

MZ-N1

SERVICE MANUAL

Ver 1.4 2002.10



*US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Chinese Model
Tourist Model*

US and foreign patents licensed from Dolby Laboratories.

- OpenMG, "MagicGate", "MagicGate Memory Stick", "Memory Stick", VAIO, MusicClip and their logos are trademarks of Sony Corporation.
- "WALKMAN" is a trademark of Sony Corporation.
- Microsoft, Windows, Windows NT and Windows Media are trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries.
- IBM and PC/AT are registered trademarks of International Business Machines Corporation.
- Macintosh is a trademark of Apple Computer, Inc. in the United States and/or other countries.
- All other trademarks are trademarks of their respective owners. ™ and ® marks are omitted in this manual.

| | |
|------------------------------------|-------------|
| Model Name Using Similar Mechanism | NEW |
| Mechanism Type | MT-MZN1-171 |
| Optical Pick-up Name | LCX-5R |

SPECIFICATIONS

Audio playing system

MiniDisc digital audio system

Laser diode properties

Material: GaAlAs

Wavelength: $\lambda = 790 \text{ nm}$

Emission duration: continuous

Laser output: less than $44.6 \mu\text{W}$

(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block with 7 mm aperture.)

Recording and playback time (when using MDW-80)

Maximum 160 min. in monaural

Maximum 320 min. in stereo

Revolutions

382 rpm to 2,700 rpm (CLV)

Error correction

ACIRC (Advanced Cross Interleave Reed Solomon Code)

Sampling frequency

44.1 kHz

Sampling rate converter

Input: 32 kHz/44.1 kHz/48 kHz

Coding

ATRAC (Adaptive TRansform Acoustic Coding)

ATRAC3 — LP2/LP4

— Continued on next page —

PORTABLE MINIDISC RECORDER

9-873-443-05
2002J0500-1
© 2002.10

Sony Corporation
Personal Audio Company
Published by Sony Engineering Corporation

SONY®

Modulation system

EFM (Eight to Fourteen Modulation)

Frequency response

20 to 20,000 Hz ± 3 dB

Wow and Flutter

Below measurable limit

Inputs¹⁾

MIC: stereo mini-jack

(minimum input level 0.25 mV)

Line in:

stereo mini-jack for analog input

(minimum input level 49 mV)

optical (digital) mini-jack for optical

(digital) input

Outputs

⌚/LINE OUT²⁾: stereo mini-jack (dedicated

remote control jack)/194 mV (10 kohm)

Maximum output (DC)²⁾

Headphones: 5 mW + 5 mW (16 ohm)

Power requirement

Sony AC Power Adaptor connected at the DC

IN 3V jack (country model in parentheses):

120 V AC, 60 Hz (USA, Canada and

Taiwan)

220 V AC, 50/60 Hz (Continental Europe)

240 V AC, 50 Hz (Australia)

220 V AC, 50 Hz (China)

230 - 240 V AC, 50 Hz (U.K. and Hong

Kong)

110/220 V AC, 60 Hz (Korea)

100 - 240 V AC, 50/60 Hz (Other countries)

The recorder:

Nickel metal hydride rechargeable battery

NH-14WM(A) 1.2V 1350 mAh (MIN) Ni-

MH

LR6 (SG) alkaline battery

USB cradle:

AC power adaptor DC 3V

Dimensions

Approx. 77.7 × 71.4 × 16.4 mm (w/h/d)

(3¹/₈ × 2⁷/₈ × 2¹/₃₂ in.)

Mass

Approx. 87 g (3.0 oz) the recorder only

¹⁾The LINE IN (OPT) jack is used to connect either a digital (optical) cable or a line (analog) cable.

²⁾The ⌚/LINE OUT jack connects either headphones/earphones or a line cable.

Supplied accessories

AC power adaptor (1)

Headphones/earphones with a remote control (1)

Optical cable (1)

USB cradle (1)

USB cable (1)

Nickel metal hydride rechargeable battery

NH-14WM(A) (1)

CD-ROM (1)*

Dry battery case (1)

Rechargeable battery carrying case (1)

Recordable MD (USA and Canada models only) (1)

Carrying pouch/carrying case with a belt clip

(except USA model) (1)

AC plug adaptor (Sony world model only) (1)

* Do not play a CD-ROM on an audio CD player.

Design and specifications are subject to change without notice.

Battery life¹⁾

When recording²⁾

(Unit: approxi.hours)(JEITA³⁾)

| Batteries | SP Stereo | LP2 Stereo | LP4 Stereo |
|--------------------------------------------------------------------------------------|-----------|------------|------------|
| Nickel metal hydride rechargeable battery ⁴⁾ | 12 | 17 | 21 |
| LR6 (SG) Sony alkaline dry battery ⁵⁾ | 12 | 19 | 23 |
| Nickel metal hydride rechargeable battery ⁴⁾ + One LR6 (SG) ⁵⁾ | 30 | 43 | 52 |

¹⁾The battery life may be shorter due to operating conditions and the temperature of the location.

²⁾When you record, use a fully charged rechargeable battery. Recording time may differ according to the alkaline batteries.

³⁾Measured in accordance with the JEITA (Japan Electronics and Information Technology Industries Association) standard.

⁴⁾When using a 100% fully charged nickel metal hydride rechargeable battery (NH-14WM(A)).

⁵⁾When using a Sony LR6 (SG) "STAMINA" alkaline dry battery (produced in Japan).

When playing

(Unit: approxi.hours)(JEITA¹⁾)

| Batteries | SP Stereo | LP2 Stereo | LP4 Stereo |
|--------------------------------------------------------------------------------------|-----------|------------|------------|
| Nickel metal hydride rechargeable battery ²⁾ | 30 | 38 | 42 |
| LR6 (SG) Sony alkaline dry battery ³⁾ | 44 | 52 | 62 |
| Nickel metal hydride rechargeable battery ²⁾ + One LR6 (SG) ³⁾ | 79 | 95 | 110 |

¹⁾Measured in accordance with the JEITA (Japan Electronics and Information Technology Industries Association) standard.

²⁾When using a 100% fully charged nickel metal hydride rechargeable battery (NH-14WM(A)).

³⁾When using a Sony LR6 (SG) "STAMINA" alkaline dry battery (produced in Japan)

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE △ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

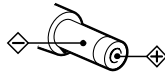
CAUTION

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

On power sources

- Use house current, nickel metal hydride rechargeable battery, LR6 (SG) battery, or car battery.
- For use in your house: For the supplied battery charging stand, use the AC power adaptor supplied with this recorder. Do not use any other AC power adaptor since it may cause the recorder to malfunction.

Polarity of the plug



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.

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.

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead. (Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

LF : LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 °C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time. Soldering irons using a temperature regulator should be set to about 350 °C .
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

TABLE OF CONTENTS

| | |
|--------------------------------------------------------------------------------------------|----|
| 1. SERVICING NOTES | 4 |
| 2. GENERAL | 5 |
| 3. DISASSEMBLY | |
| 3-1. Disassembly Flow | 6 |
| 3-2. Bottom Panel Assy | 7 |
| 3-3. Upper Panel Section | 7 |
| 3-4. LCD Module, Upper Panel Assy | 8 |
| 3-5. MAIN Board Section | 8 |
| 3-6. Battery Case Assy, MAIN Board | 9 |
| 3-7. MD Mechanism Deck (MT-MZN1-171), Chassis Assy | 9 |
| 3-8. OP Service Assy (LCX-5R) | 10 |
| 3-9. Holder Assy | 11 |
| 3-10. DC Motor (Sled) (M602) | 11 |
| 3-11. DC SSM18B Motor (Spindle) (M601), DC Motor (Over Write Head UP/DOWN) (M603) | 12 |
| 4. TEST MODE | 13 |
| 5. ELECTRICAL ADJUSTMENTS | 19 |
| 6. DIAGRAMS | |
| 6-1. Block Diagram – SERVO/USB Section – | 30 |
| 6-2. Block Diagram – AUDIO Section – | 31 |
| 6-3. Block Diagram – DISPLAY/KEY CONTROL/ POWER SUPPLY Section – | 32 |
| 6-4. Note for Printed Wiring Board and Schematic Diagrams | 33 |
| 6-5. Printed Wiring Board – MAIN Board (Component Side) – | 34 |
| 6-6. Printed Wiring Board – MAIN Board (Conductor Side) – | 35 |
| 6-7. Schematic Diagram – MAIN Board (1/4) – | 36 |
| 6-8. Schematic Diagram – MAIN Board (2/4) – | 37 |
| 6-9. Schematic Diagram – MAIN Board (3/4) – | 38 |
| 6-10. Schematic Diagram – MAIN Board (4/4) – | 39 |
| 6-11. IC Pin Function Description | 46 |
| 7. EXPLODED VIEWS | |
| 7-1. Upper Panel Section | 53 |
| 7-2. Bottom Panel Section | 54 |
| 7-3. Chassis Section | 55 |
| 7-4. Main Board Section | 56 |
| 7-5. MD Mechanism Deck Section (MT-MZN1-171) | 57 |
| 8. ELECTRICAL PARTS LIST | 58 |

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.

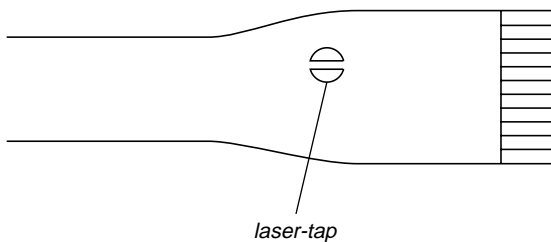
The flexible board is easily damaged and should be handled with care.

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.

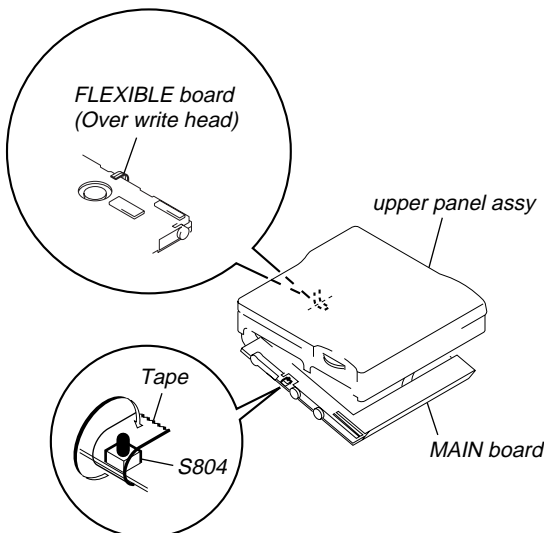
NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (LCX-5R)

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

- In performing the repair with the power supplied to the set, removing the MAIN board causes the set to be disabled. In such a case, fix a convex part of the open/close detect switch (S804 on MAIN board) with a tape in advance. Handle the FLEXIBLE board (over write head) with care, as it has been soldered directly to the MAIN board. In repairing the component side of MAIN board, connect the FLEXIBLE board (over write head) and the MAIN board with the lead wires in advance. (See page 8)



- The shipment data will be cleared when the NV is reset. Therefore, change the NV adjusted values following the Change of NV Adjusted Values immediately after the NV was reset. (See page 19)
- This set requires the patch data in the nonvolatile memory (IC802) to be rewritten using the application, when the MAIN board or nonvolatile memory (IC802) was replaced. (See page 27)

System requirements

- IBM PC/AT or Compatible (The software does not run on Macintosh.)
CPU: MMX™ Pentium® 233 MHz or higher (Pentium® II 400 MHz or higher is recommended.)
Hard disk drive space: 60 MB or more (The amount of necessary space depends on the version of the Windows OS or the size of your audio files.)
RAM: 64 MB or higher (128 MB or higher is recommended for Windows® XP Home Edition/Windows® XP Professional.)
CD-ROM drive (capable of digital playback by WDM)
Sound Board
USB port (supports USB 2.0 Full Speed (previously USB 1.1))
- Operating System: Windows® 98/Windows® 98 Second Edition/Windows® 2000 Professional/Windows® Me/Windows® XP Home Edition/Windows® XP Professional (manufacturer installed)
The NTFS format of Windows® 2000 Professional, Windows® XP Home Edition, or Windows® XP Professional (manufacturer-installed) is supported only when used with the standard (factory) settings.
This software is not supported by the following environments.
 - Windows® 95, Windows® NT, or other versions of Windows® NT (such as Server)
 - An environment that is an upgrade of the original manufacturer-installed operating system, as in the following examples:
Windows® 3.1/Windows® 95 → Windows® 98 (or Windows® 98 Second Edition/Windows® Me)
Windows® Me/Windows® 2000 Professional → Windows® XP
 - Multi-boot environment with Windows® 2000 (or Windows® XP) and Windows® 98 (or Windows® 98 Second Edition/Windows® Me)
- Display: High (16bit) Color or more (800 × 480 dot or more)
- Internet access: for Web registration and EMD services for software upgrades and CDDDB2 use. (US and Canadian models)
- Windows Media Player (version 7.0 or higher) installed for playing WMA files.

Notes

- Trouble-free operation is not assured within a multiple-monitor environment.
- We do not assure trouble-free operation for all computers satisfying the system requirements.
- Trouble-free operation is not guaranteed following the self-conducted upgrade of home-built PCs or operating systems.
- We do not assure trouble-free operation of the system suspend, sleep, or hibernation function on all computers.
- For details, refer to "Net MD Help" of the online help.

Note

The optical digital output connector (on computers provided with one) may be disabled during playback for the protection of copyrights.

Notes on using OpenMG Jukebox with Windows 2000/Windows XP

If your computer is Windows 2000 Professional, Windows XP Home Edition, or Windows XP Professional, please be aware of the following before installing OpenMG Jukebox.

- 1 With Windows 2000 Professional, you must log on as "Administrators" (or with the user name "Administrator") to install OpenMG Jukebox.
- 2 With Windows XP Home Edition or Windows XP Professional, you must log on with user name "Computer Administrator" to install OpenMG Jukebox. To check whether a user name has the attribute of "Computer Administrator" or not, go to [Control Panel] - [User Account].

Notes on using OpenMG Jukebox with Windows XP/Windows Me

If Windows XP/Windows Me is installed in your computer, and you perform the "System Restore" function of the Windows "System Tools," the songs managed by OpenMG Jukebox may become corrupted and rendered unplayable.

Therefore, before executing "System Restore," back up the songs using "OpenMG Jukebox Backup Tool" first.

Then, after the "System Restore" function is finished, restore the songs using "OpenMG Jukebox Backup Tool" to ensure the integrity and reliability of song playback.

For more information about backup, refer to the online Help for OpenMG Jukebox.

Note

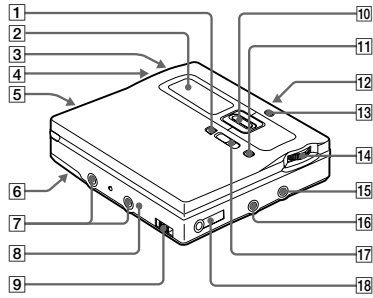
When songs become unplayable by executing "System Restore," an error dialog box may be displayed. In this case, follow the displayed messages.

**SECTION 2
GENERAL**

This section is extracted from instruction manual.

Looking at controls

The recorder

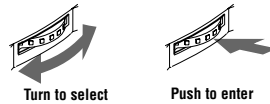
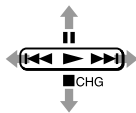


- 1 END SEARCH button
- 2 Display window
- 3 VOLUME +/- buttons
The VOLUME + button has a tactile dot.
- 4 Battery compartment
- 5 T MARK button
- 6 HOLD switch (at the rear)
- 7 Terminals for attaching dry battery case
- 8 DC IN 3V jack
- 9 USB cradle connecting jack
- 10 Control bar
• Moves the cursor in the display.

• Other operations

| Operation | Function |
|-----------------------|--------------|
| Press ► ¹⁾ | play/enter |
| Press ◀◀ | rewind |
| Press ▶▶ | fast forward |
| Flip towards | pause |
| Flip towards ■ | stop |

¹⁾ The ► button has a tactile dot.

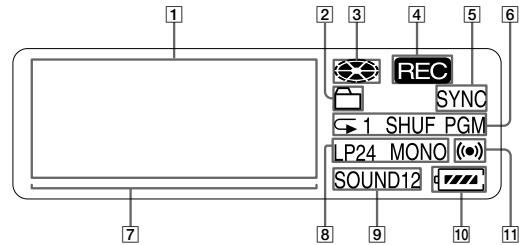


15 LINE IN (OPT) jack

- 16 MIC (PLUG IN POWER) jack
There is a tactile dot beside the MIC (PLUG IN POWER) jack.

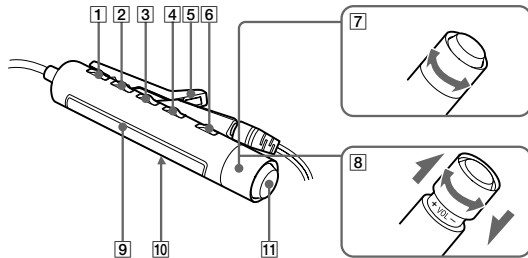
- 17 REC (record) switch
- 18 ◡ (headphones/earphones)/LINE OUT jack

The display window of the recorder



- 1 Character information display
Displays the disc and track names, date, error messages, track numbers, etc.
- 2 Group indication
- 3 Disc indication
Shows that the disc is rotating for recording, playing or editing an MD.
- 4 REC indication
Lights up while recording. When flashing, the recorder is in record standby mode.
- 5 SYNC (synchro-recording) indication
- 6 Play mode indication
Shows the play mode (shuffle play, program play, repeat play, etc.) of the MD.
- 7 Level meter
- 8 LP2 (LP2 stereo), LP4 (LP4 stereo), MONO (monaural) indication
- 9 Sound indication
Lights up when Digital Sound Preset is on.
- 10 Battery indication
Shows approximate battery condition.
- 11 Melody timer indication

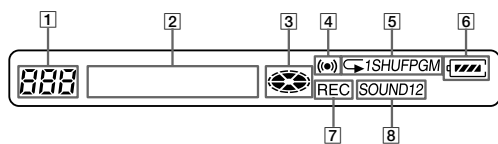
The headphones/earphones with a remote control



- 1 DISPLAY button
 - 2 PLAY MODE button
 - 3 RPT/ENT (repeat/enter) button
 - 4 SOUND button
 - 5 Clip
 - 6 || (pause) button
 - 7 Control (◀◀/▶▶)
 - ▶▶▶▶ : play, AMS, FF
 - ◀◀ : REW
- Turn or turn and hold to play, fast forward or rewind.

- 8 Control (VOLUME +/-)
Pull and turn to adjust the volume.
- 9 Display window
- 10 HOLD switch
- 11 ■ (stop) button
May be used as the "Enter" button, depending on the function.

The display window of the remote control

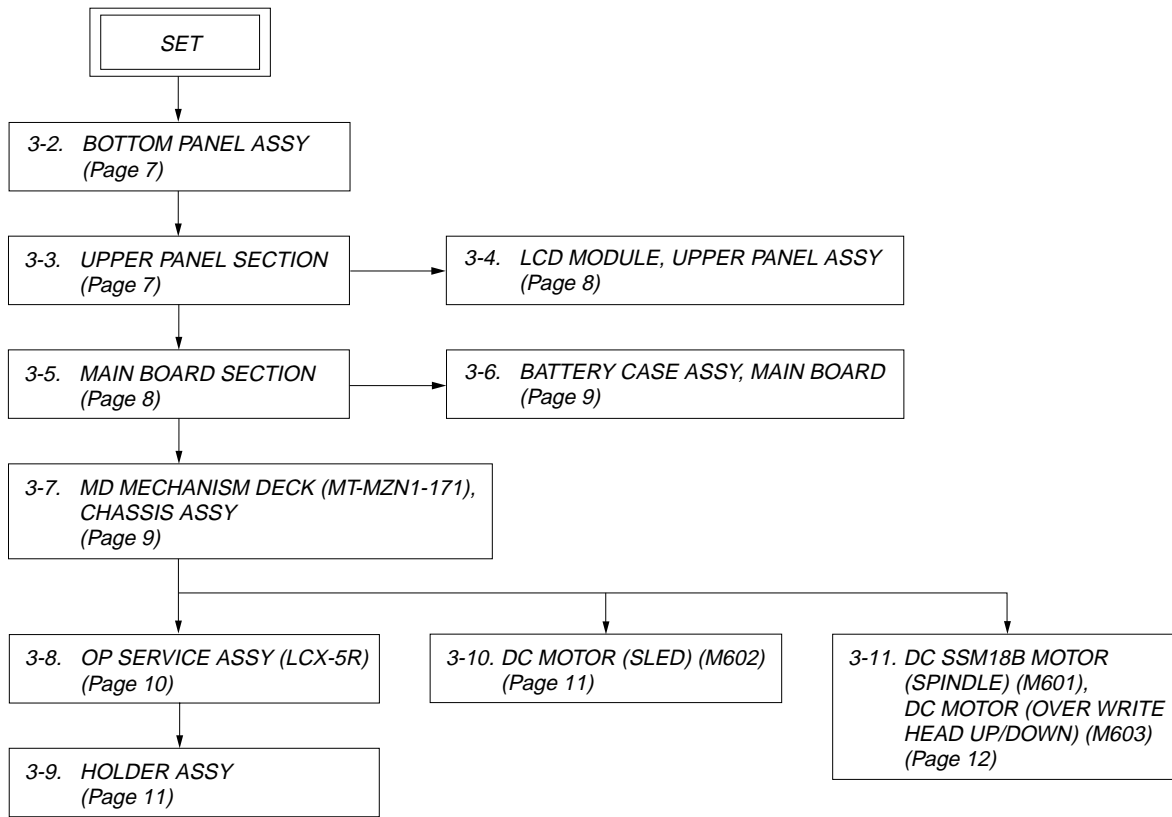


- 1 Track number display
- 2 Character information display
- 3 Disc indication
- 4 Melody timer indication
- 5 Play mode indication
- 6 Battery level indication
- 7 REC indication
- 8 SOUND indication

SECTION 3 DISASSEMBLY

•This set can be disassembled in the order shown below.

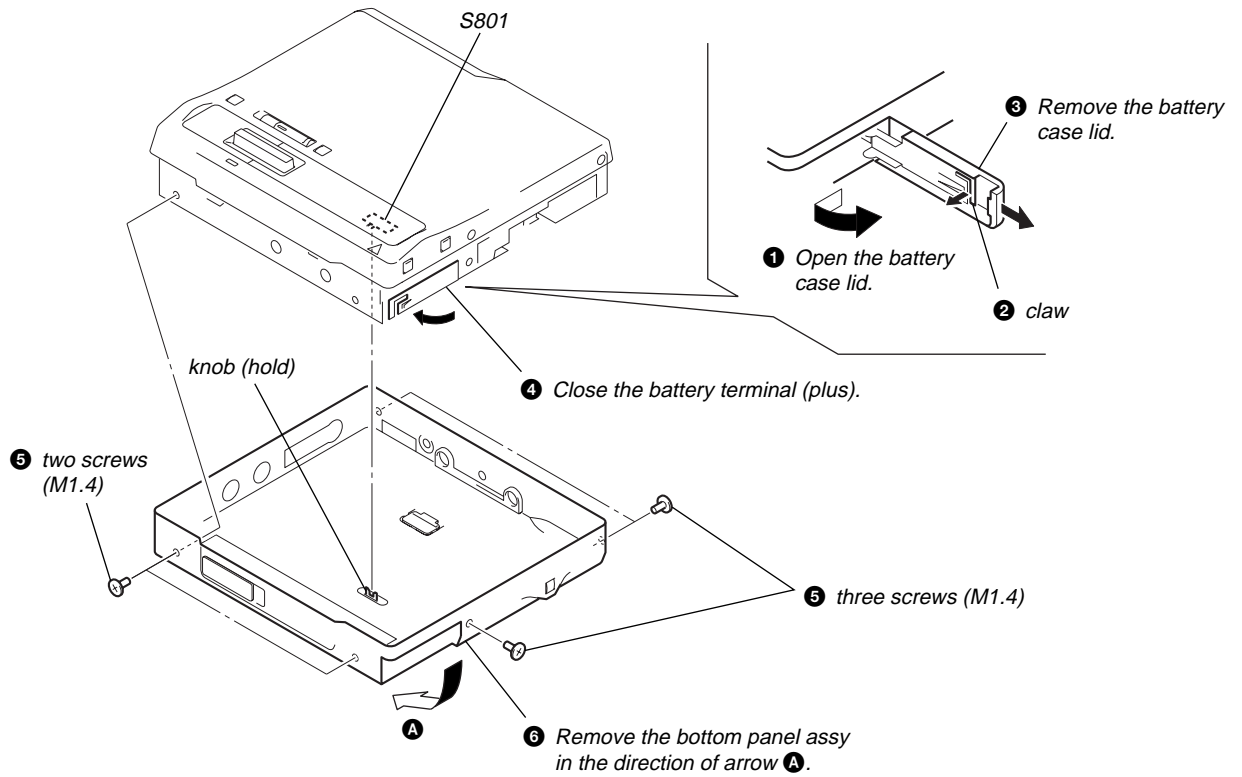
3-1. DISASSEMBLY FLOW



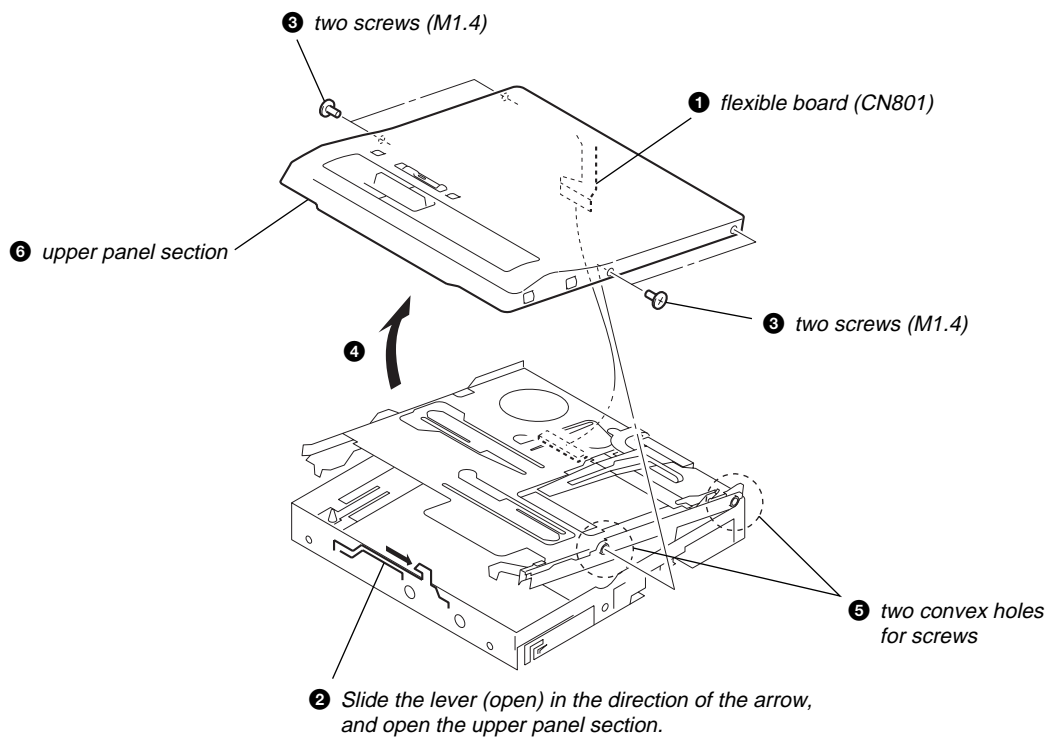
Note: Follow the disassembly procedure in the numerical order given.

3-2. BOTTOM PANEL ASSY

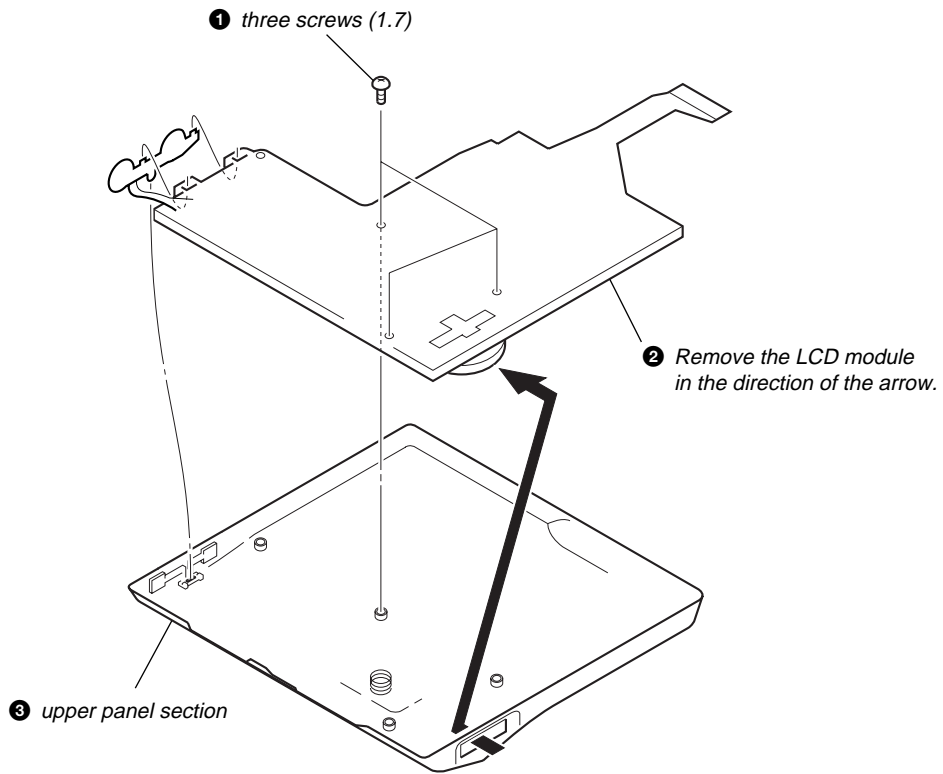
Note : On installation, adjust the position of both switch (S801) and knob (hold).



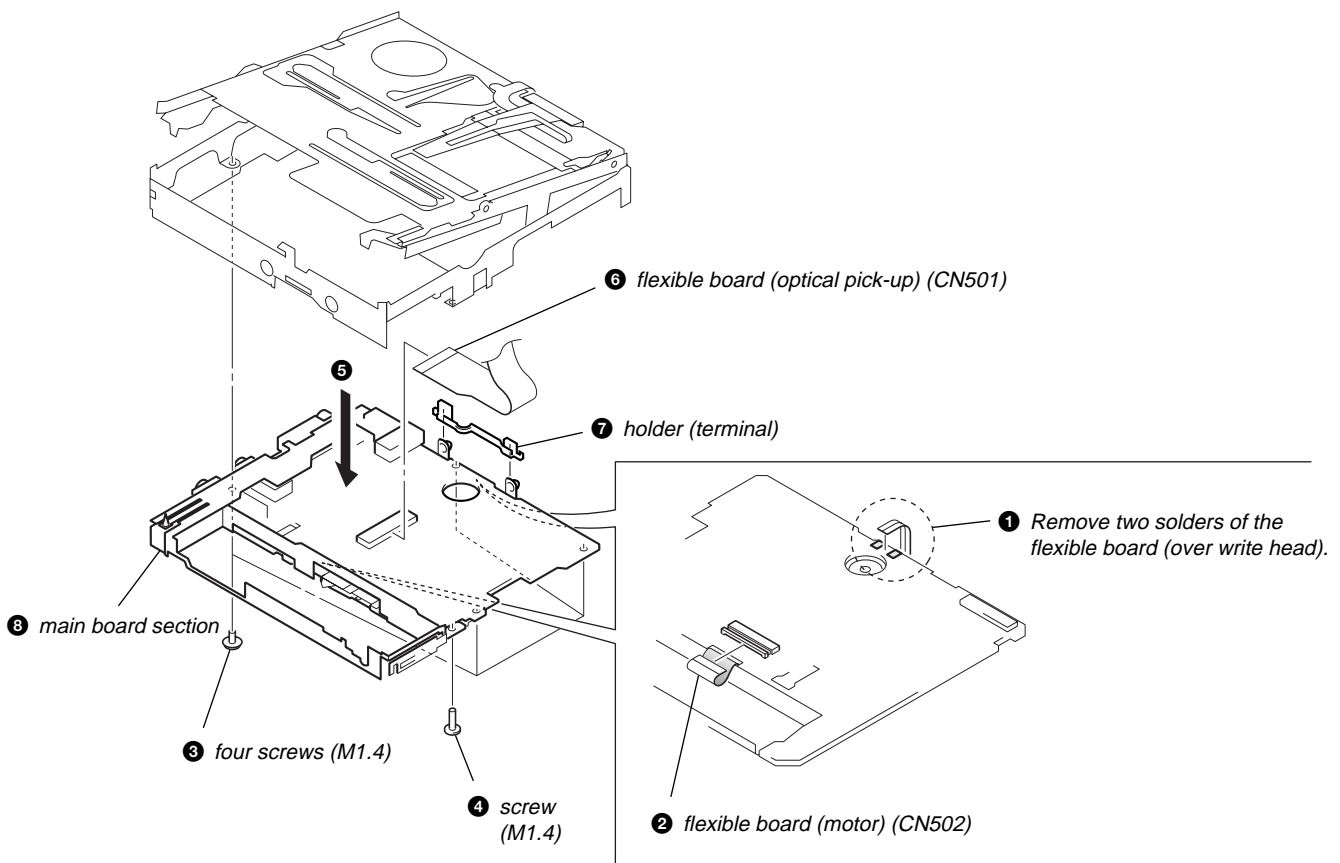
3-3. UPPER PANEL SECTION



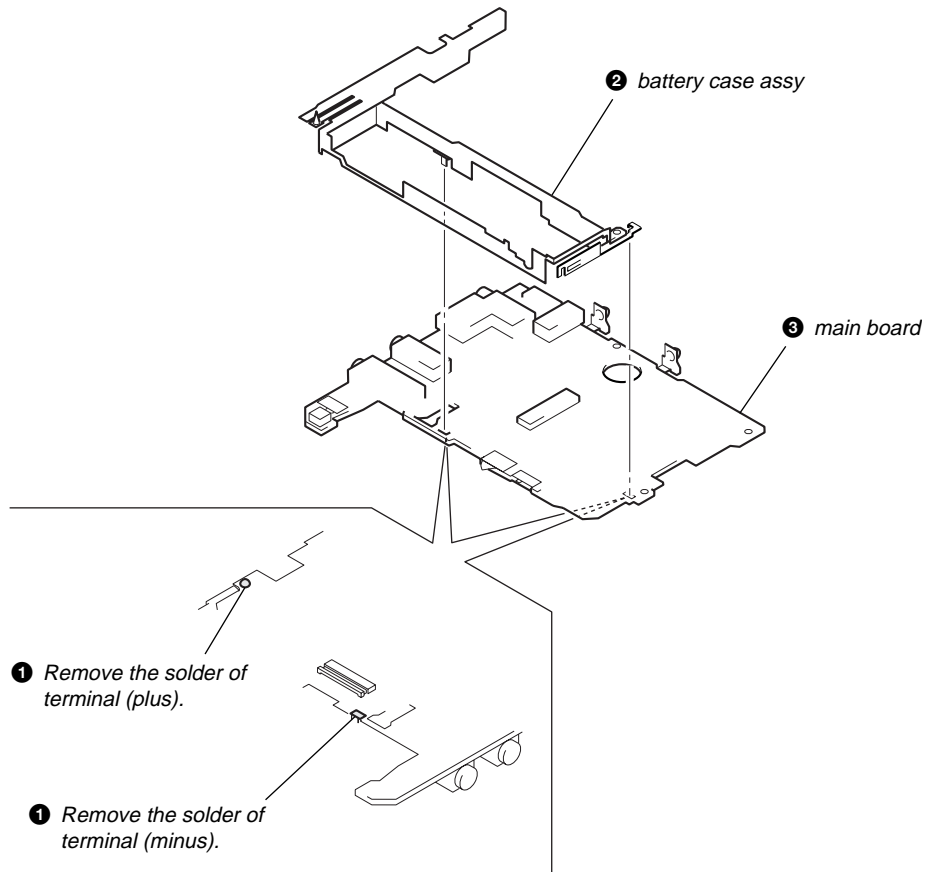
3-4. LCD MODULE, UPPER PANEL ASSY



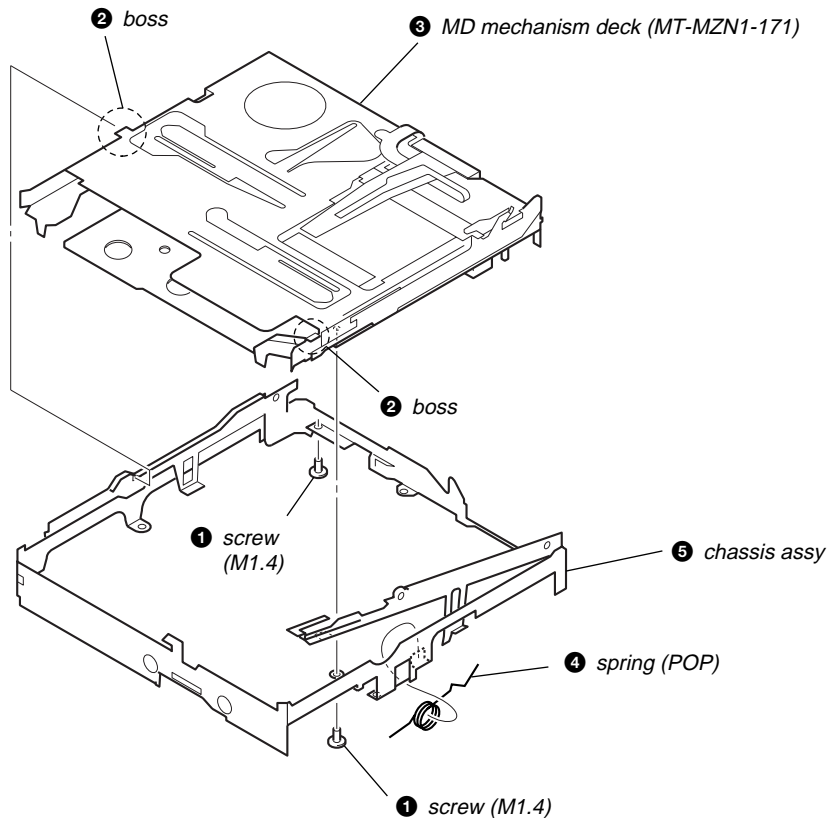
3-5. MAIN BOARD SECTION



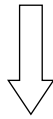
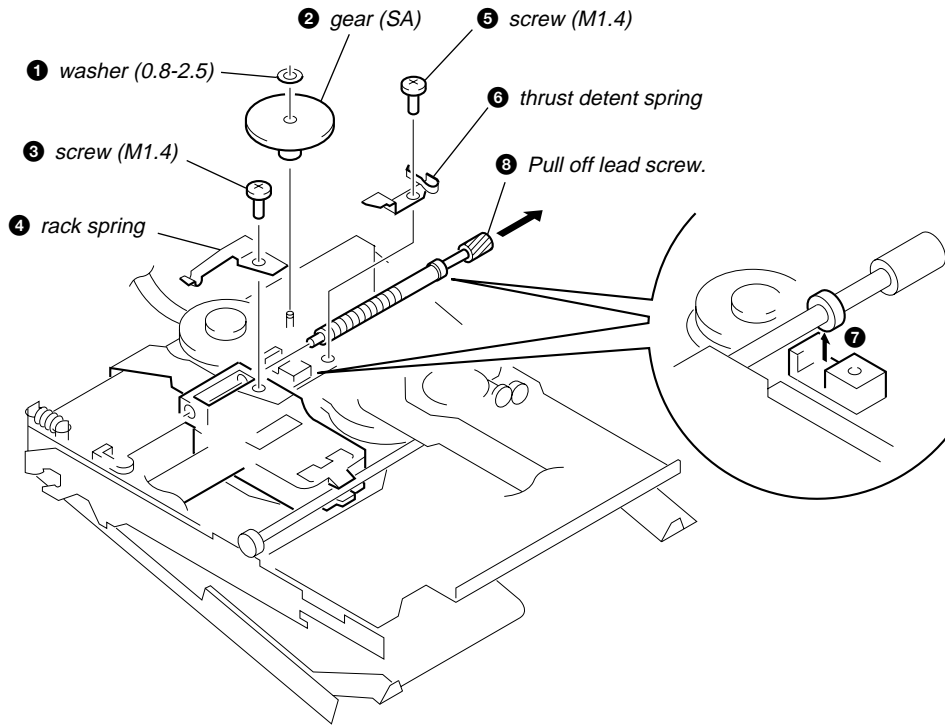
3-6. BATTERY CASE ASSY, MAIN BOARD



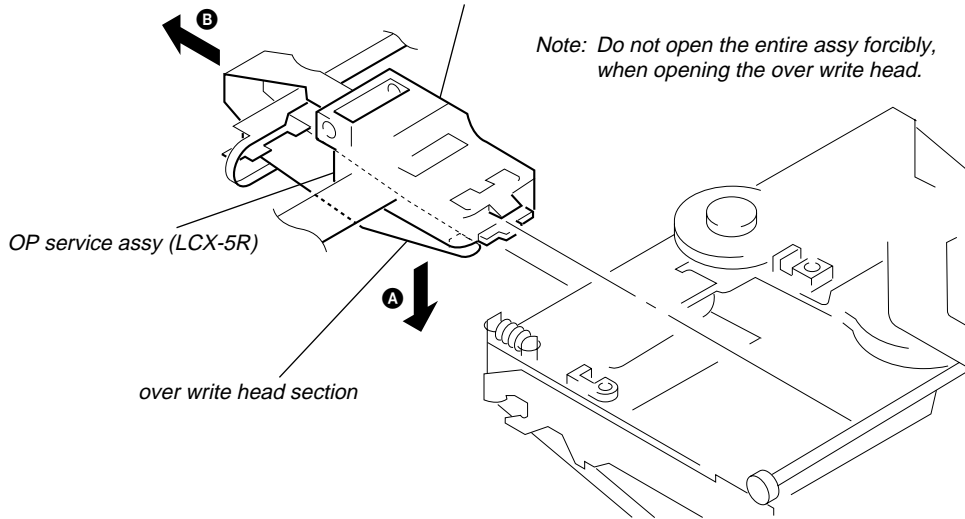
3-7. MD MECHANISM DECK (MT-MZN1-171), CHASSIS ASSY



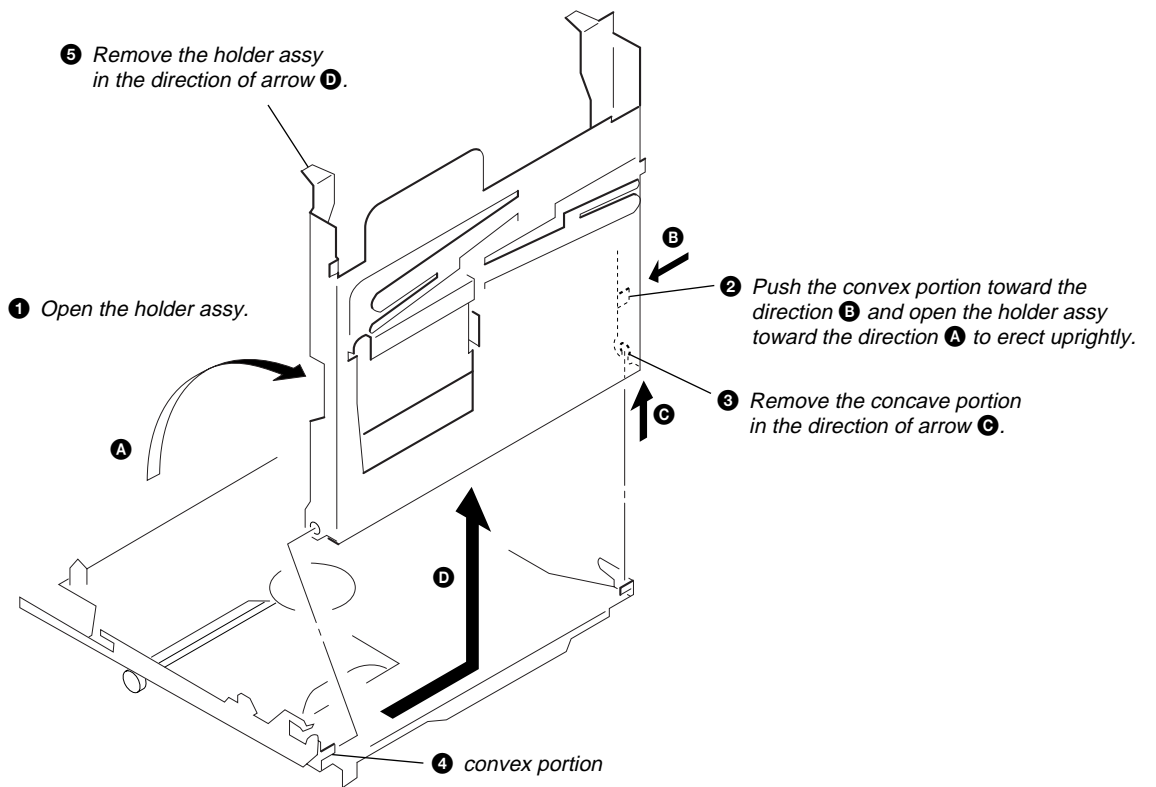
3-8. OP SERVICE ASSY (LCX-5R)



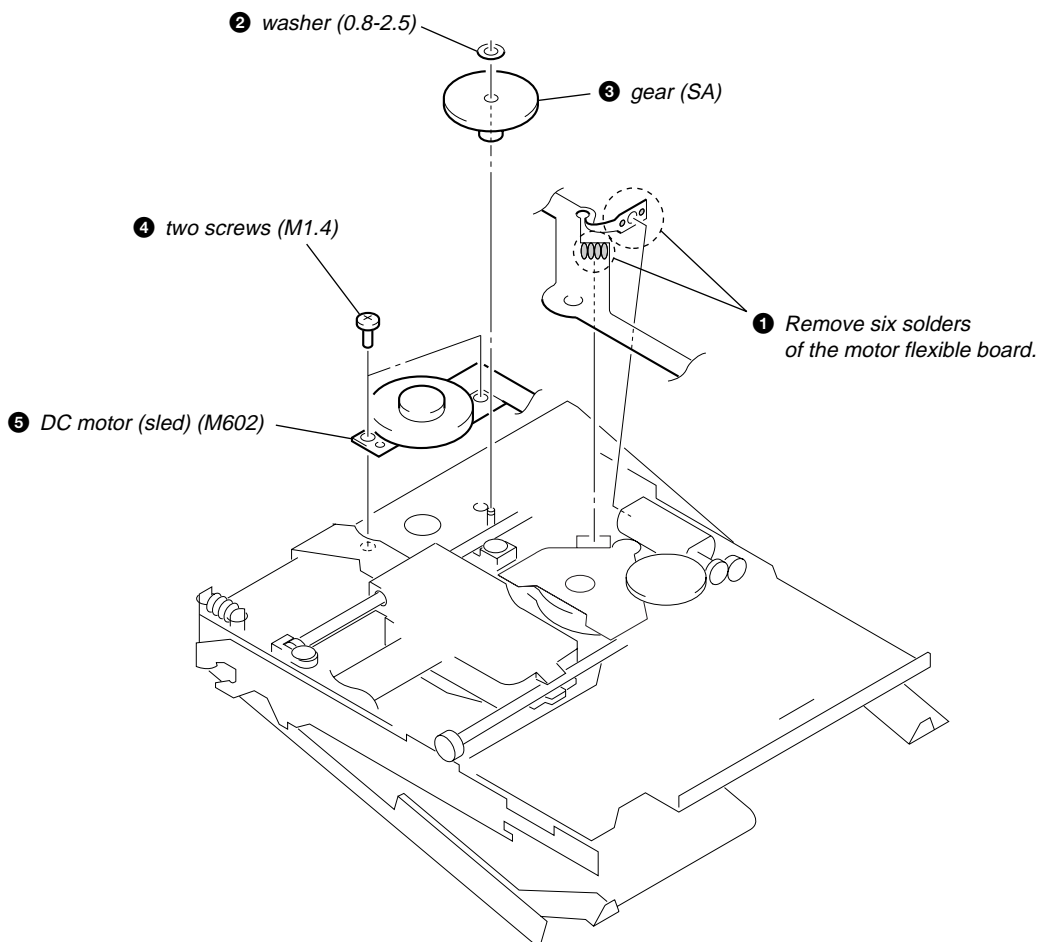
8 Opening the over write head toward the direction A, remove the OP service assy (LCX-5R) toward the direction B.



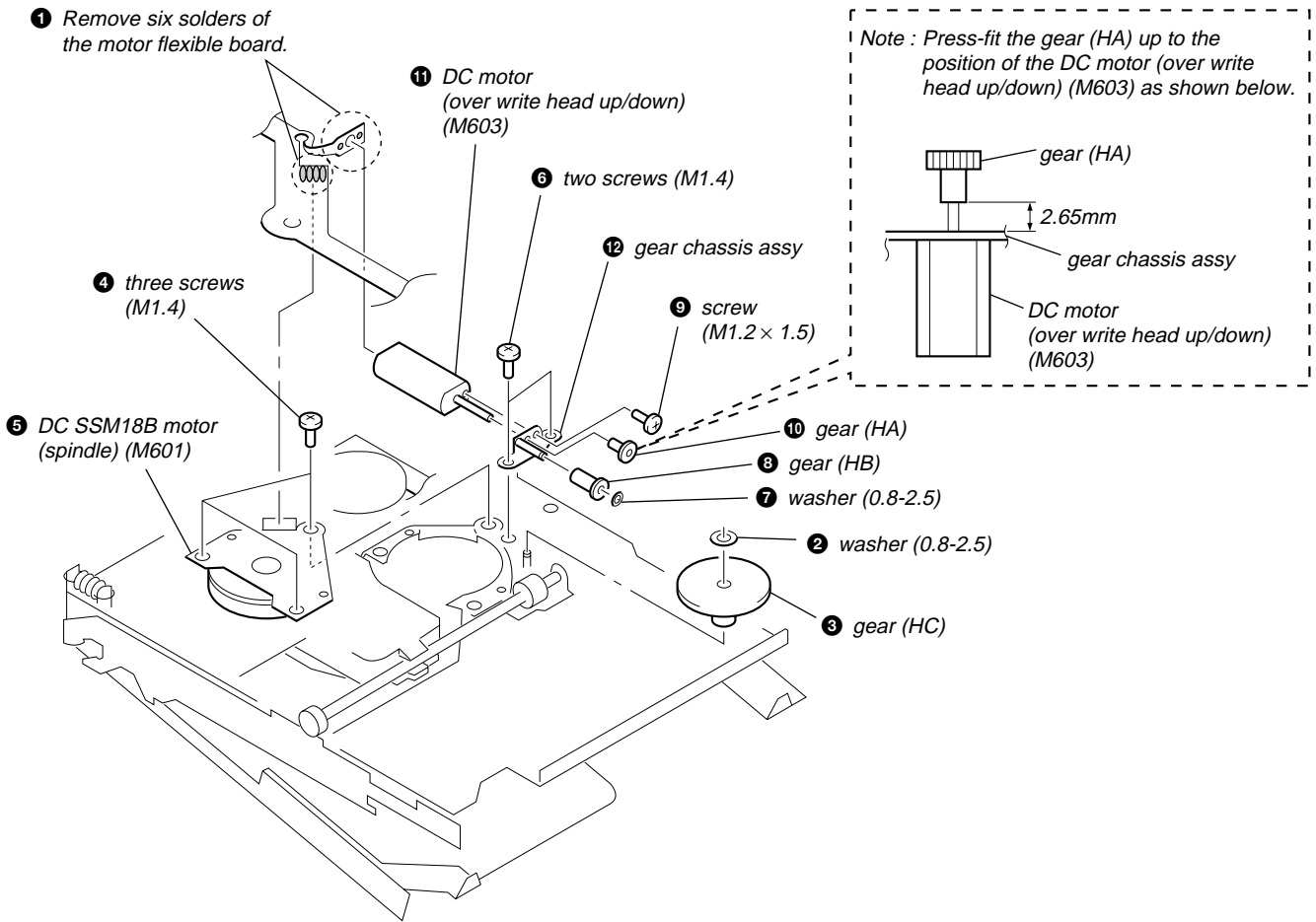
3-9. HOLDER ASSY



3-10. DC MOTOR (SLED) (M602)



3-11. DC SSM18B MOTOR (SPINDLE) (M601), DC MOTOR (OVER WRITE HEAD UP/DOWN) (M603)



SECTION 4 TEST MODE

Outline

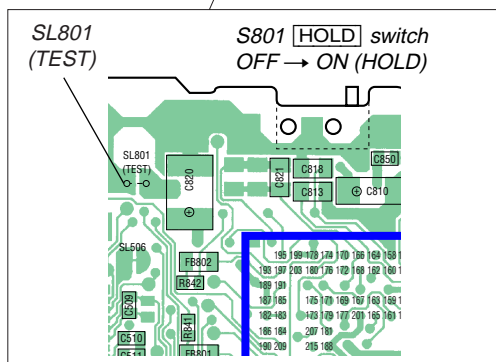
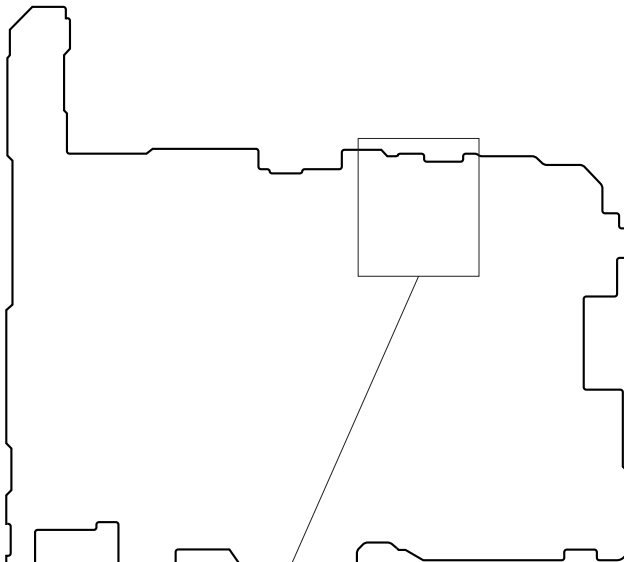
- This set provides the Overall adjustment mode that allows CD and MO discs to be automatically adjusted when in the test mode. In this overall adjustment mode, the disc is discriminate between CD and MO, and each adjustment is automatically executed in order. If a fault is found, the system displays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

Setting Method of Test Mode

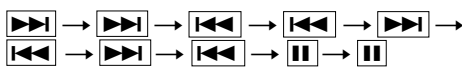
There are three different methods to set the test mode:

- ① Short SL801 (TEST) on the MAIN board with a solder bridge (connect pin ④⑥ of IC801 to the ground) and turn on the **[HOLD]** switch. Then, turn on the power.

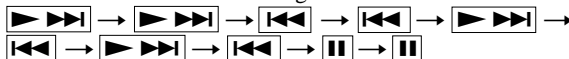
– MAIN Board (Conductor Side) –



- ② In the normal mode, turn on the **[HOLD]** switch. While pressing the **[VOLUME -]** key press the following order:



- ③ In the normal mode, turn on the **[HOLD]** switch. While pressing the **[■/CHG]** key, press the keys on the remote commander with the following order:

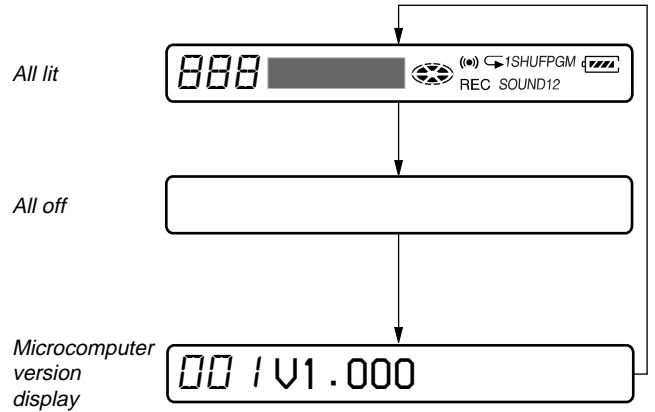


Note: If electrical adjustment (CD and MO overall adjustment) has not been finished completely, “NV Error” is displayed on LCDs of the set and the remote commander.

Operation in Setting the Test Mode

- When the test mode becomes active, first the display check mode is selected.
- Other mode can be selected from the display check mode.
- When the test mode is set, the LCD repeats the following display.

Remote commander LCD display



- When the **[HOLD]** 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:

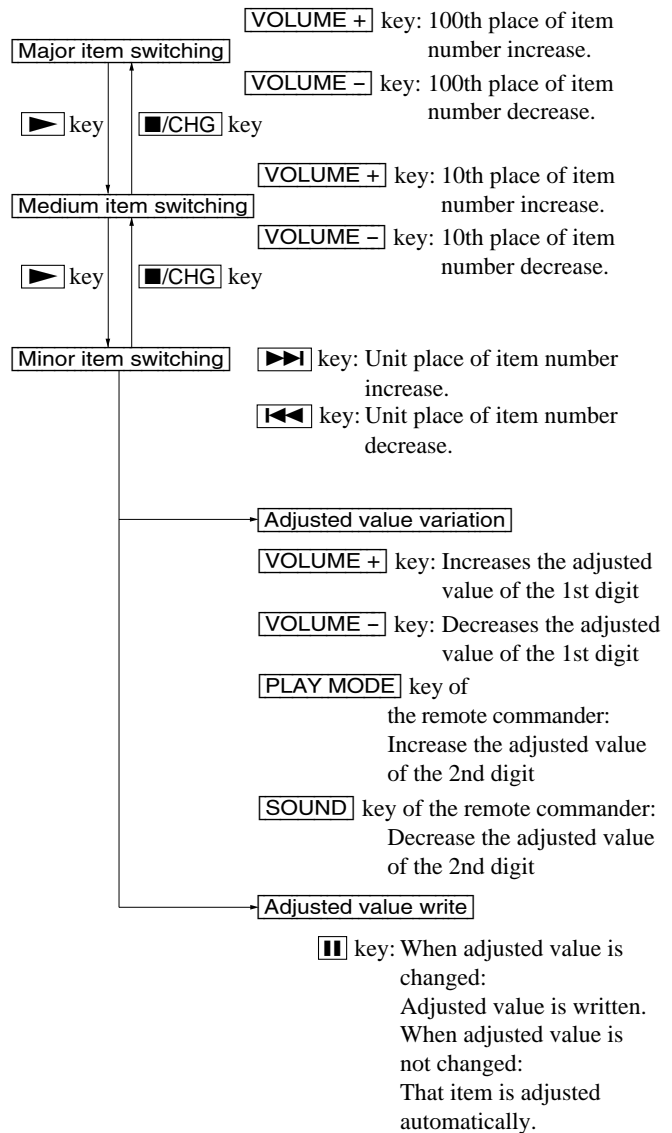
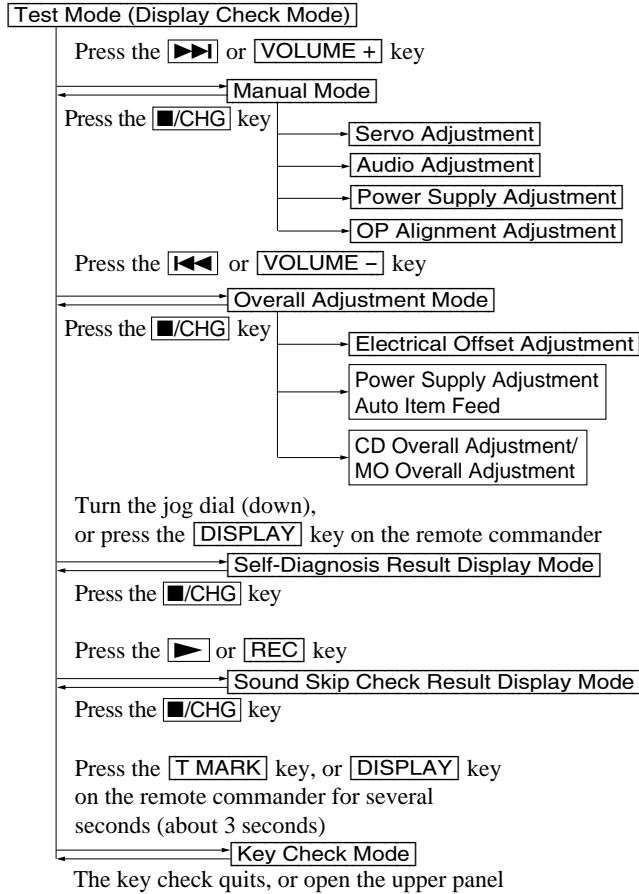
Turn off the power and open the solder bridge on SL801 (TEST) on the MAIN board.

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

For test mode set with the method ② or ③:

Turn off the power.

Configuration of Test Mode



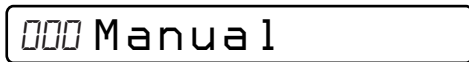
Manual Mode

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, power supply adjustment, and laser power check before performing automatic adjustments in the Overall Adjustment mode.

• Transition method in manual mode

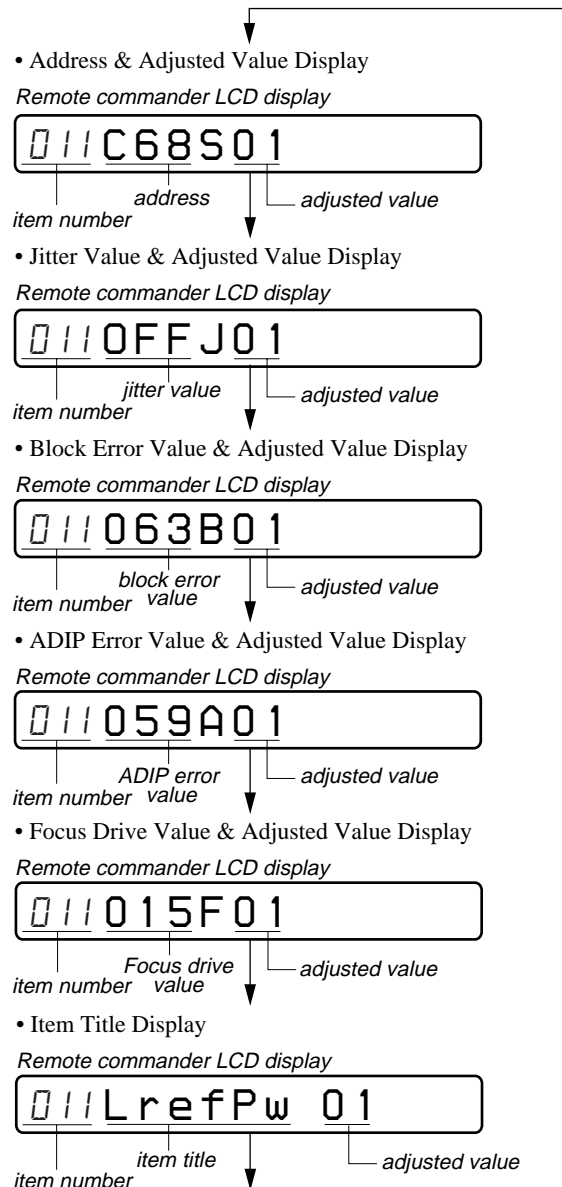
1. Set the test mode (see page 13).
2. Press the [F2] or [VOLUME+] key activates the manual mode where the LCD display as shown below.

Remote commander LCD display



3. During each test, the optical pick-up moves outward or inward while the [F2] or [F1] key is pressed for several seconds respectively.
4. Each test item is assigned with a 3-digit item number; 100th place is a major item, 10th place is a medium item, and unit place is a minor item. The values adjusted in the test mode are written to the nonvolatile memory (for the items where adjustment was made).

- The display changes as shown below each time the jog dial (down) is turned or the **[DISPLAY]** key on the remote commander is pressed.



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

- Quit the manual mode, and press the **[CHG]** 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 19).

Self-Diagnosis Result Display Mode

This set uses the self-diagnostic function system in which if an error occurred during the recording or playing, the mechanism control block and the power supply control block in the microcomputer detect it and record its cause as history in the nonvolatile memory.

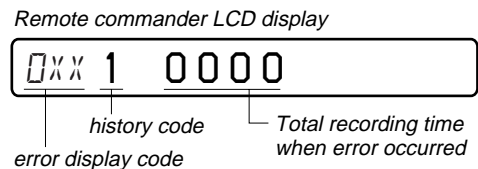
By checking this history in the test mode, you can analyze a fault and determine its location.

Total recording time is recorded as a guideline of how long the optical pickup has been used, and by comparing it with the total recording time at the time when an error occurred in the self-diagnosis result display mode, you can determine when the error occurred.

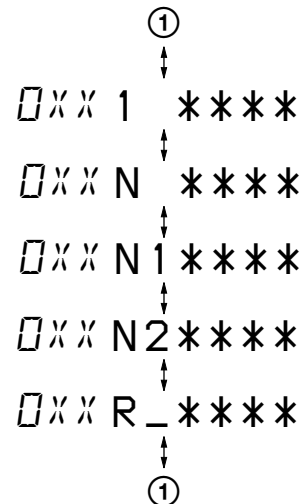
Clear both self-diagnosis history data and total recording time, if the optical pickup was replaced.

Self-diagnosis result display mode setting method

- Set the test mode (see page 13).
- In the display check mode, turn the jog dial (down) or press the **[DISPLAY]** key on the remote commander activates the self-diagnosis result display mode where the LCD display as shown below.



- 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.



XX : Error code
 ***** : Total recording time

If the jog dial (down) is turned or the **[DISPLAY]** key on remote commander is pressed with this display, the LCD switches to the simple display mode.

- Quit the self-diagnosis result display mode, and press the **[CHG]** key to return to the test mode (display check mode).

• **Description of error indication codes**

| Problem | Indication code | Meaning of code | Simple display | Description |
|---------------------------|-----------------|---------------------------------------------|----------------|---------------------------------------------|
| No error | 00 | No error | --- | No error |
| Servo system error | 01 | Illegal access target address was specified | Adrs | Attempt to access an abnormal address |
| | 02 | High temperature | Temp | High temperature detected |
| | 03 | Focus error | Fcus | Disordered focus or can not read an address |
| | 04 | Spindle error | Spdl | Abnormal rotation of disc |
| TOC error | 11 | TOC error | TOC | Faulty TOC contents |
| | 12 | Data reading error | Data | Data could not be read at SYNC |
| Power supply system error | 22 | Low battery | LBat | Momentary interruption detected |
| Offset system error | 31 | Offset error | Ofst | Offset error |
| | 32 | Focus error ABCD offset error | ABCD | Focus error ABCD offset error |
| | 33 | Tracking error Offset error | TE | Tracking error Offset error |
| | 34 | X1 tracking error Offset error | X1TE | X1 tracking error Offset error |
| Disc error | 35 | MD DATA 2 disc error | MD2 | MD DATA 2 disc error |

• **Description of indication history**

| History code number | Description |
|---------------------|-----------------------------|
| 1 | The first error |
| N | The last error |
| N1 | One error before the last. |
| N2 | Two errors before the last. |
| R_ | Total recording time |

Reset the Error Display Code

After servicing, reset the error display code.

• **Setting method of reset the error display code**

1. Set the test mode (see page 13).
2. Turn the jog dial (down) or press the **DISPLAY** key on the remote commander activates the self-diagnosis result display mode.
3. To reset the error display code, press the **II** key (twice) when the code is displayed (except "R_****").
(All the data on the 1, N, N1, and N2 will be reset)

Sound Skip Check Result Display Mode

This set can display the count of errors that occurred during the recording/playing for checking.

• Setting method of sound skip check result display mode

1. Set the test mode (see page 13).
2. Press the **[▶]** key or **[REC]** key, and the playing or recording sound skip result display mode becomes active respectively where the LCD displays the following.

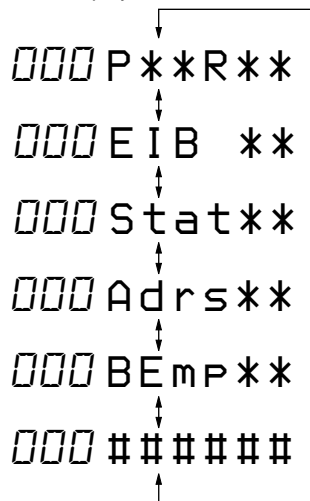
Remote commander LCD display



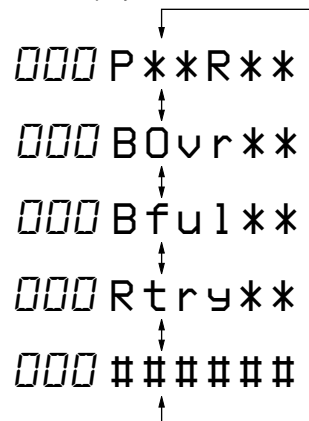
Total count of play system errors (hex.)
Total count of record system errors (hex.)

3. When the **[▶]** key is pressed, total error count is displayed on the LCD, and each time the **[▶▶]** key is pressed, the display item moves down by one as shown below. Also, if the **[◀◀]** key is pressed, the display item moves up by one, then if the **[REC]** key is pressed, the display in the record mode appears. When the **[REC]** key is pressed, total error count is displayed on the LCD, and each time the **[▶▶]** key is pressed, the display item moves down by one as shown below. Also, if the **[◀◀]** key is pressed, the display item moves up by one, then if the **[▶]** key is pressed, the display in the play mode appears.

Playing sound skip result display



Recording sound skip result display



P**R**: Total play/record errors (hex.)
** : Counter of sound skip check each item (hex.)
#####: 6-digit address where sound was skipped last (hex.)

• Cause of sound skip error

| | Cause of error | Description of error |
|--------|----------------|-------------------------------------------------------------|
| Play | EIB | Sound error correction error |
| | Stat | Decoder status error |
| | Adrs | Address access error |
| | BEmp | Buffer is empty |
| Record | BOvr | Buffer is full, and sounds were dumped |
| | Bful | Buffer capacity becomes less, and forcible writing occurred |
| | Rtry | Retry times over |

4. To quit the sound skip check result display mode and to return to the test mode (display check mode), press the **[■/CHG]** key.

Jog and Key Check Mode

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

• Setting method of jog check mode

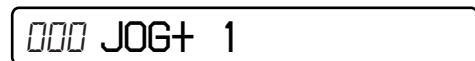
1. Set the test mode (see page 13).
2. Press the jog button to activate the jog check mode and display as below.

Remote commander LCD display



3. Turn the jog dial downwards one click.

Remote commander LCD display



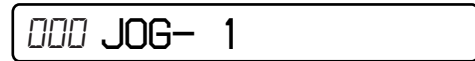
4. Turn the jog dial downwards three more clicks.

Remote commander LCD display



5. Turn the jog dial upwards one click.

Remote commander LCD display



6. Turn the jog dial upwards three more clicks.

Remote commander LCD display



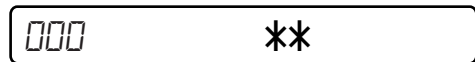
7. When the **[■/CHG]** key is pressed, it changes over to the key check mode.

Note: To enter the key check mode, it is not necessary to enter via the jog dial check mode. (Refer to next item)

• Setting method of key check mode

1. Set the test mode (see page 13).
2. Press the **[T MARK]** key or **[DISPLAY]** key on the remote commander 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)

Remote commander LCD display

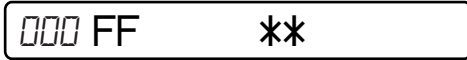


** : AD value of the remote commander key (hexadecimal 00 to FF)


3. When each key on the set and on remote commander is pressed, its name is displayed on the remote commander 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 remote commander LCD switches to its name display)

Example1: When the  key on the set is pressed:

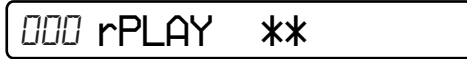
Remote commander LCD display



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

Example2: When the  key on the remote commander is pressed:

Remote commander 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.

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

Remote commander 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:

Remote commander LCD display



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

5. When all keys were checked or if the upper panel is opened, the key check mode quits and the test mode (display check mode) comes back.

2. NV adjusted values modifying procedure

- 1) Select manual mode of the test mode, and set item number 336 (see page 14).

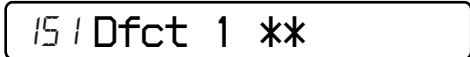
Remote commander LCD display



** : Adjusted value

- 2) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 8.
- 3) Press the **Enter** key to write the adjusted value.
- 4) Select manual mode of the test mode, and set item number 149 (see page 14).
- 5) Press the **Right** key to set item number 151.

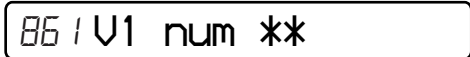
Remote commander LCD display



** : Adjusted value

- 6) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 07.
- 7) Press the **Enter** key to write the adjusted value.
- 8) Select manual mode of the test mode, and set item number 861 (see page 14).

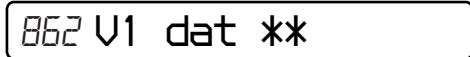
Remote commander LCD display



** : Adjusted value

- 9) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 79.
- 10) Press the **Enter** key to write the adjusted value.
- 11) Select manual mode of the test mode, and set item number 862 (see page 14).

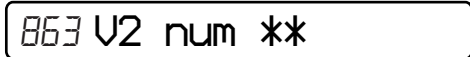
Remote commander LCD display



** : Adjusted value

- 12) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 00.
- 13) Press the **Enter** key to write the adjusted value.
- 14) Select manual mode of the test mode, and set item number 863 (see page 14).

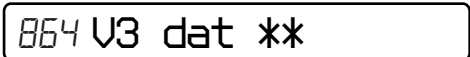
Remote commander LCD display



** : Adjusted value

- 15) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes EA.
- 16) Press the **Enter** key to write the adjusted value.
- 17) Select manual mode of the test mode, and set item number 864 (see page 14).

Remote commander LCD display



** : Adjusted value

- 18) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 01.

- 19) Press the **Enter** key to write the adjusted value.
- 20) Select manual mode of the test mode, and set item number 865 (see page 14).

Remote commander LCD display



** : Adjusted value

- 21) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 2C.
- 22) Press the **Enter** key to write the adjusted value.
- 23) Select manual mode of the test mode, and set item number 866 (see page 14).

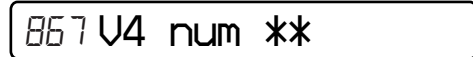
Remote commander LCD display



** : Adjusted value

- 24) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes B9.
- 25) Press the **Enter** key to write the adjusted value.
- 26) Select manual mode of the test mode, and set item number 867 (see page 14).

Remote commander LCD display



** : Adjusted value

- 27) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes C9.
- 28) Press the **Enter** key to write the adjusted value.
- 29) Select manual mode of the test mode, and set item number 868 (see page 14).

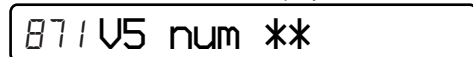
Remote commander LCD display



** : Adjusted value

- 30) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 80.
- 31) Press the **Enter** key to write the adjusted value.
- 32) Select manual mode of the test mode, and set item number 871 (see page 14).

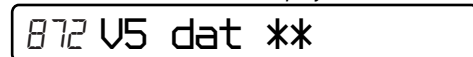
Remote commander LCD display



** : Adjusted value

- 33) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes CA.
- 34) Press the **Enter** key to write the adjusted value.
- 35) Select manual mode of the test mode, and set item number 872 (see page 14).

Remote commander LCD display



** : Adjusted value

- 36) Adjust with the **VOLUME+** key (adjusted value up) or **VOLUME-** key (adjusted value down) so that the adjusted value becomes 2D.
- 37) Press the **Enter** key to write the adjusted value.

- 38) Select manual mode of the test mode, and set item number 873 (see page 14).

Remote commander LCD display

873 V6 num **

** : Adjusted value

- 39) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes BB.
- 40) Press the **[]** key to write the adjusted value.
- 41) Select manual mode of the test mode, and set item number 874 (see page 14).

Remote commander LCD display

874 V6 dat **

** : Adjusted value

- 42) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes 05.
- 43) Press the **[]** key to write the adjusted value.

• Change of NV adjusted values (version 1.100)

Caution: Change the NV adjustment values according to the microcomputer version.

In this set, some adjusted values were set in the manual mode at the shipment, but these will be cleared when the NV is reset.

Therefore, modify the NV adjusted values through the following procedure immediately after the NV was reset.

- Item numbers in which the NV adjusted values are to be modified
 - Change ABCD gain [Hpit] initial value (item number 336)

Caution: The ABCD gain [Hpit] initial value must be changed before the overall adjustment.
 - Change CLV drive voltage limiter (item numbers 865, 866)
 - Change x2 CLV speed gain, +6dB compared to conventional (item numbers 867, 868)
 - Change x2 CLV phase gain, +3dB compared to conventional (item numbers 871, 872)
 - Change x2/x1 switching temperature threshold value (+10°C → +5°C) (item numbers 873, 874)

2. NV adjusted values modifying procedure

- 1) Select manual mode of the test mode, and set item number 336 (see page 14).

Remote commander LCD display

336 AbcdGn **

** : Adjusted value

- 2) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes 08.
- 3) Press the **[]** key to write the adjusted value.
- 4) Select manual mode of the test mode, and set item number 865 (see page 14).

Remote commander LCD display

865 V3 num **

** : Adjusted value

- 5) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes 2C.
- 6) Press the **[]** key to write the adjusted value.

- 7) Select manual mode of the test mode, and set item number 866 (see page 14).

Remote commander LCD display

866 V3 dat **

** : Adjusted value

- 8) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes B9.
- 9) Press the **[]** key to write the adjusted value.
- 10) Select manual mode of the test mode, and set item number 867 (see page 14).

Remote commander LCD display

867 V4 num **

** : Adjusted value

- 11) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes C9.
- 12) Press the **[]** key to write the adjusted value.
- 13) Select manual mode of the test mode, and set item number 868 (see page 14).

Remote commander LCD display

868 V4 dat **

** : Adjusted value

- 14) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes 80.
- 15) Press the **[]** key to write the adjusted value.
- 16) Select manual mode of the test mode, and set item number 871 (see page 14).

Remote commander LCD display

871 V5 num **

** : Adjusted value

- 17) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes CA.
- 18) Press the **[]** key to write the adjusted value.
- 19) Select manual mode of the test mode, and set item number 872 (see page 14).

Remote commander LCD display

872 V5 dat **

** : Adjusted value

- 20) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes 2D.
- 21) Press the **[]** key to write the adjusted value.
- 22) Select manual mode of the test mode, and set item number 873 (see page 14).

Remote commander LCD display

873 V6 num **

** : Adjusted value

- 23) Adjust with the **[VOLUME+]** key (adjusted value up) or **[VOLUME-]** key (adjusted value down) so that the adjusted value becomes BB.
- 24) Press the **[]** key to write the adjusted value.

- 25) Select manual mode of the test mode, and set item number 874 (see page 14).

Remote commander LCD display



** : Adjusted value

- 26) Adjust with the **VOLUME +** key (adjusted value up) or **VOLUME -** key (adjusted value down) so that the adjusted value becomes 05.
 27) Press the **II** key to write the adjusted value.

Power Supply Manual Adjustment

• Adjustment sequence

Adjustment must be done with the following steps.

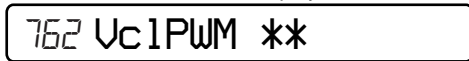
1. Vc PWM Duty (L) adjustment (item number: 762)
- ↓
2. Vc PWM Duty (H) adjustment (item number: 763)
- ↓
3. VI PWM Duty (L) adjustment (item number: 764)
- ↓
4. VI PWM Duty (H) adjustment (item number: 765)
- ↓
5. Vrec PWM Duty (L) adjustment (item number: 766)
- ↓
6. Vrec PWM Duty (H) adjustment (item number: 767)
- ↓
7. Vd PWM Duty adjustment (item number: 768)

• Setting method of power supply manual adjustment

1. Make sure that the power supply voltage is 3V.
2. Select the manual mode of the test mode (see page 14).
3. Set item number.

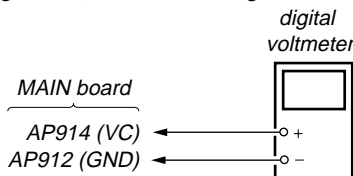
• Adjustment method of Vc PWM Duty (L) (item number: 762)

Remote commander LCD display



** : Adjusted value

1. Connect a digital voltmeter to the AP914 (VC) on the MAIN board, and adjust **VOLUME +** key (voltage up) or **VOLUME -** key (voltage down) so that the voltage becomes $2.40^{+0.005}_{-0.01}$ V.



2. Press the **II** key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 24)

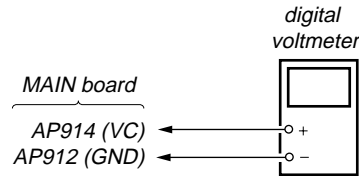
• Adjustment method of Vc PWM Duty (H) (item number: 763)

Remote commander LCD display



** : Adjusted value

1. Connect a digital voltmeter to the AP914 (VC) on the MAIN board, and adjust **VOLUME +** key (voltage up) or **VOLUME -** key (voltage down) so that the voltage becomes 2.75 ± 0.015 V.

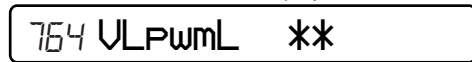


2. Press the **II** key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 24)

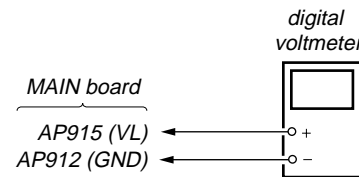
• Adjustment method of VI PWM Duty (L) (item number: 764)

Remote commander LCD display



** : Adjusted value

1. Connect a digital voltmeter to the AP915 (VL) on the MAIN board, and adjust **VOLUME +** key (voltage up) or **VOLUME -** key (voltage down) so that the voltage becomes $2.30^{+0.005}_{-0.01}$ V.

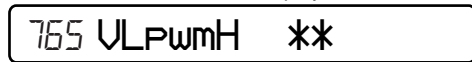


2. Press the **II** key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 24)

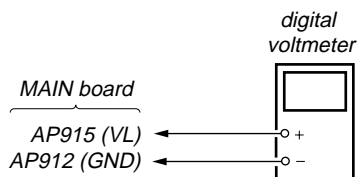
• Adjustment method of VI PWM Duty (H) (item number: 765)

Remote commander LCD display



** : Adjusted value

1. Connect a digital voltmeter to the AP915 (VL) on the MAIN board, and adjust **VOLUME +** key (voltage up) or **VOLUME -** key (voltage down) so that the voltage becomes $2.55^{+0.005}_{-0.01}$ V.

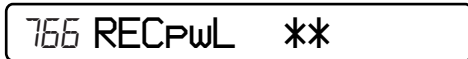


2. Press the **II** key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 24)

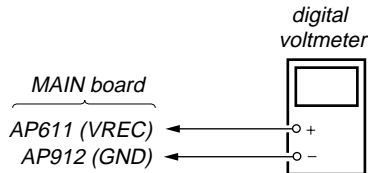
Adjustment method of Vrec PWM Duty (L)
(item number: 766)

Remote commander LCD display



** : Adjusted value

1. Connect a digital voltmeter to the AP611 (VREC) on the MAIN board, and adjust [VOLUME +] key (voltage up) or [VOLUME -] key (voltage down) so that the voltage becomes $1.08^{+0.025}_{-0.005}$ V.

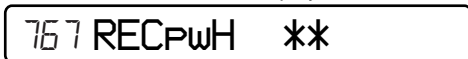


2. Press the [Enter] key to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 24)

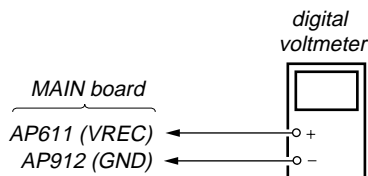
Adjustment method of Vrec PWM Duty (H)
(item number: 767)

Remote commander LCD display



** : Adjusted value

1. Connect a digital voltmeter to the AP611 (VREC) on the MAIN board, and adjust [VOLUME +] key (voltage up) or [VOLUME -] key (voltage down) so that the voltage becomes 1.65 to 1.70 V.



2. Press the [Enter] key to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 24)

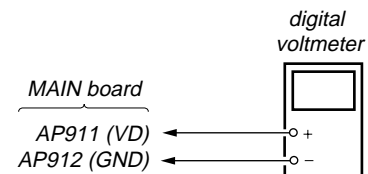
Adjustment method of Vd PWM Duty
(item number: 768)

Remote commander LCD display



** : Adjusted value

1. Connect a digital voltmeter to the AP911 (VD) on the MAIN board, and adjust [VOLUME +] key (voltage up) or [VOLUME -] key (voltage down) so that the voltage becomes 1.31 ± 0.010 V.



2. Press the [Enter] key to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 24)

Temperature Correction

Adjustment method of temperature correction

1. Select the manual mode of test mode, and set the item number 015 (see page 14).

Remote commander LCD display

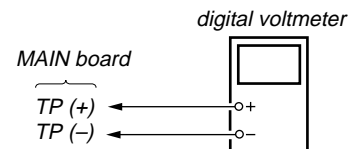
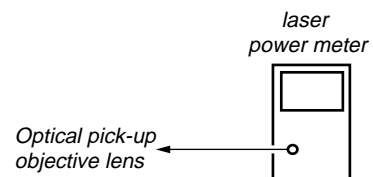


** : Adjusted value

2. Measure the ambient temperature.
3. Adjust with [VOLUME +], [VOLUME -] key so that the adjusted value (hexadecimal value) becomes the ambient temperature.
(Initial value: 19h = 25 °C, Adjusting range: 80h to 7fh (-128 °C to +127 °C))
4. Press the [Enter] key to write the adjusted value.

Laser Power Check

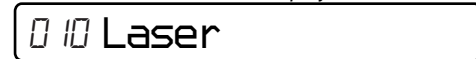
Connection :



Checking Method :

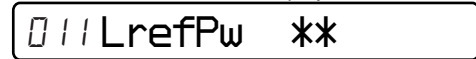
1. Select the manual mode of test mode (see page 14), and set the laser power adjusting mode (item number 010).

Remote commander LCD display



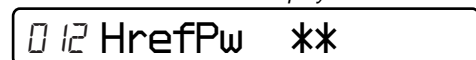
2. Press the [Left Arrow] key continuously until the optical pick-up moves to the most inward track.
3. Open the cover and set the laser power meter on the objective lens of the optical pick-up.
4. Press the [Right Arrow] key, and set the laser MO read adjustment mode (item number 011).

Remote commander LCD display




5. Check that the laser power meter reading is 0.81 ± 0.08 mW.
6. Check that the voltage both ends (TP (+) and TP (-)) of resistor R521 at this time is below 44 mV.
7. Press the [Right Arrow] key, and set the laser CD read adjustment mode (item number 012).

Remote commander LCD display




8. Check that the laser power meter reading is 0.97 ± 0.10 mW.
9. Check that the voltage both ends (TP (+) and TP (-)) of resistor R521 at this time is below 44 mV.

- Press the  key, and set the laser MO write adjustment mode (item number 013).

Remote commander LCD display

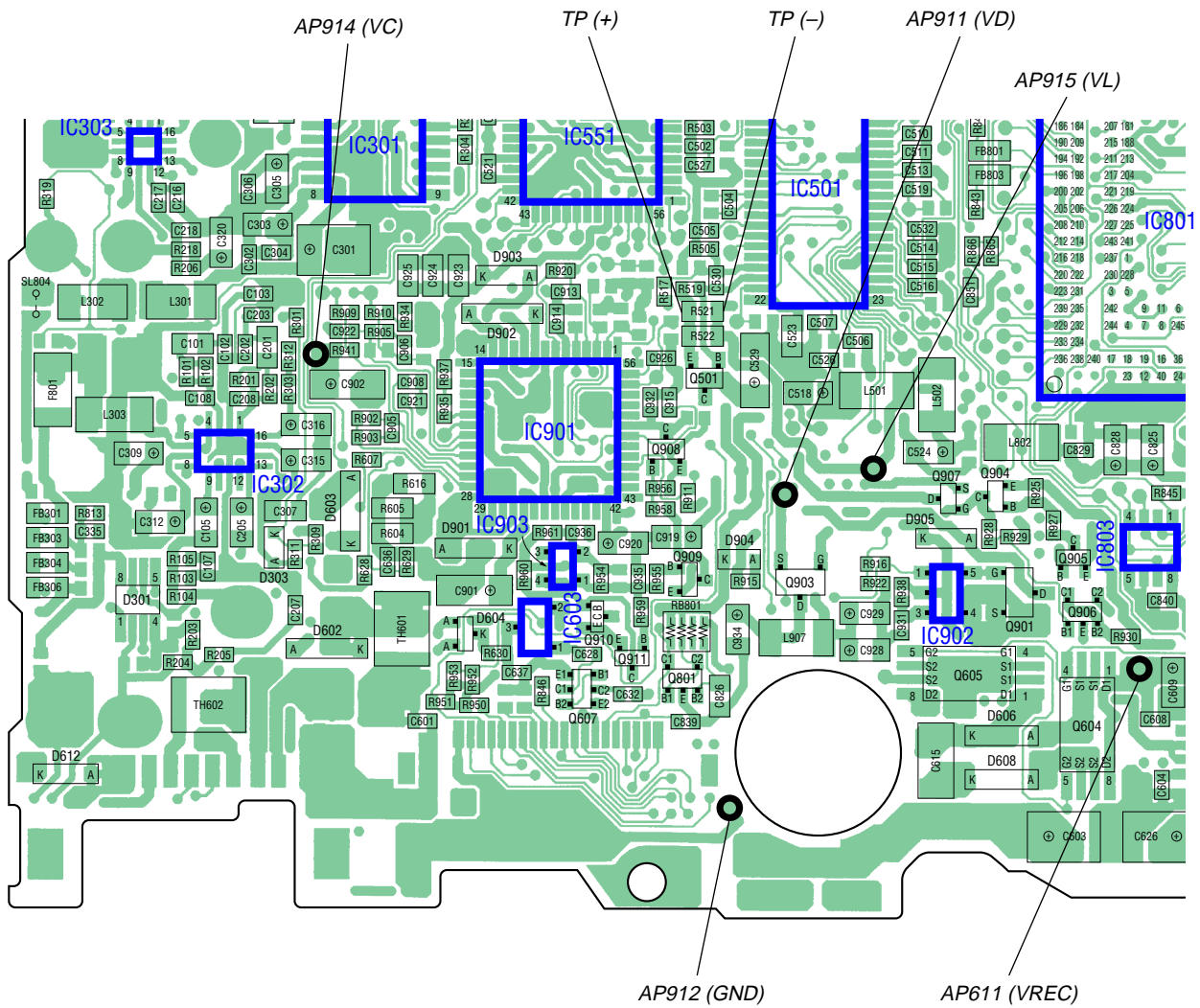


- Check that the laser power meter reading is 4.95 ± 0.50 mW.
- Check that the voltage both ends (TP (+) and TP (-)) of resistor R521 at this time is below 80 mV.
- Press the  key to quit the manual mode, and activate the test mode (display check mode).

Checking and Connection Location: MAIN board

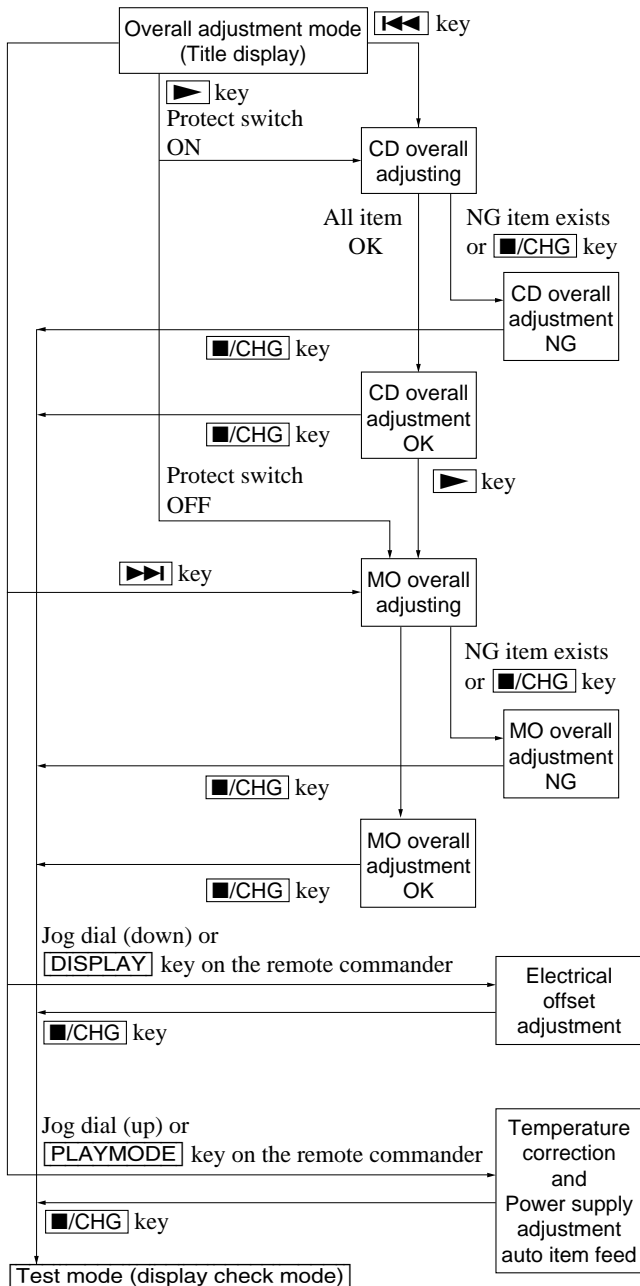
Adjustment/checking and Connection Location:

– MAIN Board (Conductor Side) –



Overall Adjustment Mode

• Configuration of overall adjustment mode



• Overall adjustment mode (title display)

Remote commander LCD display



⊗: (Disc mark) At end of power supply adjustment: Outside lit
 At end of electrical offset adj.: Inside lit
 Note: On the set having microcomputer version 1.000, the disc mark is displayed on the remote commander LCD only.
 **: Left side = MO overall adjustment information
 F*: MO overall adjustment completed
 1*: Manual adjustment exists (overall adj. not completed)
 0*: Not adjusted
 Right side = CD overall adjustment information
 *F: CD overall adjustment completed
 *1: Manual adjustment exists (overall adj. not completed)
 *0: Not adjusted

Note: Adjust the CD first, when performing adjustment.

• Electrical offset adjusting method

Caution: The electrical offset adjustment must be made with no disc loaded.

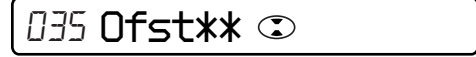
1. Make sure that the power supply voltage is 3 V.
2. Set the test mode (see page 13).
3. Press the [◀] or [VOLUME -] key to activate the overall adjustment mode.

Remote commander LCD display



4. Turn the jog dial (down), or press the [DISPLAY] key on the remote commander.

Remote commander LCD display



5. Electrical offset adjustment is over, if the following display appears.

Remote commander LCD display



• Adjustment method of CD and MO overall adjustment mode

1. Set the test mode (see page 13).
2. Press the [◀] or [VOLUME -] key to activate the overall adjustment mode.

Remote commander LCD display



3. Insert CD disc in the set, and press the [◀] key to set the CD overall adjustment mode. Automatic adjustments are made.

Remote commander LCD display



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

- In case of CD overall adjustment NG, reset the NV (see page 19), then readjust from the temperature correction (see page 21).

Remote commander LCD display

000 *** NG

**: NG item number.

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

Remote commander LCD display

000 CD OK

- Insert MO disc in the set, and press the key to set the MO overall adjustment mode. Automatic adjustments are made.

Remote commander LCD display

X X X MO RUN

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

- In case of MO overall adjustment NG, reset the NV (see page 19), then readjust from the temperature correction (see page 21).

Remote commander LCD display

000 *** NG

**: NG item number.

- If OK through the MO overall adjustments, press the / key to return to the test mode and terminate the overall adjustment mode.

Remote commander LCD display

000 MO OK

• CD and MO overall adjustment items

1. CD overall adjustment items

| Item No. | Description |
|----------|-------------------------------------|
| 312 | |
| 313 | CD electrical offset adjustment |
| 314 | |
| 321 | CD tracking error gain adjustment |
| 328 | CD TWPP gain adjustment |
| 324 | |
| 332 | CD tracking error offset adjustment |
| 336 | CD ABCD gain adjustment |
| 344 | CD focus gain adjustment |
| 345 | CD tracking gain adjustment |
| 521 | |
| 522 | CD two-axis sensitivity adjustment |

2. MO overall adjustment items

| Item No. | Description |
|----------|----------------------------------------------------|
| 112 | |
| 113 | |
| 114 | |
| 118 | MO electrical offset adjustment |
| 221 | Low reflective CD tracking error gain adjustment |
| 224 | |
| 232 | Low reflective CD tracking error offset adjustment |
| 236 | Low reflective CD ABCD gain adjustment |
| 244 | Low reflective CD focus gain adjustment |
| 245 | Low reflective CD tracking gain adjustment |
| 121 | MO tracking error gain adjustment |
| 122 | MO TON offset adjustment |
| 134 | MO TWPP gain adjustment |
| 131 | |
| 132 | MO triple speed read TWPP offset adjustment |
| 136 | MO ABCD gain adjustment |
| 144 | MO focus gain adjustment |
| 145 | MO tracking gain adjustment |
| 138 | MO RF gain adjustment |
| 434 | MO write TWPP gain adjustment |
| 431 | MO write TWPP offset adjustment |
| 432 | MO tracking error offset adjustment |
| 436 | MO write ABCD gain adjustment |
| 445 | MO write tracking gain adjustment |
| 411 | MO normal speed read TWPP offset adjustment |
| 412 | MO tracking error offset adjustment |
| 448 | 20 sec full recording |

Resume Clear

Perform the Resume clear when all adjustments completed.

• Resume clear setting method

- Select the manual mode of the test mode, and set item number 043 (see page 14).

Remote commander LCD display

043 Resume CC

- Press the key.

Remote commander LCD display

043 Res***

↓ Resume clear complete

043 ResC1r

- Press the / key to return to the test mode (display check mode).

Rewriting the Patch Data at Replacement of Main Board or Nonvolatile Memory (IC802)

This set requires the patch data in the nonvolatile memory (IC802) to be rewritten using the application, when the MAIN board or nonvolatile memory (IC802) was replaced.

Caution: The application that meets the microcomputer version in this set must be used when rewriting the patch data. Rewriting the patch data using the application not suitable for the microcomputer version could cause the set to malfunction.
For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 13).

• Preparation

1. USB cradle (attached to the set)
2. USB cable (attached to the set)
3. Personal computer in which the Net MD Driver has been installed. (For further information, see “System requirements” (page 4) in “SECTION 1 SERVICING NOTES”)
4. Application “PatchWriter” for patch data rewriting

• How to get the application “PatchWriter” for patch data rewriting

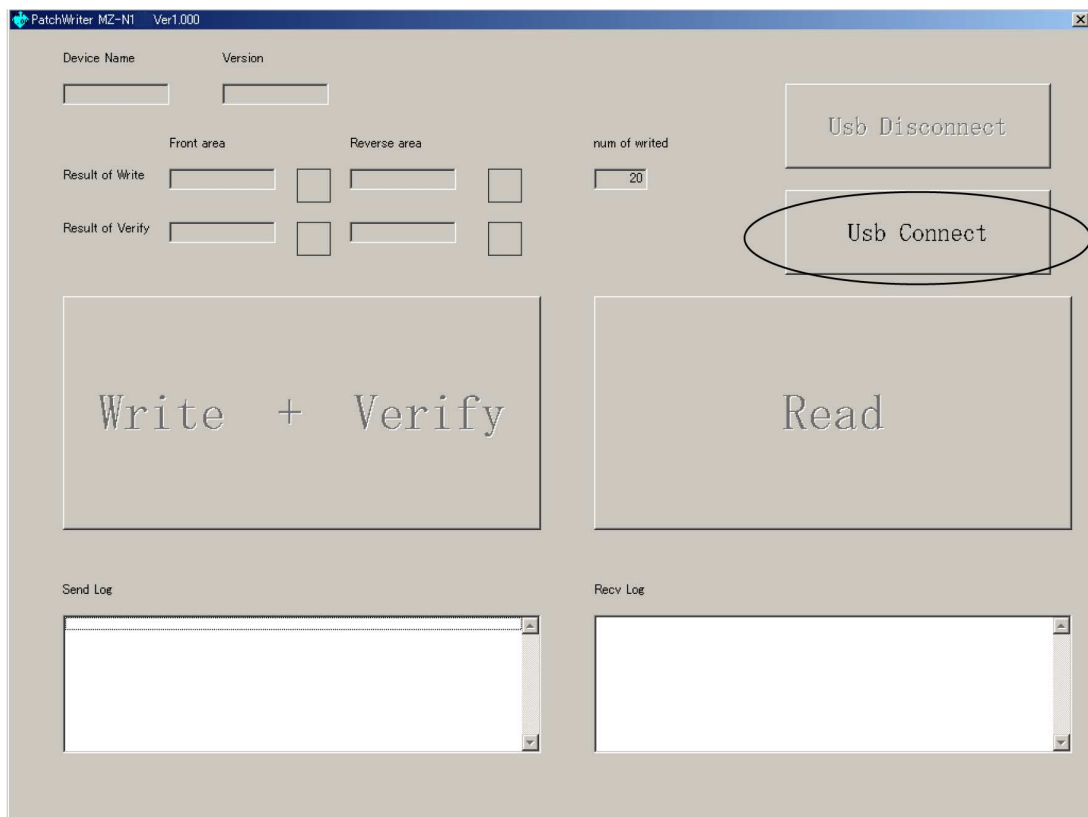
Contact our service technical support division to get the application.

• Pre-check

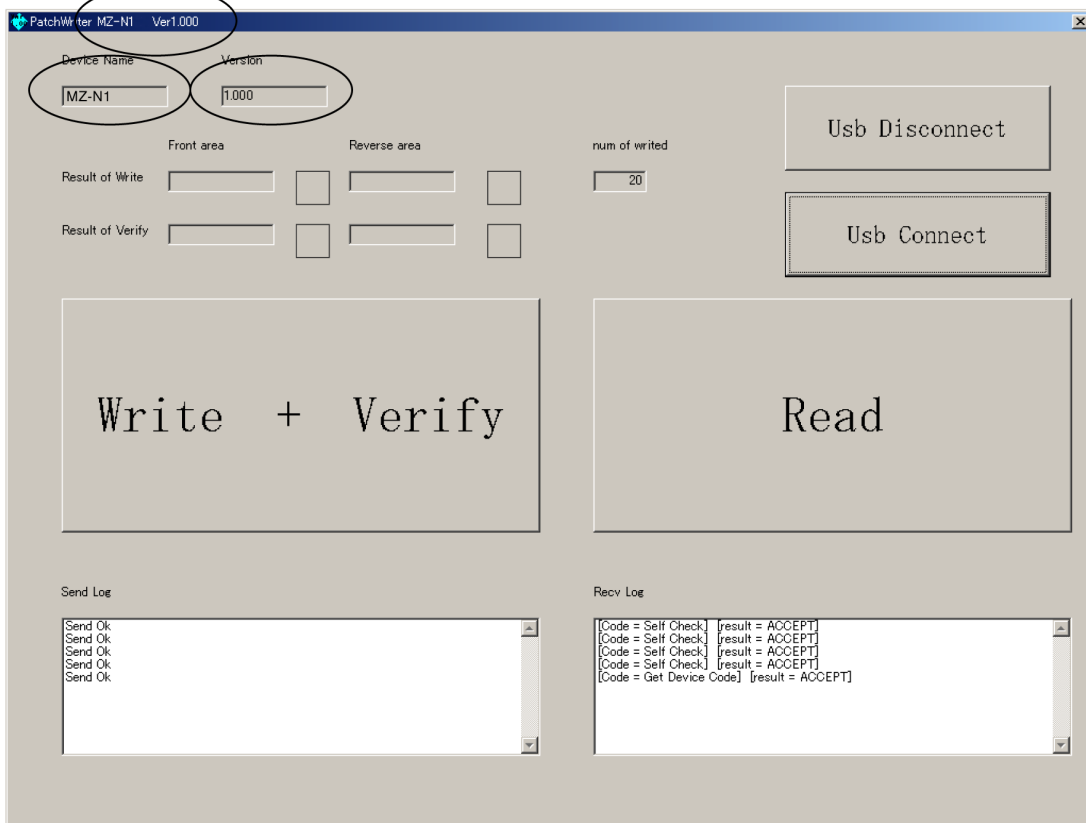
1. Check the microcomputer version in this set. (For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 13).)
2. Check that the Net MD Driver has been installed in the personal computer.
3. Make sure that the set is in the Normal mode.
Note: Do not rewrite the patch data in the Test mode.

• Rewriting the patch data

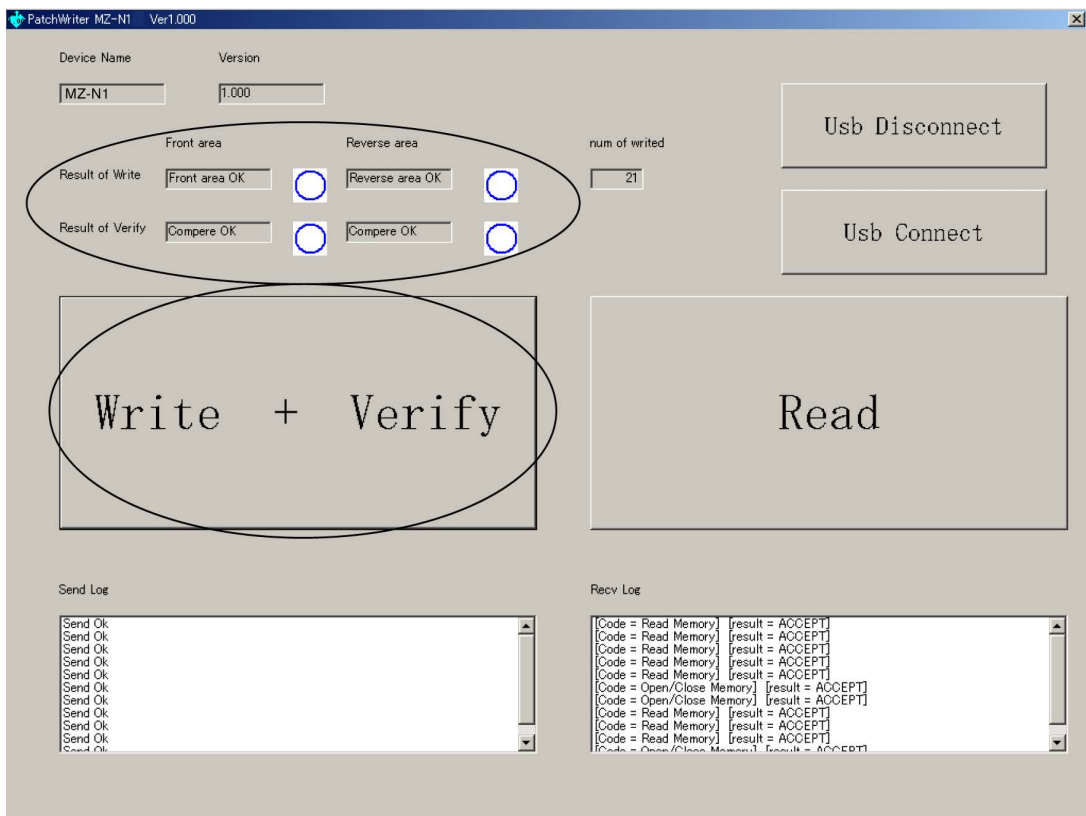
1. Connect the USB cradle to the personal computer with the USB cable, and place the set on the USB cradle.
2. Start the application “PatchWriter”.
3. Make sure that the following window opens.
4. Click the [Usb Connect] button.



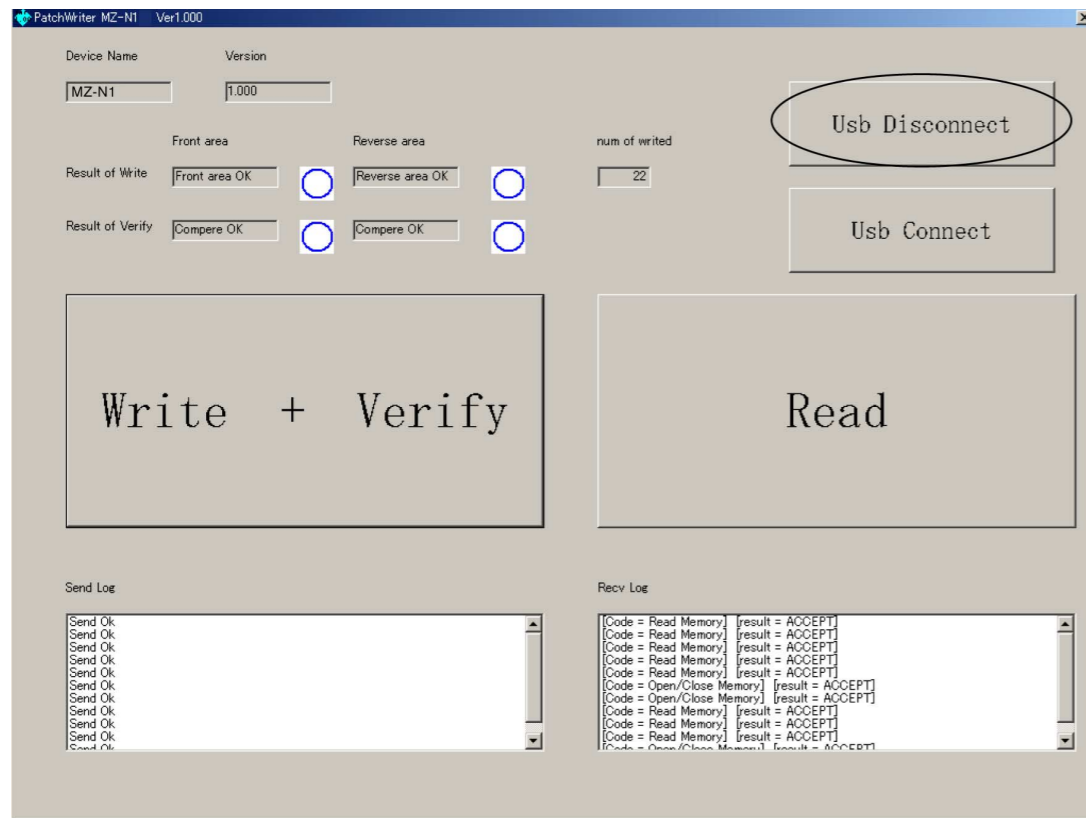
5. Confirm that the model and version indicated on the title bar coincide with the codes displayed in the Device Name block and the Version block in the window.



6. Click the [Write + Verify] button.
 The patch data writing and the verify processing will be executed automatically in the following order:
 1) Writing to patch area (front area)
 2) Writing to patch area (reverse area)
 3) Verifying patch area (front area)
 4) Verifying patch area (reverse area)
7. The operation will terminate with the ○ mark given to all areas.
 If the × mark is given to any area, the nonvolatile memory will be faulty.

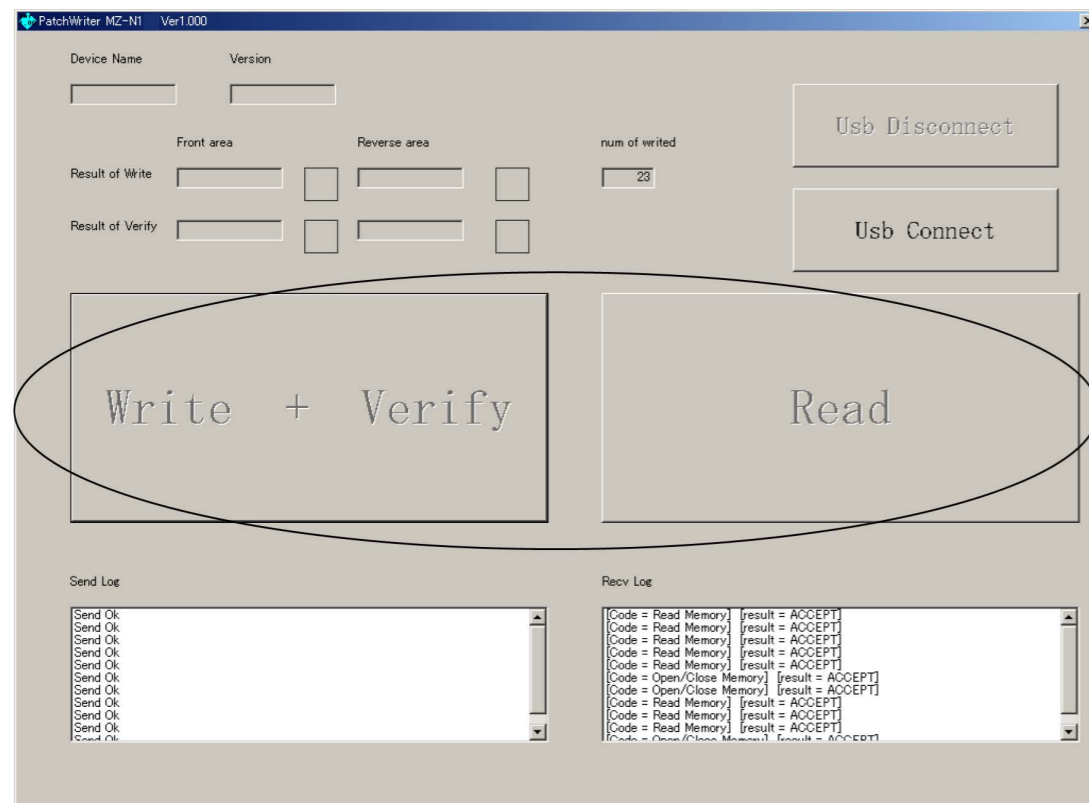


8. Click the [Usb Disconnect] button.



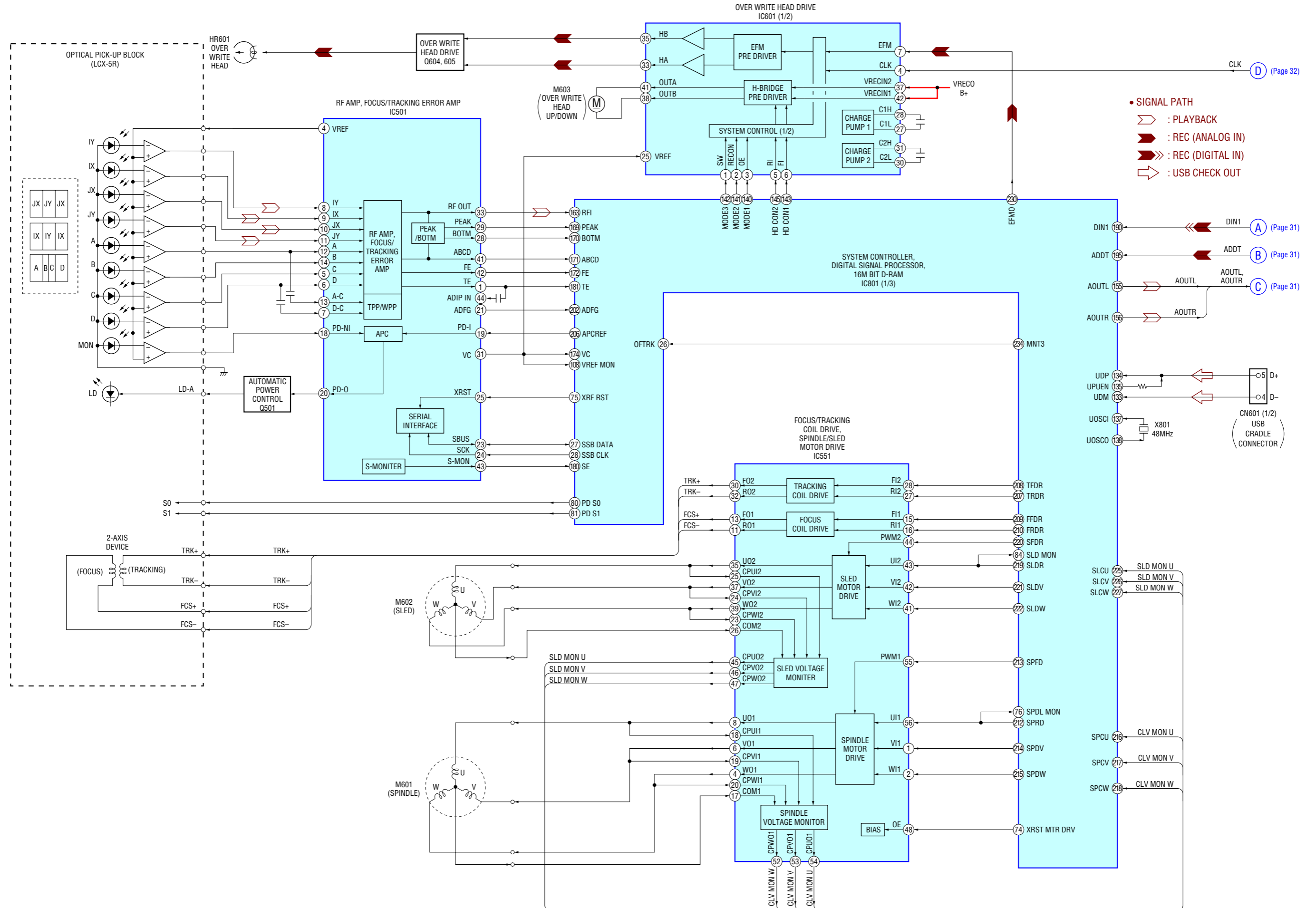
10. Disconnect the USB cable from the personal computer and the USB cradle.
11. Remove the set from the USB cradle.

9. Confirm that the window becomes as shown below where the [Write + Verify] button and [Read] button are inactive.

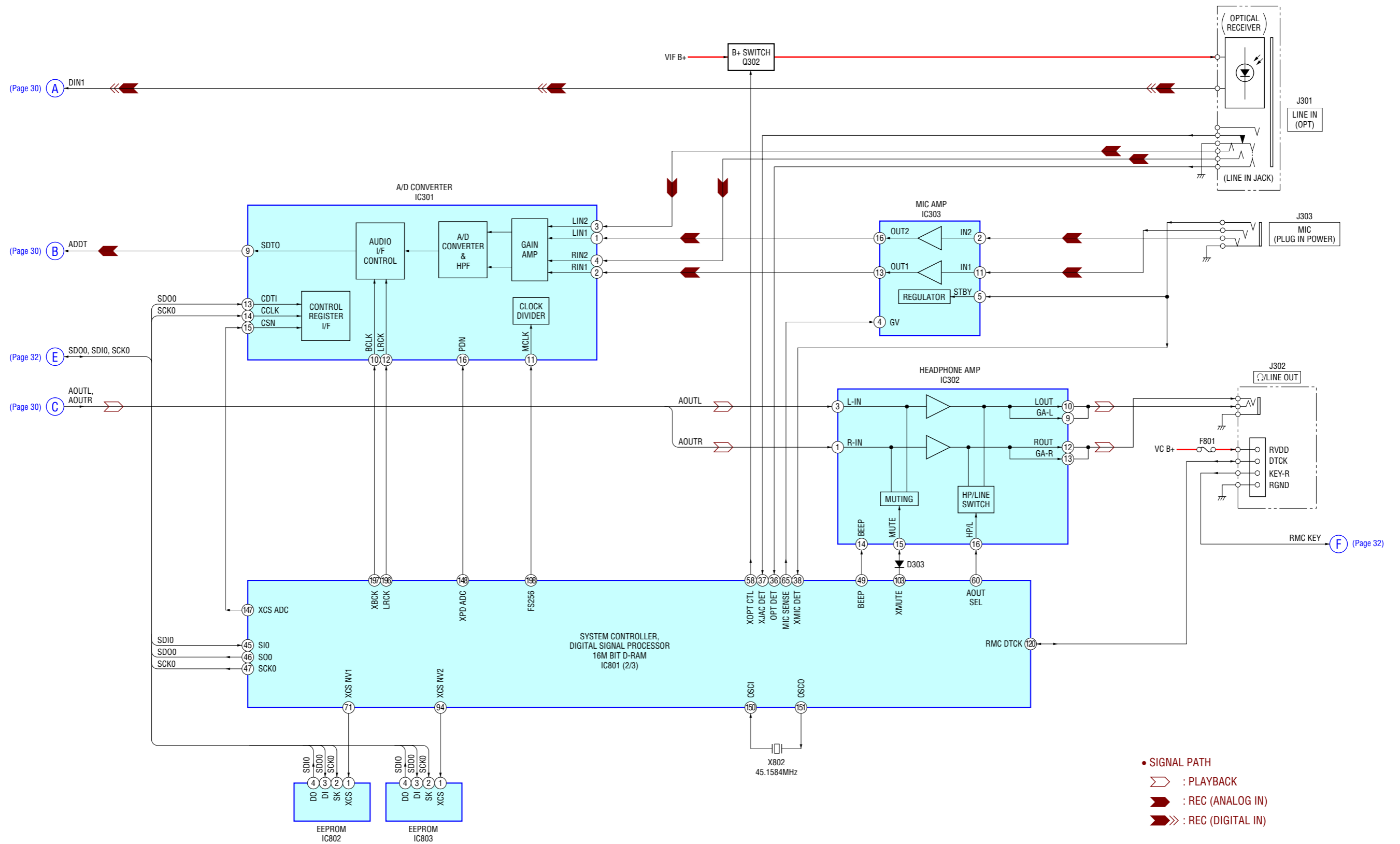


SECTION 6 DIAGRAMS

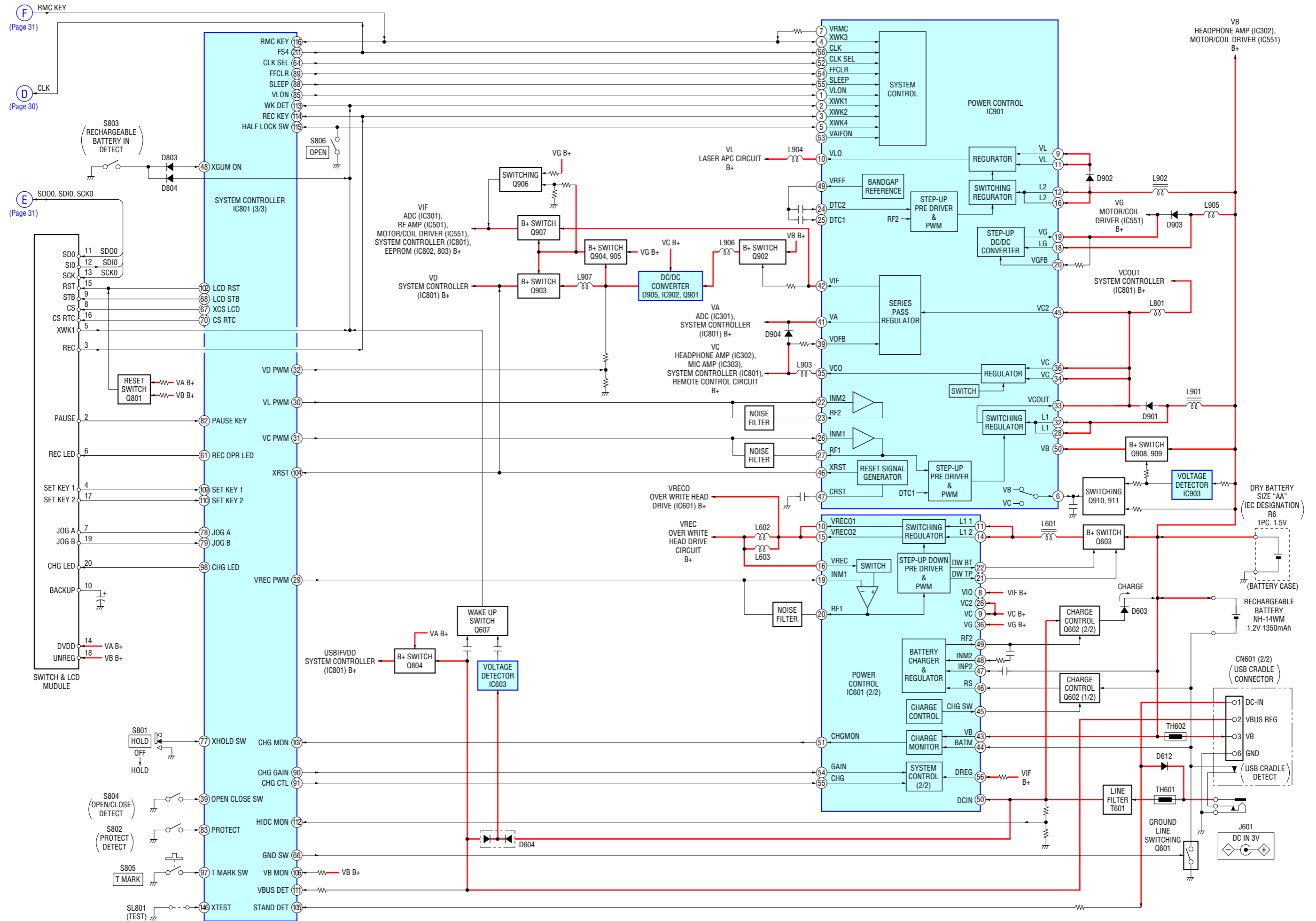
6-1. BLOCK DIAGRAM – SERVO/USB Section –



6-2. BLOCK DIAGRAM – AUDIO Section –



6-3. BLOCK DIAGRAM – DISPLAY/KEY CONTROL/POWER SUPPLY Section –



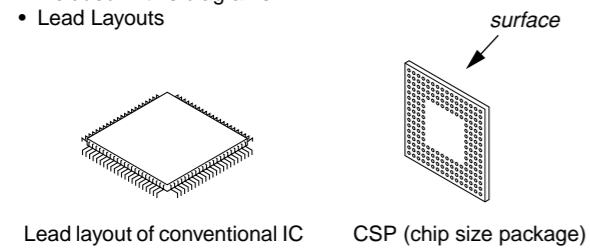
6-4. NOTE FOR PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)

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

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




Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$ 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- % : indicates tolerance.
- : panel designation.

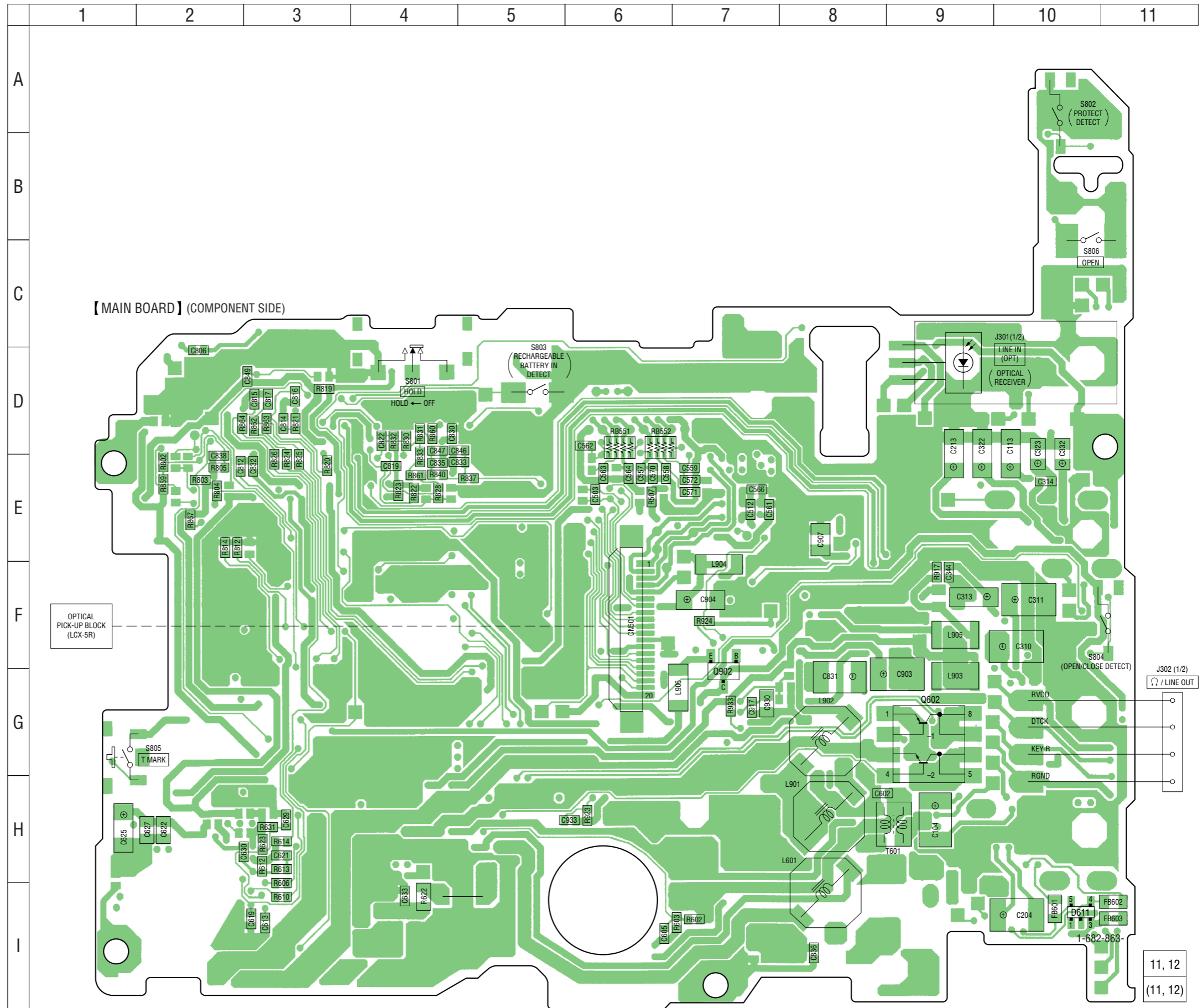
| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note: The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified. | Note: Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|


- : B+ Line.
- Total current is measured with MD installed.
- Power voltage is dc 3 V and fed with regulated dc power supply from DC IN 3 V jack (J601).
- Voltages and waveforms are dc with respect to ground in playback mode.
 no mark : PLAYBACK
 () : REC
 << >> : USB
 * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 M Ω). 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
 \blacktriangleright : REC (ANALOG IN)
 $\blacktriangleright\blacktriangleright$: REC (DIGITAL IN)
 \square : USB CHECK OUT
- The voltage and waveform of CSP (chip size package) cannot be measured, because its lead layout is different form that of conventional IC.

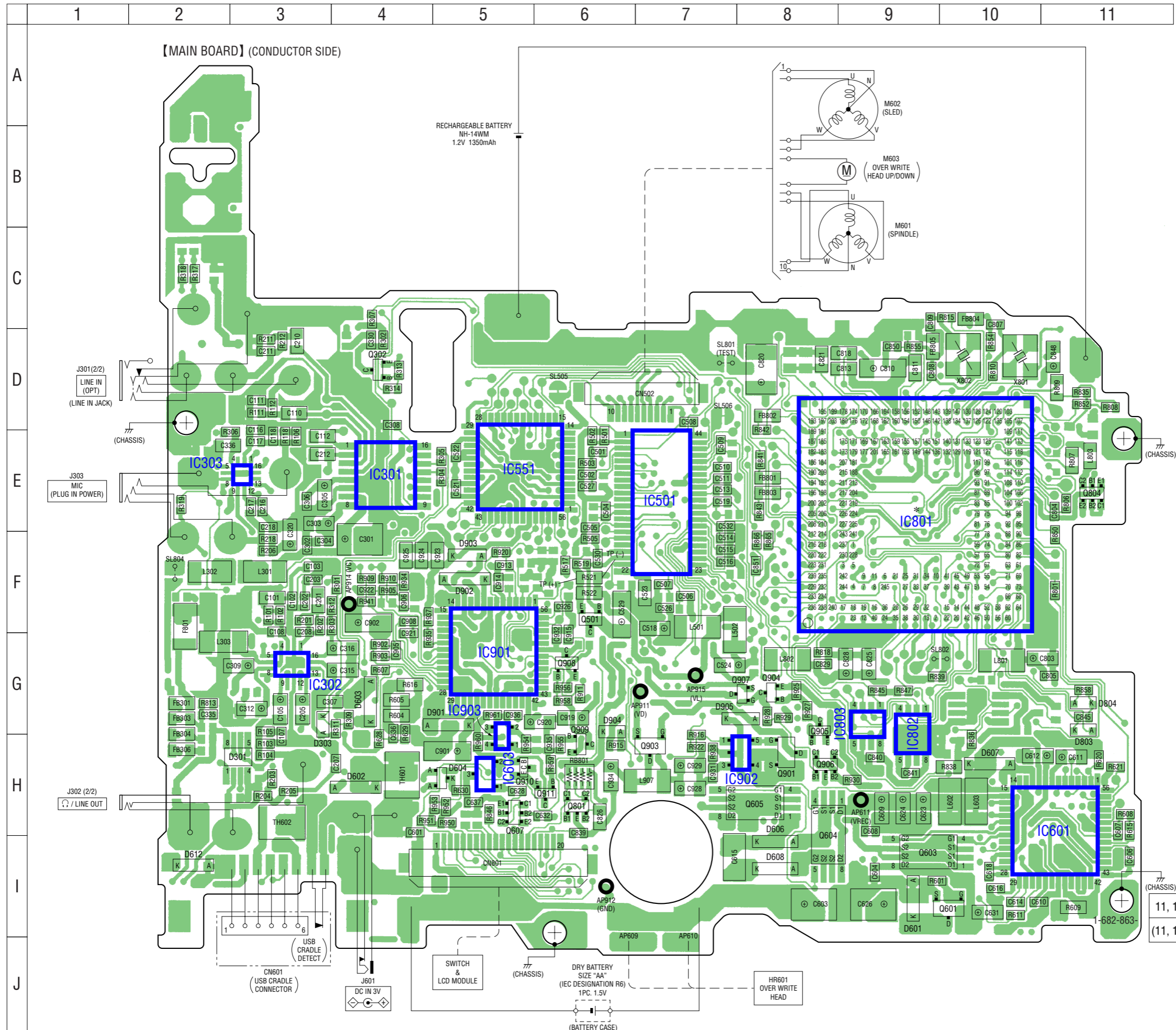
6-5. PRINTED WIRING BOARD – MAIN Board (Component Side) –  :Uses unleaded solder.

• Semiconductor Location

| Ref. No. | Location |
|----------|----------|
| D611 | I-10 |
| Q602 | G-9 |
| Q902 | G-7 |



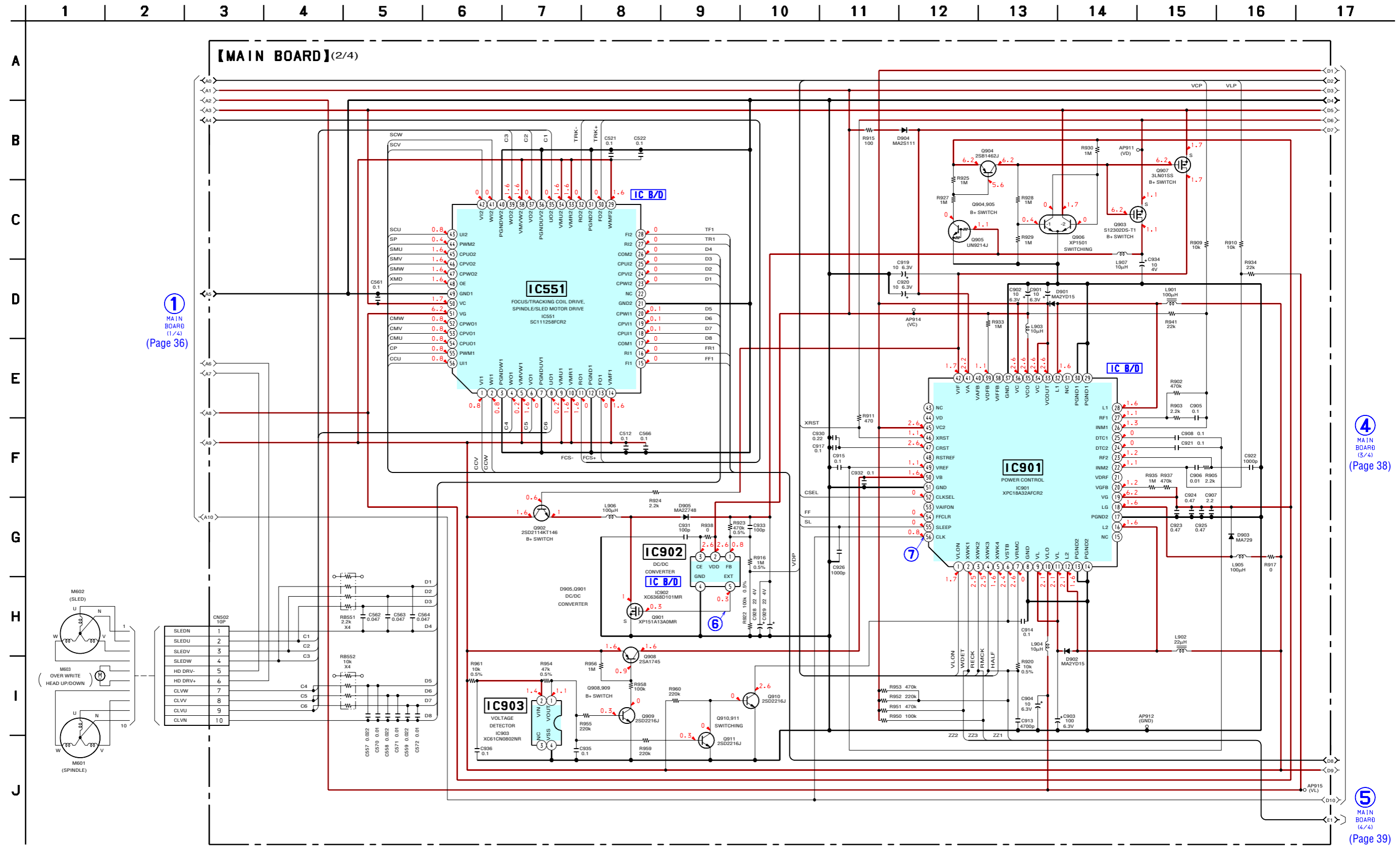
6-6. PRINTED WIRING BOARD – MAIN Board (Conductor Side) –  :Uses unleaded solder.



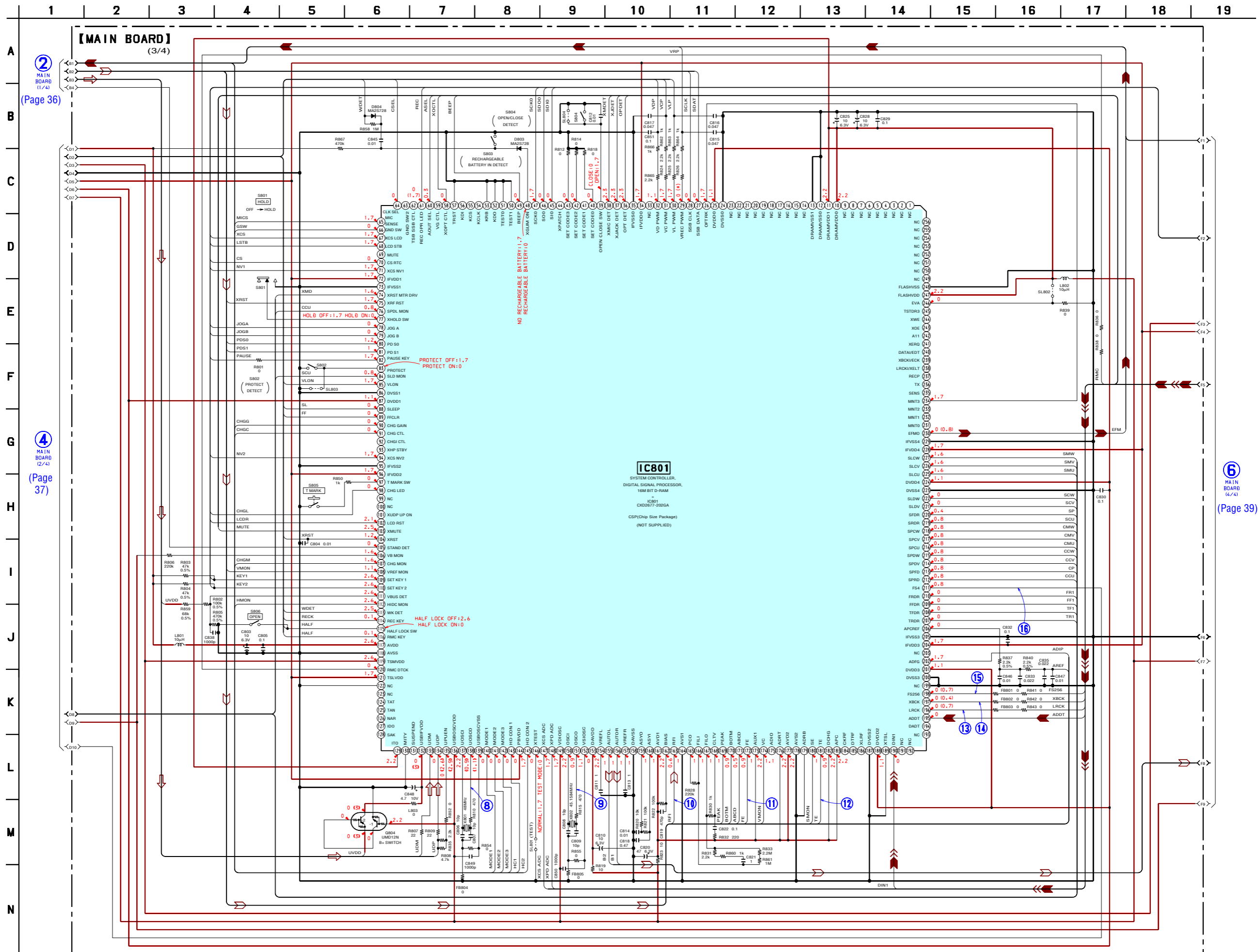
• Semiconductor Location

| Ref. No. | Location |
|----------|----------|
| D301 | H-3 |
| D303 | G-3 |
| D601 | I-9 |
| D602 | H-4 |
| D603 | G-4 |
| D604 | H-5 |
| D606 | I-8 |
| D607 | H-10 |
| D608 | I-8 |
| D612 | I-2 |
| D803 | G-11 |
| D804 | G-11 |
| D901 | G-5 |
| D902 | F-5 |
| D903 | F-5 |
| D904 | G-6 |
| D905 | G-8 |
| IC301 | E-4 |
| IC302 | G-3 |
| IC303 | E-3 |
| IC501 | E-7 |
| IC551 | E-5 |
| IC601 | H-11 |
| IC603 | H-5 |
| IC801 | E-9 |
| IC802 | G-9 |
| IC803 | G-9 |
| IC901 | G-5 |
| IC902 | H-8 |
| IC903 | H-5 |
| Q302 | D-4 |
| Q501 | F-6 |
| Q601 | I-10 |
| Q603 | I-9 |
| Q604 | H-8 |
| Q605 | H-8 |
| Q607 | H-5 |
| Q801 | H-6 |
| Q804 | E-11 |
| Q901 | H-8 |
| Q903 | H-7 |
| Q904 | G-8 |
| Q905 | G-8 |
| Q906 | H-8 |
| Q907 | G-8 |
| Q908 | G-6 |
| Q909 | H-6 |
| Q910 | H-5 |
| Q911 | H-6 |

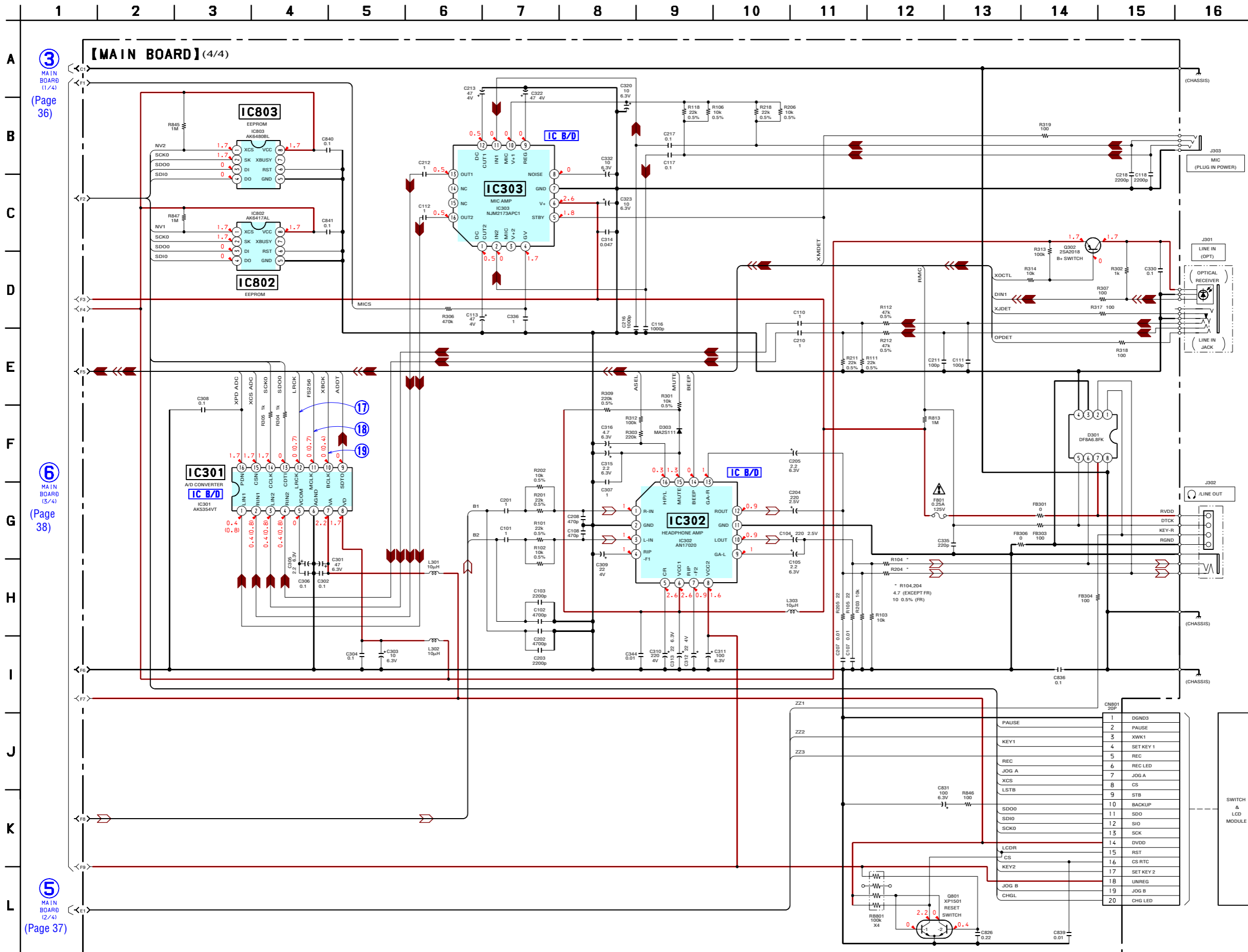
6-8. SCHEMATIC DIAGRAM – MAIN Board (2/4) – • See page 40 for Waveforms. • See page 41 for IC Block Diagrams.



6-9. SCHEMATIC DIAGRAM – MAIN Board (3/4) – • See page 40 for Waveforms.



6-10. SCHEMATIC DIAGRAM – MAIN Board (4/4) – • See page 40 for Waveforms. • See page 41 for IC Block Diagrams.

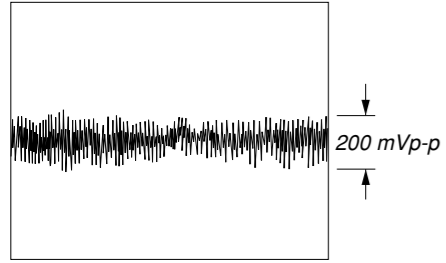


The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

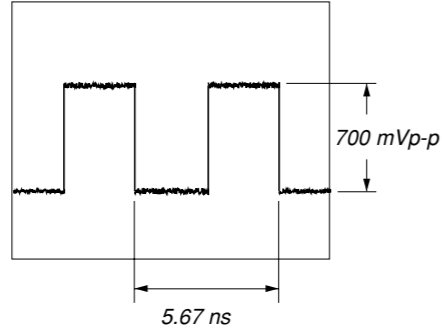
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

• Waveforms

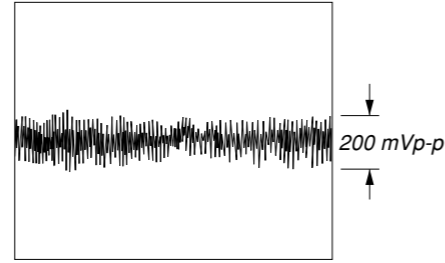
1 IC501 ① (TE)



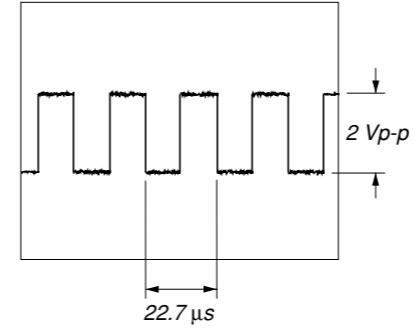
7 IC901 ⑤ (CLK)



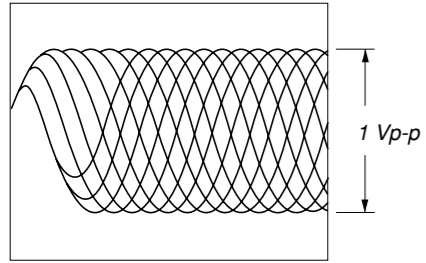
12 IC801 ⑩ (TE)



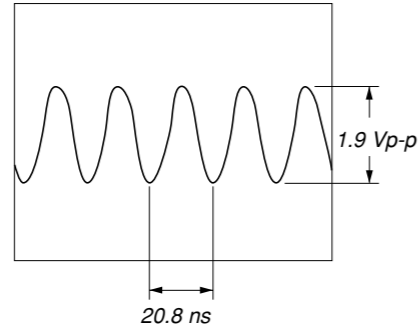
17 IC301 ⑫ (LRCK) (REC mode)



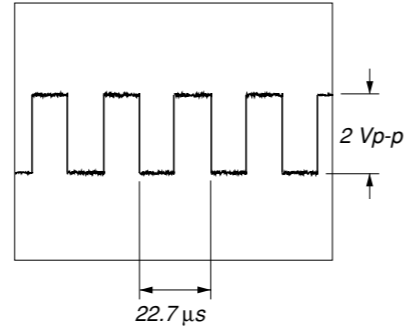
3 IC501 ③ (RF OUT)



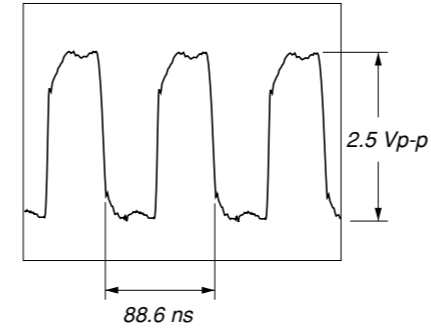
8 IC801 ⑩ (UOSCO) (USB mode)



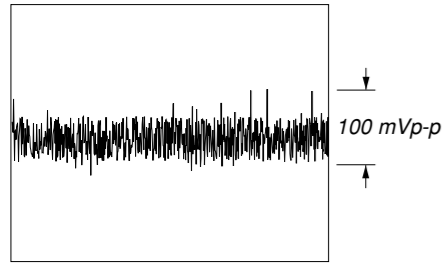
13 IC801 ⑩ (LRCK) (REC mode)



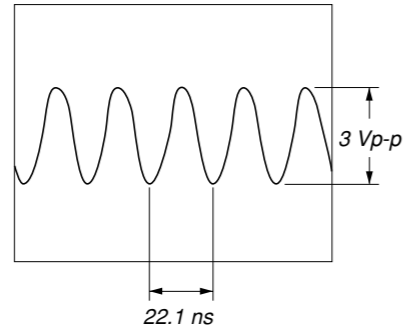
18 IC301 ⑪ (MCLK) (REC mode)



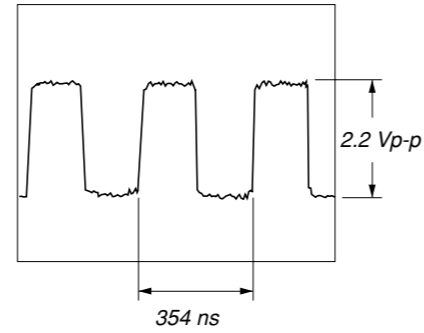
4 IC501 ④ (FE)



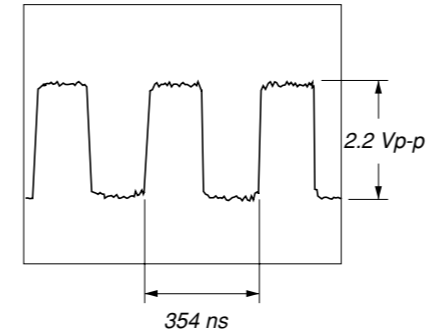
9 IC801 ⑩ (OSCO)



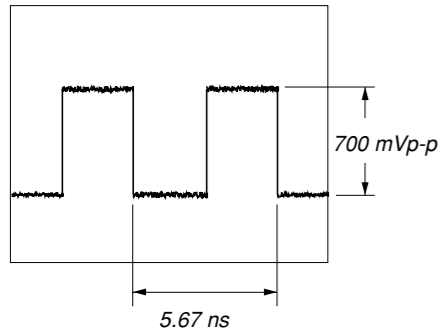
14 IC801 ⑩ (XBCK) (REC mode)



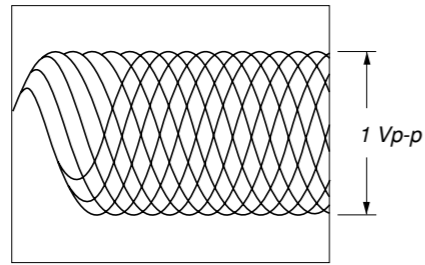
19 IC301 ⑩ (BCLK) (REC mode)



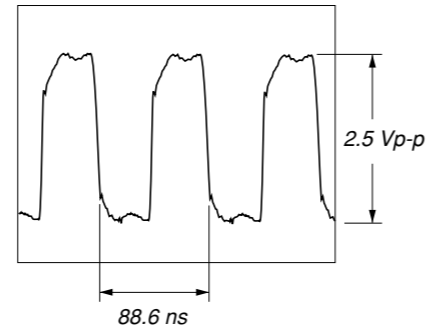
5 IC601 ④ (CLK)



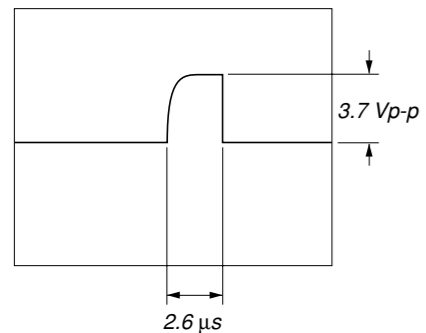
10 IC801 ⑩ (RFI)



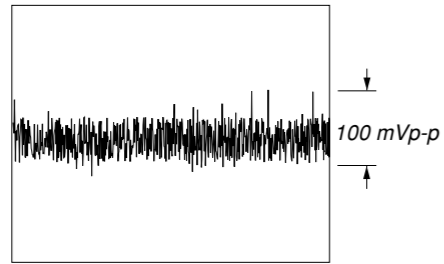
15 IC801 ⑩ (FS256) (REC mode)



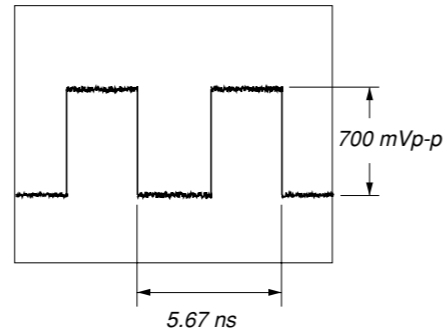
6 IC902 ⑤ (EXT)



11 IC801 ⑩ (FE)

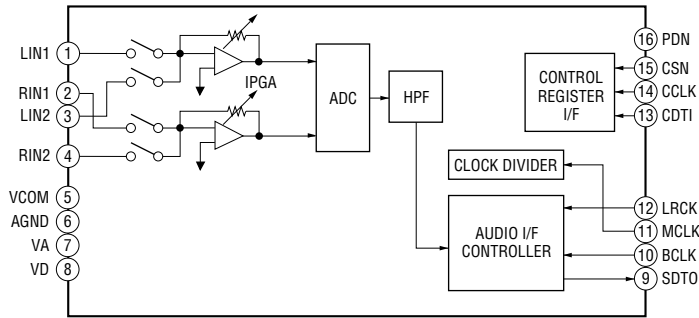


16 IC801 ⑩ (FS4)

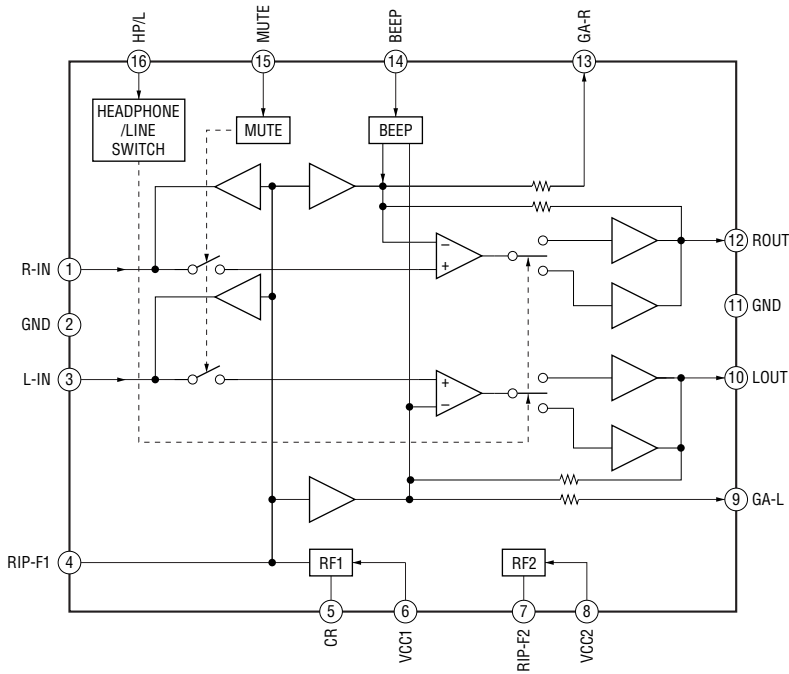


• IC Block Diagrams

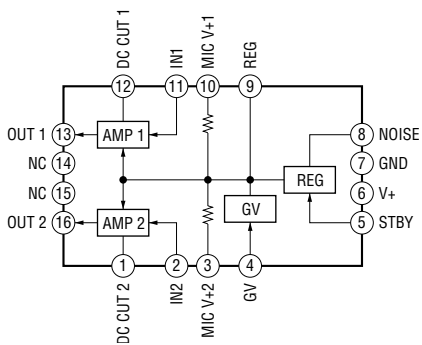
IC301 AK5354VT-E2



IC302 AN17020A-VB

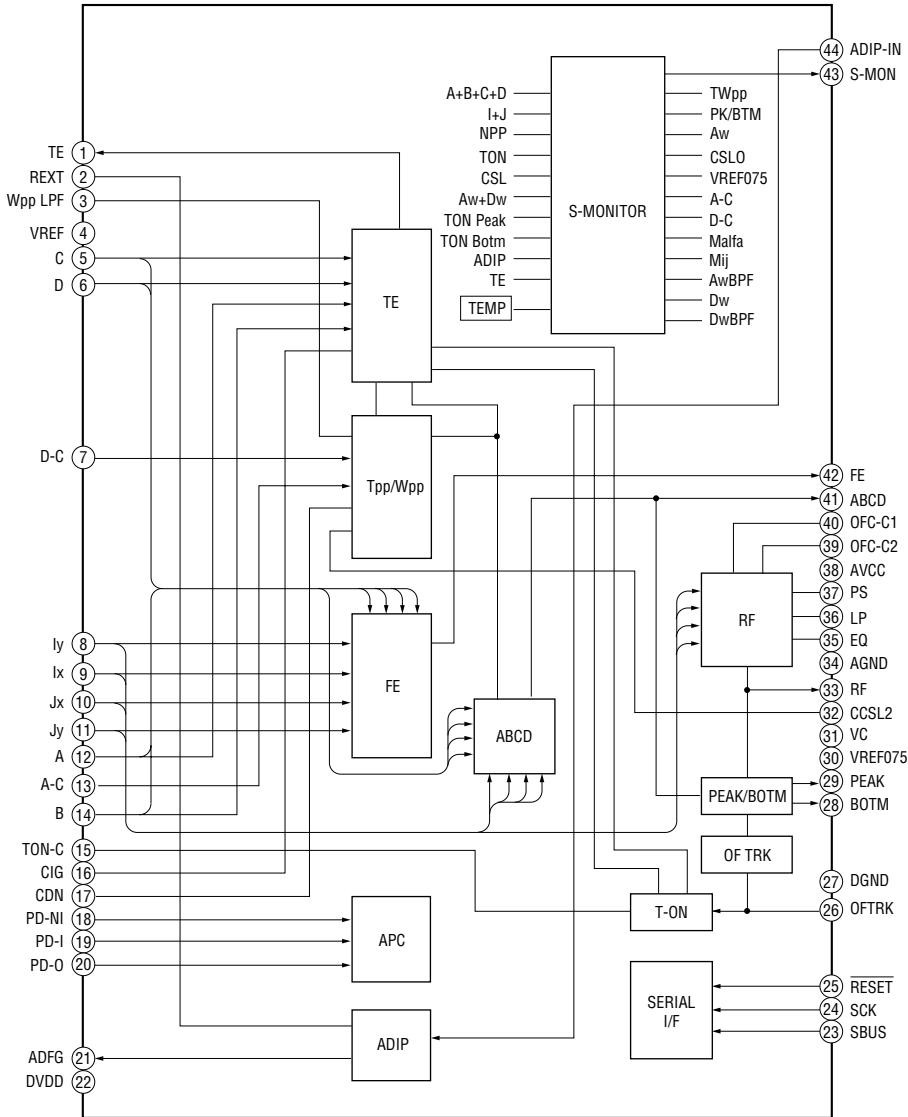


IC303 NJM2173APC1 (TE2)

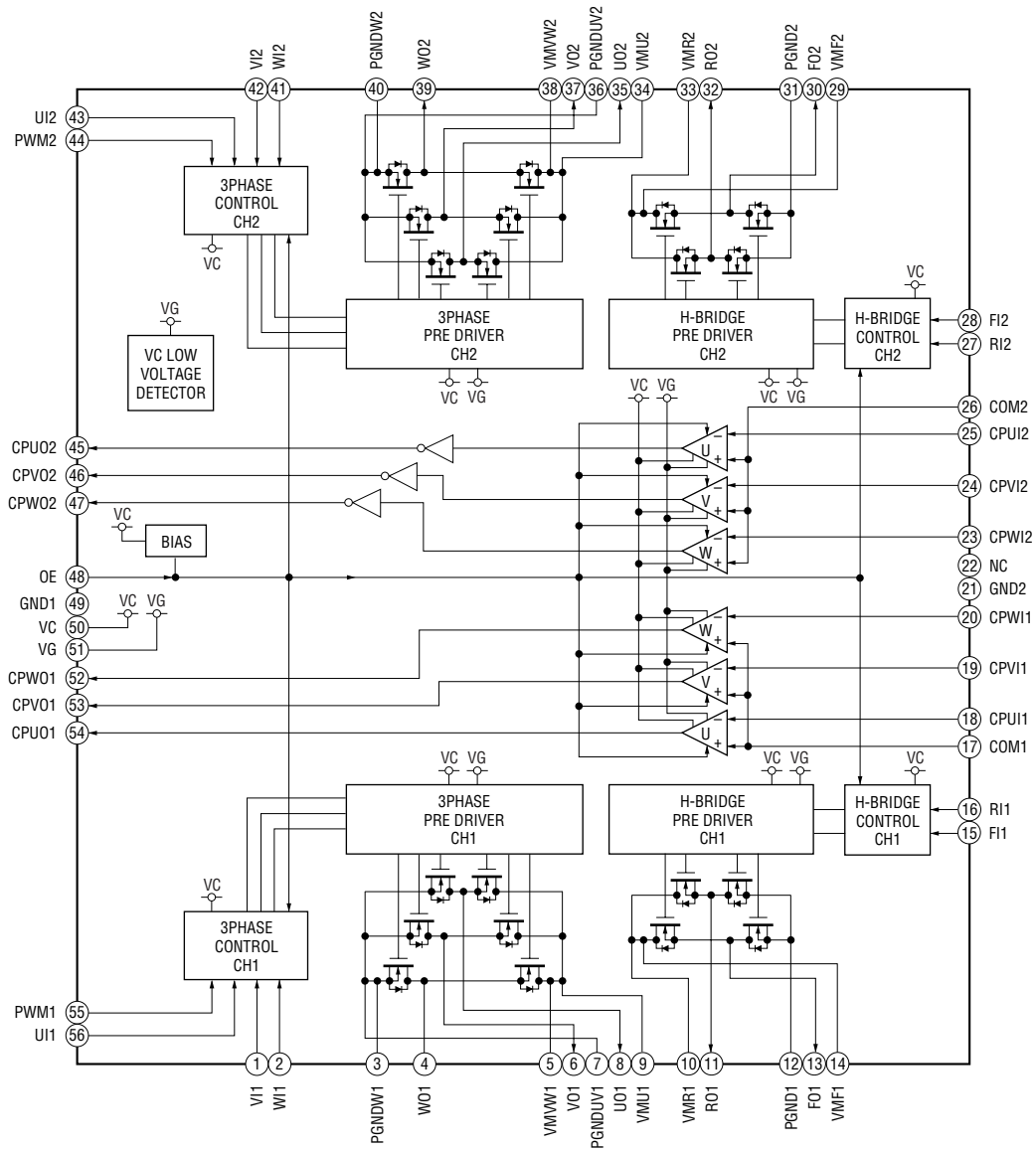


MZ-N1

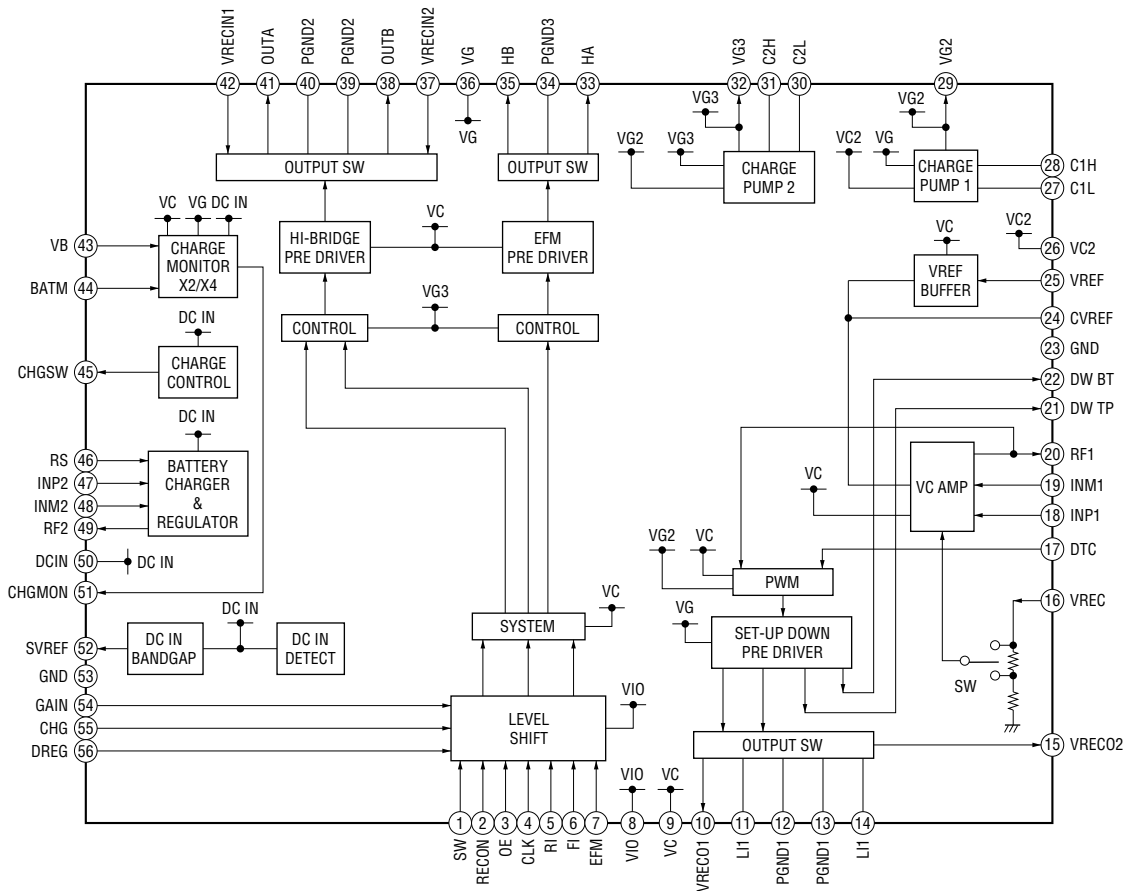
IC501 SN761057A



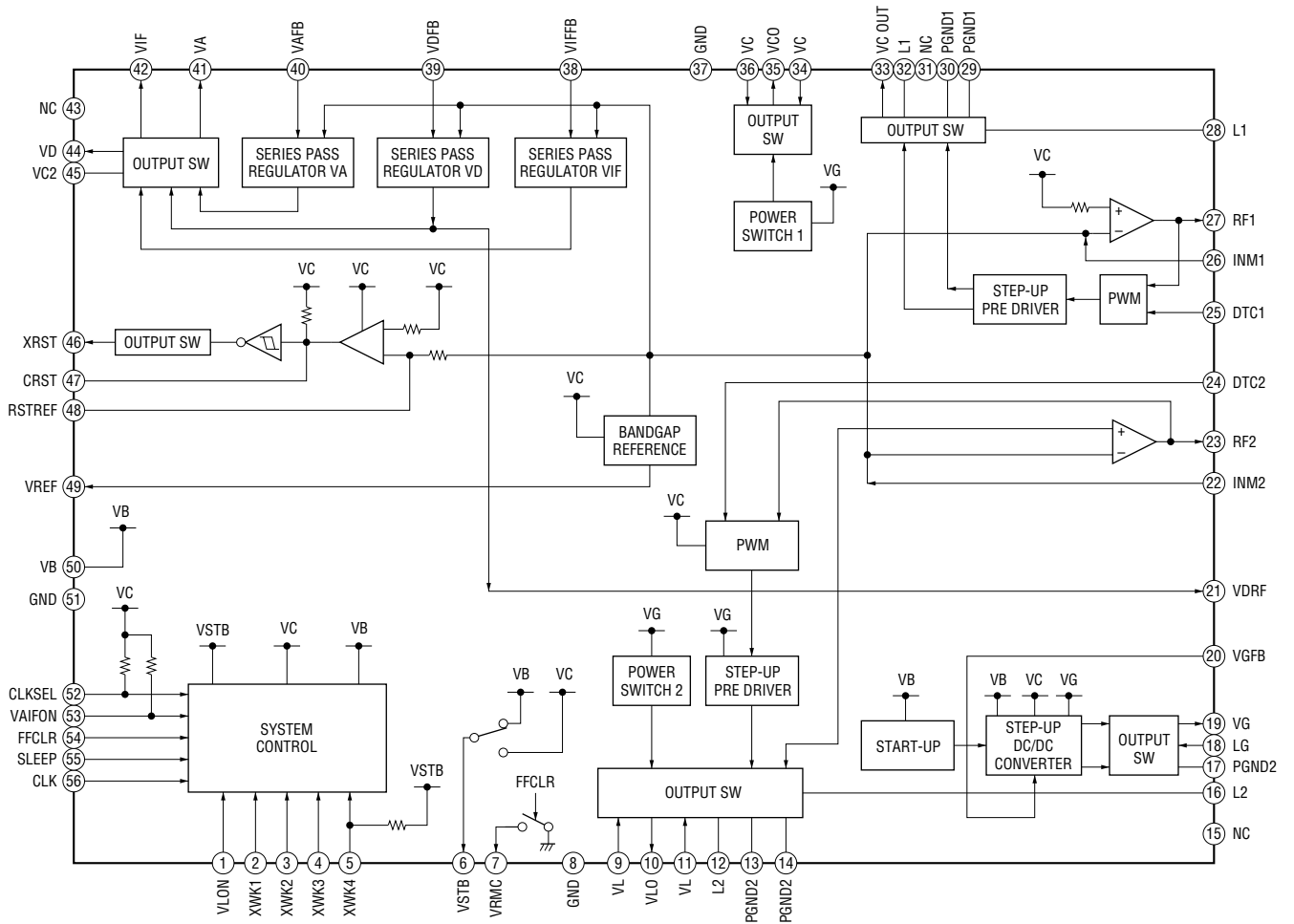
IC551 SC111258FCR2



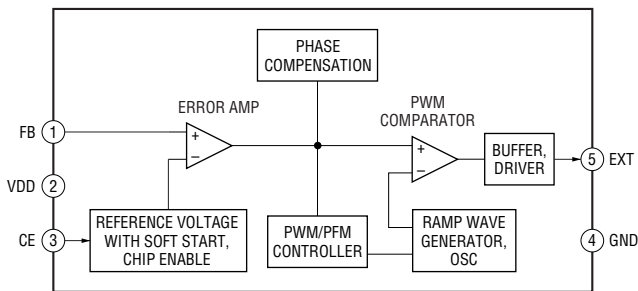
IC601 XPC18A22AFCR2



IC901 XPC18A32AFCR2



IC902 XC6368D101MR



6-11. IC PIN FUNCTION DESCRIPTION

• IC501 SN761057A (RF AMP, FOCUS/TRACKING ERROR AMP)

| Pin No. | Pin Name | I/O | Description |
|----------|--------------|-----|-----------------------------------------------------------------------------------------------|
| 1 | TE | O | Tracking error signal output to the system controller |
| 2 | REXT | — | Connect terminal to the external resistor for the ADIP amplifier control |
| 3 | WPP-LPF | — | Connect terminal to the external capacitor for the TPP/WPP low-pass filter |
| 4 | VREF | O | Reference voltage output terminal |
| 5 | C | I | Signal (C) input from the optical pickup detector |
| 6 | D | I | Signal (D) input from the optical pickup detector |
| 7 | D-C | I | Signal (D) input from the optical pickup detector (AC input) |
| 8 | IY | I | I-V converted RF signal (IY) input from the optical pickup detector |
| 9 | IX | I | I-V converted RF signal (IX) input from the optical pickup detector |
| 10 | JX | I | I-V converted RF signal (JX) input from the optical pickup detector |
| 11 | JY | I | I-V converted RF signal (JY) input from the optical pickup detector |
| 12 | A | I | Signal (A) input from the optical pickup detector |
| 13 | A-C | I | Signal (A) input from the optical pickup detector (AC input) |
| 14 | B | I | Signal (B) input from the optical pickup detector |
| 15 | TON-C | — | Connect terminal to the external capacitor for TON hold |
| 16 | CIG | — | Connect terminal to the external capacitor for the low-pass filter of NPP divider denominator |
| 17 | CDN | — | Connect terminal to the external capacitor for the low-pass filter of CSL divider denominator |
| 18 | PD-NI | I | Light amount monitor input terminal (non-invert input) |
| 19 | PD-I | I | Reference PWM signal input for the laser automatic power control from the system controller |
| 20 | PD-O | O | Light amount monitor output terminal |
| 21 | ADFG | O | ADIP duplex FM signal (22.05kHz \pm 1kHz) output to the system controller |
| 22 | DVDD | — | Power supply terminal (+1.7V) (digital system) |
| 23 | SBUS | I/O | SSB serial data input/output with the system controller |
| 24 | SCK | I | SSB serial clock signal input from the system controller |
| 25 | XRST | I | Reset signal input from the system controller "L": reset |
| 26 | OFTRK | I | Off track signal input terminal Not used |
| 27 | DGND | — | Ground terminal (digital system) |
| 28 | BOTM | O | Bottom hold signal output of the light amount signal (RF/ABCD) to the system controller |
| 29 | PEAK | O | Peak hold signal output of the light amount signal (RF/ABCD) to the system controller |
| 30 | VREF075 | — | Connect terminal to the external capacitor for the internal reference voltage |
| 31 | VC | O | Middle point voltage (+1.1V) generation output terminal |
| 32 | CCSL2 | — | Connect terminal to the external capacitor for the TPP/WPP low-pass filter |
| 33 | RF OUT | O | Playback EFM RF signal output to the system controller |
| 34 | AGND | — | Ground terminal (analog system) |
| 35 to 37 | EQ, LP, PS | — | Connect terminal to the external capacitor for the RF equalizer |
| 38 | AVCC | — | Power supply terminal (+2.1V) (analog system) |
| 39, 40 | OFC-2, OFC-1 | — | Connect terminal to the external capacitor for the RF AC coupling |
| 41 | ABCD | O | Light amount signal (ABCD) output to the system controller |
| 42 | FE | O | Focus error signal output to the system controller |
| 43 | S-MON | O | Servo signal monitor output to the system controller |
| 44 | ADIP-IN | I | ADIP duplex FM signal (22.05kHz \pm 1kHz) input terminal Not used |

• IC801 CXD2677-202GA (SYSTEM CONTROLLER, DIGITAL SIGNAL PROCESSOR, 16M BIT D-RAM)

| Pin No. | Pin Name | I/O | Description |
|----------|---------------|-----|---------------------------------------------------------------------------------------------------------------|
| 1 | NC | O | Load address strobe signal output terminal for D-RAM Not used |
| 2 | NC | I | Test input terminal for D-RAM Not used |
| 3 to 7 | NC | O | Address signal output terminal for D-RAM Not used |
| 8, 9 | NC | I/O | Two-way data bus terminal for D-RAM Not used |
| 10, 11 | DRAMVDD0, 1 | — | Power supply terminal (for D-RAM) (+2.2V) |
| 12, 13 | DRAMVSS0, 1 | — | Ground terminal (for D-RAM) |
| 14, 15 | NC | I/O | Two-way data bus terminal for D-RAM Not used |
| 16 to 19 | NC | O | Address signal output terminal for D-RAM Not used |
| 20 | NC | O | Column address strobe signal output terminal for D-RAM Not used |
| 21 | NC | I | Test input terminal for D-RAM Not used |
| 22, 23 | NC | O | Address signal output terminal for D-RAM Not used |
| 24 | DVSS0 | — | Ground terminal (for the DSP block) |
| 25 | DVDD0 | — | Power supply terminal (for the DSP block) (+1.1V) |
| 26 | OFTRK | I | Off track signal input from the DSP monitor (3) |
| 27 | SSB DATA | I/O | SSB data input/output with the RF amplifier |
| 28 | SSB CLK | O | SSB clock output to the RF amplifier |
| 29 | VREC PWM | O | PWM signal output for the Over write head drive power supply voltage control to the power control |
| 30 | VL PWM | O | PWM signal output for the laser power supply voltage control to the power control |
| 31 | VC PWM | O | PWM signal output for the system power supply voltage control to the power control |
| 32 | VD PWM | O | VD power supply voltage control signal output to the DC/DC converter |
| 33 | NC | — | Not used |
| 34 | IFVDD0 | — | Power supply terminal (for the microcomputer I/F block) (+1.7V) |
| 35 | IFVSS0 | — | Ground terminal (for the microcomputer I/F block) |
| 36 | OPT DET | I | DIN plug detection signal input terminal “H”: DIN plug detect |
| 37 | XJACK DET | I | LINE IN plug detection signal input terminal “L”: LINE or OPT plug detect |
| 38 | XMIC DET | I | Microphone plug detection signal input terminal “L”: microphone plug detect |
| 39 | OPEN CLOSE SW | I | Open/close detection switch of the upper panel input terminal “L”: when upper panel close |
| 40 | SET CODE0 | I | Input terminal for the set (fixed at “L” in this set) |
| 41 | SET CODE1 | I | Input terminal for the set (open in this set) |
| 42, 43 | SET CODE1, 2 | I | Input terminal for the set (fixed at “L” in this set) |
| 44 | XPATCH | I | Patch function detection terminal “L”: patch function Not used |
| 45 | SI0 | I | Serial data input from the nonvolatile memory and liquid crystal display element module |
| 46 | SO0 | O | Serial data output to the nonvolatile memory, A/D converter and liquid crystal display element module |
| 47 | SCK0 | O | Serial clock signal output to the nonvolatile memory, A/D converter and liquid crystal display element module |
| 48 | XGUM ON | I | Rechargeable battery detection switch input terminal “L”: rechargeable battery in detect |
| 49 | BEEP | O | Beep sound control signal output to the headphone amplifier |
| 50, 51 | TEST1, TEST0 | I | Input terminal for the main test (normally fixed at “L”) |
| 52 | KDO | O | Data output terminal Not used |
| 53 | KRB | I | Ready/busy signal input terminal Not used |
| 54 | KCLK | O | Clock signal output terminal Not used |
| 55 | KCS | O | Chip select signal output terminal Not used |

| Pin No. | Pin Name | I/O | Description |
|---------|-----------------|-----|--------------------------------------------------------------------------------------------------------------------------|
| 56 | KDI | I | Data input terminal Not used |
| 57 | TRST | I | Setting terminal for the test mode (normally fixed at "L") |
| 58 | XOPT CTL | O | Power supply ON/OFF control signal output for the DIN PD drive |
| 59 | VG CTL | O | VG power supply voltage control signal output terminal Not used |
| 60 | AOUT SEL | O | HP/LINE changeover signal output to the headphone amplifier |
| 61 | REC OPR LED | O | LED ON/OFF control signal output for the REC display |
| 62 | TSB SSB CTL | O | TSB/SSB changeover control signal output terminal Not used |
| 63 | GND SW2 | O | Battery for Cradle ON/OFF switch control signal output terminal Not used |
| 64 | CLK SEL | O | System clock select signal output to the power control |
| 65 | MIC SENSE | O | Mic sensitivity control signal output to the mic amplifier "L": Low sensitivity "H": High sensitivity (normally: "H") |
| 66 | GND SW | O | GND changeover control signal output terminal |
| 67 | XCS LCD | O | Chip select signal output to the liquid crystal display element module |
| 68 | LCD STB | O | Strobe signal output to the liquid crystal display element module |
| 69 | MUTE | O | Analog muting control signal output "H": muting ON Not used |
| 70 | CS RTC | O | Chip select signal output to the clock IC |
| 71 | XCS NV1 | O | Chip select signal (1) output to the nonvolatile memory |
| 72 | IFVDD1 | — | Power supply terminal (for the microcomputer I/F block) (+1.7V) |
| 73 | IFVSS1 | — | Ground terminal (for the microcomputer I/F block) |
| 74 | XRST MTR DRV | O | Reset control signal output to the motor driver "L": reset |
| 75 | XRF RST | O | Reset control signal output to the RF amplifier "L": reset |
| 76 | SPDL MON | I | Spindle servo monitor signal input |
| 77 | XHOLD SW | I | HOLD switch input terminal "L": hold ON |
| 78, 79 | JOG A, B | I | Jog dial pulse input terminal from the switch & liquid crystal display element module |
| 80, 81 | PD S0, PD S1 | O | PD IC mode changeover signal output to the optical pick up |
| 82 | PAUSE KEY | I | Pause key input terminal from the switch & liquid crystal display element module |
| 83 | PROTECT | I | Detection input terminal of the record check claw from the protect detection switch "H": protect |
| 84 | SLD MON | I | Sled servo monitor signal input terminal |
| 85 | VLON | O | Power supply control signal output for the laser diode drive to the power control |
| 86 | DVSS1 | — | Ground terminal (for the DSP block) |
| 87 | DVDD1 | — | Power supply terminal (for the DSP block) (+1.1V) |
| 88 | SLEEP | O | System sleep control signal output to the power control "H": sleep ON |
| 89 | FFCLR | O | Input latch output for the start switching to the power control |
| 90 | CHG GAIN | O | Charge gain control signal output to the power control |
| 91 | CHG CTL | O | Charge ON/OFF control signal output to the power control "H": charge ON |
| 92 | CHGI CTL | O | Charge current control signal output terminal Not used |
| 93 | XHP STBY | O | Power supply control signal output terminal Not used |
| 94 | XCS NV2 | O | Chip select signal (2) output to the nonvolatile memory |
| 95 | IFVSS2 | — | Ground terminal (for the microcomputer I/F block) |
| 96 | IFVDD2 | — | Power supply terminal (for the microcomputer I/F block) (+1.7V) |
| 97 | T MARK SW | I | T MARK (track mark) switch input terminal "L": track mark detection |
| 98 | CHG LED | O | LED ON/OFF control signal output for CHG (charge display) from the switch & liquid crystal display element module |
| 99 | NC | I | Initial switch detection input terminal Not used |
| 100 | NC | — | Not used |

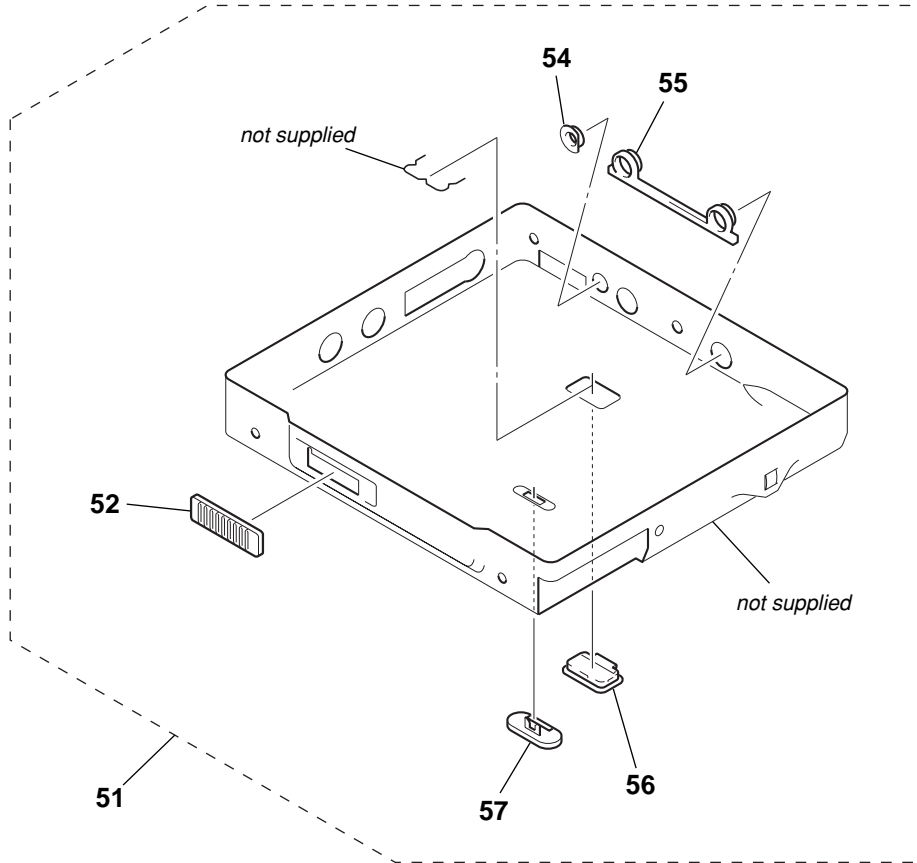
| Pin No. | Pin Name | I/O | Description |
|------------|--------------|-----|---------------------------------------------------------------------------------------------------------------------------------|
| 101 | XUDP UP ON | O | Pull-up resistor changeover control signal output of USB data (+) output terminal Not used |
| 102 | LCD RST | O | Reset control signal output to the liquid crystal display element module "L": reset |
| 103 | XMUTE | O | Analog muting control signal output to the headphone amplifier "L": muting ON |
| 104 | XRST | I | System reset signal input from the power control "L": reset |
| 105 | STAND DET | I | USB cradle detection signal input terminal |
| 106 | VB MON | I | Voltage monitor input terminal (A/D input) of the UNREG power supply |
| 107 | CHG MON | I | Charge voltage monitor input (A/D input) from the power control |
| 108 | VREF MON | I | Clear reference voltage monitor input (A/D input) from the RF amplifier |
| 109, 110 | SET KEY 1, 2 | I | Key input terminal (A/D input) from the switch & liquid crystal display element module |
| 111 | VBUS DET | I | USB power supply voltage detection terminal |
| 112 | HIDC MON | I | HIGH DC voltage monitor input terminal (A/D input) |
| 113 | WK DET | I | Set key and USB start switching detection signal input terminal (A/D input) |
| 114 | REC KEY | I | REC key input terminal (A/D input) |
| 115 | HALF LOCK SW | I | Open button detection switch input terminal (A/D input) Input "L" when the open button is pressed. Input "H" in other cases. |
| 116 | RMC KEY | I | Key input terminal (A/D input) from the remote commander attached headphone |
| 117 | AVDD | — | Power supply terminal (for the microcomputer analog) (+2.6V) |
| 118 | AVSS | — | Ground terminal (for the microcomputer analog) |
| 119 | TSMVDD | — | Power supply terminal (for the TSB master communication) (+2.6V) |
| 120 | RMC DTCK | I/O | Serial data input/output with the remote commander attached headphone |
| 121 | TSLVDD | — | Power supply terminal (for the I/F to TSB slave) (+1.7V) |
| 122, 123 | NC | — | Not used |
| 124 | TAT | — | Not used |
| 125 | TAN | — | Not used |
| 126 | NAR | — | Not used |
| 127 | ID0 | — | Not used |
| 128 | SAK | — | Not used |
| 129 | IT0 | — | Not used |
| 130 | MITY | — | Not used |
| 131 | SUSPEND | O | USB suspend signal output terminal Not used |
| 132 | USBIFVDD | — | Power supply terminal (for USB I/F) (+3V) |
| 133 | UDM | I | USB data (-) input terminal |
| 134 | UDP | I | USB data (+) input terminal |
| 135 | UPUEN | O | USB pull-up resistor connection control output terminal |
| 136 | USBOSCVDD | — | Power supply terminal (for the USB oscillation circuit) (+2.2V) |
| 137 | UOSCI | I | Clock (48MHz) input terminal for the USB |
| 138 | UOSCO | O | Clock (48MHz) output terminal for the USB |
| 139 | USBOSCVSS | — | Ground terminal (for the USB oscillation circuit) |
| 140 to 142 | MODE1 to 3 | O | Power supply control signal output for the over write head to the over write head drive |
| 143 | HD CON 1 | O | Over write head control signal output to the over write head drive |
| 144 | PBVDD | — | Power supply terminal (+1.7V) |
| 145 | HD CON 2 | O | Over write head control signal output to the over write head drive |
| 146 | XTEST | I | Terminal for test mode set (normally: open) "L": test mode |
| 147 | XCS ADA | O | Chip select signal output to the A/D converter |
| 148 | XPD ADA | O | Power supply control signal output for the drive to the A/D converter |

| Pin No. | Pin Name | I/O | Description |
|---------------|----------|-----|----------------------------------------------------------------------------------------------------------------------------|
| 149 | VDIOSC | — | Power supply terminal (for the OSC cell) (+2.2V) |
| 150 | OSCI | I | System clock (45.1584MHz) input terminal |
| 151 | OSCO | O | System clock (45.1584MHz) output terminal |
| 152 | VSIOSC | I | Ground terminal (for the OSC cell) |
| 153 | DAVDD | — | Power supply terminal (for the built-in D/A converter) (+2.2V) |
| 154 | VREFL | I | Reference voltage input terminal (for the built-in D/A converter L-CH) |
| 155 | AOUTL | O | Built-in D/A converter (L-CH) output terminal |
| 156 | AOUTR | O | Built-in D/A converter (R-CH) output terminal |
| 157 | VREFR | I | Reference voltage input terminal (for the built-in D/A converter R-CH) |
| 158 | DAVSS | — | Ground terminal (for the built-in D/A converter) |
| 159 | ASYO | O | Playback EFM duplex signal output terminal |
| 160 | ASYI | I | Playback EFM comparison slice level input terminal |
| 161 | AVD1 | — | Power supply terminal (for the DSP asymmetry system analog) (+2.2V) |
| 162 | BIAS | I | Bias current input terminal for the playback EFM comparison |
| 163 | RFI | I | Playback EFM the RF signal input from the RF amplifier |
| 164 | AVS1 | — | Ground terminal (for the DSP asymmetry system analog) |
| 165 | PCO | O | Phase comparison output terminal for the playback EFM system master PLL |
| 166 | FILI | I | Filter input terminal for the playback EFM system master PLL |
| 167 | FILO | O | Filter output terminal for the playback EFM system master PLL |
| 168 | CLTV | I | Internal VCO control voltage input terminal for the playback EFM system master PLL |
| 169 | PEAK | I | Peak hold signal input of the light amount signal (RF/ABCD) from the RF amplifier |
| 170 | BOTM | I | Bottom hold signal input of the light amount signal (RF/ABCD) from the RF amplifier |
| 171 | ABCD | I | Light amount signal (ABCD) input from the RF amplifier |
| 172 | FE | I | Focus error signal input from the Focus error amplifier |
| 173 | AUX1 | I | Support signal (I ₃ signal/temperature signal) input terminal (A/D input) |
| 174 | VC | I | Middle point voltage (+1.1V) input terminal |
| 175 | ADIO | O | Monitor output terminal of A/D converter input signal Not used |
| 176 | ADRT | I | A/D converter the upper limit voltage input terminal (fixed at “H” in this set) |
| 177 | AVD2 | — | Power supply terminal (for the DSP servo analog system) (+2.2V) |
| 178 | AVS2 | — | Ground terminal (for the DSP servo analog system) |
| 179 | ADRB | I | A/D converter the lower limit voltage input terminal (fixed at “L” in this set) |
| 180 | SE | I | Servo signal monitor input terminal (A/D input) from the RF amplifier |
| 181 | TE | I | Tracking error signal input from the Tracking error amplifier |
| 182 | DCHG | — | Connecting terminal with the analog power supply of the low impedance (fixed at “H” in this set) |
| 183 | APC | I | Error signal input for the laser automatic power control (fixed at “H” in this set) |
| 184 | CKRF | O | Clock output terminal for the RF amplifier control Not used |
| 185 | DTRF | O | Data output terminal for the RF amplifier control Not used |
| 186 | XLRF | O | Latch signal output terminal for the RF amplifier control Not used |
| 187 | DVSS2 | — | Ground terminal (for the DSP block) |
| 188 | DVDD2 | — | Power supply terminal (for the DSP block) (+1.1V) |
| 189 | XTSL | I | Input terminal for the frequency set up of the system clock “L”: 45.1584MHz, “H”: 22.5792MHz (fixed at “L” in this set) |
| 190 | DIN1 | I | Input terminal of the record system digital audio signal |
| 191 to 193 | NC | O | D/A converter PWM signal output terminal Not used |
| 194 | DADT | O | Audio data output terminal Not used |

| Pin No. | Pin Name | I/O | Description |
|---------------|------------|-----|---------------------------------------------------------------------------------------|
| 195 | ADDT | I | Data input from the external A/D converter |
| 196 | LRCK | O | L/R sampling clock signal (44.1KHz) output to the external A/D converter |
| 197 | XBCK | O | Bit clock signal (2.8224MHz) output to the external A/D converter |
| 198 | FS256 | O | 11.2896MHz clock signal output to the external A/D converter |
| 199 | NC | I | Clock signal input from the external VCO Not used |
| 200 | DVSS3 | — | Ground terminal (for the DSP block) |
| 201 | DVDD3 | — | Power supply terminal (for the DSP block) (+1.1V) |
| 202 | ADFG | I | ADIP duplex FM signal (20.05±1kHz) input from the RF amplifier |
| 203 | NC | O | Filter cut off control signal output terminal Not used |
| 204 | IFVDD3 | — | Power supply terminal (for the microcomputer I/F block) (+1.7V) |
| 205 | IFVSS3 | — | Ground terminal (for the microcomputer I/F block) |
| 206 | APCREF | O | Reference PWM signal output for the laser automatic power control to the RF amplifier |
| 207 | TRDR | O | Tracking servo drive PWM signal output (–) to the coil driver |
| 208 | TFDR | O | Tracking servo drive PWM signal output (+) to the coil driver |
| 209 | FFDR | O | Focus servo drive PWM signal output (+) to the coil driver |
| 210 | FRDR | O | Focus servo drive PWM signal output (–) to the coil driver |
| 211 | FS4 | O | 176.4kHz clock signal output to the power control |
| 212 | SPRD | O | Spindle motor drive control signal output (U) to the motor driver |
| 213 | SPFD | O | Spindle servo drive PWM signal output to the motor driver |
| 214 | SPDV | O | Spindle motor drive control signal output (V) to the motor driver |
| 215 | SPDW | O | Spindle motor drive control signal output (W) to the motor driver |
| 216 | SPCU | I | Spindle motor drive comparison signal input (U) from the motor driver |
| 217 | SPCV | I | Spindle motor drive comparison signal input (V) from the motor driver |
| 218 | SPCW | I | Spindle motor drive comparison signal input (W) from the motor driver |
| 219 | SRDR | O | Sled motor drive control signal output (U) to the motor driver |
| 220 | SFDR | O | Sled servo drive PWM signal output to the motor driver |
| 221 | SLDV | O | Sled motor drive control signal output (V) to the motor driver |
| 222 | SLDW | O | Sled motor drive control signal output (W) to the motor driver |
| 223 | DVSS4 | — | Ground terminal (for the DSP block) |
| 224 | DVDD4 | — | Power supply terminal (for the DSP block) (+1.1V) |
| 225 | SLCU | I | Sled motor drive comparison signal input (U) from the motor driver |
| 226 | SLCV | I | Sled motor drive comparison signal input (V) from the motor driver |
| 227 | SLCW | I | Sled motor drive comparison signal input (W) from the motor driver |
| 228 | IFVDD4 | — | Power supply terminal (for the microcomputer I/F block) (+1.7V) |
| 229 | IFVSS4 | — | Ground terminal (for the microcomputer I/F block) |
| 230 | EFMO | O | EFM encode data output for the record to the over write head drive |
| 231 to 233 | MNT0 to 2 | O | DSP monitor (0) to (2) output terminal Not used |
| 234 | MNT3 | O | Off track signal output from the DSP monitor (3) |
| 235 | SENSE | O | DSP internal status (DSP SENS monitor) signal output terminal Not used |
| 236 | TX | O | Record data output enable signal output monitor terminal of the DSP Not used |
| 237 | RECP | O | Laser power changeover signal output terminal Not used |
| 238 | LRCKI/XELT | I | Input terminal for the PCM data I/F/ ATRAC data I/F Not used |
| 239 | XBCKI/ECK | I | Input terminal for the PCM data I/F/ ATRAC data I/F Not used |
| 240 | DATAI/EDT | I | Input terminal for the PCM data I/F/ ATRAC data I/F Not used |
| 241 | XERQ | I | Input terminal for the ATRAC data I/F Not used |

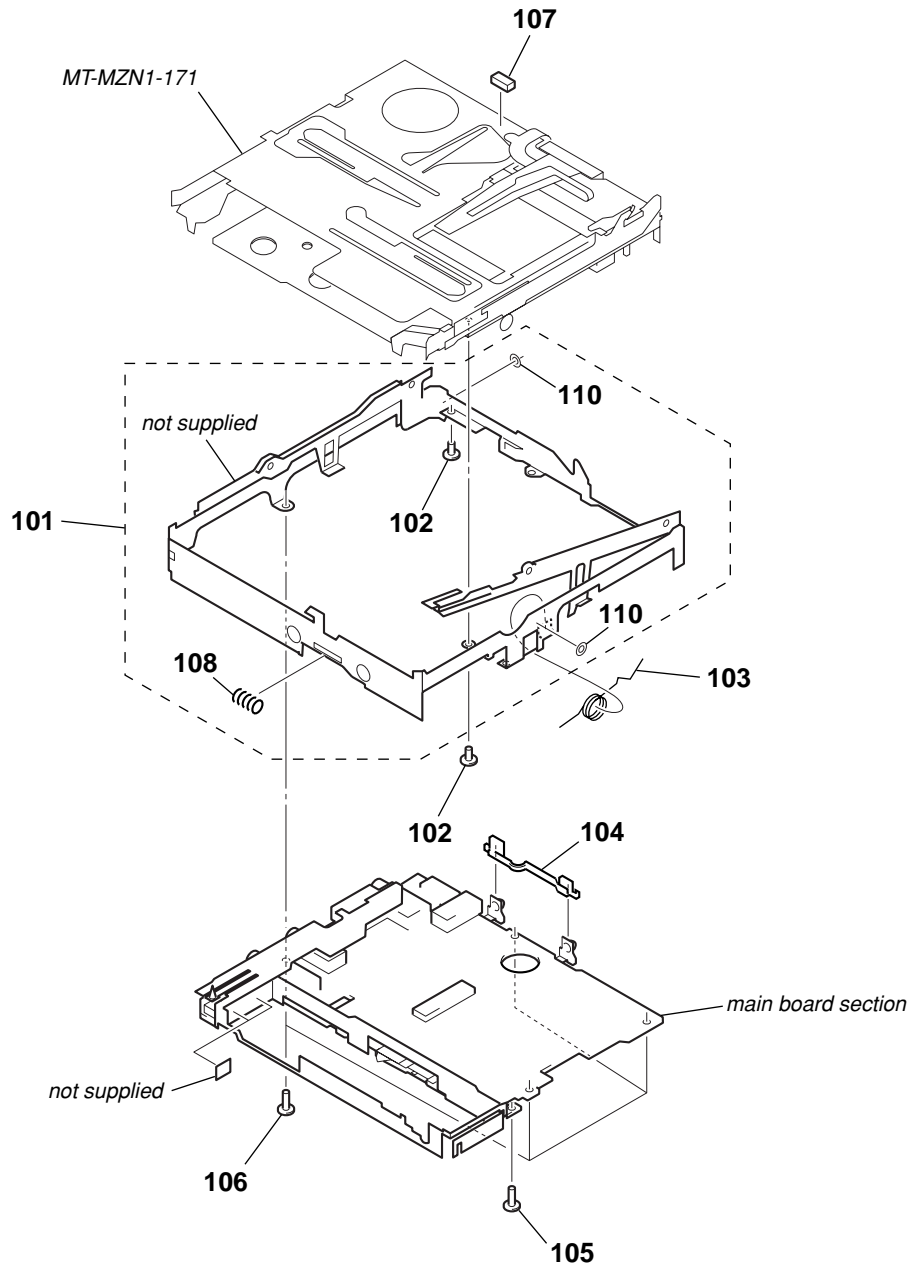
| Pin No. | Pin Name | I/O | Description |
|------------|----------|-----|--------------------------------------------------------------------------------------------------|
| 242 | A11 | O | Address signal output terminal for D-RAM Not used |
| 243 | XOE | O | Output enable signal output terminal for D-RAM Not used |
| 244 | XWE | O | Data write enable signal output terminal for D-RAM Not used |
| 245 | TSTDR3 | I | Test input terminal for D-RAM Not used |
| 246 | EVA | I | EVA/FLASH chip discrimination terminal “L”: FLASH chip, “H”: EVA chip (fixed at “L” in this set) |
| 247 | FLASHVDD | — | Power supply terminal (for the built-in flash memory) (+2.2V) |
| 248 | FLASHVSS | — | Ground terminal (for the built-in flash memory) |
| 249 to 256 | NC | — | Not used |

7-2. BOTTOM PANEL SECTION



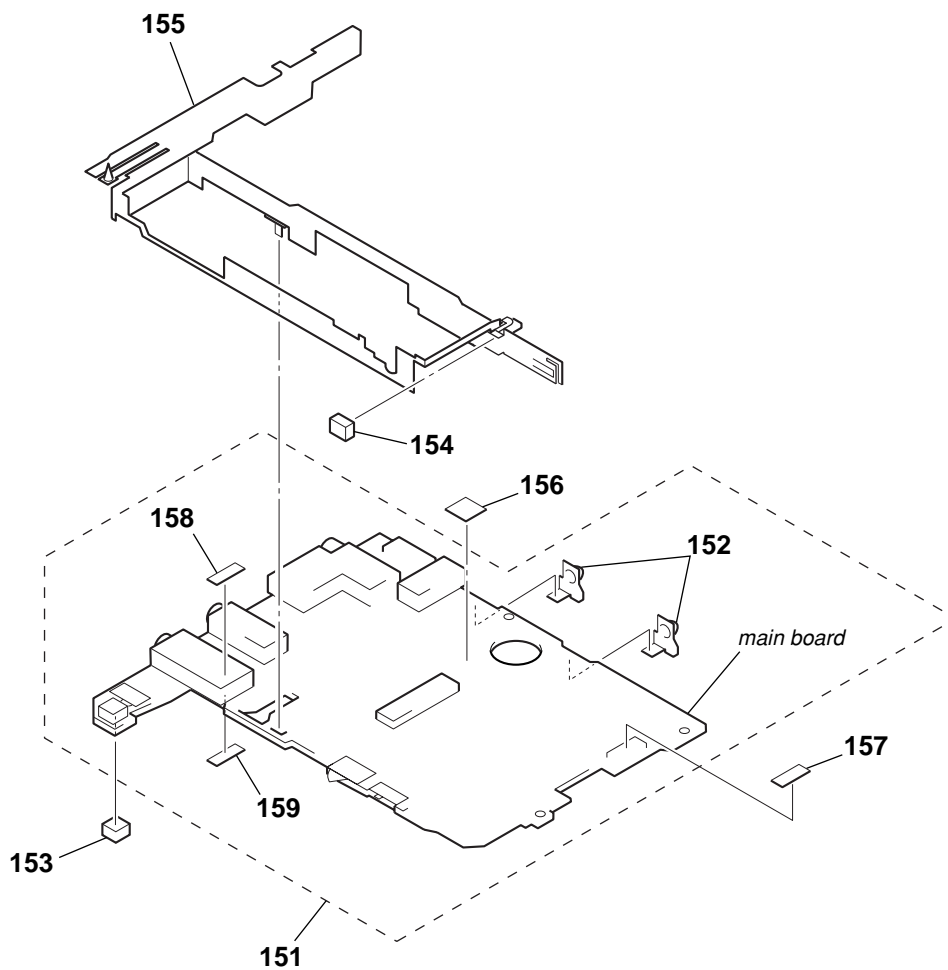
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|------------------------------------------------------------------|--------|----------|--------------|-----------------------------------------|--------|
| 51 | A-3170-906-A | PANEL BLOCK ASSY, BOTTOM (SILVER) (FR) | | 51 | X-3382-439-2 | PANEL (SV-S) ASSY, BOTTOM (SILVER) (JE) | |
| 51 | A-3174-322-A | PANEL BLOCK ASSY, BOTTOM (SILVER) (US, CND, TW, AUS) | | 51 | X-3382-440-2 | PANEL (SV-L) ASSY, BOTTOM (BLUE) (JE) | |
| 51 | X-3382-438-1 | PANEL (SV-NONCE-L) ASSY, BOTTOM (BLUE) (EXCEPT AEP, UK, JE) | | 52 | 3-236-423-02 | KNOB (OPEN) | |
| 51 | X-3382-441-1 | PANEL (SV-CE-S) ASSY, BOTTOM (SILVER) (AEP, UK) | | 54 | 4-219-968-01 | COLLAR (DC IN) | |
| 51 | X-3382-442-1 | PANEL (SV-CE-L) ASSY, BOTTOM (BLUE) (AEP, UK) | | 55 | 3-236-422-01 | ESCUTCHEON | |
| 51 | X-3382-443-1 | PANEL (SV-NONCE-S) ASSY, BOTTOM (SILVER) (EXCEPT AEP, UK, JE) | | 56 | 3-236-412-01 | ORNAMENT (CRADLE) (for SILVER) | |
| | | | | 56 | 3-236-412-11 | ORNAMENT (CRADLE) (for BLUE) | |
| | | | | 57 | 3-236-410-01 | KNOB (HOLD) (for SILVER) | |
| | | | | 57 | 3-236-410-11 | KNOB (HOLD) (for BLUE) | |

7-3. CHASSIS SECTION



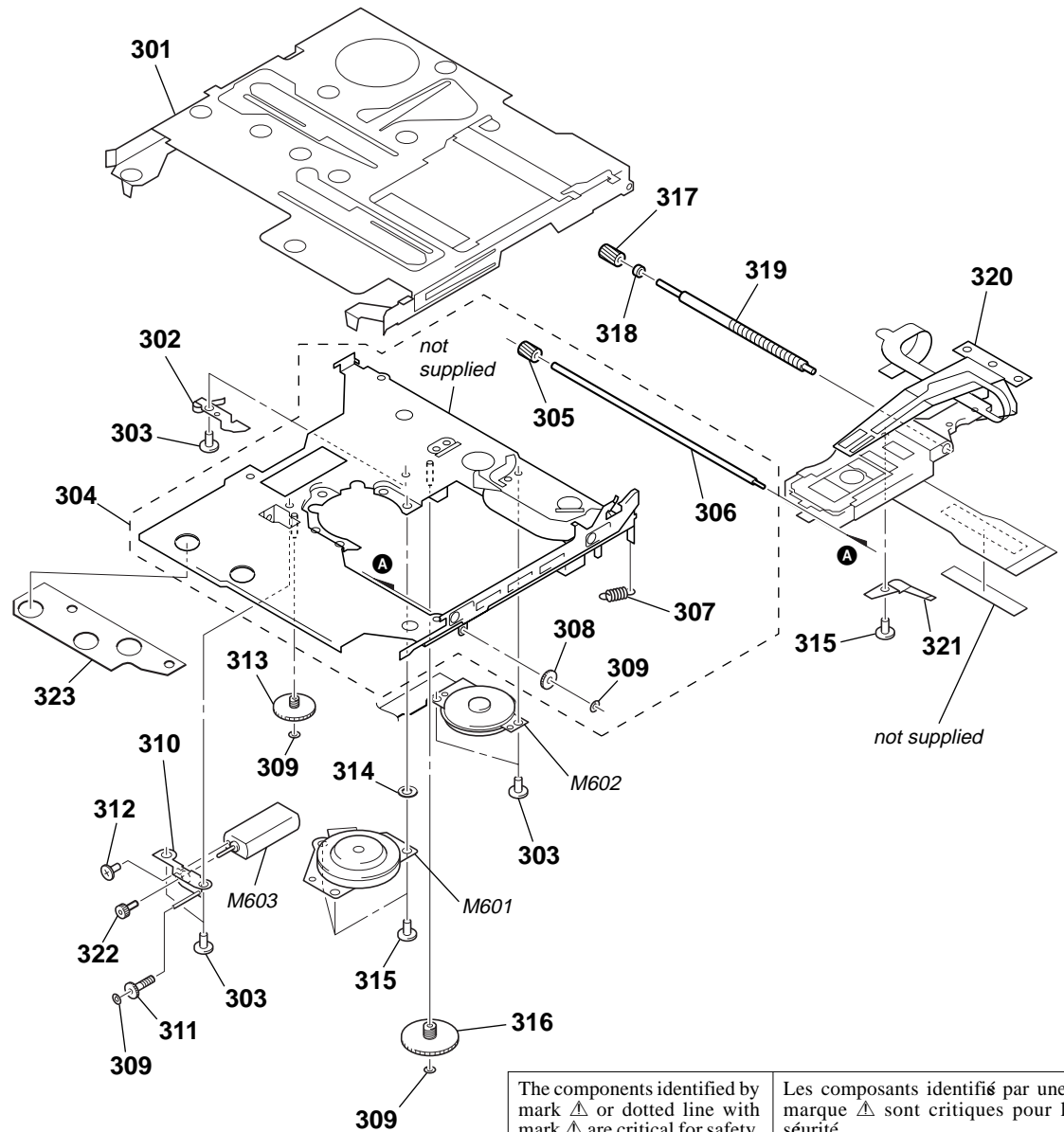
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|-------------------|--------|----------|--------------|---------------------------------|--------|
| 101 | X-3381-264-6 | CHASSIS ASSY | | 106 | 3-238-876-07 | SCREW (M1.4), TOOTHED LOCK | |
| 102 | 3-234-449-05 | SCREW (M1.4) | | 107 | 3-240-548-01 | SHEET (H) | |
| 103 | 3-236-416-02 | SPRING (POP) | | 108 | 3-239-274-02 | SPRING (LOCK), COMPRESSION COIL | |
| 104 | 3-236-414-01 | HOLDER (TERMINAL) | | 110 | 3-350-949-41 | SHEET (SYSTEM CONTROL SCREW) | |
| 105 | 3-232-536-02 | SCREW (M1.4) (EG) | | | | | |

7-4. MAIN BOARD SECTION



| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|-----------------------------------------|-------------|----------|--------------|--------------------|--------|
| 151 | A-3021-730-B | MAIN BOARD, COMPLETE (for SERVICE) | (EXCEPT FR) | 155 | X-3381-266-4 | CASE ASSY, BATTERY | |
| 151 | A-3021-835-B | MAIN BOARD, COMPLETE (for SERVICE) (FR) | | 156 | 3-245-815-01 | SHEET (SW) | |
| 152 | 3-236-413-01 | TERMINAL | | 157 | 3-244-564-01 | SHEET (SA) | |
| 153 | 3-240-738-03 | CUSHION (PROTECT) | | 158 | 3-239-480-01 | SHEET (J2) | |
| 154 | 3-235-763-01 | SHEET (PLUS) | | 159 | 3-239-481-01 | SHEET (J1) | |

7-5. MD MECHANISM DECK SECTION
(MT-MZN1-171)



| | |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The components identified by mark ▲ or dotted line with mark ⋯▲ are critical for safety. Replace only with part number specified.</p> | <p>Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p> |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|

| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|----------------------------------|--------|----------|--------------|-------------------------------------------------|--------|
| 301 | X-3381-232-3 | HOLDER ASSY | | 315 | 3-225-996-06 | SCREW (M1.4) (EG), PRECISION PAN | |
| 302 | 3-224-779-02 | SPRING, THRUST DETENT | | 316 | 4-222-216-01 | GEAR (SA) | |
| 303 | 3-225-996-01 | SCREW (M1.4) (EG), PRECISION PAN | | 317 | 4-222-208-01 | GEAR (SB) | |
| 304 | X-3381-231-2 | CHASSIS ASSY | | 318 | 3-043-237-02 | BEARING (N) | |
| 305 | 4-222-218-02 | GEAR (HD) | | 319 | 3-239-403-01 | SCREW, LEAD | |
| 306 | 4-222-223-01 | SHAFT, SUB | | ▲ 320 | X-3382-947-1 | SERVICE ASSY, OP (LCX-5R) | |
| 307 | 4-222-226-01 | SPRING (EJECT), TENSION | | 321 | 4-222-205-11 | SPRING, RACK | |
| 308 | 4-222-222-01 | GEAR (RACK) | | 322 | 3-222-544-01 | GEAR (HA) | |
| 309 | 3-338-645-31 | WASHER (0.8-2.5) | | 323 | 3-239-193-01 | SHEET (INSULATE MD) | |
| 310 | X-4951-918-3 | CHASSIS ASSY, GEAR | | M601 | 8-835-744-03 | MOTOR, DC SSM18B (SPINDLE) (WITH TURN TABLE) | |
| 311 | 3-222-545-01 | GEAR (HB) | | M602 | 1-763-727-11 | MOTOR, DC (SLED) (WITH GEAR) | |
| 312 | 4-224-885-01 | SCREW (M1.2X1.5) | | M603 | 1-763-400-21 | MOTOR, DC (OVER WRITE HEAD UP/DOWN) | |
| 313 | 4-222-215-01 | GEAR (HC) | | | | | |
| 314 | 4-997-677-21 | WASHER | | | | | |

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
- Abbreviation
AUS : Australian model E13 : 220-230V AC area in E model
CH : Chinese model FR : French model
CND : Canadian model HK : Hong Kong model

- 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. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- CAPACITORS
uF: μ F
• COILS
uH: μ H
- JE : Tourist model
KR : Korean model
TW : Taiwan model

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|---------------------------------------------------|----------|----------|--------------|-----------------------|-----------|
| | A-3021-730-B | MAIN BOARD, COMPLETE (for SERVICE) (EXCEPT FR) | | C308 | 1-107-820-11 | CERAMIC CHIP 0.1uF | 16V |
| | A-3021-835-B | MAIN BOARD, COMPLETE (for SERVICE) (FR) ***** | | C309 | 1-127-895-11 | TANTALUM CHIP 22uF | 20% 4V |
| | 3-239-480-01 | SHEET (J2) | | C310 | 1-125-899-11 | TANTALUM CHIP 220uF | 20% 4V |
| | 3-239-481-01 | SHEET (J1) | | C311 | 1-128-964-11 | TANTALUM CHIP 100uF | 20% 6.3V |
| | 3-236-413-01 | TERMINAL | | C312 | 1-127-895-11 | TANTALUM CHIP 22uF | 20% 4V |
| | | < CAPACITOR > | | C313 | 1-119-750-11 | TANTALUM CHIP 22uF | 20% 6.3V |
| C101 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V | C314 | 1-119-923-11 | CERAMIC CHIP 0.047uF | 10% 10V |
| C102 | 1-164-941-11 | CERAMIC CHIP 0.0047uF | 10% 16V | C315 | 1-113-600-11 | TANTALUM CHIP 2.2uF | 20% 6.3V |
| C103 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V | C316 | 1-125-926-11 | TANTALUM CHIP 4.7uF | 20% 6.3V |
| C104 | 1-135-868-11 | TANTALUM CHIP 220uF | 20% 2.5V | C320 | 1-117-919-11 | TANTALUM CHIP 10uF | 20% 6.3V |
| C105 | 1-113-600-11 | TANTALUM CHIP 2.2uF | 20% 6.3V | C322 | 1-131-862-11 | TANTALUM CHIP 47uF | 20% 4V |
| C107 | 1-164-943-11 | CERAMIC CHIP 0.01uF | 10% 16V | C323 | 1-117-919-11 | TANTALUM CHIP 10uF | 20% 6.3V |
| C108 | 1-164-935-11 | CERAMIC CHIP 470PF | 10% 50V | C330 | 1-107-820-11 | CERAMIC CHIP 0.1uF | 16V |
| C110 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V | C332 | 1-117-919-11 | TANTALUM CHIP 10uF | 20% 6.3V |
| C111 | 1-164-874-11 | CERAMIC CHIP 100PF | 5% 50V | C335 | 1-164-933-11 | CERAMIC CHIP 220PF | 10% 50V |
| C112 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V | C336 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V |
| C113 | 1-131-862-11 | TANTALUM CHIP 47uF | 20% 4V | C344 | 1-164-943-11 | CERAMIC CHIP 0.01uF | 10% 16V |
| C116 | 1-164-937-11 | CERAMIC CHIP 0.001uF | 10% 50V | C501 | 1-164-874-11 | CERAMIC CHIP 100PF | 5% 50V |
| C117 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V | C502 | 1-107-819-11 | CERAMIC CHIP 0.022uF | 10% 16V |
| C118 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V | C503 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V |
| C201 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V | C504 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V |
| C202 | 1-164-941-11 | CERAMIC CHIP 0.0047uF | 10% 16V | C505 | 1-164-943-11 | CERAMIC CHIP 0.01uF | 10% 16V |
| C203 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V | C506 | 1-107-819-11 | CERAMIC CHIP 0.022uF | 10% 16V |
| C204 | 1-135-868-11 | TANTALUM CHIP 220uF | 20% 2.5V | C507 | 1-107-819-11 | CERAMIC CHIP 0.022uF | 10% 16V |
| C205 | 1-113-600-11 | TANTALUM CHIP 2.2uF | 20% 6.3V | C508 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V |
| C207 | 1-164-943-11 | CERAMIC CHIP 0.01uF | 10% 16V | C509 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V |
| C208 | 1-164-935-11 | CERAMIC CHIP 470PF | 10% 50V | C510 | 1-164-850-11 | CERAMIC CHIP 10PF | 0.5PF 50V |
| C210 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V | C511 | 1-164-850-11 | CERAMIC CHIP 10PF | 0.5PF 50V |
| C211 | 1-164-874-11 | CERAMIC CHIP 100PF | 5% 50V | C512 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V |
| C212 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V | C513 | 1-164-850-11 | CERAMIC CHIP 10PF | 0.5PF 50V |
| C213 | 1-131-862-11 | TANTALUM CHIP 47uF | 20% 4V | C514 | 1-107-819-11 | CERAMIC CHIP 0.022uF | 10% 16V |
| C216 | 1-164-937-11 | CERAMIC CHIP 0.001uF | 10% 50V | C515 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V |
| C217 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V | C516 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V |
| C218 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V | C518 | 1-125-926-11 | TANTALUM CHIP 4.7uF | 20% 6.3V |
| C301 | 1-125-839-11 | TANTALUM CHIP 47uF | 20% 6.3V | C519 | 1-164-941-11 | CERAMIC CHIP 0.0047uF | 10% 16V |
| C302 | 1-107-820-11 | CERAMIC CHIP 0.1uF | 16V | C521 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V |
| C303 | 1-117-919-11 | TANTALUM CHIP 10uF | 20% 6.3V | C522 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V |
| C304 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V | C523 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V |
| C305 | 1-113-600-11 | TANTALUM CHIP 2.2uF | 20% 6.3V | C524 | 1-117-919-11 | TANTALUM CHIP 10uF | 20% 6.3V |
| C306 | 1-107-820-11 | CERAMIC CHIP 0.1uF | 16V | C526 | 1-125-777-11 | CERAMIC CHIP 0.1uF | 10% 10V |
| C307 | 1-125-837-11 | CERAMIC CHIP 1uF | 10% 6.3V | C527 | 1-164-943-11 | CERAMIC CHIP 0.01uF | 10% 16V |
| | | | | C529 | 1-125-840-11 | TANTALUM 10uF | 20% 6.3V |
| | | | | C530 | 1-164-939-11 | CERAMIC CHIP 0.0022uF | 10% 50V |

| Ref. No. | Part No. | Description | | | Remark | Ref. No. | Part No. | Description | | | Remark |
|----------|--------------|---------------|---------|-------|--------|----------|--------------|---------------|----------|-----|--------|
| C532 | 1-119-923-11 | CERAMIC CHIP | 0.047uF | 10% | 10V | C815 | 1-119-923-11 | CERAMIC CHIP | 0.047uF | 10% | 10V |
| C557 | 1-107-819-11 | CERAMIC CHIP | 0.022uF | 10% | 16V | C816 | 1-119-923-11 | CERAMIC CHIP | 0.047uF | 10% | 10V |
| C558 | 1-107-819-11 | CERAMIC CHIP | 0.022uF | 10% | 16V | C817 | 1-119-923-11 | CERAMIC CHIP | 0.047uF | 10% | 10V |
| C559 | 1-107-819-11 | CERAMIC CHIP | 0.022uF | 10% | 16V | C818 | 1-125-891-11 | CERAMIC CHIP | 0.47uF | 10% | 10V |
| C561 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C819 | 1-164-935-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C562 | 1-119-923-11 | CERAMIC CHIP | 0.047uF | 10% | 10V | C820 | 1-125-839-11 | TANTALUM CHIP | 47uF | 20% | 6.3V |
| C563 | 1-119-923-11 | CERAMIC CHIP | 0.047uF | 10% | 10V | C821 | 1-125-837-11 | CERAMIC CHIP | 1uF | 10% | 6.3V |
| C564 | 1-119-923-11 | CERAMIC CHIP | 0.047uF | 10% | 10V | C822 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C566 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C825 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C570 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C826 | 1-127-715-11 | CERAMIC CHIP | 0.22uF | 10% | 16V |
| C571 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C828 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C572 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C829 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C601 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C830 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C602 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C831 | 1-128-964-11 | TANTALUM CHIP | 100uF | 20% | 6.3V |
| C603 | 1-125-839-11 | TANTALUM CHIP | 47uF | 20% | 6.3V | C832 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C604 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C833 | 1-107-819-11 | CERAMIC CHIP | 0.022uF | 10% | 16V |
| C605 | 1-164-937-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | C835 | 1-107-819-11 | CERAMIC CHIP | 0.022uF | 10% | 16V |
| C606 | 1-164-874-11 | CERAMIC CHIP | 100PF | 5% | 50V | C836 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C607 | 1-164-874-11 | CERAMIC CHIP | 100PF | 5% | 50V | C838 | 1-164-937-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C608 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C839 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V |
| C609 | 1-137-762-11 | TANTALUM | 10uF | 20% | 4V | C840 | 1-107-820-11 | CERAMIC CHIP | 0.1uF | | 16V |
| C610 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C841 | 1-107-820-11 | CERAMIC CHIP | 0.1uF | | 16V |
| C611 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V | C845 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V |
| C612 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V | C846 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V |
| C613 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C847 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V |
| C614 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C848 | 1-131-860-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C615 | 1-137-760-11 | MICA CHIP | 100PF | 5% | 100V | C849 | 1-164-937-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C616 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C850 | 1-164-937-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C618 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C851 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C619 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C901 | 1-125-840-11 | TANTALUM | 10uF | 20% | 6.3V |
| C621 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C902 | 1-125-840-11 | TANTALUM | 10uF | 20% | 6.3V |
| C622 | 1-125-837-11 | CERAMIC CHIP | 1uF | 10% | 6.3V | C903 | 1-128-964-11 | TANTALUM CHIP | 100uF | 20% | 6.3V |
| C623 | 1-127-895-11 | TANTALUM CHIP | 22uF | 20% | 4V | C904 | 1-125-840-11 | TANTALUM | 10uF | 20% | 6.3V |
| C624 | 1-127-895-11 | TANTALUM CHIP | 22uF | 20% | 4V | C905 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C625 | 1-131-862-11 | TANTALUM CHIP | 47uF | 20% | 4V | C906 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V |
| C626 | 1-125-839-11 | TANTALUM CHIP | 47uF | 20% | 6.3V | C907 | 1-125-889-11 | CERAMIC CHIP | 2.2uF | 10% | 10V |
| C627 | 1-125-837-11 | CERAMIC CHIP | 1uF | 10% | 6.3V | C908 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C628 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C913 | 1-164-941-11 | CERAMIC CHIP | 0.0047uF | 10% | 16V |
| C629 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C914 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C630 | 1-164-874-11 | CERAMIC CHIP | 100PF | 5% | 50V | C915 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C631 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V | C917 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C632 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C919 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C633 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C920 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C636 | 1-164-937-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | C921 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C637 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C922 | 1-164-937-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C803 | 1-117-919-11 | TANTALUM CHIP | 10uF | 20% | 6.3V | C923 | 1-125-891-11 | CERAMIC CHIP | 0.47uF | 10% | 10V |
| C804 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C924 | 1-125-891-11 | CERAMIC CHIP | 0.47uF | 10% | 10V |
| C805 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V | C925 | 1-125-891-11 | CERAMIC CHIP | 0.47uF | 10% | 10V |
| C806 | 1-164-850-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V | C926 | 1-164-937-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C807 | 1-164-850-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V | C928 | 1-127-895-11 | TANTALUM CHIP | 22uF | 20% | 4V |
| C808 | 1-164-850-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V | C929 | 1-127-895-11 | TANTALUM CHIP | 22uF | 20% | 4V |
| C809 | 1-164-850-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V | C930 | 1-127-715-11 | CERAMIC CHIP | 0.22uF | 10% | 16V |
| C810 | 1-125-840-11 | TANTALUM | 10uF | 20% | 6.3V | C931 | 1-164-874-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C811 | 1-125-837-11 | CERAMIC CHIP | 1uF | 10% | 6.3V | C932 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| C812 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C933 | 1-164-874-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C813 | 1-125-837-11 | CERAMIC CHIP | 1uF | 10% | 6.3V | C934 | 1-137-762-11 | TANTALUM | 10uF | 20% | 4V |
| C814 | 1-164-943-11 | CERAMIC CHIP | 0.01uF | 10% | 16V | C935 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |
| | | | | | | C936 | 1-125-777-11 | CERAMIC CHIP | 0.1uF | 10% | 10V |

MAIN

| Ref. No. | Part No. | Description | Remark |
|---------------|--------------|----------------------------------|--------|
| < CONNECTOR > | | | |
| * CN501 | 1-778-168-11 | CONNECTOR, FFC/FPC (ZIF) 20P | |
| * CN502 | 1-815-790-21 | CONNECTOR, FPC (ZIF) 10P | |
| CN601 | 1-815-951-11 | CONNECTOR (USB CRADLE CONNECTOR) | |
| * CN801 | 1-794-772-21 | CONNECTOR, FPC (ZIF) 20P | |
| < DIODE > | | | |
| D301 | 8-719-081-71 | DIODE DF8A6.8FK (TE85R) | |
| D303 | 8-719-046-91 | DIODE MA2S111-TX | |
| D601 | 8-719-081-33 | DIODE MA2YD1500LS0 | |
| D602 | 8-719-081-33 | DIODE MA2YD1500LS0 | |
| D603 | 8-719-081-34 | DIODE RB160M-30TR | |
| D604 | 8-719-082-45 | DIODE RB715W-TL | |
| D606 | 8-719-081-35 | DIODE MA2YD1700LS0 | |
| D607 | 8-719-081-33 | DIODE MA2YD1500LS0 | |
| D608 | 8-719-081-35 | DIODE MA2YD1700LS0 | |
| D611 | 6-500-164-01 | DIODE DF5A6.8LFU (TE85R) | |
| D612 | 8-719-081-33 | DIODE MA2YD1500LS0 | |
| D803 | 8-719-046-85 | DIODE MA2S728-(K8).SO | |
| D804 | 8-719-046-85 | DIODE MA2S728-(K8).SO | |
| D901 | 8-719-081-33 | DIODE MA2YD1500LS0 | |
| D902 | 8-719-081-33 | DIODE MA2YD1500LS0 | |
| D903 | 8-719-420-51 | DIODE MA729-TX | |
| D904 | 8-719-046-91 | DIODE MA2S111-TX | |
| D905 | 8-719-072-27 | DIODE MA2Z748001S0 | |
| < FUSE > | | | |
| △ F801 | 1-576-439-21 | FUSE (SMD) 0.25A 125V | |
| < RESISTOR > | | | |
| FB301 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB303 | 1-216-809-11 | METAL CHIP 100 5% 1/16W | |
| FB304 | 1-216-809-11 | METAL CHIP 100 5% 1/16W | |
| FB306 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB601 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB602 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB603 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB801 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB802 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB803 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB804 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| FB805 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| < IC > | | | |
| IC301 | 8-759-694-88 | IC AK5354VT-E2 | |
| IC302 | 6-700-662-01 | IC AN17020A-VB | |
| IC303 | 8-759-699-54 | IC NJM2173APC1 (TE2) | |
| IC501 | 6-701-391-01 | IC SN761057A | |
| IC551 | 6-700-680-01 | IC SC111258FCR2 | |
| IC601 | 6-701-477-01 | IC XPC18A22AFCR2 | |
| IC603 | 6-700-958-01 | IC XC61FS1YXXMR | |
| IC801 | | not supplied | |
| IC802 | 8-759-680-85 | IC AK6417AL-L | |
| IC803 | 8-759-680-84 | IC AK6480BL-L | |
| IC901 | 6-700-880-01 | IC XPC18A32AFCR2 | |
| IC902 | 6-701-832-01 | IC XC6368D101MR | |

| Ref. No. | Part No. | Description | Remark |
|-------------------|--------------|----------------------------------|------------|
| IC903 | 6-701-978-01 | IC XC61CN0802NR | |
| < JACK > | | | |
| J301 | 1-815-950-11 | JACK (LINE IN (OPT)) | |
| J302 | 1-816-153-21 | JACK (○/LINE OUT) | |
| J303 | 1-793-620-21 | JACK (MIC PLUG IN POWER) | |
| J601 | 1-785-383-11 | JACK, DC (POLARITY UNIFIED TYPE) | (DC IN 3V) |
| < COIL/RESISTOR > | | | |
| L301 | 1-469-535-21 | INDUCTOR 10uH | |
| L302 | 1-469-535-21 | INDUCTOR 10uH | |
| L303 | 1-469-535-21 | INDUCTOR 10uH | |
| L501 | 1-469-535-21 | INDUCTOR 10uH | |
| L502 | 1-469-535-21 | INDUCTOR 10uH | |
| L601 | 1-428-912-21 | CHOKO COIL 10uH | |
| L602 | 1-469-535-21 | INDUCTOR 10uH | |
| L603 | 1-469-535-21 | INDUCTOR 10uH | |
| L801 | 1-469-535-21 | INDUCTOR 10uH | |
| L802 | 1-469-535-21 | INDUCTOR 10uH | |
| L803 | 1-216-864-11 | METAL CHIP 0 5% 1/16W | |
| L901 | 1-419-953-21 | CHOKO COIL 100uH | |
| L902 | 1-419-949-21 | CHOKO COIL 22uH | |
| L903 | 1-469-367-21 | INDUCTOR 10uH | |
| L904 | 1-414-398-11 | INDUCTOR 10uH | |
| L905 | 1-469-426-21 | INDUCTOR 100uH | |
| L906 | 1-414-404-41 | INDUCTOR 100uH | |
| L907 | 1-469-535-21 | INDUCTOR 10uH | |
| < TRANSISTOR > | | | |
| Q302 | 8-729-051-23 | TRANSISTOR 2SA2018TL | |
| Q501 | 8-729-922-10 | TRANSISTOR 2SA1577-T106-QR | |
| Q601 | 8-729-046-45 | FET SI2302DS-T1 | |
| Q602 | 8-729-046-44 | TRANSISTOR ZDT6718TA | |
| Q603 | 8-729-053-71 | FET TS8K1TB | |
| Q604 | 8-729-046-43 | FET HAT2051T-EL | |
| Q605 | 8-729-046-42 | FET HAT2050T-EL | |
| Q607 | 8-729-427-47 | TRANSISTOR UMH2NTN | |
| Q801 | 8-729-429-44 | TRANSISTOR XP1501-TXE | |
| Q804 | 8-729-047-48 | TRANSISTOR UMD12N-TR | |
| Q901 | 8-729-052-37 | FET XP151A13A0MR | |
| Q902 | 8-729-023-22 | TRANSISTOR 2SD2114KT146 | |
| Q903 | 8-729-046-45 | FET SI2302DS-T1 | |
| Q904 | 8-729-037-53 | TRANSISTOR 2SB1462J-QR (TX).SO | |
| Q905 | 8-729-037-75 | TRANSISTOR UN9214J-(TX).SO | |
| Q906 | 8-729-429-44 | TRANSISTOR XP1501-TXE | |
| Q907 | 8-729-055-32 | FET 3LN01SS-TL | |
| Q908 | 8-729-034-59 | TRANSISTOR 2SA1745-6.7-TL | |
| Q909 | 8-729-037-92 | TRANSISTOR 2SD2216J-R (TX).SO | |
| Q910 | 8-729-037-92 | TRANSISTOR 2SD2216J-R (TX).SO | |
| Q911 | 8-729-037-92 | TRANSISTOR 2SD2216J-R (TX).SO | |
| < RESISTOR > | | | |
| R101 | 1-208-715-11 | METAL CHIP 22K 0.5% 1/16W | |
| R102 | 1-208-707-11 | METAL CHIP 10K 0.5% 1/16W | |
| R103 | 1-218-965-11 | RES-CHIP 10K 5% 1/16W | |
| R104 | 1-208-635-11 | METAL CHIP 10 0.5% 1/16W | |

(FR)

| | |
|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified. | Les composants identifié par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié |
|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|

| Ref. No. | Part No. | Description | | | Remark | Ref. No. | Part No. | Description | | | Remark |
|----------|--------------|-------------|------|------|----------------------|----------|--------------|-------------|------|------|--------|
| R104 | 1-220-803-11 | RES-CHIP | 4.7 | 5% | 1/16W (EXCEPT FR) | R620 | 1-218-965-11 | RES-CHIP | 10K | 5% | 1/16W |
| R105 | 1-208-643-11 | RES-CHIP | 22 | 5% | 1/16W | R621 | 1-218-965-11 | RES-CHIP | 10K | 5% | 1/16W |
| R106 | 1-208-707-11 | METAL CHIP | 10K | 0.5% | 1/16W | R622 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/16W |
| R111 | 1-208-715-11 | METAL CHIP | 22K | 0.5% | 1/16W | R623 | 1-218-969-11 | RES-CHIP | 22K | 5% | 1/16W |
| R112 | 1-208-927-11 | METAL CHIP | 47K | 0.5% | 1/16W | R628 | 1-218-957-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R118 | 1-208-715-11 | METAL CHIP | 22K | 0.5% | 1/16W | R629 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W |
| R201 | 1-208-715-11 | METAL CHIP | 22K | 0.5% | 1/16W | R630 | 1-218-949-11 | RES-CHIP | 470 | 5% | 1/16W |
| R202 | 1-208-707-11 | METAL CHIP | 10K | 0.5% | 1/16W | R631 | 1-218-973-11 | RES-CHIP | 47K | 5% | 1/16W |
| R203 | 1-218-965-11 | RES-CHIP | 10K | 5% | 1/16W | R801 | 1-218-990-11 | SHORT | 0 | | |
| R204 | 1-208-635-11 | METAL CHIP | 10 | 0.5% | 1/16W (FR) | R802 | 1-208-935-11 | METAL CHIP | 100K | 0.5% | 1/16W |
| R204 | 1-220-803-11 | RES-CHIP | 4.7 | 5% | 1/16W (EXCEPT FR) | R803 | 1-208-927-11 | METAL CHIP | 47K | 0.5% | 1/16W |
| R205 | 1-208-643-11 | RES-CHIP | 22 | 5% | 1/16W | R804 | 1-208-927-11 | METAL CHIP | 47K | 0.5% | 1/16W |
| R206 | 1-208-707-11 | METAL CHIP | 10K | 0.5% | 1/16W | R805 | 1-208-951-11 | METAL CHIP | 100K | 0.5% | 1/16W |
| R211 | 1-208-715-11 | METAL CHIP | 22K | 0.5% | 1/16W | R806 | 1-218-981-11 | RES-CHIP | 220K | 5% | 1/16W |
| R212 | 1-208-927-11 | METAL CHIP | 47K | 0.5% | 1/16W | R807 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/16W |
| R218 | 1-208-715-11 | METAL CHIP | 22K | 0.5% | 1/16W | R808 | 1-218-961-11 | RES-CHIP | 4.7K | 5% | 1/16W |
| R301 | 1-208-707-11 | METAL CHIP | 10K | 0.5% | 1/16W | R809 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/16W |
| R302 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W | R810 | 1-218-949-11 | RES-CHIP | 470 | 5% | 1/16W |
| R303 | 1-218-981-11 | RES-CHIP | 220K | 5% | 1/16W | R812 | 1-218-990-11 | SHORT | 0 | | |
| R304 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W | R813 | 1-218-989-11 | RES-CHIP | 1M | 5% | 1/16W |
| R305 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W | R814 | 1-218-990-11 | SHORT | 0 | | |
| R306 | 1-218-985-11 | RES-CHIP | 470K | 5% | 1/16W | R815 | 1-218-949-11 | RES-CHIP | 470 | 5% | 1/16W |
| R307 | 1-218-941-11 | RES-CHIP | 100 | 5% | 1/16W | R818 | 1-218-990-11 | SHORT | 0 | | |
| R309 | 1-208-943-11 | METAL CHIP | 220K | 0.5% | 1/16W | R819 | 1-208-635-11 | RES-CHIP | 10 | 5% | 1/16W |
| R312 | 1-218-977-11 | RES-CHIP | 100K | 5% | 1/16W | R820 | 1-218-965-11 | RES-CHIP | 10K | 5% | 1/16W |
| R313 | 1-218-977-11 | RES-CHIP | 100K | 5% | 1/16W | R821 | 1-218-977-11 | RES-CHIP | 100K | 5% | 1/16W |
| R314 | 1-218-965-11 | RES-CHIP | 10K | 5% | 1/16W | R822 | 1-218-977-11 | RES-CHIP | 100K | 5% | 1/16W |
| R317 | 1-218-941-11 | RES-CHIP | 100 | 5% | 1/16W | R823 | 1-208-635-11 | RES-CHIP | 10 | 5% | 1/16W |
| R318 | 1-218-941-11 | RES-CHIP | 100 | 5% | 1/16W | R824 | 1-218-957-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R319 | 1-218-941-11 | RES-CHIP | 100 | 5% | 1/16W | R825 | 1-218-957-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R501 | 1-218-973-11 | RES-CHIP | 47K | 5% | 1/16W | R826 | 1-218-957-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R502 | 1-218-985-11 | RES-CHIP | 470K | 5% | 1/16W | R828 | 1-218-981-11 | RES-CHIP | 220K | 5% | 1/16W |
| R503 | 1-218-981-11 | RES-CHIP | 220K | 5% | 1/16W | R830 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W |
| R505 | 1-208-707-11 | METAL CHIP | 10K | 0.5% | 1/16W | R831 | 1-218-957-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R507 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W | R832 | 1-218-945-11 | RES-CHIP | 220 | 5% | 1/16W |
| R517 | 1-208-683-11 | METAL CHIP | 1K | 0.5% | 1/16W | R833 | 1-220-804-11 | RES-CHIP | 2.2M | 5% | 1/16W |
| R519 | 1-218-977-11 | RES-CHIP | 100K | 5% | 1/16W | R835 | 1-218-957-11 | RES-CHIP | 2.2K | 5% | 1/16W |
| R521 | 1-218-446-11 | METAL CHIP | 1 | 5% | 1/16W | R836 | 1-218-990-11 | SHORT | 0 | | |
| R522 | 1-218-446-11 | METAL CHIP | 1 | 5% | 1/16W | R837 | 1-208-691-11 | METAL CHIP | 2.2K | 0.5% | 1/16W |
| R601 | 1-218-989-11 | RES-CHIP | 1M | 5% | 1/16W | R838 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R602 | 1-218-981-11 | RES-CHIP | 220K | 5% | 1/16W | R839 | 1-218-990-11 | SHORT | 0 | | |
| R603 | 1-218-977-11 | RES-CHIP | 100K | 5% | 1/16W | R840 | 1-208-691-11 | METAL CHIP | 2.2K | 0.5% | 1/16W |
| R604 | 1-218-446-11 | METAL CHIP | 1 | 5% | 1/16W | R841 | 1-218-990-11 | SHORT | 0 | | |
| R605 | 1-216-789-11 | METAL CHIP | 2.2 | 5% | 1/16W | R842 | 1-218-990-11 | SHORT | 0 | | |
| R606 | 1-218-949-11 | RES-CHIP | 470 | 5% | 1/16W | R843 | 1-218-990-11 | SHORT | 0 | | |
| R607 | 1-218-945-11 | RES-CHIP | 220 | 5% | 1/16W | R845 | 1-218-989-11 | RES-CHIP | 1M | 5% | 1/16W |
| R608 | 1-218-981-11 | RES-CHIP | 220K | 5% | 1/16W | R846 | 1-218-941-11 | RES-CHIP | 100 | 5% | 1/16W |
| R609 | 1-218-446-11 | METAL CHIP | 1 | 5% | 1/16W | R847 | 1-218-989-11 | RES-CHIP | 1M | 5% | 1/16W |
| R610 | 1-218-990-11 | SHORT | 0 | | | R850 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W |
| R611 | 1-218-990-11 | SHORT | 0 | | | R852 | 1-218-990-11 | SHORT | 0 | | |
| R612 | 1-218-985-11 | RES-CHIP | 470K | 5% | 1/16W | R854 | 1-218-990-11 | SHORT | 0 | | |
| R613 | 1-218-957-11 | RES-CHIP | 2.2K | 5% | 1/16W | R855 | 1-218-990-11 | SHORT | 0 | | |
| R614 | 1-218-965-11 | RES-CHIP | 10K | 5% | 1/16W | R858 | 1-218-989-11 | RES-CHIP | 1M | 5% | 1/16W |
| R615 | 1-218-977-11 | RES-CHIP | 100K | 5% | 1/16W | R859 | 1-208-931-11 | RES-CHIP | 68K | 0.5% | 1/16W |
| R616 | 1-218-446-11 | METAL CHIP | 1 | 5% | 1/16W | R860 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W |
| | | | | | | R861 | 1-218-989-11 | RES-CHIP | 1M | 5% | 1/16W |
| | | | | | | R862 | 1-218-953-11 | RES-CHIP | 1K | 5% | 1/16W |

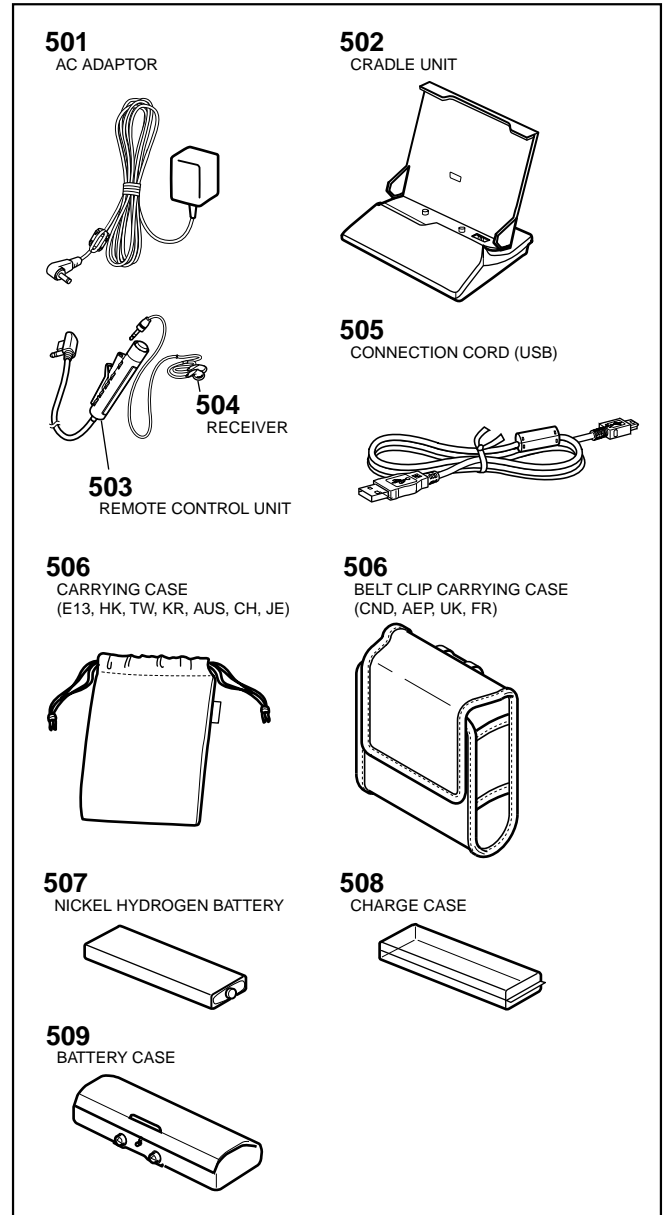
MAIN

| Ref. No. | Part No. | Description | Remark |
|-------------------------------|--------------|----------------------------------------------------------|--------|
| R863 | 1-218-953-11 | RES-CHIP 1K 5% | 1/16W |
| R864 | 1-218-953-11 | RES-CHIP 1K 5% | 1/16W |
| R865 | 1-218-957-11 | RES-CHIP 2.2K 5% | 1/16W |
| R866 | 1-218-953-11 | RES-CHIP 1K 5% | 1/16W |
| R867 | 1-218-985-11 | RES-CHIP 470K 5% | 1/16W |
| R902 | 1-218-985-11 | RES-CHIP 470K 5% | 1/16W |
| R903 | 1-218-957-11 | RES-CHIP 2.2K 5% | 1/16W |
| R905 | 1-218-957-11 | RES-CHIP 2.2K 5% | 1/16W |
| R909 | 1-218-965-11 | RES-CHIP 10K 5% | 1/16W |
| R910 | 1-218-965-11 | RES-CHIP 10K 5% | 1/16W |
| R911 | 1-218-949-11 | RES-CHIP 470 5% | 1/16W |
| R915 | 1-218-941-11 | RES-CHIP 100 5% | 1/16W |
| R916 | 1-218-989-11 | METAL CHIP 1M 0.5% | 1/16W |
| R917 | 1-218-990-11 | SHORT 0 | |
| R920 | 1-208-707-11 | METAL CHIP 10K 0.5% | 1/16W |
| R922 | 1-208-935-11 | METAL CHIP 100K 0.5% | 1/16W |
| R923 | 1-218-985-11 | METAL CHIP 470K 0.5% | 1/16W |
| R924 | 1-218-957-11 | RES-CHIP 2.2K 5% | 1/16W |
| R925 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R927 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R928 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R929 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R930 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R933 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R934 | 1-218-969-11 | RES-CHIP 22K 5% | 1/16W |
| R935 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R937 | 1-218-985-11 | RES-CHIP 470K 5% | 1/16W |
| R938 | 1-218-990-11 | SHORT 0 | |
| R941 | 1-218-969-11 | RES-CHIP 22K 5% | 1/16W |
| R950 | 1-218-977-11 | RES-CHIP 100K 5% | 1/16W |
| R951 | 1-218-985-11 | RES-CHIP 470K 5% | 1/16W |
| R952 | 1-218-981-11 | RES-CHIP 220K 5% | 1/16W |
| R953 | 1-218-985-11 | RES-CHIP 470K 5% | 1/16W |
| R954 | 1-208-927-11 | METAL CHIP 47K 0.5% | 1/16W |
| R955 | 1-218-981-11 | RES-CHIP 220K 5% | 1/16W |
| R956 | 1-218-989-11 | RES-CHIP 1M 5% | 1/16W |
| R958 | 1-218-977-11 | RES-CHIP 100K 5% | 1/16W |
| R959 | 1-218-981-11 | RES-CHIP 220K 5% | 1/16W |
| R960 | 1-218-981-11 | RES-CHIP 220K 5% | 1/16W |
| R961 | 1-208-707-11 | METAL CHIP 10K 0.5% | 1/16W |
| < COMPOSITION CIRCUIT BLOCK > | | | |
| RB551 | 1-233-963-21 | RES, NETWORK (CHIP TYPE) 2.2K | |
| RB552 | 1-233-967-11 | RES, NETWORK (CHIP TYPE) 10K | |
| RB801 | 1-233-973-11 | RES, NETWORK (CHIP TYPE) 100K | |
| < SWITCH > | | | |
| S801 | 1-786-030-21 | SWITCH, SLIDE (HOLD) | |
| S802 | 1-771-860-21 | SWITCH, PUSH (1 KEY) (PROTECT DETECT) | |
| S803 | 1-771-806-61 | SWITCH, PUSH (1 KEY) (RECHARGEABLE BATTERY IN DETECT) | |
| S804 | 1-762-805-21 | SWITCH, PUSH (1 KEY) (OPEN/CLOSE DETECT) | |
| S805 | 1-786-260-21 | SWITCH, TACTILE (T MARK) | |
| S806 | 1-762-947-12 | SWITCH, PUSH (1 KEY) (OPEN) | |

| Ref. No. | Part No. | Description | Remark |
|----------------|--------------|------------------------------------------------------------------|--------|
| < EMI FILTER > | | | |
| T601 | 1-416-405-21 | FILTER, CHIP EMI | |
| < THERMISTOR > | | | |
| TH601 | 1-804-616-21 | THERMISTOR, POSITIVE | |
| TH602 | 1-804-616-21 | THERMISTOR, POSITIVE | |
| < VIBRATOR > | | | |
| X801 | 1-795-462-21 | VIBRATOR, CRYSTAL (48MHZ) | |
| X802 | 1-795-047-21 | VIBRATOR, CRYSTAL (45.1584MHZ) | |
| ***** | | | |
| MISCELLANEOUS | | | |
| ***** | | | |
| 5 | 1-804-528-11 | LCD MODULE | |
| △320 | X-3382-947-1 | SERVICE ASSY, OP (LCX-5R) | |
| M601 | 8-835-744-03 | MOTOR, DC SSM18B (SPINDLE) (WITH TURN TABLE) | |
| M602 | 1-763-727-11 | MOTOR, DC (SLED) (WITH GEAR) | |
| M603 | 1-763-400-21 | MOTOR, DC (OVER WRITE HEAD UP/DOWN) | |
| ***** | | | |
| ACCESSORIES | | | |
| ***** | | | |
| △ | 1-543-798-11 | FILTER, CLAMP (FERRITE CORE) (JE) | |
| | 1-569-007-11 | ADAPTOR, CONVERSION 2P (JE) | |
| | 1-794-451-11 | CONNECTOR, LIGHT (EXCEPT HK, KR, CH, JE) | |
| | 1-794-451-51 | CONNECTOR, LIGHT (HK, KR, CH, JE) | |
| | 3-021-018-11 | LABEL, FRANCE (FR) | |
| | 3-234-039-12 | MANUAL, INSTRUCTION (ENGLISH) (EXCEPT FR) | |
| | 3-234-039-22 | MANUAL, INSTRUCTION (FRENCH) (CND, AEP, FR) | |
| | 3-234-039-32 | MANUAL, INSTRUCTION (GERMAN) (AEP) | |
| | 3-234-039-42 | MANUAL, INSTRUCTION (SPANISH) (AEP) | |
| | 3-234-039-52 | MANUAL, INSTRUCTION (DUTCH) (AEP) | |
| | 3-234-039-62 | MANUAL, INSTRUCTION (SWEDISH) (AEP) | |
| | 3-234-039-72 | MANUAL, INSTRUCTION (ITALIAN) (AEP) | |
| | 3-234-039-81 | MANUAL, INSTRUCTION (PORTUGUES) (JE) | |
| | 3-234-039-92 | MANUAL, INSTRUCTION (FINNISH) (AEP) | |
| | 3-236-743-12 | MANUAL, INSTRUCTION (Open MG Jukebox) (ENGLISH) (EXCEPT FR) | |
| | 3-236-743-22 | MANUAL, INSTRUCTION (Open MG Jukebox) (FRENCH) (CND, AEP, FR) | |
| | 3-236-743-32 | MANUAL, INSTRUCTION (Open MG Jukebox) (GERMAN) (AEP) | |
| | 3-236-743-42 | MANUAL, INSTRUCTION (Open MG Jukebox) (SPANISH) (AEP) | |
| | 3-236-743-52 | MANUAL, INSTRUCTION (Open MG Jukebox) (DUTCH) (AEP) | |
| | 3-236-743-62 | MANUAL, INSTRUCTION (Open MG Jukebox) (SWEDISH) (AEP) | |
| | 3-236-743-72 | MANUAL, INSTRUCTION (Open MG Jukebox) (ITALIAN) (AEP) | |
| | 3-236-743-92 | MANUAL, INSTRUCTION (Open MG Jukebox) (FINNISH) (AEP) | |
| | 3-237-042-13 | SOFT (CD-ROM), APPLICATION (US, CND) | |
| | 3-237-042-23 | SOFT (CD-ROM), APPLICATION (AEP, UK, FR) | |
| | 3-237-042-34 | SOFT (CD-ROM), APPLICATION (HK, E13, AUS, KR, TW, CH) | |

| | |
|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified. | Les composants identifié par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié |
|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|

| Ref. No. | Part No. | Description | Remark |
|----------|--------------|----------------------------------------------------------------------------------|--------|
| | 3-237-042-42 | SOFT (CD-ROM), APPLICATION (JE) | |
| | 3-238-089-12 | MANUAL, INSTRUCTION (Open MG Jukebox) (TRADITIONAL CHINESE) (E13, HK, TW, JE) | |
| | 3-238-089-22 | MANUAL, INSTRUCTION (Open MG Jukebox) (SIMPLIFIED CHINESE) (CH) | |
| | 3-238-089-32 | MANUAL, INSTRUCTION (Open MG Jukebox) (KOREAN) (KR, JE) | |
| | 3-238-322-01 | MANUAL, INSTRUCTION (JAPANESE) (JE) | |
| | 3-238-322-12 | MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (E13, HK, TW, JE) | |
| | 3-238-322-21 | MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (CH) | |
| | 3-238-322-32 | MANUAL, INSTRUCTION (KOREAN) (KR, JE) | |
| | 3-239-215-11 | MANUAL, INSTRUCTION (How to Install) (ENGLISH) (US, CND) | |
| | 3-239-215-21 | MANUAL, INSTRUCTION (How to Install) (FRENCH) (CND) | |
| | 3-241-316-11 | CARD (OPERATING INSTRUCTIONS) (ENGLISH) (US, CND) | |
| | 3-241-316-21 | CARD (OPERATING INSTRUCTIONS) (FRENCH) (CND) | |
| | 3-243-937-01 | CD-ROM (DNK) | |
| △ 501 | 1-418-028-12 | ADAPTOR, AC (AC-MZR55) (JE) | |
| △ 501 | 1-476-856-11 | ADAPTOR, AC (AC-ES305) (CH) | |
| △ 501 | 1-476-857-21 | ADAPTOR, AC (AC-ES305) (AEP, FR, E13) | |
| △ 501 | 1-476-858-21 | ADAPTOR, AC (AC-ES305) (UK, HK) | |
| △ 501 | 1-476-859-21 | ADAPTOR, AC (AC-ES305) (US, CND, TW) | |
| △ 501 | 1-476-860-21 | ADAPTOR, AC (AC-ES305) (AUS) | |
| △ 501 | 1-477-425-21 | ADAPTOR, AC (AC-ES305) (KR) | |
| △ 502 | 1-476-915-31 | CRADLE UNIT (BCA-WM20U) (SILVER) | |
| △ 502 | 1-476-915-41 | CRADLE UNIT (BCA-WM20U) (BLUE) (AEP, UK, E, HK, KR, CH, JE) | |
| 503 | 1-476-395-12 | REMOTE CONTROL UNIT (RM-MC11EL) | |
| 504 | 8-953-278-90 | HEADPHONE MDR-A34SP SET (US) | |
| 504 | 8-954-008-90 | RECEIVER, EAR MDR-E808SP/C SET (EXCEPT US) | |
| 505 | 1-823-647-11 | CORD, CONNECTION (USB) | |
| 506 | 3-220-749-01 | CASE, CARRYING (E13, HK, TW, KR, AUS, CH, JE) | |
| 506 | 3-228-300-01 | CASE, BELT CLIP CARRYING (CND, AEP, UK, FR) | |
| 507 | 1-756-120-22 | BATTERY, NICKEL HYDROGEN (NH-14WM (A)) (EXCEPT US, CND) | |
| 507 | 1-756-120-31 | BATTERY, NICKEL HYDROGEN (NH-14WM (A)) (US, CND) | |
| 508 | 3-008-521-01 | CASE, BATTERY CHARGE | |
| 509 | 1-251-895-11 | BATTERY CASE | |



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

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

