power control Not used (open)
108	VDC4	—	Power supply terminal (+1.8V) (for internal logic)
109	TRDR	O	Tracking servo drive PWM signal (–) output to the XC111256FTA (IC551)
110	TFDR	O	Tracking servo drive PWM signal (+) output to the XC111256FTA (IC551)
111	FFDR	O	Focus servo drive PWM signal (+) output to the XC111256FTA (IC551)
112	FRDR	O	Focus servo drive PWM signal (–) output to the XC111256FTA (IC551)
113	FS4	O	Clock signal output terminal (X' tal system 176.4 kHz) Not used (open)
114	SRDR	O	Sled servo drive PWM signal (–) output terminal Not used (open)
115	SFDR	O	Sled servo drive PWM signal (+) output terminal Not used (open)
116	VSC4	—	Ground terminal (for internal logic)
117	SPRD	O	Spindle servo drive PWM signal (–) output terminal Not used (open)
118	SPFD	O	Spindle servo drive PWM signal (+) output terminal Not used (open)
119	FGIN	I	FG signal input terminal for spindle servo Not used (open)
120 to 122	TEST1 to TEST3	I	Input terminal for the test (normally : fixed at “L”)
123	MTFLGR	O	Muting applied to analog signal input in non-signal status causes the signal to be “H” automatically Not used (open)
124	SPVS	O	Spindle servo drive voltage control signal output to the XC111256FTA (IC551)
125	VDI03	—	Power supply terminal (+2.2V) (for I/O cell)
126	VSI03	—	Ground terminal (for I/O cell)
127	SPDU	O	Spindle servo (U) drive signal output to the XC111256FTA (IC551)
128	SPDV	O	Spindle servo (V) drive signal output to the XC111256FTA (IC551)
129	SPDW	O	Spindle servo (W) drive signal output to the XC111256FTA (IC551)
130	SPCU	I	Spindle servo (U) timing signal input from the XC111256FTA (IC551)
131	SPCV	I	Spindle servo (V) timing signal input from the XC111256FTA (IC551)
132	SPCW	I	Spindle servo (W) timing signal input from the XC111256FTA (IC551)
133	SLDU	O	Sled servo (1+) drive signal output to the XC111256FTA (IC551)
134	SLDV	O	Sled servo (1–) drive signal output to the XC111256FTA (IC551)
135	SLDW	O	Sled servo (2+) drive signal output to the XC111256FTA (IC551)
136	VDC5	—	Power supply terminal (+1.8V) (for internal logic)
137	VSC5	—	Ground terminal (for internal logic)
138	SLCU	I	Sled servo (1) timing signal input from the XC111256FTA (IC551)
139	SLCV	I	Sled servo (2) timing signal input from the XC111256FTA (IC551)
140	SLCW	O	Sled servo (2–) timing signal output to the XC111256FTA (IC551)
141	SLVS	O	Sled servo voltage control signal output to the XC111256FTA (IC551)
142	BYPS	O	By-pass transistor control signal output terminal Not used (open)
143	DVSSDRAM	—	Ground terminal (for internal 16M bit D-RAM)
144	DVDDDRAM	—	Power supply terminal (+2.4V) (for internal 16M bit D-RAM)
145	DVSSDRAM	—	Ground terminal (for internal 16M bit D-RAM)
146	DVDDDRAM	—	Power supply terminal (+2.4V) (for internal 16M bit D-RAM)
147 to 168	NC	—	Not used (open)

• **SYSTEM BOARD IC801 CXR701080-010GA (SYSTEM CONTROLLER)**

Pin No.	Pin Name	I/O	Description
1	NC	I	Not used (open)
2	OFTRK	I	Off track signal input from the CXD2661GA (IC601)
3, 4	NC	I	Not used (open)
5	NC	O	Not used (open)
6	SENSE	I	Internal status (SENSE) input from the CXD2661GA (IC601)
7	NC	O	Not used (open)
8	XLAT	O	Serial data latch pulse output to the CXD2661GA (IC601)
9	XCS DSP	O	Chip select signal output to the CXD2661GA (IC601)
10	NC	O	Not used (open)
11	SI0	I	Serial data input from the CXD2661GA (IC601)
12	SO0	O	Serial data output to the CXD2661GA (IC601)
13	SCK0	O	Serial clock signal output to the CXD2661GA (IC601) and EEPROM (IC802)
14	NC	I	Not used (open)
15	VSS	—	Ground terminal
16	VDD	—	Power supply terminal (+2.4V)
17	NC	O	Not used (open)
18	BEEP	O	Beep sound control signal output to the headphone amp (IC301)
19	RMC DTCK	I/O	TSB serial communication data input/output terminal for remote commander with headphone
20 to 22	NC	O	Not used (open)
23	XHP STBY	O	Standby on/off control signal output to the headphone amp (IC301) “L”: standby mode, “H”: amp on
24	CLV U	O	Spindle servo (U) drive signal input from the XC111256FTA (IC551)
25	CLV V	O	Spindle servo (V) drive signal input from the XC111256FTA (IC551)
26	CLV W	O	Spindle servo (W) drive signal input from the XC111256FTA (IC551)
27 to 32	NC	O	Not used (open)
33	LD ON	O	Laser diode on/off control signal output terminal “L”: laser off, “H”: laser on Not used (open)
34	NC	I	Not used (fixed at “H”)
35	SLD MON 1	I	Sled servo timing signal input from the CXD2661GA (IC601)
36	PD S0	O	PD IC mode switching signal output to the optical pick-up block
37	REG CTL CLK	O	Synchronizing external clock signal output terminal Not used (open)
38	PD S1	O	PD IC mode switching signal output to the optical pick-up block
39	FFCLR	O	Input latch output for starting signal to the MPC18A31FTA (IC901)
40	SLEEP	O	System sleep control signal output to the MPC18A31FTA (IC901) “H”: sleep on
41	NC	I	Not used (fixed at “L”)
42	NC	O	Not used (open)
43	$\overline{\text{XRST}}$	I	System reset signal input from the MPC18A31FTA (IC901) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
44	VSS	—	Ground terminal
45	XTAL	O	Main system clock output terminal (16.9344 MHz)
46	EXTAL	I	Main system clock input terminal (16.9344 MHz)
47	VDD	—	Power supply terminal (+2.4V)
48	NC	I/O	Not used (open)
49	SPDL START SW	O	Spindle servo start switching signal output terminal
50	NC	I	Not used (open)

Pin No.	Pin Name	I/O	Description
51	NC	I	Not used (fixed at “H”)
52	FOK	I	Focus OK signal input from the CXD2661GA (IC601) “H”: is input when focus is on (“L”: NG)
53	SQSY	I	Subcode Q sync (SCOR) input from the CXD2661GA (IC601) “L” is input every 13.3 msec Almost all, “H” is input
54	NC	I	Not used (fixed at “H”)
55	XINT	I	Interrupt status input from the CXD2661GA (IC601)
56	NC	I	Not used (open)
57	NC	O	Not used (open)
58	SERON	O	Series power supply control signal output to the MPC18A31FTA (IC901)
59	NC	O	Not used (open)
60	XTEST	I	Setting terminal for the test mode “L”: test mode (normally: open)
61, 62	SET CODE0, SET CODE1	I	Destination setting terminal for the test mode Fixed at “L” in this set
63	SET CODE2	I	Destination setting terminal for the test mode Open in this set
64	REG CTL PWM	O	Synchronizing external clock signal output to the MPC18A31FTA (IC901)
65	VRM PWM	O	VREM power supply voltage control PWM signal output to the MPC18A31FTA (IC901)
66	VC PWM	O	System power supply voltage control PWM signal output to the MPC18A31FTA (IC901)
67	SPDL PWM	O	Spindle servo drive voltage control PWM signal output to the XC111256FTA (IC551)
68	$\overline{\text{XIC RST}}$	O	Reset signal output to the SN761056DBT (IC501) and CXD2661GA (IC601) “L”: reset
69	OPR	O	OPR LED (D801) drive signal output terminal “H”: LED on
70	NC	I	Not used (fixed at “L”)
71, 72	NC	O	Not used (open)
73	XHOLD SW	I	HOLD switch (S808) input terminal “L”: hold on
74	VDD	—	Power supply terminal (+2.4V)
75	NC	I	Not used (open)
76	NC	O	Not used (open)
77	VSS	—	Ground terminal
78	VBKAN	I	Sub power supply input terminal
79	S MON	I	Servo signal monitor input from the SN761056DBT (IC501) (A/D input)
80	VB MON	I	Un-regulator power supply voltage monitor input terminal (A/D input)
81	NC	I	Not used (fixed at “L”)
82	VREF MON	I	Reference voltage monitor input from the SN761056DBT (IC501) (A/D input)
83	WK DET	I	Set key starting detect signal input terminal (A/D input)
84	OPEN CLOSE SW	I	Upper panel open/close detect switch (S809) input terminal (A/D input) “L”: upper panel close
85	RMC KEY	I	Remote commander with headphone key input terminal (A/D input)
86	SET KEY 1	I	Set key (S801 to 805) input terminal (A/D input) (■, ▶▶I/►, I◀◀,VOL +/– keys input)
87	SET KEY 2	I	Set switch (S806) input terminal (A/D input) (DIGITAL SOUND PRESET switch input)
88	NC	I	Not used (fixed at “H”)
89	VRM MON	I	VREM voltage monitor input terminal (A/D input)
90	NC	I	Not used (fixed at “L”)
91	AD GND	—	Ground terminal (for A/D converter)
92	AVREF	I	Input terminal for power supply voltage adjustment reference voltage (+2.4V) (for A/D converter)
93	AVDD	—	Power supply terminal (+2.4V) (for A/D converter)
94, 95	TEST0, TEST1	I	Input terminal for the test (normally: fixed at “L”)
96	TDI	I	Data input terminal for JTAG scan test Not used (open)

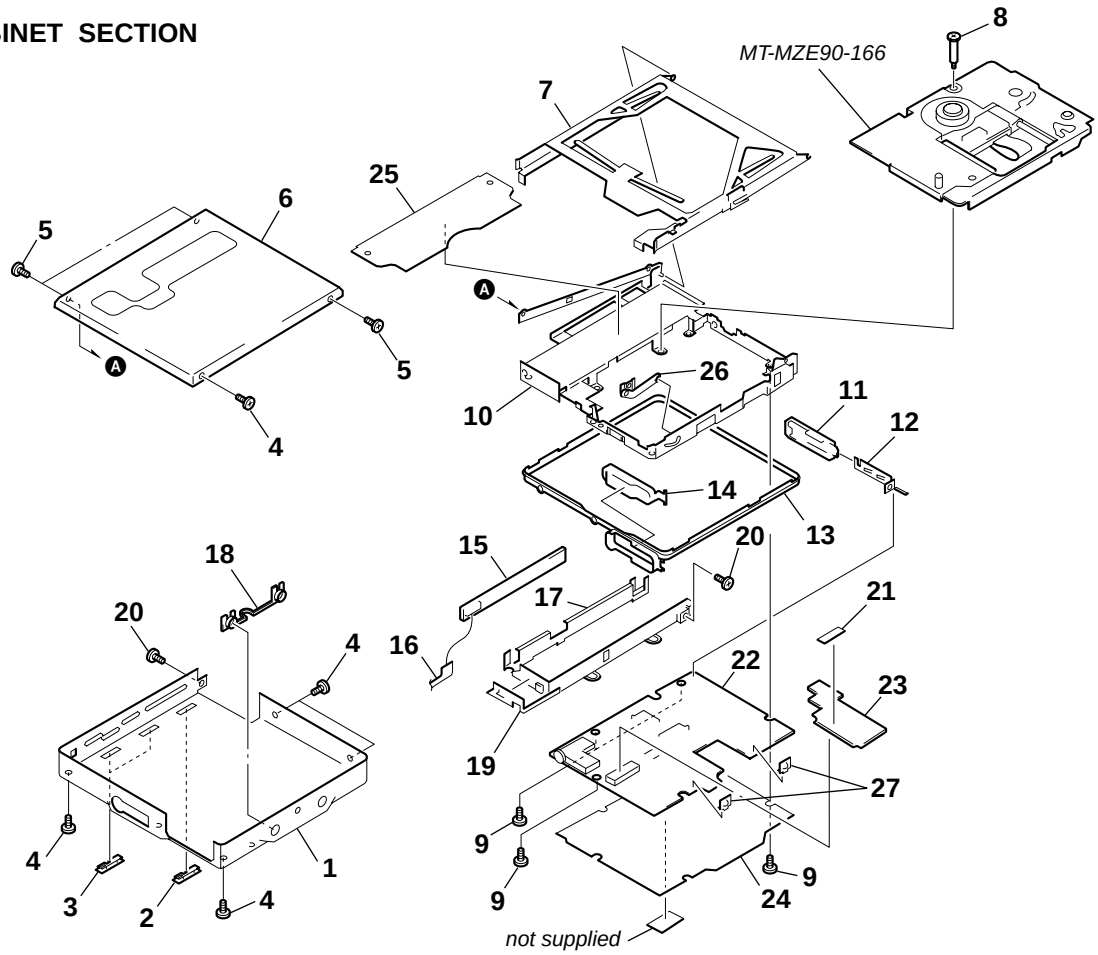
Pin No.	Pin Name	I/O	Description
97	TMS	I	Test mode control signal input terminal for JTAG scan test Not used (open)
98	TCX	I	Clock signal input terminal for JTAG scan test Not used (open)
99	$\overline{\text{TRST}}$	I	Reset signal input terminal for JTAG scan test Not used (open)
100	TDO	O	Data output terminal for JTAG scan test Not used (open)
101	NC	O	Not used (open)
102	SSB DATA	I/O	Two-way SSB serial data bus with the SN761056DBT (IC501)
103	SSB CLK	O	SSB serial clock signal output to the SN761056DBT (IC501)
104	FLASH WR EN	I	Write enable signal input terminal Not used (fixed at "H")
105	VDD	—	Power supply terminal (+2.4V)
106	VSS	—	Ground terminal
107 to 109	NC	I	Not used (fixed at "H")
110, 111	NC	O	Not used (open)
112	$\overline{\text{XRST MTR DRV}}$	O	Reset signal output terminal "L": reset Not used (open)
113, 114	NC	I	Not used (open)
115	XAVLS	I	Set switch (S807) input terminal (A/D input) (AVLS switch input) "L": limit
116	NC	O	Not used (open)
117	MUTE	O	Analog muting on/off control signal output to the headphone amp (IC301) "H": muting on
118	NC	O	Not used (open)
119	XCS NV	O	Chip select signal output to the EEPROM (IC802)
120	NC	O	Not used (open)

SECTION 7
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

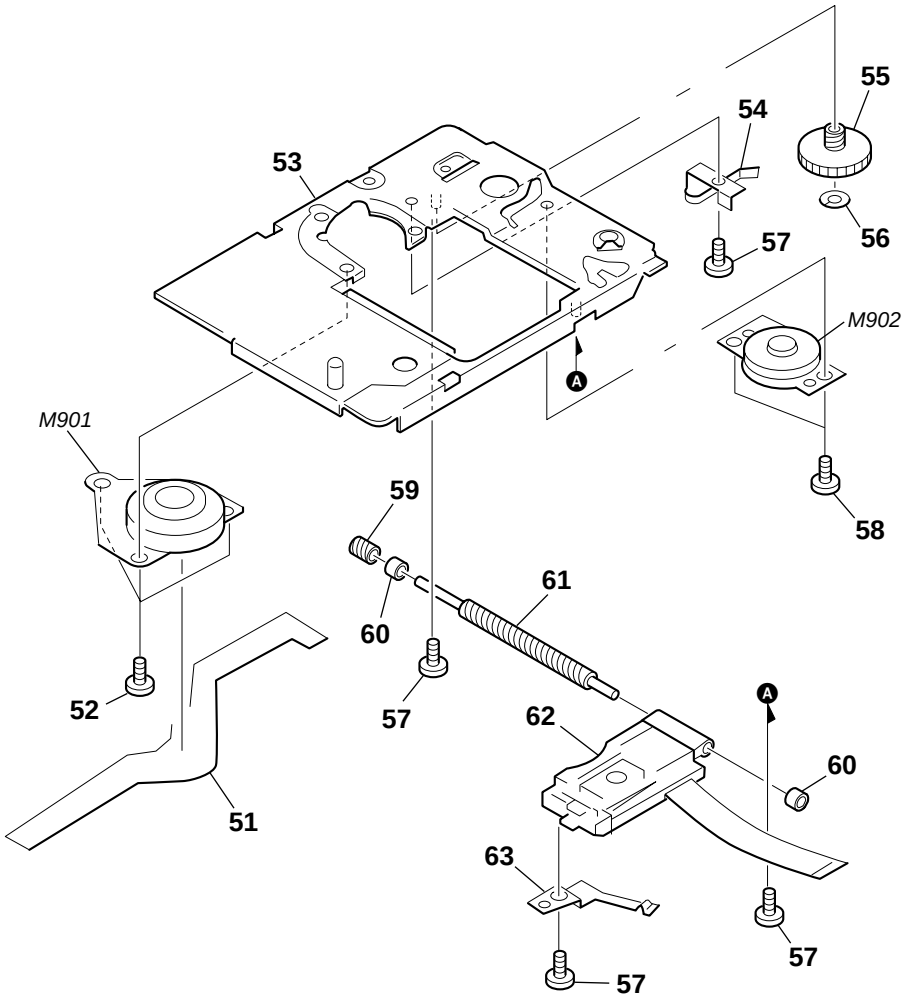
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	X-3378-970-1	PANEL ASSY (S), BOTTOM (SILVER)...(SILVER)	
1	X-3378-971-1	PANEL ASSY (O), BOTTOM (ORANGE)...(ORANGE)	
1	X-3378-972-1	PANEL ASSY (L), BOTTOM (BLUE)...(BLUE)	
2	3-045-470-01	KNOB (AVLS) (SILVER)...(SILVER)	
2	3-045-470-11	KNOB (AVLS) (ORANGE)...(ORANGE)	
2	3-045-470-21	KNOB (AVLS) (BLUE)...(BLUE)	
3	3-044-831-01	KNOB (HOLD) (SILVER)...(SILVER)	
3	3-044-831-11	KNOB (HOLD) (ORANGE)...(ORANGE)	
3	3-044-831-21	KNOB (HOLD) (BLUE)...(BLUE)	
4	4-218-233-25	SCREW (1.4), MI	
5	4-218-233-05	SCREW (1.4), MI	
6	X-3378-967-1	PANEL ASSY (S), UPPER (SILVER)...(SILVER)	
6	X-3378-968-1	PANEL ASSY (O), UPPER (ORANGE)...(ORANGE)	
6	X-3378-969-1	PANEL ASSY (L), UPPER (BLUE)...(BLUE)	
7	X-4951-947-1	HOLDER ASSY	
8	4-223-906-01	SCREW (MD), STEP	
9	4-963-883-71	SCREW (M1.4), MI	
10	X-3378-668-1	CHASSIS ASSY, SET	
11	3-044-833-01	LID, BATTERY CASE (SILVER)...(SILVER)	
11	3-044-833-11	LID, BATTERY CASE (ORANGE)...(ORANGE)	
11	3-044-833-21	LID, BATTERY CASE (BLUE)...(BLUE)	
12	X-4952-176-1	TERMINAL (PLUS) ASSY, BATTERY	
13	3-044-832-01	STRIP, ORNAMENTAL	
14	3-044-838-01	BUTTON (OPEN)	
15	A-3322-552-A	SW BOARD, COMPLETE	
16	1-675-336-11	SWITCH FLEXIBLE BOARD	
17	3-044-837-01	CASE, BATTERY	
18	4-223-105-01	ESCUTCHEON	
19	4-223-920-01	TERMINAL BOARD (MINUS)	
20	4-963-883-22	SCREW (M1.4), PRECISION PAN	
21	3-042-755-01	SPACER (SYSTEM BOARD)	
22	A-3322-554-A	MAIN BOARD, COMPLETE	
23	A-3322-555-A	SYSTEM BOARD, COMPLETE	
24	3-045-136-01	SHEET, INSULATING	
25	3-047-261-01	SEAL (MOIRE) (GREEN/CIRCLE)...(SILVER)	
25	3-047-261-11	SEAL (MOIRE) (BROWN/DOT)...(ORANGE)	
25	3-047-261-21	SEAL (MOIRE) (LIGHT GREEN/WAVE)...(BLUE)	
26	X-3378-684-1	BRACKET (STOP) ASSY	
27	4-212-901-11	TERMINAL	

(2) MECHANISM DECK SECTION (MT-MZE90-166)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
51	1-675-668-11	MOTOR FLEXIBLE BOARD	
52	4-963-883-42	SCREW (M1.4), PRECISION PAN	
53	X-4951-926-1	CHASSIS ASSY	
54	4-222-206-01	SPRING, THRUST	
55	4-222-216-01	GEAR (SA)	
56	3-338-645-31	WASHER (0.8-2.5)	
57	4-963-883-31	SCREW (M1.4), PRECISION PAN	
58	3-349-825-21	SCREW	
59	4-222-208-01	GEAR (SB)	
60	4-222-204-01	BEARING	
61	4-222-203-01	SCREW, LEAD	
⚠62	X-4952-387-1	SERVICE ASSY, OP (LCX-2E)	
63	4-222-205-01	SPRING, RACK	
M901	8-835-666-01	MOTOR, DC SSM-01C14A/C-NP (SPINDLE)	
M902	1-763-399-11	MOTOR, DC (SLED) (WITH PULLY)	

MAIN

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3322-554-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-125-926-11	TANTALUM CHIP	4.7uF	20%	6.3V
C104	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C201	1-125-926-11	TANTALUM CHIP	4.7uF	20%	6.3V
C204	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V
C351	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C501	1-125-777-11	CERAMIC CHIP	0.1uF	10%	6.3V
C502	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C503	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C504	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C505	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C506	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C507	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C508	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	16V
C509	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C510	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C511	1-164-845-11	CERAMIC CHIP	5PF	0.25PF	16V
C513	1-164-858-11	CERAMIC CHIP	22PF	5%	16V
C515	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C516	1-125-777-11	CERAMIC CHIP	0.1uF	10%	6.3V
C517	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C518	1-117-720-11	CERAMIC CHIP	4.7uF		10V
C519	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C521	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C522	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C524	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C526	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C527	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C529	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C530	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C551	1-125-777-11	CERAMIC CHIP	0.1uF	10%	6.3V
C552	1-125-777-11	CERAMIC CHIP	0.1uF	10%	6.3V
C553	1-107-765-11	TANTALUM CHIP	3.3uF	20%	16V
C554	1-107-765-11	TANTALUM CHIP	3.3uF	20%	16V
C555	1-135-238-21	TANTALUM CHIP	6.8uF	20%	10V
C556	1-135-238-21	TANTALUM CHIP	6.8uF	20%	10V
C557	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C558	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C559	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C561	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C603	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C604	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C605	1-115-156-11	CERAMIC CHIP	1uF		10V
C606	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C607	1-115-156-11	CERAMIC CHIP	1uF		10V
C608	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C609	1-119-749-11	TANTALUM CHIP	33uF	20%	4V
C610	1-131-862-11	TANTALUM CHIP	47uF	20%	4V
C611	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C612	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C613	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C614	1-127-772-11	CERAMIC CHIP	33000PF	10%	10V
C615	1-125-777-11	CERAMIC CHIP	0.1uF	10%	6.3V
C616	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C618	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C619	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C620	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	16V
C851	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C853	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C854	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C855	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C901	1-104-752-11	TANTALUM CHIP	33uF	20%	6.3V
C902	1-107-810-11	TANTALUM CHIP	33uF	20%	4V
C903	1-104-752-11	TANTALUM CHIP	33uF	20%	6.3V
C904	1-119-749-11	TANTALUM CHIP	33uF	20%	4V
C905	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C906	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C907	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C908	1-125-777-11	CERAMIC CHIP	0.1uF	10%	6.3V
C911	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C915	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C916	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C917	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C918	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C952	1-127-569-11	TANTALUM CHIP	100uF	20%	4V
C953	1-127-569-11	TANTALUM CHIP	100uF	20%	4V
C954	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
* CN501	1-778-168-11	CONNECTOR, FFC/FPC (ZIF) 20P			
* CN551	1-793-124-21	CONNECTOR, FPC (ZIP) 8P			
* CN801	1-793-607-21	CONNECTOR, BOARD TO BOARD 50P			
* CN802	1-785-219-22	CONNECTOR, FPC (ZIF) 9P			

Ref. No.	Part No.	Description			Remark
		< DIODE >			
D101	8-719-056-72	DIODE UDZ-TE-17-2.4B			
D201	8-719-056-72	DIODE UDZ-TE-17-2.4B			
D601	8-719-421-27	DIODE MA728			
D855	8-719-066-17	DIODE FTZ6.8E-T148			
D901	8-719-066-16	DIODE RB491D-T146			
D902	8-719-066-16	DIODE RB491D-T146			
D903	8-719-420-51	DIODE MA729			
		< FERRITE BEAD >			
FB801	1-414-228-11	FERRITE BEAD			
FB802	1-414-228-11	FERRITE BEAD			
		< IC >			
IC501	8-759-641-94	IC SN761056DBT			
IC504	8-759-647-75	IC TC7W66FK (TE85R)			
IC505	8-759-647-75	IC TC7W66FK (TE85R)			
IC551	8-759-660-29	IC XC111256FTA			
IC552	8-759-358-40	IC TLC372CPW-E20			
@ IC601	8-752-400-59	IC CXD2661GA-2			
IC901	8-759-642-13	IC MPC18A31FTA			
		< JACK >			
J301	1-793-288-61	JACK (∩ (HEADPHONE))			
		< COIL >			
L501	1-469-570-21	INDUCTOR	10uH		
L502	1-469-570-21	INDUCTOR	10uH		
L551	1-410-389-31	INDUCTOR CHIP	47uH		
L552	1-410-389-31	INDUCTOR CHIP	47uH		
L553	1-414-400-41	INDUCTOR	22uH		
L554	1-414-400-41	INDUCTOR	22uH		
L601	1-469-570-21	INDUCTOR	10uH		
L901	1-419-258-21	CHOKE COIL	68uH		
L902	1-419-368-21	CHOKE COIL	47uH		
L903	1-469-525-91	INDUCTOR	10uH		
L904	1-414-398-11	INDUCTOR	10uH		
L905	1-414-404-41	INDUCTOR	100uH		
		< TRANSISTOR >			
Q501	8-729-922-10	TRANSISTOR	2SA1577-QR		
Q901	8-729-046-48	FET	FDV303N		
Q902	8-729-037-53	TRANSISTOR	2SB1462J-QR (TX). SO		
		< RESISTOR >			
R105	1-218-951-11	RES, CHIP	680	5%	1/16W
R205	1-218-951-11	RES, CHIP	680	5%	1/16W
R501	1-218-971-11	RES, CHIP	33K	5%	1/16W
R502	1-218-979-11	RES, CHIP	150K	5%	1/16W
R503	1-216-864-11	METAL CHIP	0	5%	1/16W
R504	1-216-864-11	METAL CHIP	0	5%	1/16W
R505	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R515	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R516	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R517	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R518	1-218-985-11	RES, CHIP	470K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R519	1-218-977-11	RES, CHIP	100K	5%	1/16W
R521	1-218-446-11	METAL CHIP	1	5%	1/16W
R551	1-218-965-11	RES, CHIP	10K	5%	1/16W
R552	1-218-965-11	RES, CHIP	10K	5%	1/16W
R553	1-218-965-11	RES, CHIP	10K	5%	1/16W
R554	1-218-965-11	RES, CHIP	10K	5%	1/16W
R555	1-218-965-11	RES, CHIP	10K	5%	1/16W
R556	1-216-864-11	METAL CHIP	0	5%	1/16W
R601	1-218-929-11	RES, CHIP	10	5%	1/16W
R602	1-218-929-11	RES, CHIP	10	5%	1/16W
R603	1-216-811-11	METAL CHIP	150	5%	1/16W
R604	1-218-973-11	RES, CHIP	47K	5%	1/16W
R605	1-218-965-11	RES, CHIP	10K	5%	1/16W
R606	1-218-977-11	RES, CHIP	100K	5%	1/16W
R607	1-218-987-11	RES, CHIP	680K	5%	1/16W
R608	1-218-977-11	RES, CHIP	100K	5%	1/16W
R609	1-216-861-11	METAL CHIP	2.2M	5%	1/16W
R610	1-218-990-11	SHORT	0		
R611	1-218-975-11	RES, CHIP	68K	5%	1/16W
R612	1-218-971-11	RES, CHIP	33K	5%	1/16W
R614	1-218-965-11	RES, CHIP	10K	5%	1/16W
R615	1-218-990-11	SHORT	0		
R619	1-218-990-11	SHORT	0		
R620	1-218-990-11	SHORT	0		
R630	1-218-965-11	RES, CHIP	10K	5%	1/16W
R809	1-218-973-11	RES, CHIP	47K	5%	1/16W
R816	1-218-957-11	RES, CHIP	2.2K	5%	1/16W
R817	1-218-941-11	RES, CHIP	100	5%	1/16W
R818	1-218-941-11	RES, CHIP	100	5%	1/16W
R819	1-218-989-11	RES, CHIP	1M	5%	1/16W
R821	1-218-990-11	SHORT	0		
R822	1-218-985-11	RES, CHIP	470K	5%	1/16W
R828	1-218-973-11	RES, CHIP	47K	5%	1/16W
R902	1-218-983-11	RES, CHIP	330K	5%	1/16W
R903	1-218-961-11	RES, CHIP	4.7K	5%	1/16W
R904	1-218-983-11	RES, CHIP	330K	5%	1/16W
R905	1-218-961-11	RES, CHIP	4.7K	5%	1/16W
R909	1-218-959-11	RES, CHIP	3.3K	5%	1/16W
R910	1-218-959-11	RES, CHIP	3.3K	5%	1/16W
R918	1-216-855-11	METAL CHIP	680K	5%	1/16W
R920	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R921	1-218-979-11	RES, CHIP	150K	5%	1/16W
R922	1-218-989-11	RES, CHIP	1M	5%	1/16W
R936	1-218-979-11	RES, CHIP	150K	5%	1/16W
R937	1-218-989-11	RES, CHIP	1M	5%	1/16W
R938	1-218-989-11	RES, CHIP	1M	5%	1/16W
R940	1-218-977-11	RES, CHIP	100K	5%	1/16W
R941	1-218-967-11	RES, CHIP	15K	5%	1/16W
R942	1-218-963-11	RES, CHIP	6.8K	5%	1/16W
R943	1-218-957-11	RES, CHIP	2.2K	5%	1/16W
R944	1-218-981-11	RES, CHIP	220K	5%	1/16W
		< COMPOSITION CIRCUIT BLOCK >			
RB551	1-233-965-11	RES, NETWORK (CHIP TYPE) 4.7K			
RB552	1-233-979-11	RES, NETWORK (CHIP TYPE) 1M			

@ Replacement of CXD2661GA-2 (IC601) used in this set requires a special tool. Therefore, it cannnot be replaced.

MAIN **SW** **SYSTEM**

Ref. No.	Part No.	Description			Remark
		< VIBRATOR >			
X601	1-781-654-21	VIBRATOR, CERAMIC (22.5792MHz)			
**********					
	A-3322-552-A	SW BOARD, COMPLETE			
		**********			
		< CONNECTOR >			
CN804	1-793-606-21	CONNECTOR, FFC/FPC (ZIF) 9P			
		< DIODE >			
D801	8-719-061-82	LED TLSU1002 (TPX1, SONY) (OPR)			
		< RESISTOR >			
R811	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R812	1-216-833-11	RES, CHIP	10K	5%	1/16W
R813	1-216-835-11	METAL CHIP	15K	5%	1/16W
R814	1-216-839-11	METAL CHIP	33K	5%	1/16W
		< SWITCH >			
S801	1-771-138-21	SWITCH, KEY BOARD (■)			
S802	1-771-138-21	SWITCH, KEY BOARD (▶▶I/▶)			
S803	1-771-138-21	SWITCH, KEY BOARD (I◀◀)			
S804	1-771-138-21	SWITCH, KEY BOARD (VOLUME –)			
S805	1-771-138-21	SWITCH, KEY BOARD (VOLUME +)			
S806	1-571-506-41	SWITCH, SLIDE (DIGITAL SOUND PRESET)			
S807	1-571-275-31	SWITCH, SLIDE (AVLS)			
S808	1-571-275-31	SWITCH, SLIDE (HOLD)			
S809	1-771-483-61	SWITCH, PUSH (1 KEY) (OPEN/CLOSE)			
**********					
	A-3322-555-A	SYSTEM BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C102	1-125-899-11	TANTALUM CHIP	220uF	20%	4V
C103	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C202	1-125-899-11	TANTALUM CHIP	220uF	20%	4V
C203	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C301	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C302	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C303	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C304	1-125-926-11	TANTALUM CHIP	4.7uF	20%	6.3V
C305	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C306	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C802	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C803	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C804	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C806	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C807	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C808	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C809	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C811	1-107-820-11	CERAMIC CHIP	0.1uF		16V
		< CONNECTOR >			
* CN803	1-793-608-21	CONNECTOR, BOARD TO BOARD 50P			

Ref. No.	Part No.	Description			Remark
		< IC >			
IC301	8-759-598-15	IC TA2131FL (EL)			
@ IC801	8-752-914-08	IC CXR701080-010GA			
IC802	8-759-566-18	IC AK6480BH-E2			
		< TRANSISTOR >			
Q301	8-729-037-52	TRANSISTOR	2SD2216J-QR (TX). SO		
		< RESISTOR >			
R101	1-218-967-11	RES, CHIP	15K	5%	1/16W
R102	1-218-961-11	RES, CHIP	4.7K	5%	1/16W
R103	1-218-961-11	RES, CHIP	4.7K	5%	1/16W
R104	1-218-929-11	RES, CHIP	10	5%	1/16W
R201	1-218-967-11	RES, CHIP	15K	5%	1/16W
R202	1-218-961-11	RES, CHIP	4.7K	5%	1/16W
R203	1-218-961-11	RES, CHIP	4.7K	5%	1/16W
R204	1-218-929-11	RES, CHIP	10	5%	1/16W
R301	1-218-935-11	RES, CHIP	33	5%	1/16W
R302	1-218-963-11	RES, CHIP	6.8K	5%	1/16W
R303	1-218-981-11	RES, CHIP	220K	5%	1/16W
R801	1-218-981-11	RES, CHIP	220K	5%	1/16W
R802	1-218-981-11	RES, CHIP	220K	5%	1/16W
R803	1-218-985-11	RES, CHIP	470K	5%	1/16W
R804	1-218-973-11	RES, CHIP	47K	5%	1/16W
R806	1-218-977-11	RES, CHIP	100K	5%	1/16W
R807	1-218-959-11	RES, CHIP	3.3K	5%	1/16W
R808	1-218-959-11	RES, CHIP	3.3K	5%	1/16W
R810	1-218-973-11	RES, CHIP	47K	5%	1/16W
R815	1-218-941-11	RES, CHIP	100	5%	1/16W
R826	1-216-864-11	METAL CHIP	0	5%	1/16W
R827	1-218-989-11	RES, CHIP	1M	5%	1/16W
		< VIBRATOR >			
X801	1-781-575-21	VIBRATOR, CERAMIC (16.9344MHz)			
**********					
		MISCELLANEOUS			
		**********			
16	1-675-336-11	SWITCH FLEXIBLE BOARD			
51	1-675-668-11	MOTOR FLEXIBLE BOARD			
⚠62	X-4952-387-1	SERVICE ASSY, OP (LCX-2E)			
M901	8-835-666-01	MOTOR, DC SSM-01C14A/C-NP (SPINDLE)			
M902	1-763-399-11	MOTOR, DC (SLED) (WITH PULLY)			
**********					

@ Replacement of CXR701080-010GA (IC801) used in this set requires a special tool. Therefore, it cannnot be replaced.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-418-493-61	REMOTE CONTROL UNIT (RM-MZ2S)	
⚠	1-528-580-21	BATTERY CHARGER (BC-7HT) (Tourist)	
⚠	1-528-866-11	BATTERY CHARGER (BC-9HP2) (Hong Kong)	
	1-528-918-11	BATTERY CASE	
	1-569-007-11	ADAPTOR, CONVERSION 2P (Tourist)	
	1-756-036-11	BATTERY, NICKEL HYDROGEN	
	3-043-060-01	CASE, CHARGE (C/D)	
	3-045-575-01	CASE, CARRYING	
	3-046-782-01	MANUAL, INSTRUCTION (JAPANESE, ENGLISH) (Tourist)	
	3-046-782-11	MANUAL, INSTRUCTION (ENGLISH, CHINESE) (Hong Kong)	
	8-953-304-90	RECEIVER MDR-E805SP	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Sony Corporation
Personal Audio Division Company

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