

# MZ-N10

## SERVICE MANUAL

Ver 1.2 2003.02



SILVER MODEL

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

US and foreign patents licensed from Dolby Laboratories.

Model Name Using Similar Mechanism	NEW
Mechanism Type	MT-MZN10-181
Optical Pick-up Name	ABX-1R

### 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 LP4 stereo

#### Revolutions

350 rpm to 3,600 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

#### Modulation system

EFM (Eight to Fourteen Modulation)

#### Frequency response

20 to 20,000 Hz  $\pm 3 \text{ dB}$

#### Inputs<sup>1)</sup>

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

$\phi$ /LINE OUT<sup>2)</sup>: stereo mini-jack (dedicated remote control jack)/194 mV (10 k $\Omega$ )

#### Maximum output (DC)<sup>2)</sup>

Headphones:

2.0 mW + 2.0 mW (16  $\Omega$ ) (European models)

5 mW + 5 mW (16  $\Omega$ ) (Other models)

#### Power requirements

Sony AC Power Adaptor connected at the DC

IN 6V jack:

120 V AC, 60 Hz (Models for USA, Canada, Mexico and Taiwan)

230 - V AC, 50/60 Hz (Models for continental Europe, Singapore and Thailand)

240 V AC, 50 Hz (Model for Australia)

220 V AC, 50 Hz (Model for China)

230 - V AC, 50 Hz (Models for U.K. and Hong Kong)

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

The recorder:

Lithium-ion rechargeable battery (Built-in)

LIP-3WMB, 3.7 V, 340 mAh, Li-ion

LR6 (size AA) alkaline battery

USB cradle:

AC power adaptor DC 6V

#### Battery operation time<sup>3)</sup>

##### When recording

(Unit: approx.hours)(JEITA<sup>4)</sup>)

Batteries	SP Stereo	LP2 Stereo	LP4 Stereo
Built-in rechargeable battery <sup>5)</sup>	8.5	11	14
LR6 (SG) Sony alkaline dry battery <sup>6)</sup>	7.5	10	11.5
Built-in rechargeable battery <sup>5)</sup> + One LR6 (SG) <sup>6)</sup>	15	20	26.5

##### When playing

(Unit: approx.hours)(JEITA)

Batteries	SP Stereo	LP2 Stereo	LP4 Stereo
Built-in rechargeable battery	17	20	24
LR6 (SG) Sony alkaline dry battery	27	32	36
Built-in rechargeable battery + One LR6 (SG)	42	52	58

– Continued on next page –

## PORTABLE MINIDISC RECORDER

9-874-284-03

2003B1600-1

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**Sony Corporation**

Personal Audio Company

Published by Sony Engineering Corporation

# SONY®

### Dimensions

Approx. 78.5 × 73.3 × 3.8 mm (w/h/d)  
(3<sup>1</sup>/<sub>8</sub> × 2<sup>7</sup>/<sub>16</sub> × 1/4 in.) (excluding projecting parts  
and controls)

### Mass

Approx. 84 g (3 oz) (including the built-in  
rechargeable battery)

- <sup>1)</sup> The LINE IN (OPT) jack is used to connect either a digital (optical) cable or a line (analog) cable.
- <sup>2)</sup> The  $\phi$ /LINE OUT jack connects either headphones/earphones or a line cable.
- <sup>3)</sup> Measured in accordance with JEITA.
- <sup>4)</sup> Measured in accordance with the JEITA (Japan Electronics and Information Technology Industries Association) standard.
- <sup>5)</sup> When using a 100% fully charged built-in lithium-ion rechargeable battery.
- <sup>6)</sup> When using a Sony LR6 (SG) "STAMINA" alkaline dry battery (produced in Japan).

### Supplied accessories

AC power adaptor (1)  
USB cradle (1)  
Headphones/earphones with a remote control (1)  
Dedicated USB cable (1)  
Dry battery case (1)  
Optical cable (1)  
CD-ROM (SonicStage Ver. 1.5) (1)\*  
Carrying pouch/carrying case with a belt clip (except USA model) (1)  
Recordable MD (USA and Canada models only) (1)  
\*Do not play a CD-ROM on an audio CD player.  
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- All other trademarks and registered trademarks are trademarks or registered trademarks of their respective holders.
- <sup>TM</sup> and ® marks are omitted in this manual.

### SAFETY-RELATED COMPONENT WARNING!!

**COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  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.**

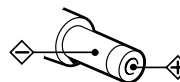
### CAUTION

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.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

**LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\triangle$  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.**

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## 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.

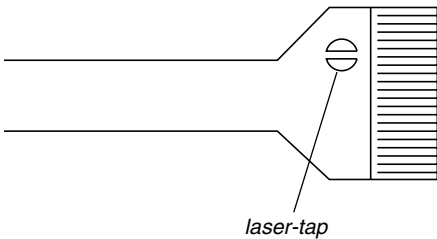
The flexible board is easily damaged and should be handled with care.

**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.

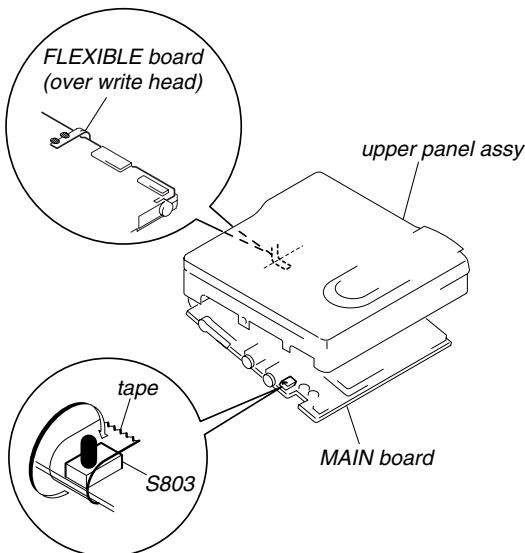
**NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (ABX-1R)**

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 (S803 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.



- Replacement of SN761058ZQL (IC501), CDX2678-202GA (IC801) used in this set requires a special tool
- 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 17)
- This set requires the patch data in the nonvolatile memory (IC851) to be rewritten using the application, when the MAIN board was replaced. (See page 28)

**System requirements**

The following hardware and software are required in order to use the SonicStage software for the Net MD.

Computer	IBM PC/AT or Compatible <ul style="list-style-type: none"> <li>• CPU: Pentium II 400 MHz or higher (Pentium III 450 MHz or higher is recommended.)</li> <li>• Hard disk drive space<sup>1)</sup>: 120 MB or more</li> <li>• RAM: 64 MB or higher (128 MB or higher is recommended)</li> </ul> Others <ul style="list-style-type: none"> <li>• CD-ROM drive (capable of digital playback by WDM)</li> <li>• Sound Board</li> <li>• USB port (supports USB 2.0 Full Speed (previously USB 1.1))</li> </ul>
Operating System	Factory installed: Windows XP Home Edition/Windows XP Professional/ Windows Millennium Edition/Windows 2000 Professional/ Windows 98 Second Edition
Display	High Color (16bit) or greater, 800 × 480 dots or more (800 × 600 dots or more is recommended)
Others	<ul style="list-style-type: none"> <li>• Internet access: for Web registration and EMD services</li> <li>• Windows Media Player (version 7.0 or higher) installed for playing WMA files</li> </ul>

<sup>1)</sup> **Note on hard disk drive space**

120 MB or more free space on the hard disk drive is required. If your computer does not have enough space, the software will not be properly installed. The required free space differs according to the version of your Windows OS, or the amount of audio files that you handle.

**This software is not supported by the following environments:**

- Macintosh
- Windows XP versions other than Home Edition or Professional
- Windows 2000 versions other than Professional
- Windows 98 versions other than Second Edition
- Windows NT
- Windows 95
- Personally constructed PCs or operating systems
- An environment that is an upgrade of the original manufacturer-installed operating system
- Multi-boot environment
- Multi-monitor environment

**Notes**

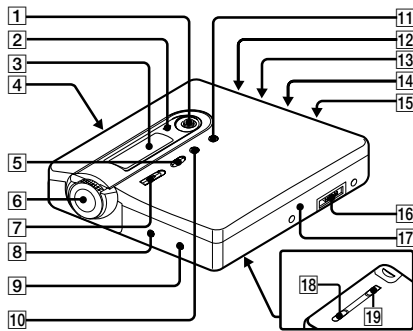
- We do not ensure trouble-free operation on all computers that satisfy the system requirements.
- We do not ensure trouble-free operation of the system suspend, sleep, or hibernation function on all computers.

**SECTION 2  
GENERAL**

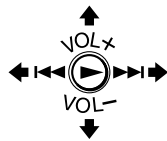
This section is extracted from instruction manual.

**Looking at controls**

**The recorder**



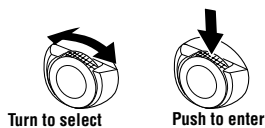
1 5-way control key



Operation	Function
Press ► <sup>1)</sup>	play
Press towards ◀◀	rewind
Press towards ▶▶	fast forward
Press towards VOL+, -	volume

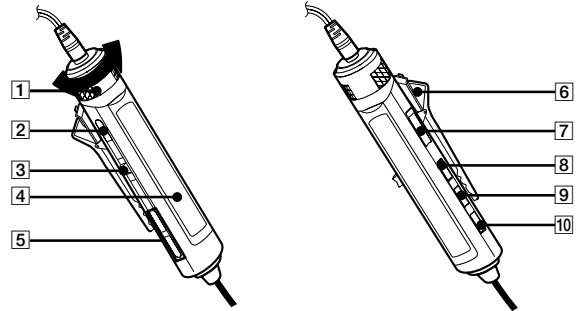
<sup>1)</sup> The ► and VOL + button has a tactile dot.

- 2 Charge lamp
- 3 Display window
- 4 OPEN switch
- 5 GROUP button
- 6 Jog dial (MENU/ENTER)



- 7 ●REC (record) switch
- 8 T MARK button
- 9 END SEARCH button
- 10 || button
- 11 ■ button
- 12 Handstrap hole  
Use the hole to attach your own strap.
- 13 LINE IN (OPT) jack
- 14 MIC (PLUG IN POWER) jack  
There is a tactile dot beside the MIC (PLUG IN POWER) jack.
- 15 ◯ (headphones/earphones)/LINE OUT jack
- 16 USB cradle connecting jack
- 17 A terminal for attaching dry battery case
- 18 HOLD switch  
Slide the switch in the direction of the arrow to disable the buttons on the recorder. To prevent the buttons from being accidentally operated when you carry the recorder, use this function.
- 19 BUILT-IN BATTERY switch  
Slide the switch to ON when using the recorder for the first time, and keep it ON thereafter (it is factory set to OFF).

**The headphones/earphones with a remote control**



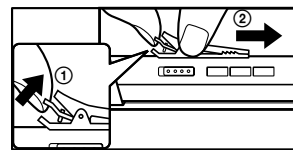
- 1 Volume control (VOL+, -)  
Turn to adjust the volume.
- 2 ■ (stop) button
- 3 Jog lever (►||/ENT, ◀◀, ▶▶)  
►||/ENT (to press): play, pause, enter  
◀◀ (to slide towards): REW  
▶▶ (to slide towards): FF
- 4 Display window
- 5 ◻ (group) +, -

- 6 Clip
- 7 HOLD switch  
Slide the switch in the direction of the arrow (a yellow mark appears) to disable the buttons on the remote control. To prevent the buttons from being accidentally operated when you carry the recorder, use this function.
- 8 DISPLAY button
- 9 P MODE/◁ button
- 10 SOUND button

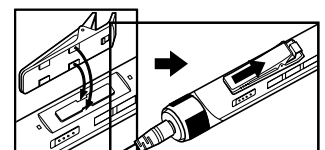
**Using the clip for the remote control**

The clip can be removed and reattached in the opposite direction.

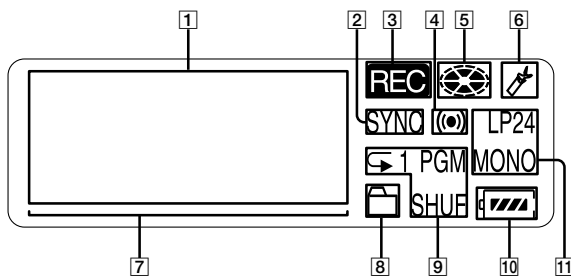
**Removing the clip**



**Attaching the clip in the opposite direction**

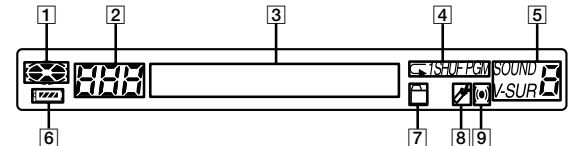


**The display window of the recorder**



- 1 Character information display  
Displays the disc and track names, date, error messages, track numbers, etc.
- 2 SYNC (synchro-recording) indication
- 3 REC indication  
Lights up while recording. When flashing, the recorder is in record standby mode.
- 4 Melody timer indication
- 5 Disc indication  
Shows that the disc is rotating for recording or playing.
- 6 Bookmark indication  
Lights up when playing a bookmarked track.
- 7 Level meter
- 8 Group indication
- 9 Play mode indication  
Shows the play mode (shuffle play, program play, repeat play, etc.) of the MD.
- 10 Battery indication  
Shows the approximate remaining battery charge. If the built-in rechargeable battery is weak, the indication becomes empty and starts flashing. The recorder will first draw power from the built-in rechargeable battery, even if a dry battery is inserted in the dry battery case. It switches automatically to the dry battery when the built-in rechargeable battery becomes drained. While the recorder is using the power from the dry battery, the frame around the indication will begin slowly flashing.
- 11 LP2, LP4, MONO (monaural) indication

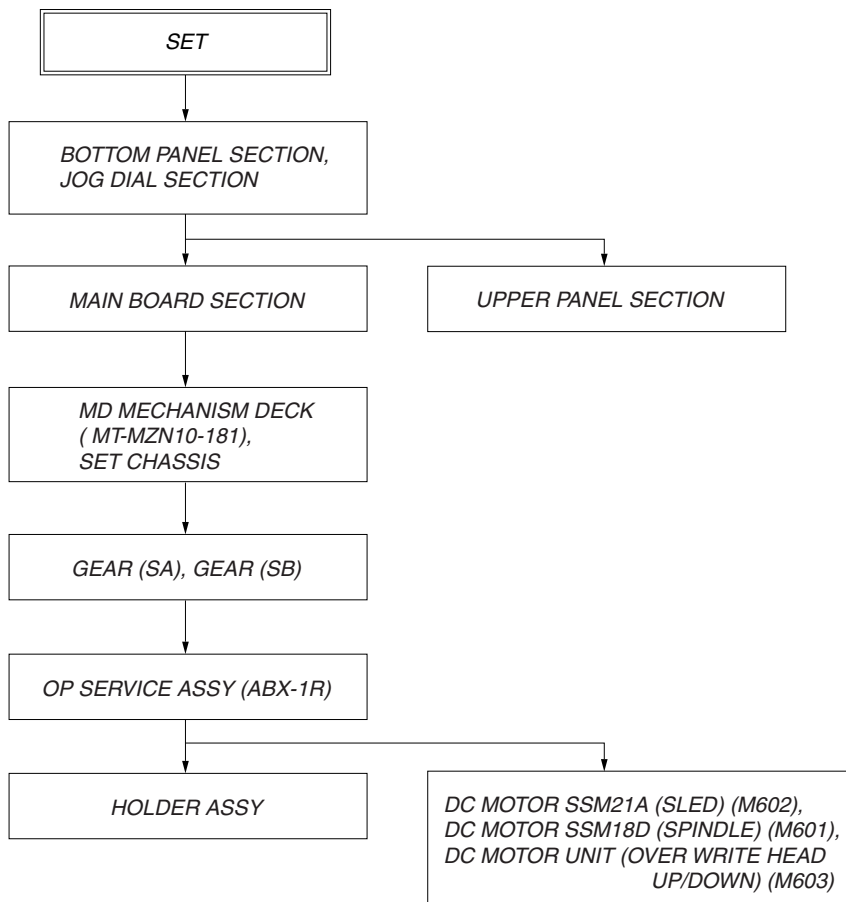
**The display window of the remote control**



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

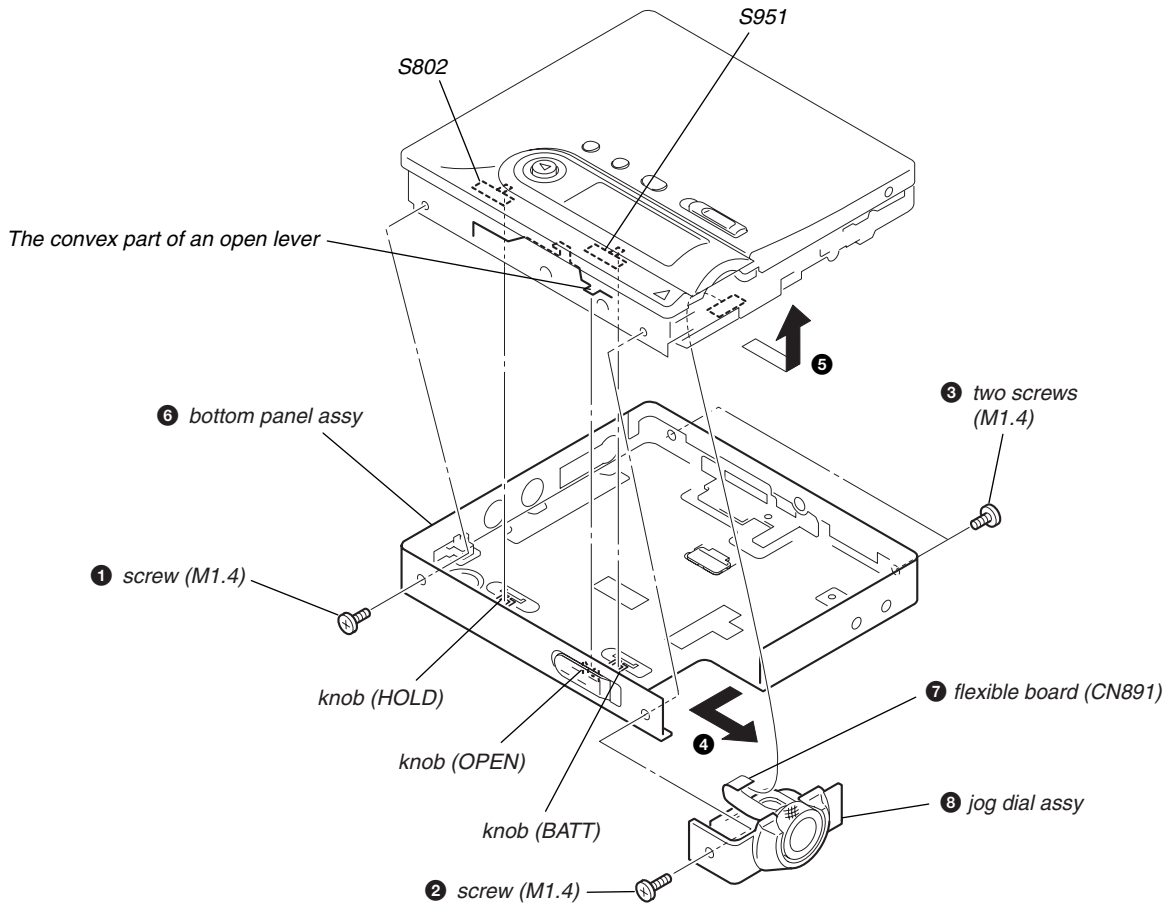
### SECTION 3 DISASSEMBLY

- The equipment can be removed using the following procedure.

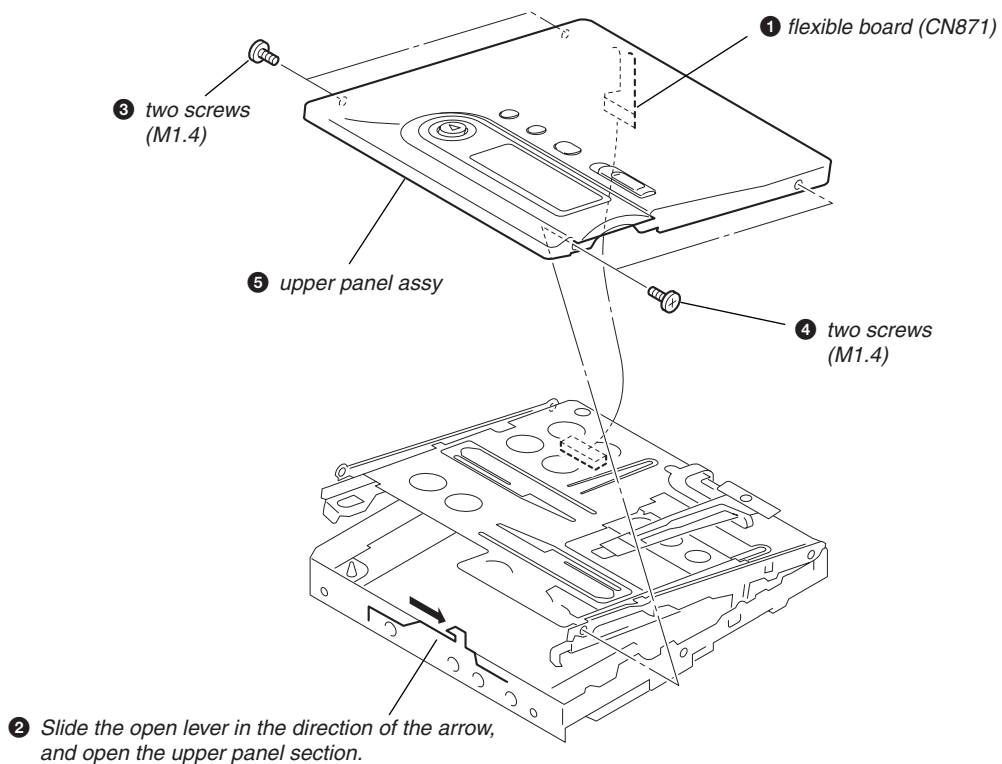


### 3-1. Bottom Panel Section, Jog Dial Section

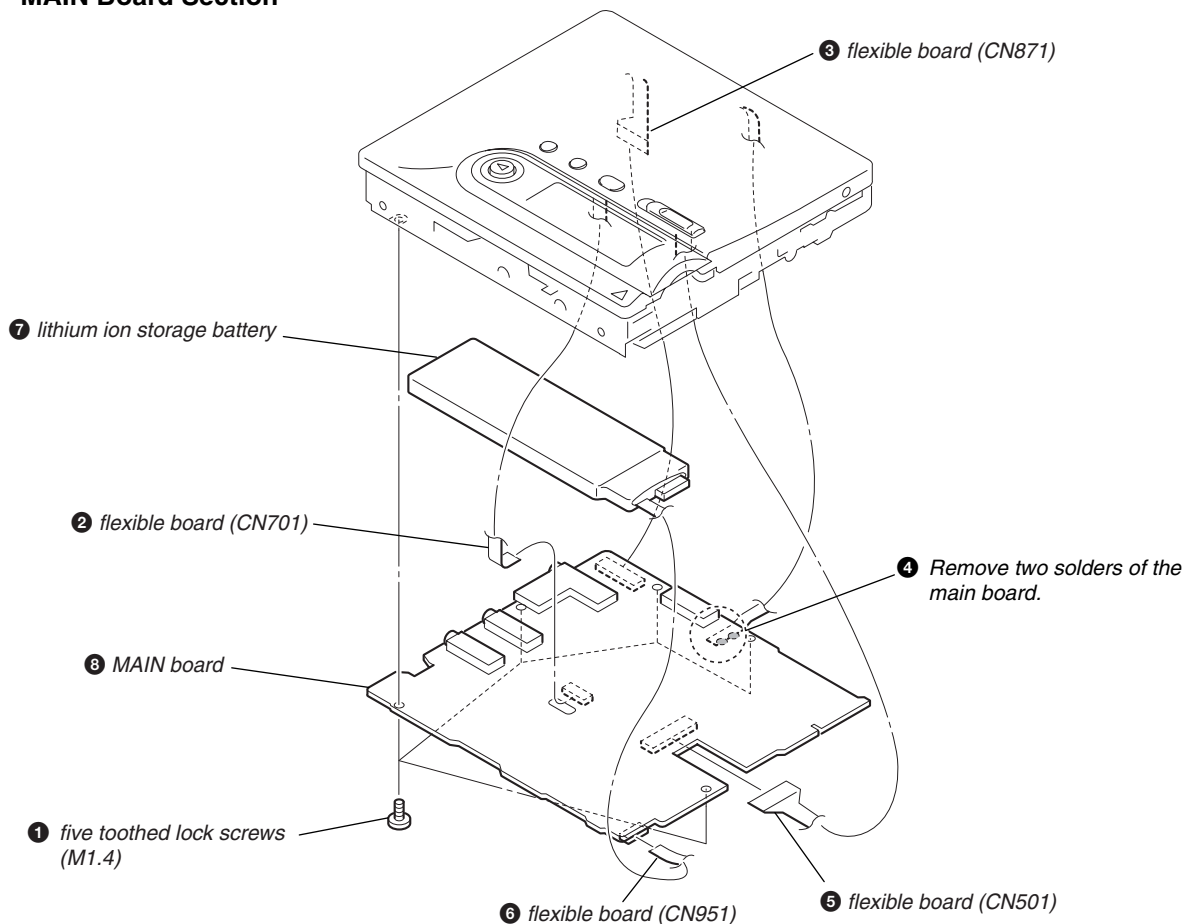
Notes: On installation, adjust the position of both switch (S802) and knob (hold).  
 @ @ @Adjust the position of both switch (S951) and knob (batt).  
 @ @ @Adjust the position of both the convex part of an open lever and knob (open).



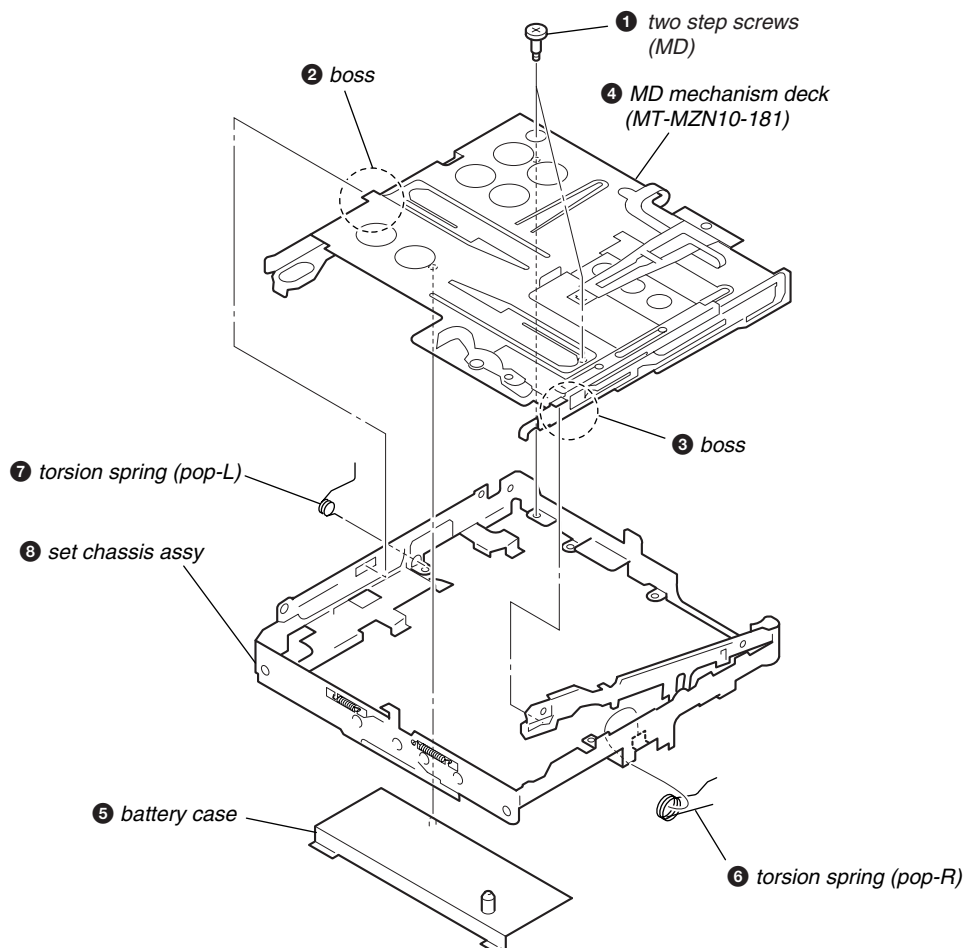
### 3-2. Upper Panel Section



## 3-3. MAIN Board Section

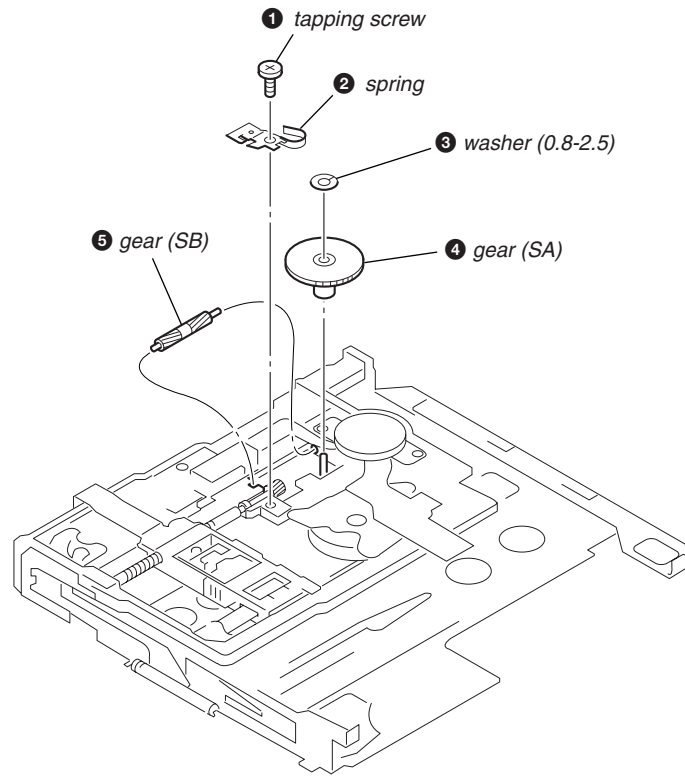


## 3-4. MD Mechanism Deck (MT-MZN10-181), Set Chassis

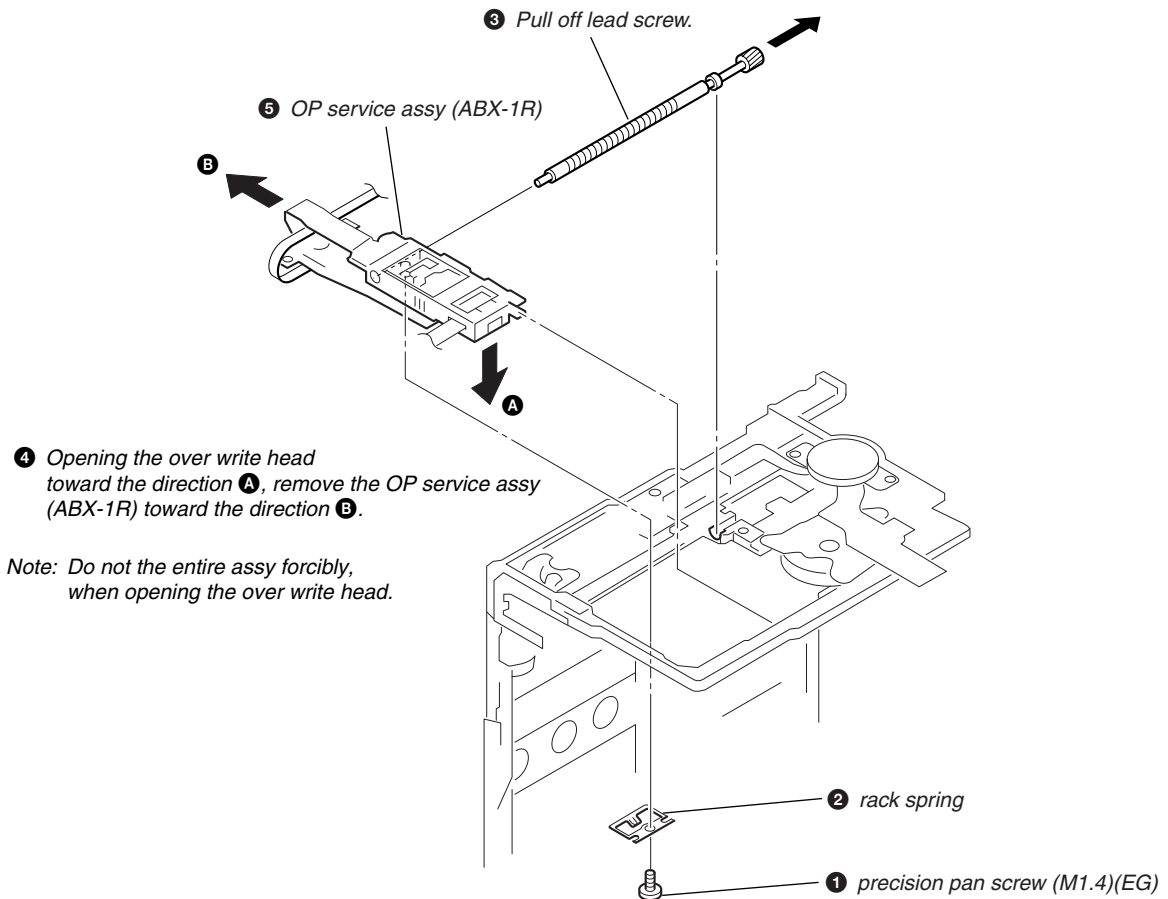




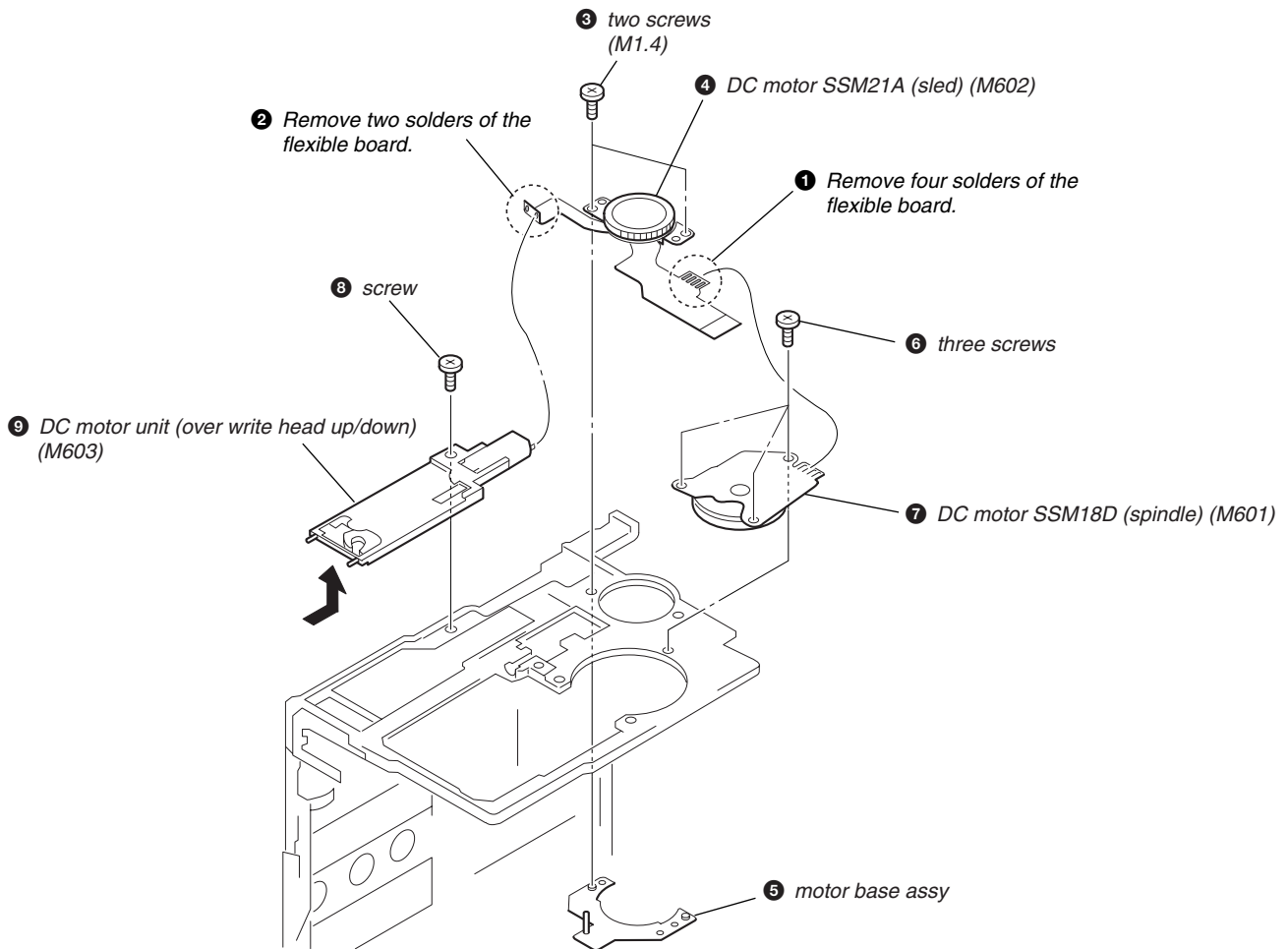
3-5. Gear (SA), Gear (SB)



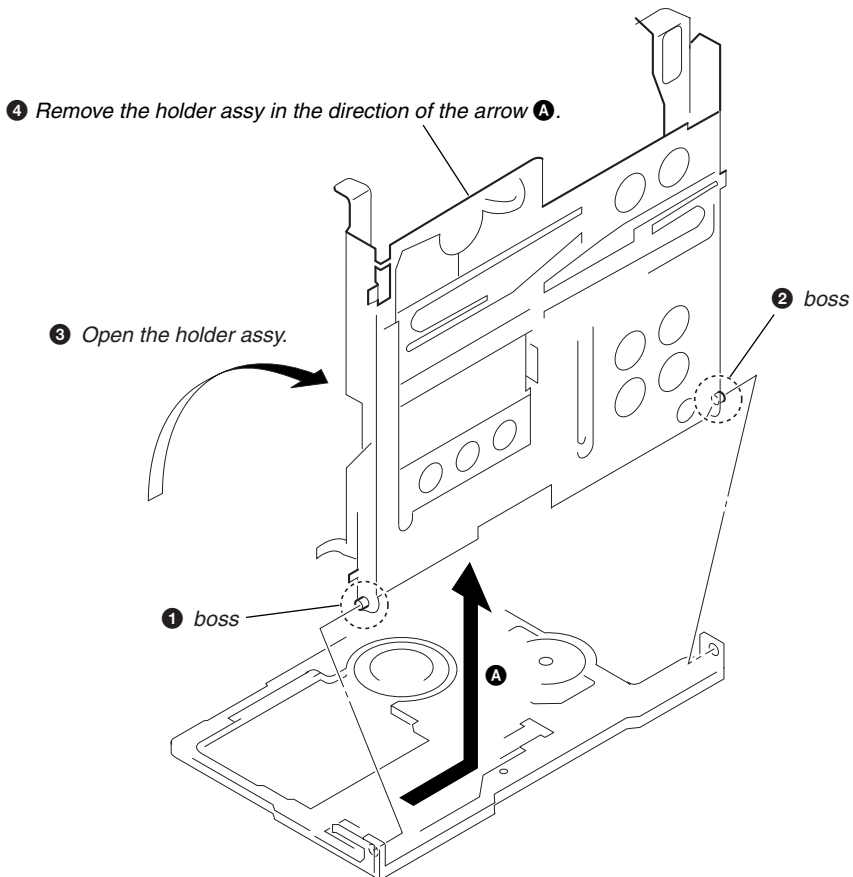
3-6. OP Service Assy (ABX-1R)



**3-7. DC Motor SSM21A (Sled) (M602), DC Motor SSM18D (Spindle) (M601), DC Motor Unit (Over Write Head Up/Down) (M603)**



**3-8. Holder Assy**



## SECTION 4 TEST MODE

### Outline

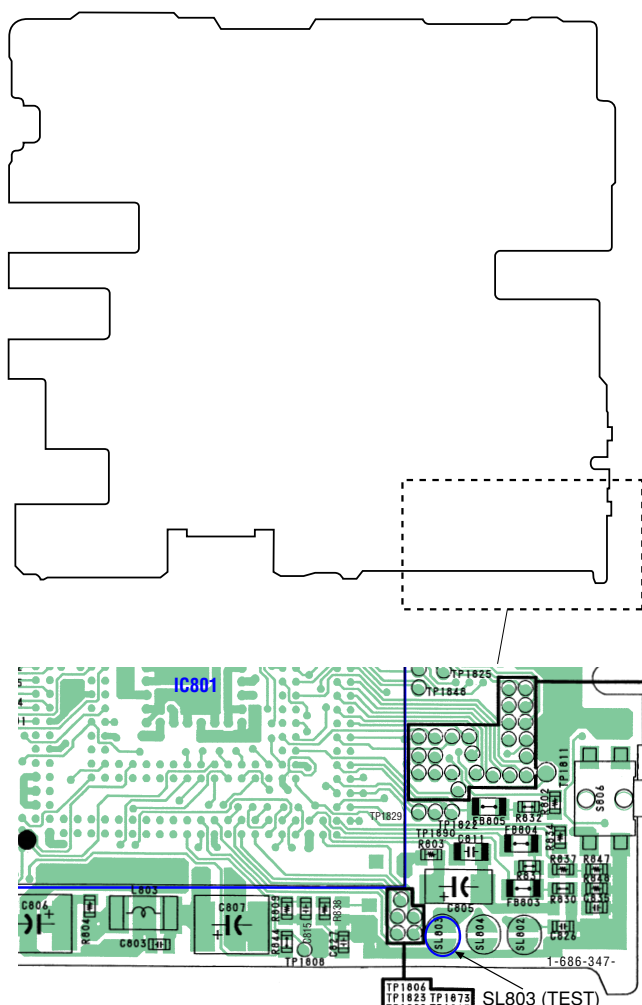
- This set provides the Overall adjustment mode that allows CD and MO discs to be automatically adjusted when in the test mode. In this overall adjustment mode, the disc is discriminate between CD and MO, and each adjustment is automatically executed in order. If a fault is found, the system displays 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. (Both displays may be displayed.)

### Setting Method of Test Mode

There are three different methods to set the test mode:

- ① Short SL803 (TEST) on the MAIN board with a solder bridge (connect pin ② of IC801 to the ground) and turn on the power.

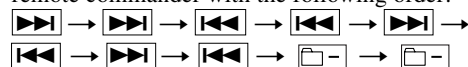
#### – MAIN Board (Side B) –



- ② In case of setting the test mode only by keys on the set:  
In the normal mode, turn on the [HOLD] switch. While pressing the [GROUP] key press the following order:

- ③ In case of setting the test mode by keys on the set and remote commander:

In the normal mode, turn on the [HOLD] switch on the set. While pressing the [ ] key on the set, press the keys on the remote commander with the following order:

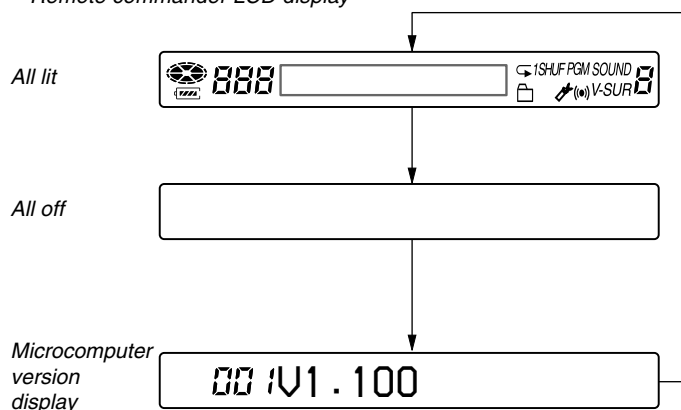


**Note:** If electrical adjustment (CD and MO overall adjustment) has not been finished completely, "ERROR" is displayed on LCDs of the set and the remote commander.

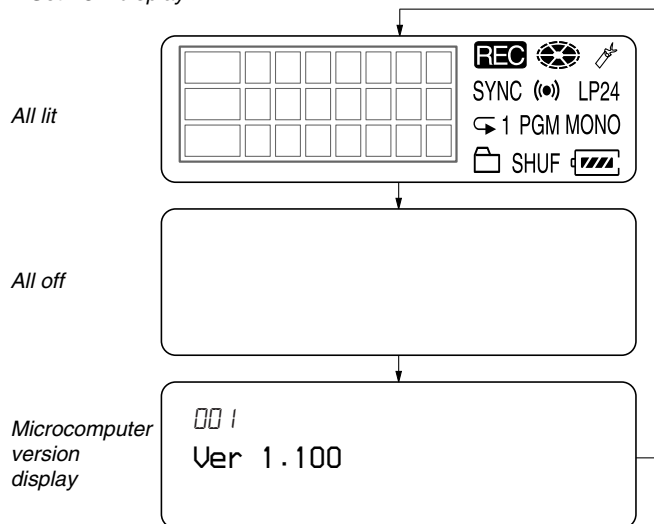
### Operation in Setting the Test Mode

- 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



#### Set LCD display



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

### Releasing the Test Mode

For test mode set with the method ①:

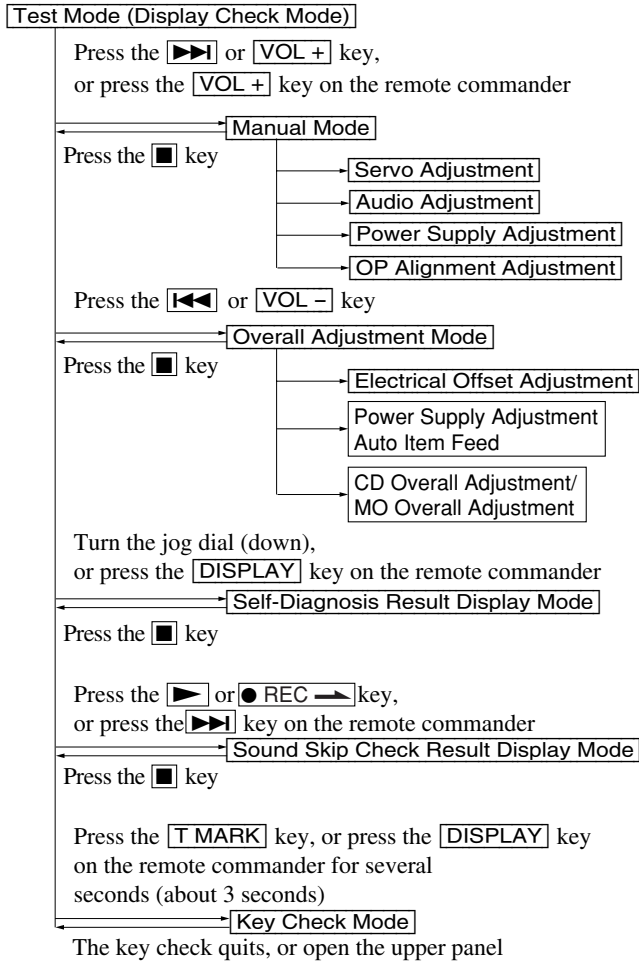
Turn off the power and open the solder bridge on SL803 (TEST) on the MAIN board.

**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.

The manual mode consists of a major item, a medium item and a minor item.

The manual mode is divided into four groups of major items.

SERVO : item number 000 - 500, 800 -

AUDIO : item number 600 -

POWER : item number 700 -

OP : item number 900 -

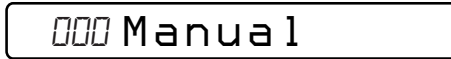
A medium item divides a major item and is used to select functions.

In a minor item, adjustments or operation checks are performed.

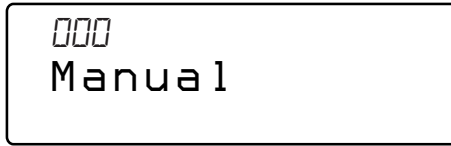
**• Transition method in manual mode**

1. Set the test mode (see page 11).
2. Press the [F2] key, [VOL +] key or [VOL +] key on the remote commander activates the manual mode where the LCD display as shown below.

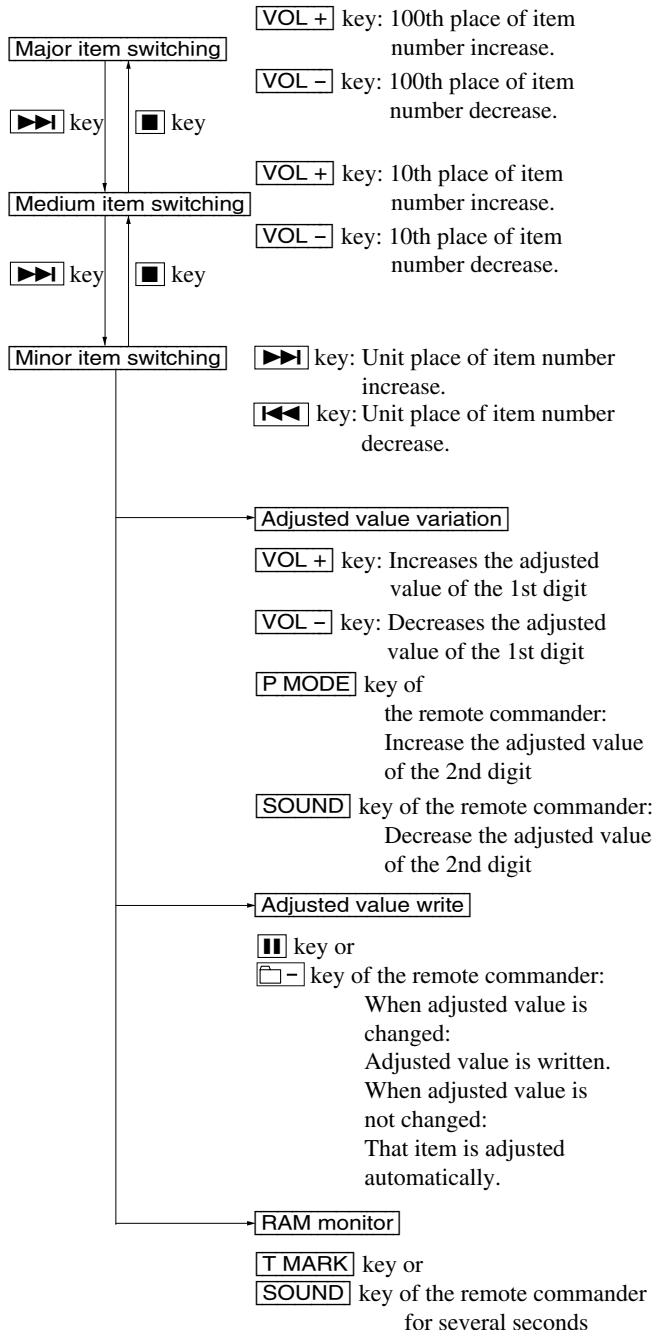
Remote commander LCD display



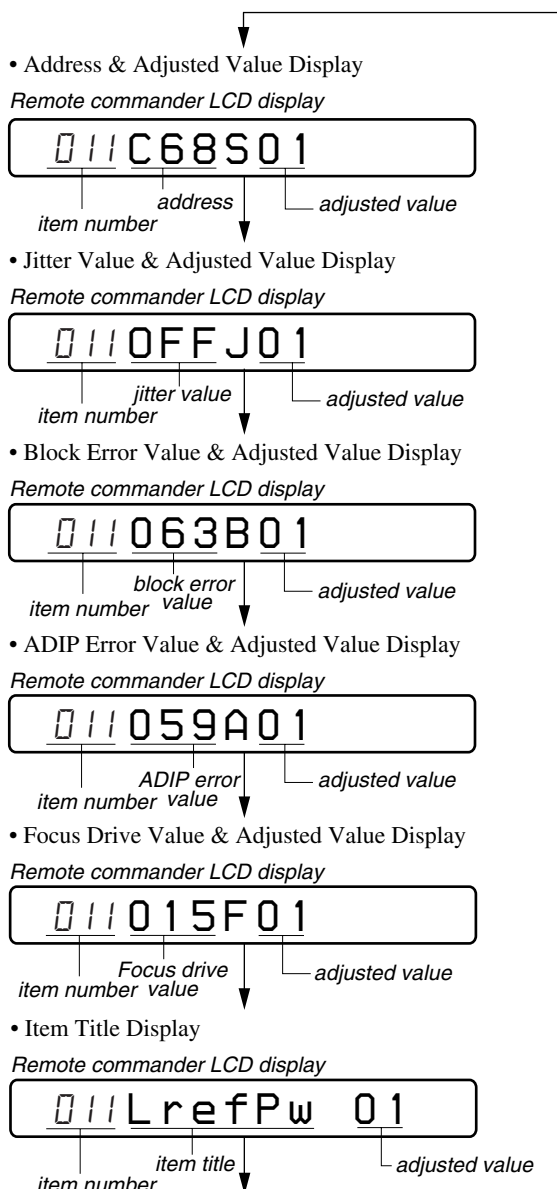
Set LCD display



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 non-volatile 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 **[STOP]** 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 17).

**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.

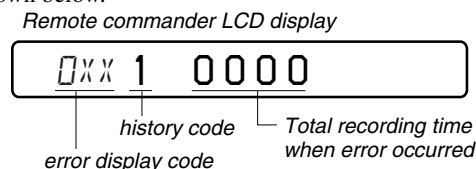
By checking this history in the test mode, you can analyze a fault and determine its location.

Total recording time is recorded as a guideline of how long the optical pick-up 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.

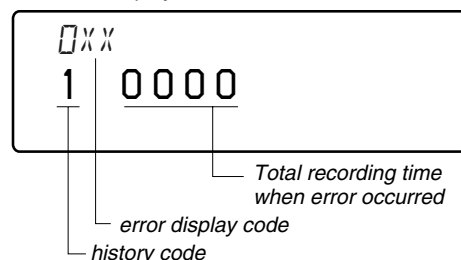
Clear both self-diagnosis history data and total recording time, if the optical pick-up was replaced.

**Self-diagnosis result display mode setting method**

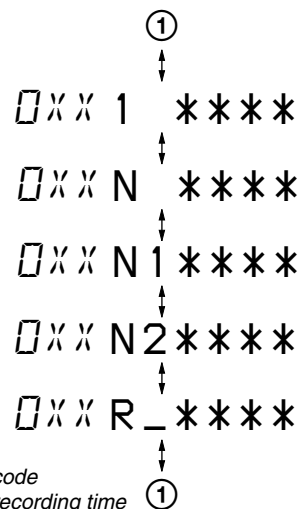
- Set the test mode (see page 11).
- In the display check mode, turning the jog dial (down) or pressing the **[DISPLAY]** key on the remote commander activates the self-diagnosis result display mode where the LCD display as shown below.



Set LCD display



- Then, each time the **[NEXT]** key is pressed, LCD display descends by one as shown below. Also, the LCD display ascends by one when the **[PREV]** 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 **[STOP]** 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
	13	TOC address error	Tadr	TOC address data error
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
	35	MD DATA 2 Disc error	MD2	MD DATA 2 disc error
	36	Mirror error	Mirr	Mirror decision retry over

• 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

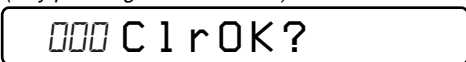
**Reset the Error Display Code**

After servicing, reset the error display code.

• Setting method of reset the error display code

1. Set the test mode (see page 11).
2. Turning the jog dial (down) or pressing the **[DISPLAY]** key on the remote commander activates the self-diagnosis result display mode.
3. To reset the error display code, press the **[REC]** key or **[ ]** key on the remote commander (twice) when the code is displayed (except "R\_\*\*\*\*").

*Remote commander LCD display  
(Key pressing at the first time)*



*Remote commander LCD display  
(Key pressing at the second time)*



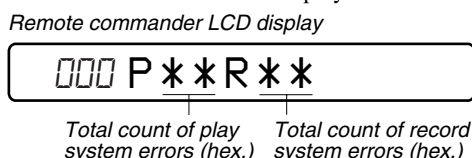
(All the data on the 1, N, N1, and N2 will be reset)

### Sound Skip Check Result Display Mode

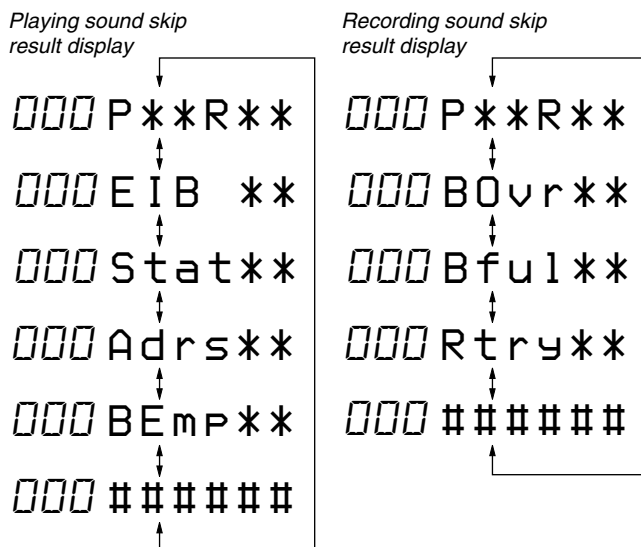
This set can display the count of errors that occurred during the recording/playing for checking.

#### • Setting method of sound skip check result display mode

1. Set the test mode (see page 11).
2. Press the key or key, and the playing or recording sound skip check result display mode becomes active respectively and press the key on the remote commander, and then the playing sound skip check result display mode becomes active where the LCD displays the following.



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 key is pressed, the display in the record mode appears. 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 key is pressed, the display in the play mode appears.



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

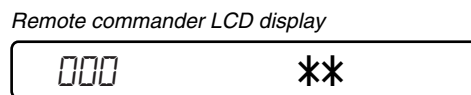
4. To quit the sound skip check result display mode and to return to the test mode (display check mode), press the key.

### Key and Jog Check Mode

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

#### • Setting method of key check mode

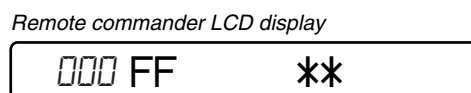
1. Set the test mode (see page 11).
2. Pressing the key or key on the remote commander for several seconds (about 3 seconds) activates the key check mode. (At the last two digits, AD value of remote commander key line is displayed in hexadecimal)



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

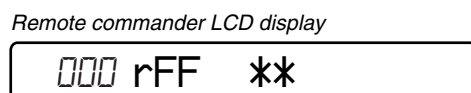
3. When each key on the set and on remote commander is pressed, its name is displayed on the remote commander LCD. (The operated position is displayed for 4 seconds after the slide switch is operated. If any other key is pressed during this display, the remote commander LCD switches to its name display)

Example1: When the key on the set is pressed:



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

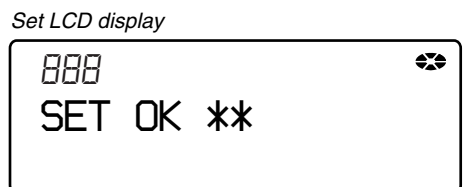
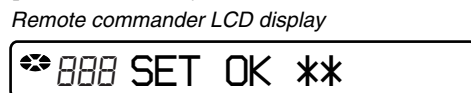
Example2: When the key on the remote commander is pressed:



\*\* : 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:



\*\* : 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*



*Set LCD display*



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

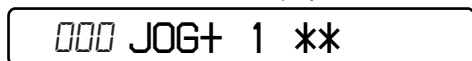
5. When all keys were checked or if the upper panel is opened, the key check mode quits and the test mode (display check mode) comes back.

### • Jog check mode

Jog check mode is available during the key check mode.

1. Turn the jog dial downwards one click.

*Remote commander LCD display*



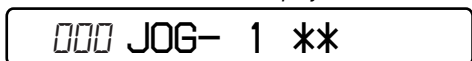
2. Turn the jog dial downwards three more clicks.

*Remote commander LCD display*



3. Turn the jog dial upwards one click.

*Remote commander LCD display*



4. Turn the jog dial upwards three more clicks.

*Remote commander LCD display*





## SECTION 5 ELECTRICAL ADJUSTMENTS

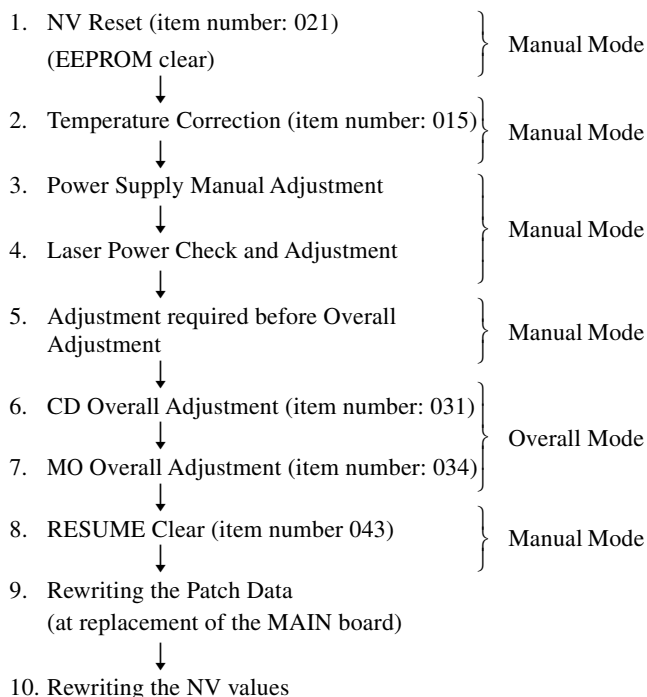
### Outline

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode. However, before starting automatic adjustment, the memory clear, power supply adjustment, and laser power check must be performed in the manual mode.
- 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.

### Precautions for Adjustment

1. Adjustment must be done in the test mode only. After adjusting, release the test mode.
2. Use the following tools and measuring instruments.
  - Test CD disc TDYS-1 (Part No. : 4-963-646-01)
  - SONY MO disc available on the market
  - Digital voltmeter
  - Laser power meter LPM-8001 (Part No. : J-2501-046-A)
  - AC adaptor (6V) and USB cradle
  - Personal computer
  - USB cable
  - Regulated dc power supply (two sets)
  - Thermometer (using the Temperature Correction)
3. Unless specified otherwise, use AC adaptor (6V) and USB cradle.
4. Switch position  
HOLD switch ..... ON

### Adjustment Sequence



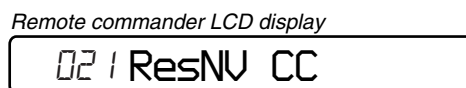
**Note:** “2. Temperature Correction” and “3. Power Supply Manual Adjustment” can be performed continuously with pressing the **[VOL -]** key or the **[P MODE]** key on the remote commander in the overall adjustment mode.

### NV Reset

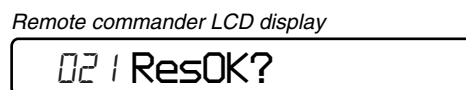
**Caution:** The shipment data will be cleared without the adjusted values of the electrical offset adjustment and power supply adjustment when the NV is reset.

#### • Setting method of NV reset

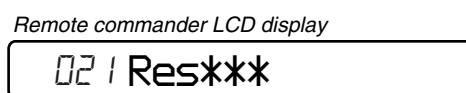
1. Select the manual mode of the test mode, and set item number 021 NV Reset (see page 12).



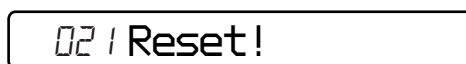
2. Press the **[ ]** key.



3. Press the **[ ]** key once more.



↓ NV reset (after several seconds)

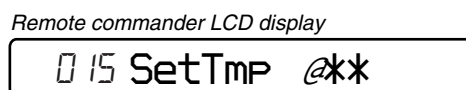


4. Press the **[ ]** key to quit the manual mode, and return to the test mode (display check mode).

### Temperature Correction

#### • Adjustment method of temperature correction

1. Select the manual mode of test mode, and set the item number 015 (see page 12).



\*\* : Adjusted value

2. Measure the ambient temperature.
3. Adjust with **[VOL +]**, **[VOL -]** 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 **[ ]** key to write the adjusted value.
5. Press the **[ ]** key to quit the manual mode, and return to the test mode (display check mode).

**Note :** Power supply adjustment auto item feed mode (see page 22 ) is available to perform the temperature correction and power supply adjustment without entering the manual mode.

**Power Supply Manual Adjustment**

**• Adjustment sequence**

Adjustment must be done with the following steps.

1. VC1 Low adjustment (item number : 741)
2. VC1 High adjustment (item number : 742)
3. VC2 Low adjustment (item number : 743)
4. VC2 High adjustment (item number : 744)
5. REG1 adjustment (item number : 745)
6. REG3 Low (VC2 Low) adjustment (item number : 747)
7. REG3 Low (VC2 High) adjustment (item number : 748)
8. REG3 High adjustment (item number : 749)
9. VREC\_Low adjustment (item number : 751)
10. VREC\_Middle adjustment (item number : 752)
11. VREC\_High adjustment (item number : 753)
12. 3.3upc adjustment (item number : 754)
13. ChgV L adjustment (item number : 755)
14. ChgV H adjustment (item number : 756)

**• Setting method of power supply manual adjustment**

1. Make sure that the power supply voltage is 6V(AC adaptor).
2. Select the manual mode of the test mode (see page 12).
3. Set item number.

Note : Power supply adjustment auto item feed mode (see page 12 ) is available to perform the temperature correction and power supply adjustment without entering the manual mode.

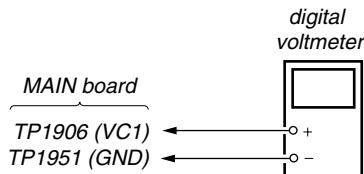
**• Adjustment method of VC1 Low (item number: 741)**

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1906 (VC1) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $2.35^{+0.005}_{-0.000}$  V.

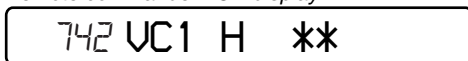


2. Press the [ ] key or the [ ] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board (see page 21)

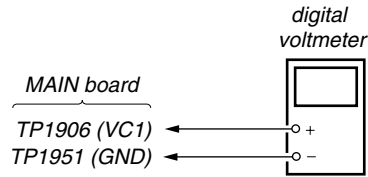
**• Adjustment method of VC1 High (item number: 742)**

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1906 (VC1) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $2.75^{+0.005}_{-0.000}$  V.



2. Press the [ ] key or the [ ] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board (see page 21)

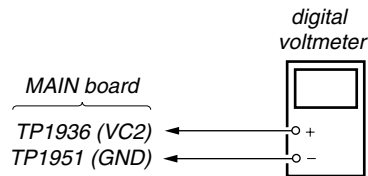
**• Adjustment method of VC2 Low (item number: 743)**

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1936 (VC2) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.25^{+0.007}_{-0.000}$  V.

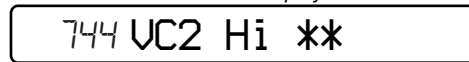


2. Press the [ ] key or the [ ] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board (see page 21)

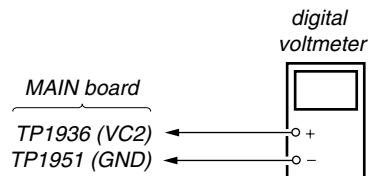
**• Adjustment method of VC2 High (item number: 744)**

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1936 (VC2) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.70^{+0.007}_{-0.000}$  V.

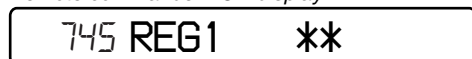


2. Press the [ ] key or the [ ] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board (see page 21)

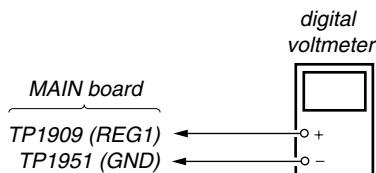
• **Adjustment method of REG1**  
(item number: 745)

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1909 (REG1) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $2.15 \pm_{-0.00}^{+0.01}$  V.

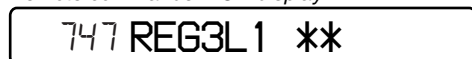


2. Press the [H] key or the [L] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

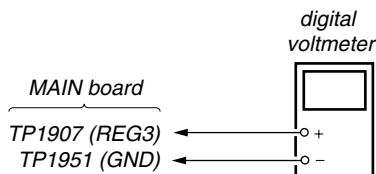
• **Adjustment method of REG 3 Low (VC2 Low)**  
(item number: 747)

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1907 (REG3) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.20 \pm_{-0.00}^{+0.01}$  V.



2. Press the [H] key or the [L] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

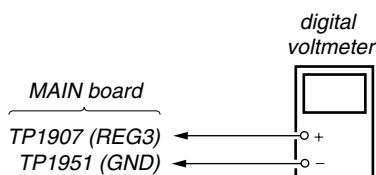
• **Adjustment method of REG 3 Low (VC2 High)**  
(item number: 748)

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1907 (REG3) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.20 \pm_{-0.00}^{+0.01}$  V.

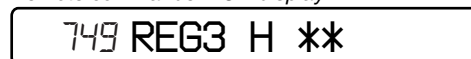


2. Press the [H] key or the [L] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

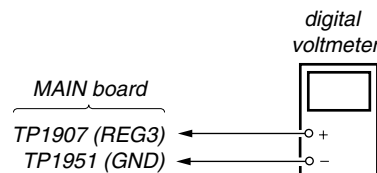
• **Adjustment method of REG 3 High**  
(item number: 749)

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1907 (REG3) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.35 \pm_{-0.00}^{+0.01}$  V.

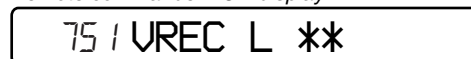


2. Press the [H] key or the [L] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

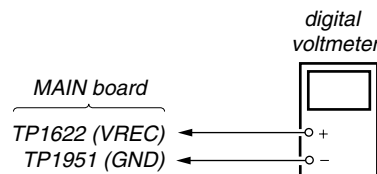
• **Adjustment method of VREC\_Low**  
(item number: 751)

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1622 (VREC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.10 \pm 0.015$  V.



2. Press the [H] key or the [L] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

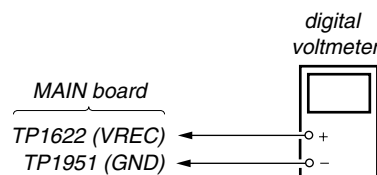
• **Adjustment method of VREC\_Middle**  
(item number: 752)

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1622 (VREC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.24 \pm 0.015$  V.



2. Press the [H] key or the [L] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

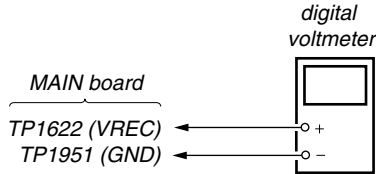
• **Adjustment method of VREC\_High**  
(item number: 753)

Remote commander LCD display



\*\* : Adjusted value

1. Connect a digital voltmeter to the TP1622 (VREC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $1.54 \pm 0.015$  V.



2. Press the [HOLD] key or the [OFF] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

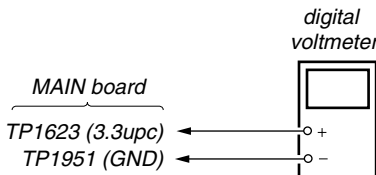
• **Adjustment method of 3.3upc**  
(item number: 754)

Remote commander LCD display



\*\* : Adjusted value

1. Remove the AC adaptor and USB cradle.
2. Turn off the BUILT-IN BATTERY switch.
3. Remove the rechargeable battery from the connector (CN951).
4. Supply dc 3.7V to the battery terminals (TP1952 : +, TP1951 : GND) with a regulated dc power supply.
5. Supply dc 5V to pin 8 (VBUS) of CN952 with a regulated dc power supply.
6. Turn on the BUILT-IN BATTERY switch.
7. Select the manual mode of the test mode (see page 12), and set the item number 754.
8. Connect a digital voltmeter to the TP1623 (3.3upc) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $3.30 \pm 0.01$  V.



9. Press the [HOLD] key or the [OFF] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

• **Adjustment method of ChgV L**  
(item number: 755)

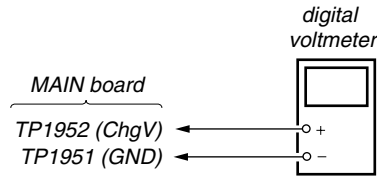
Remote commander LCD display



\*\* : Adjusted value

Note : Remove the rechargeable battery from the connector (CN951) and measure the voltage with the BUILT-IN BATTERY switch on. Use AC adaptor (6V) and USB cradle to supply the power.

1. Connect a digital voltmeter to the TP1952 (ChgV) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $3.40 \pm 0.024$  V.



2. Press the [HOLD] key or the [OFF] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

• **Adjustment method of ChgV H**  
(item number: 756)

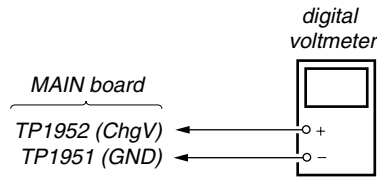
Remote commander LCD display



\*\* : Adjusted value

Note : Remove the rechargeable battery from the connector (CN951) and measure the voltage with the BUILT-IN BATTERY switch on. Use AC adaptor (6V) and USB cradle to supply the power.

1. Connect a digital voltmeter to the TP1952 (ChgV) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL -] key (voltage down) so that the voltage becomes  $4.20 \pm 0.024$  V.

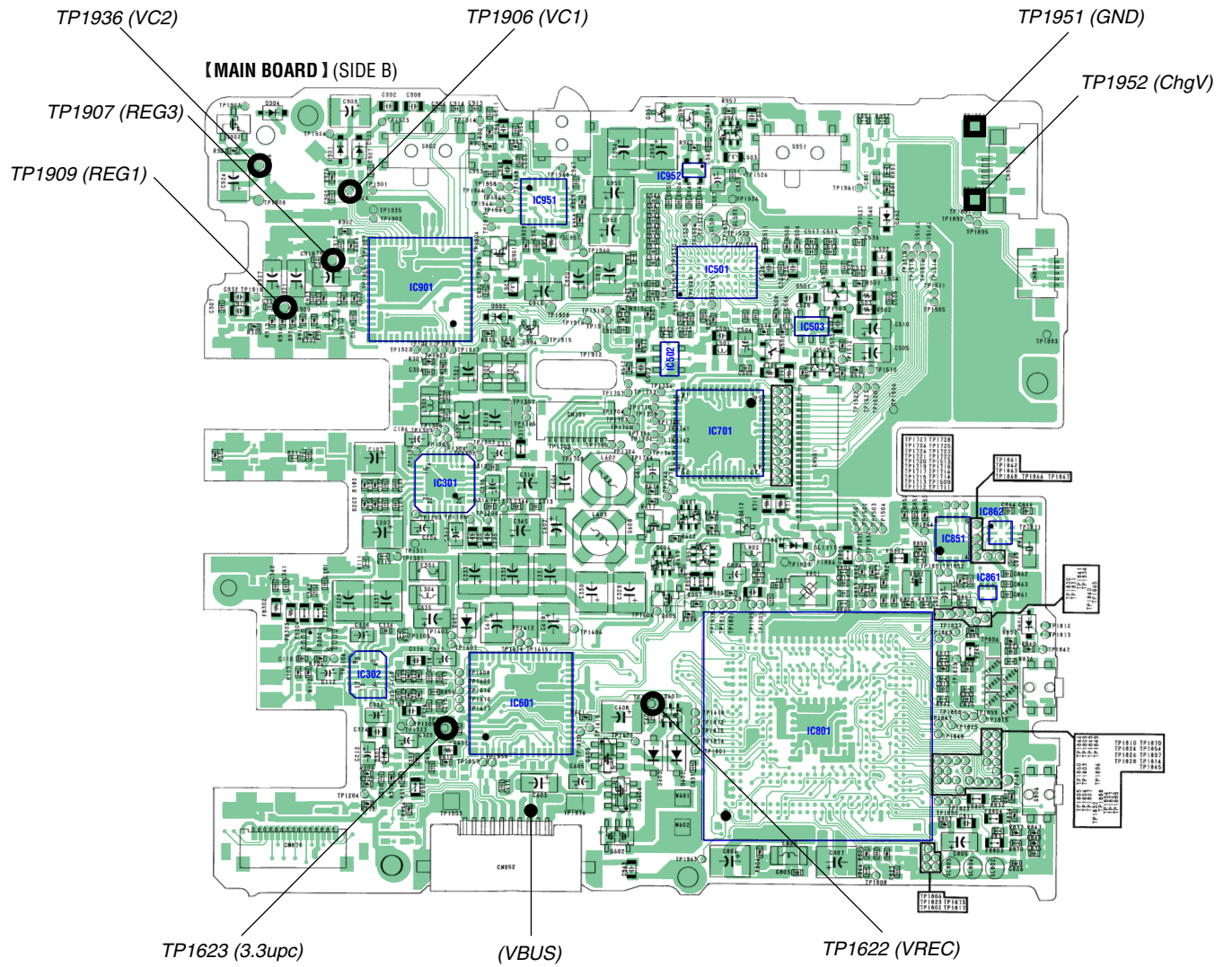


2. Press the [HOLD] key or the [OFF] key on the remote commander to write the adjusted value.

**Adjustment and Connection Location:** MAIN board  
(see page 21)

**Adjustment/checking and Connection Location:**

**– MAIN Board (Side B) –**



**Power Supply Adjustment Auto Item Feed**

Note : This mode is available to perform the temperature correction and power supply adjustment without entering the manual mode.

**• Setting method of power supply adjustment auto item feed mode.**

1. Set the test mode (see page 11)
2. Press the **◀◀** or **VOL -** key to activate the overall adjustment mode.

Remote commander LCD display



3. Turn the jog dial (up), or press the **P MODE** key on the remote commander to set the temperature correction mode.

Remote commander LCD display



\*\* : Adjusted value

4. To change the initial value (hexadecimal), adjust with the **VOL +** or **VOL -** key. Press the **||** key to write the adjusted value, and the item number increases automatically. When not writing the adjusted value, press the **▶▶** key to move to the next item.

Remote commander LCD display



\*\* : Adjusted value

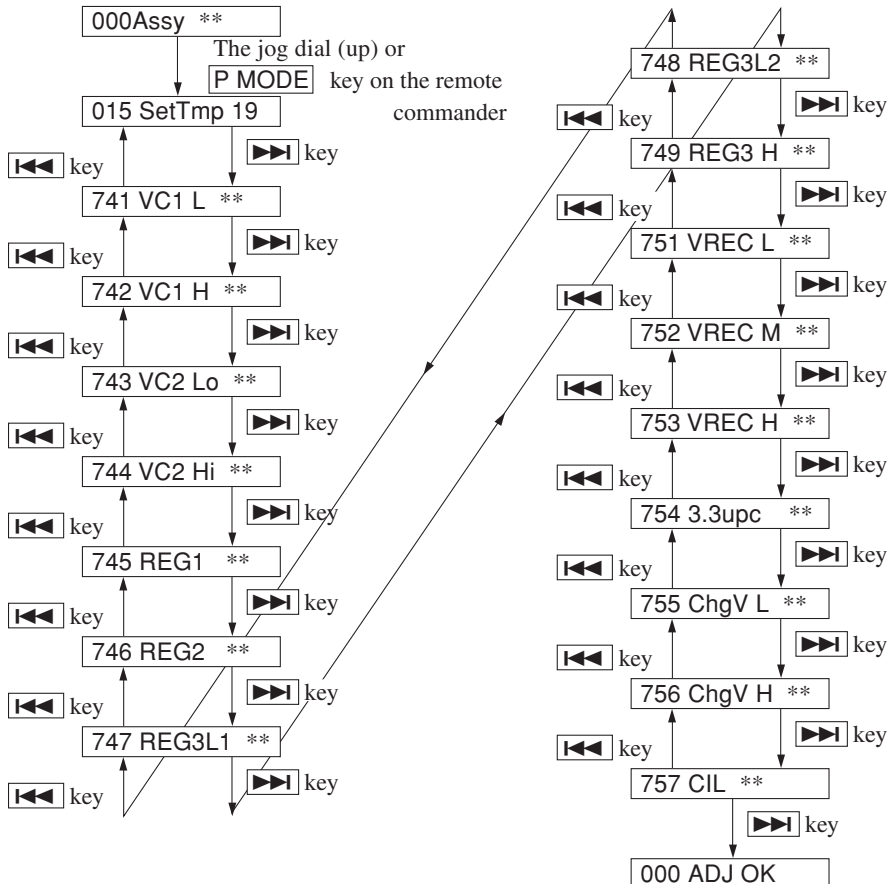
5. Connect a digital voltmeter to the test points on the MAIN board, and adjust the voltage with the **VOL +** or **VOL -** key. (see page 18 to 20) Press the **||** key to write the adjusted value, and the item number increases automatically.
6. When not writing the adjusted value, press the **▶▶** key to move to the next item. The **◀◀** key is available to back to the last item.
7. The following message is displayed after all power supply adjustments finish.

Remote commander LCD display



8. Press the **■** key to return to the test mode (display check mode).

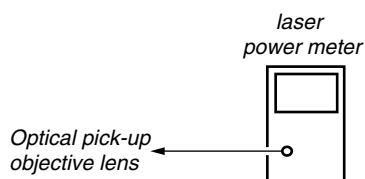
**Configuration of power supply adjustment auto item feed**





## Laser Power Check and Adjustment

### Connection :



### Checking and Adjustment Method :

1. Select the manual mode of test mode (see page 12), and set the laser power adjusting mode (item number 010).

Remote commander LCD display

010 Laser

2. Press the **◀◀** 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 **▶▶** key, and set the laser MO read adjustment mode (item number 011).

Remote commander LCD display

011 LrefPw @\*\*

5. Check that the laser power meter reading is  $0.572 \pm 0.10$  mW.
6. If the reading value is not satisfied, adjust with the **VOL+** or **VOL-** key so that the laser power meter reading becomes the specification value. Press the **||** key or **[-]** key on the remote commander to write the adjusted value.
7. Press the **▶▶** key, and set the laser CD read adjustment mode (item number 012).

Remote commander LCD display

012 HrefPw @\*\*

8. Check that the laser power meter reading is  $0.763 \pm 0.13$  mW.
9. If the reading value is not satisfied, adjust with the **VOL+** or **VOL-** key so that the laser power meter reading becomes the specification value. Press the **||** key or **[-]** key on the remote commander to write the adjusted value.
10. Press the **▶▶** key, and set the laser MO (x2 speed) write adjustment mode (item number 013).

Remote commander LCD display

013 WrPwLo @\*\*

11. Check that the laser power meter reading is  $7.34 \pm 0.88$  mW.
12. If the reading value is not satisfied, adjust with the **VOL+** or **VOL-** key so that the laser power meter reading becomes the specification value. Press the **||** key or **[-]** key on the remote commander to write the adjusted value.
13. Press the **▶▶** key, and set the laser MO (x4 speed) write adjustment mode (item number 014).

Remote commander LCD display

014 WrPwHi @\*\*

14. Check that the laser power meter reading is  $8.81 \pm 1.05$  mW.
15. If the reading value is not satisfied, adjust with the **VOL+** or **VOL-** key so that the laser power meter reading becomes the specification value. Press the **||** key or **[-]** key on the remote commander to write the adjusted value.
16. Press the **■** key to quit the manual mode, and activate the test mode (display check mode).

**Adjustment required before Overall Adjustment**

Note : Modify five adjusted values through the following procedure before performing the CD overall adjustment and MO overall adjustment.

**Adjusted values modifying procedure**

1. Select manual mode of the test mode, and set item number 822 (see page 12).

Remote commander LCD display



\*\* : Adjusted value

2. Adjust with the [VOL+] key (adjusted value up) or [VOL-] key (adjusted value down) so that the adjusted value becomes 03.
3. Press the [II] key to write the adjusted value.
4. Select manual mode of the test mode, and set item number 870 (see page 12).
5. Press the [▶▶] key to set item number 875.

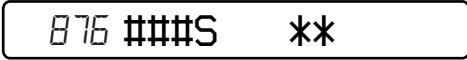
Remote commander LCD display



\*\* : Adjusted value

6. Adjust with the [VOL+] key (adjusted value up) or [VOL-] key (adjusted value down) so that the adjusted value becomes 3E.
7. Press the [II] key to write the adjusted value.
8. Press the [▶▶] key to set item number 876.

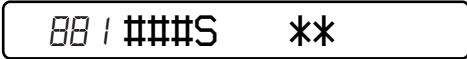
Remote commander LCD display



\*\* : Adjusted value

9. Adjust with the [VOL+] key (adjusted value up) or [VOL-] key (adjusted value down) so that the adjusted value becomes 00.
10. Press the [II] key to write the adjusted value.
11. Press the [▶▶] key to set item number 881.

Remote commander LCD display



\*\* : Adjusted value

12. Adjust with the [VOL+] key (adjusted value up) or [VOL-] key (adjusted value down) so that the adjusted value becomes 37.
13. Press the [II] key to write the adjusted value.
14. Press the [▶▶] key to set item number 882 .

Remote commander LCD display

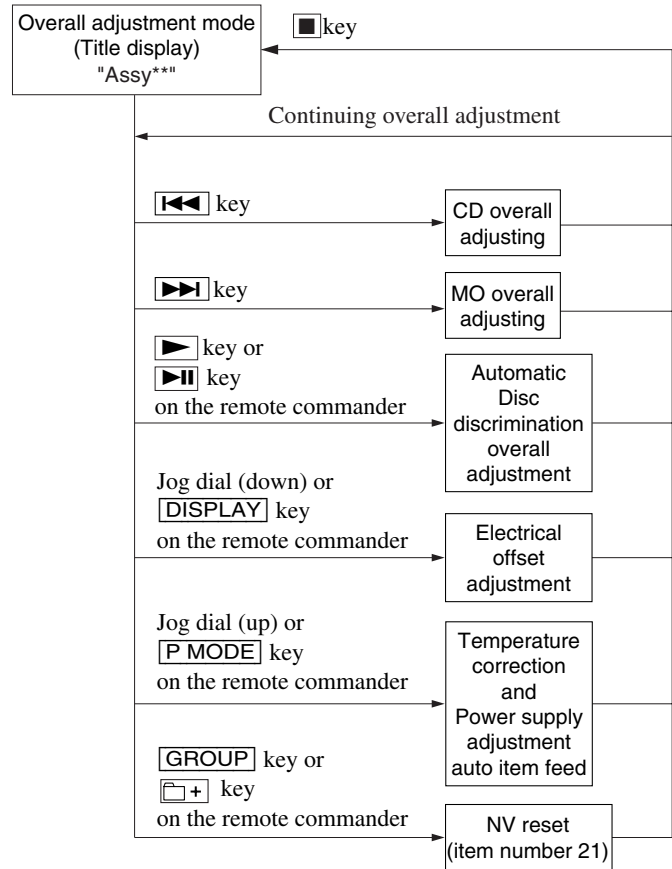


\*\* : Adjusted value

15. Adjust with the [VOL+] key (adjusted value up) or [VOL-] key (adjusted value down) so that the adjusted value becomes E0.
16. Press the [II] key to write the adjusted value.

**Overall Adjustment Mode**

**• Configuration of overall adjustment mode**





• Overall adjustment mode (title display)

Remote commander LCD display



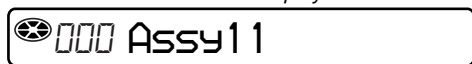
- ⦿: (Disc mark) At end of power supply adjustment: Outside lit
- \*\* : Left side = MO overall adjustment information
  - F\*: MO overall adjustment completed
  - 1\*: Manual adjustment exists (overall adj. not completed)
  - 0\*: Not adjusted
- Right side = CD overall adjustment information
  - \*F: CD overall adjustment completed
  - \*1: Manual adjustment exists (overall adj. not completed)
  - \*0: Not adjusted

**Note:** Adjust the CD first, when performing adjustment.

• Adjustment method of CD and MO overall adjustment mode

1. Set the test mode (see page 11).
2. Press the **◀◀** or **VOL-** 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



\*\*\* : Item number for which an adjustment is being executed.

4. In case of CD overall adjustment NG, readjust from the NV reset (see page 17). The temperature correction (see page 17) may be omitted.

Remote commander LCD display



\*\* : NG item number.

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

Remote commander LCD display



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

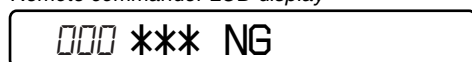
Remote commander LCD display



\*\*\* : Item number for which an adjustment is being executed.

7. In case of MO overall adjustment NG, readjust from the NV reset (see page 17). The temperature correction (see page 17) may be omitted.

Remote commander LCD display



\*\* : NG item number.

8. 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



• Overall Adjustment error message

The following message will be displayed if adjustment procedure is mistaken in the CD and MO overall adjustment.

Message	Display timing	Description
CLOSE!	During CD/MO/DISC automatic distinction overall adjustment	DISC is not inserched.
Set CD!	During MO/DISC automatic distinction overall adjustment During offset adjustment	<ul style="list-style-type: none"> <li>• CD overall adjustment is not completed in the MO overall adjustment.</li> <li>• CD and MO overall adjustment is not completed in the offset adjustment.</li> </ul>
Set MO!	During offset adjustment	MO overall adjustment is not completed in the offset adjustment.
NoTmp!	During CD/MO/DISC automatic distinction overall adjustment	Temperature correction (item number 015) is not finished.
NoChg!	During CD/MO/DISC automatic distinction overall adjustment	Charge voltage adjustments (item number 755 and 756) are not finished.

• CD and MO Overall Adjustment Items

1. CD overall adjustment items

Item No.	Description
761	VC,VR power supply H/L selection
300	HPIT setting • servo OFF
561	SLED inward movement
562	SLED outward movement
High reflection electrical adjustment	
312	Laser ON • Focus UP • vc correction
ALFA offset adjustment	
313	IJ offset adjustment
314	FE offset adjustment
HPIT adjustment	
320	Focus servo ON
324	TE offset adjustment 1
321	TE gain adjustment
328	TWPP gain adjustment
324	TE offset adjustment 1
332	TE offset adjustment 2
330	Tracking servo ON
336	ABCD gain adjustment
337	KF gain correction
338	RF gain adjustment
344	FCS gain adjustment
345	TRK gain adjustment
521	Two-axis sensitivity (inner position)
522	Two-axis sensitivity (outer position)
300	HPIT setting • servo OFF

## 2. MO overall adjustment items

Item No.	Description
716	VC,VR power supply H/L selection
100	R_GRV setting • servo OFF
Low reflection electrical offset adjustment	
112	Laser ON • Focus UP vc correction
ALFA offset adjustment	
113	IJ offset adjustment
114	FE offset adjustment
118	Wpp denominator offset adjustment
LPIT adjustment	
200	LPIT setting • servo OFF
561	SLED inward movement
220	Focus servo ON
224	TE offset adjustment 1
221	TE gain adjustment
224	TE offset adjustment 1
232	TE offset adjustment 2
230	Tracking servo ON
236	ABCD gain adjustment
237	KF gain correction
238	RF gain adjustment
244	Focus gain adjustment
245	Tracking gain adjustment
READ GRV adjustment 1	
100	R_GRV setting • servo OFF
562	SLED outward movement
120	Focus servo ON
122	TON offset adjustment
121	TE gain adjustment
122	TON offset adjustment
123	TEIN offset adjustment
124	TWPP offset adjustment 1
130	Tracking servo ON
131	TWPP offset adjustment 1
136	ABCD gain adjustment
137	KF gain correction
139	ADIP BPF f0 adjustment
144	Focus gain adjustment
145	Tracking gain adjustment
134	TWPP gain adjustment
131	TWPP offset adjustment 1
132	TWPP offset adjustment 2
149	TWPP OP offset adjustment
WRITE GRV adjustment	
410	HEAD DOWN • GRV servo ON
420	READ → WRITE selection
421	TE gain adjustment
423	TEIN offset adjustment
430	Tracking servo ON
431	TWPP offset adjustment 1
436	ABCD gain adjustment
444	Focus gain adjustment
445	Tracking gain adjustment

Item No.	Description
434	TWPP gain adjustment
431	TWPP offset adjustment 1
432	TE offset adjustment 2
449	TWPP OP offset adjustment
410	READ → WRITE selection
411	TWPP offset adjustment 1
412	TE offset adjustment 2
418	TWPP OP offset adjustment
490	HCLV → LCLV selection process
450	HEAD DOWN • GRV servo ON
460	READ → WRITE selection
461	TE gain adjustment
463	TEIN offset adjustment
470	Tracking servo ON
471	TWPP offset adjustment 1
476	ABCD gain adjustment
484	Focus gain adjustment
485	Tracking gain adjustment
451	TWPP offset adjustment 1
452	TE offset adjustment 2
460	READ → WRITE selection
470	Tracking servo ON
474	TWPP gain adjustment
471	TWPP offset adjustment 1
472	TE offset adjustment 2
489	TWPP OP offset adjustment
450	WRITE → READ selection
451	TWPP offset adjustment 1
452	TE offset adjustment 2
458	TWPP OP offset adjustment
448	30 sec continuous REC
400	GRV setting • servo OFF • HEAD UP
READ GRV adjustment 2	
120	Focus servo ON
130	Tracking servo ON
138	RF gain adjustment
141	FOCUS_BIAS
035	Stray light offset measurement
100	R_GRV setting • servo OFF

## Resume Clear


Perform the Resume clear when all adjustments completed.

### • Resume clear setting method

1. Select the manual mode of the test mode, and set item number 043 (see page 12).

*Remote commander LCD display*

043 Resume 00

2. Press the  key.


*Remote commander LCD display*

043 Res\*\*\*



*Resume clear complete*

043 ResClr

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

## Rewriting the Patch Data at Replacement of Main Board

This set requires the patch data in the nonvolatile memory (IC851) to be rewritten using the application, when the MAIN board 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 11).

### • 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

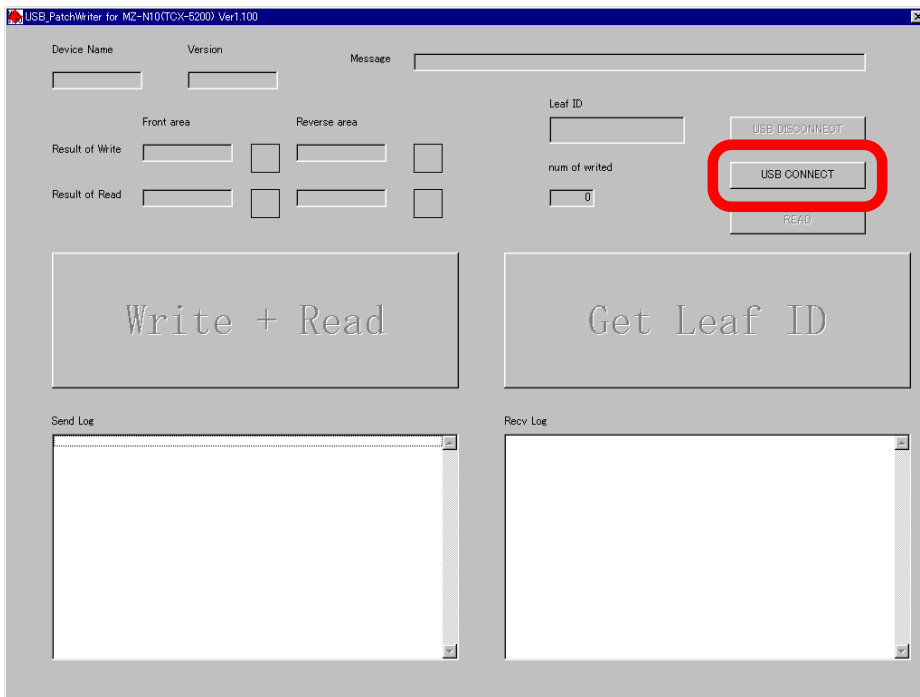
Contact our service technical support section for PA products to get the application.

### • Pre-check

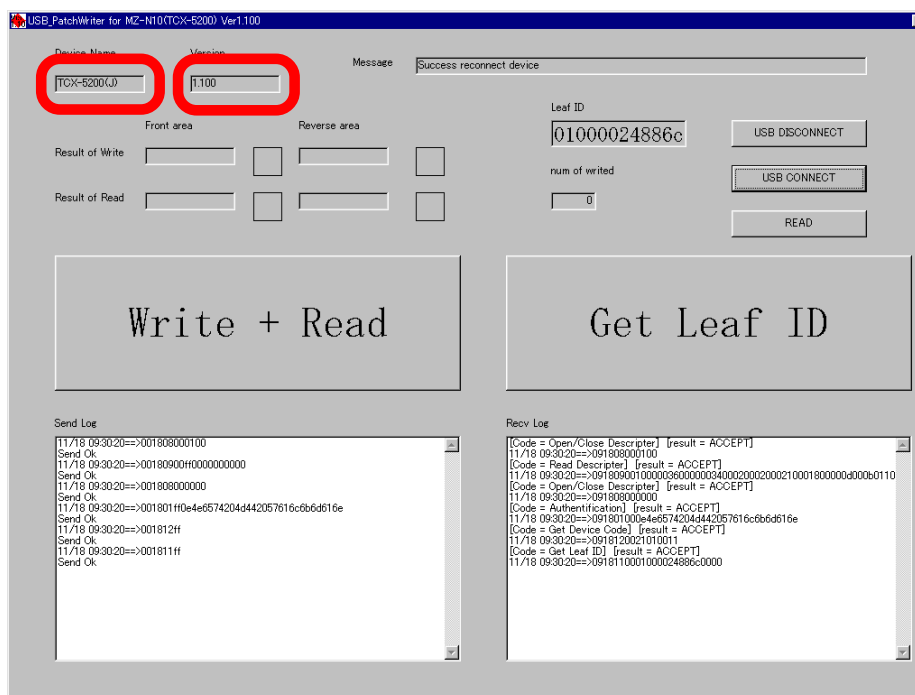
1. Check the microcomputer version in this set. (For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 11).)
2. Check that the Net MD Driver has been installed in the personal computer.
3. Make sure that the set is in the Normal mode.  
**Note:** Do not rewrite the patch data in the Test mode.

### • Rewriting the patch data

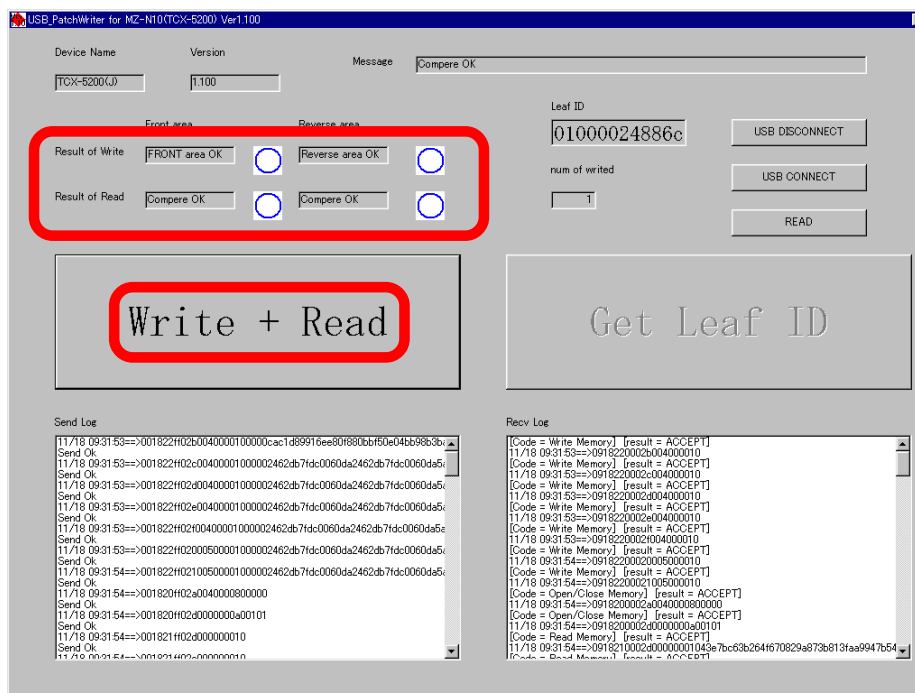
1. Connect the USB cradle to the personal computer with the USB cable, and place the set on the USB cradle.
2. Start the application “PatchWriter”.
3. Make sure that the following window opens.
4. Click the [USB CONNECT] button.



- 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.

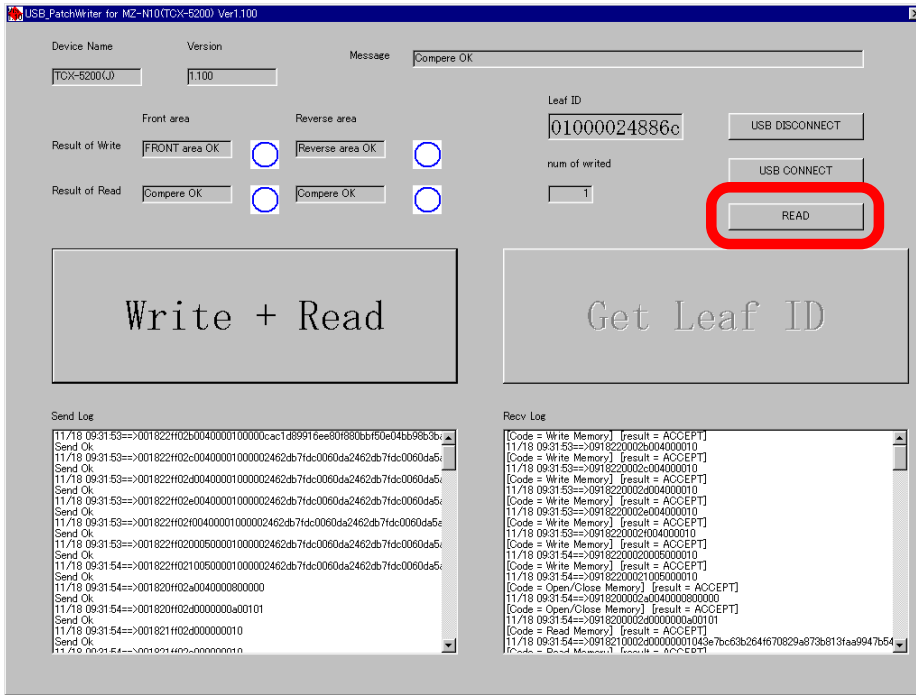


- Click the [Write + Read] button.
  - The patch data writing and the verify processing will be executed automatically in the following order:
    - Writing to patch area (front area)
    - Writing to patch area (reverse area)
    - Verifying patch area (front area)
    - Verifying patch area (reverse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



• Confirmation of contents of the patch data rewritten

1. Click the [READ] button to confirm the contents of the patch data rewritten.



2. The application reads out the front and reverse patch areas and displays the results in the edit box. Confirm that the upper column coincides with the lower column as the following window.
3. Click the [OK] button to close the window.

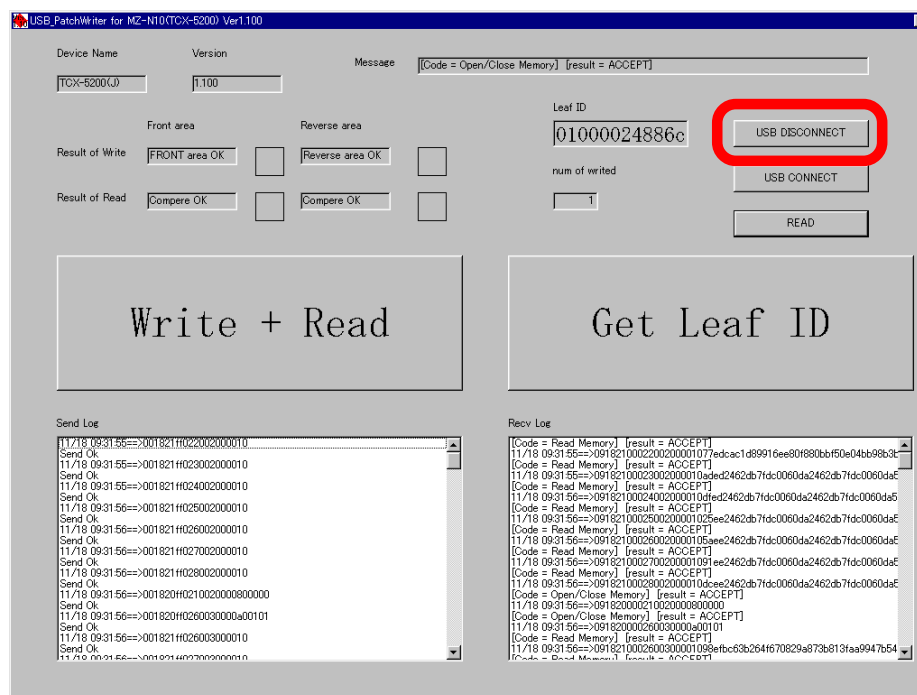


## • Removing the set

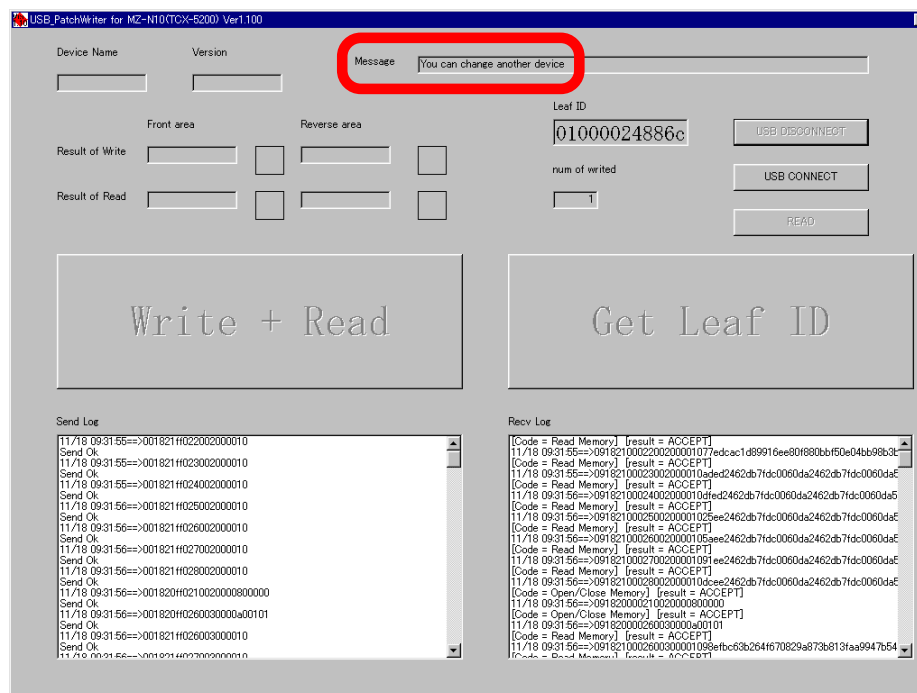
Remove the set as following procedure after rewriting the patch data and confirmation.

Note : When the following procedure is not completed but USB cable is extracted, the application does not recognize the set at exchanging the set.

1. Click the [USB DISCONNECT] button.



2. Confirm that "You can change another device" is displayed in the message block.



3. Disconnect the USB cable from the personal computer and the USB cradle.
4. Remove the set from the USB cradle.

## Rewriting the NV values

**Caution:** The application that meets the microcomputer version in this set must be used when rewriting the NV values. Rewriting the NV values 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 11).

### • 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 “NVWriter” for NV values rewriting

### • How to get the application “NVWriter” for NV values rewriting

Contact our service technical support section for PA products to get the application.

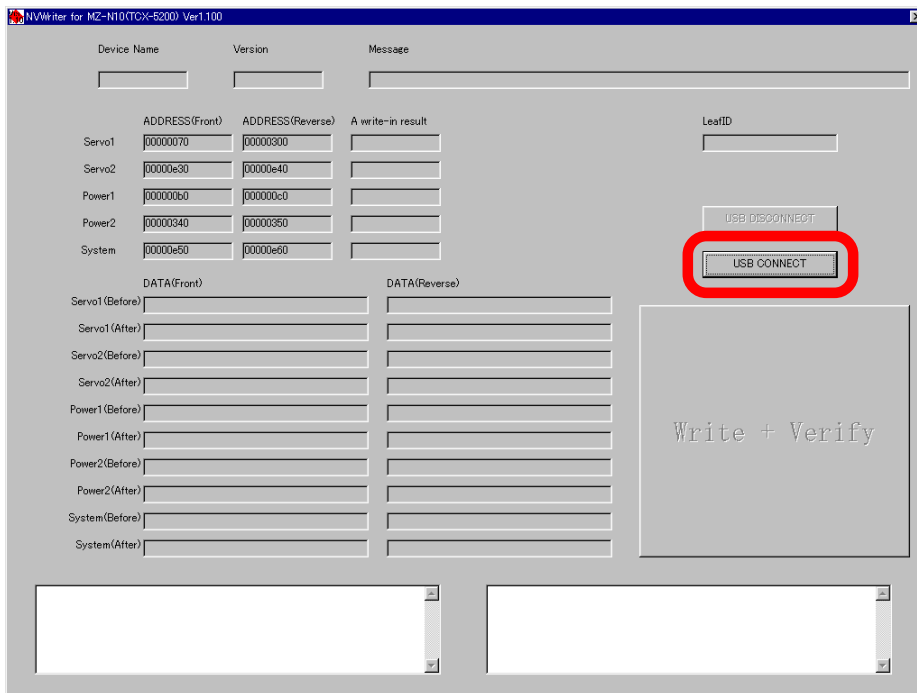
### • Pre-check

1. Check the microcomputer version in this set. (For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 11).)
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 NV values in the Test mode.

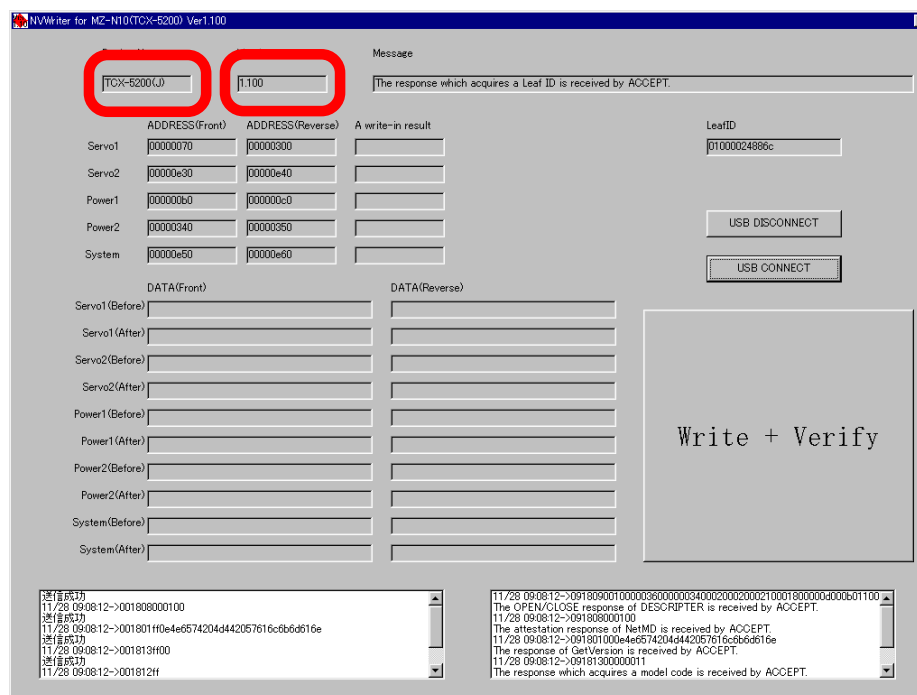
### • Rewriting the NV values

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 “NVWriter”.
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.

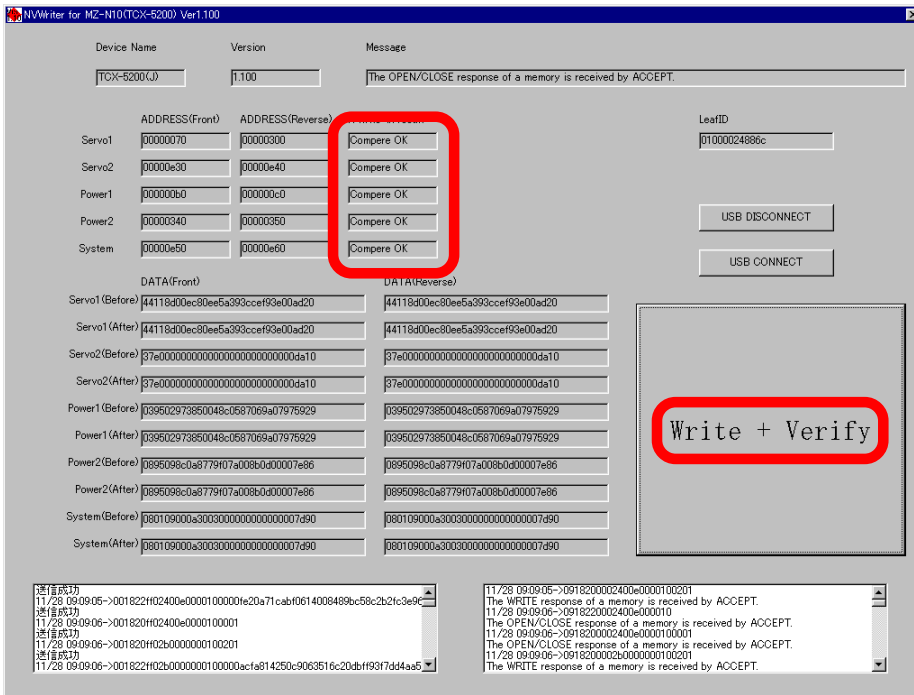


6. Click the [Write + Verify] button.

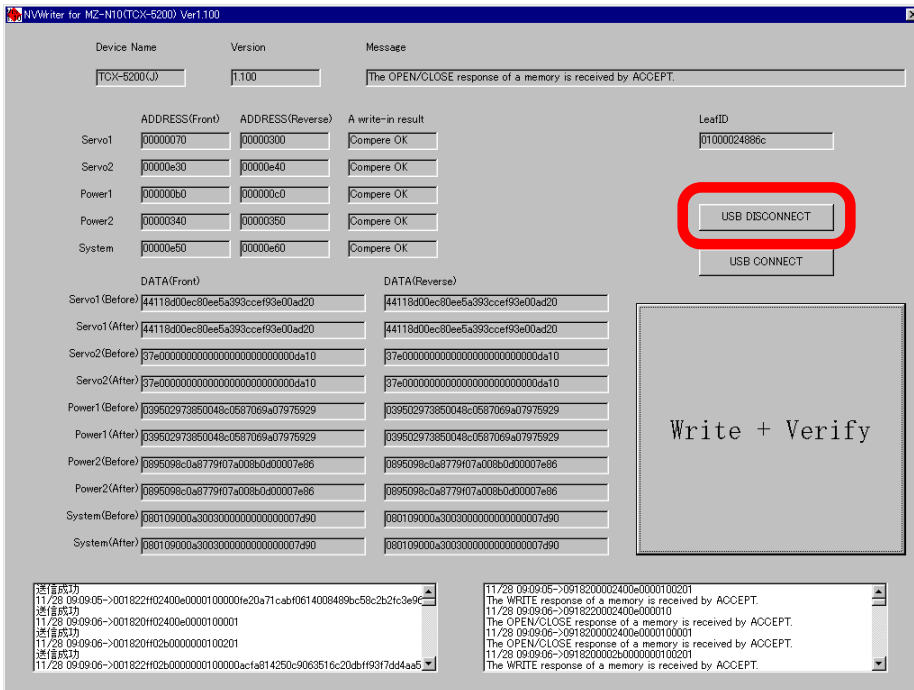
The NV values writing and the verify processing will be executed automatically in the following order:

- 1) Writing to Servo 1 area (front area)
- 2) Writing to Servo 1 area (reverse area)
- 3) Writing to Servo 2 area (front area)
- 4) Writing to Servo 2 area (reverse area)
- 5) Writing to Power Supply 1 area (front area)
- 6) Writing to Power Supply 1 area (reverse area)
- 7) Writing to Power Supply 2 area (front area)
- 8) Writing to Power Supply 2 area (reverse area)
- 9) Writing to System area (front area)
- 10) Writing to System area (reverse area)
- 11) Verifying to Servo 1 area (front area)
- 12) Verifying to Servo 1 area (reverse area)
- 13) Verifying to Servo 2 area (front area)
- 14) Verifying to Servo 2 area (reverse area)
- 15) Verifying to Power Supply 1 area (front area)
- 16) Verifying to Power Supply 1 area (reverse area)
- 17) Verifying to Power Supply 2 area (front area)
- 18) Verifying to Power Supply 2 area (reverse area)
- 19) Verifying to System area (front area)
- 20) Verifying to System area (reverse area)

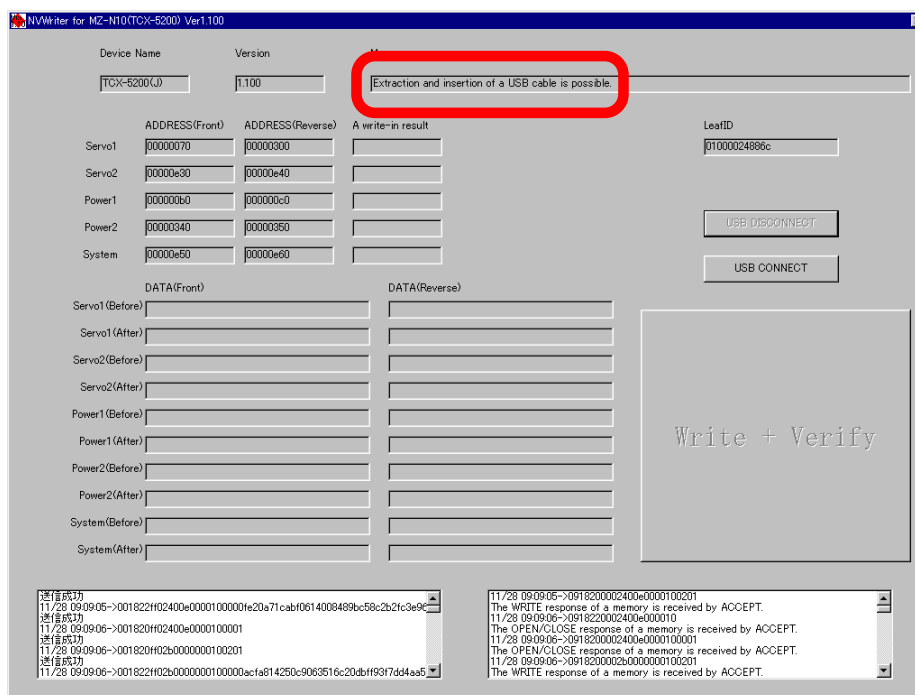
- The operation will terminate with “Compere OK” given to all areas.  
If “Compere NG” is given to any area, the nonvolatile memory will be faulty.



- Click the [USB DISCONNECT] button.



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



10. Disconnect the USB cable from the personal computer and the USB cradle.

11. Remove the set from the USB cradle.

## Charging Information Clear of Built-in Lithium-ion Rechargeable Battery

Function of recording the charging information is equipped for design confirmation.

There are two informations only for built-in lithium-ion rechargeable battery.

- Remaining charging time
- The number of times of fully charging

Initialization of the information is required at replacement of built-in rechargeable battery since it is peculiar to the built-in lithium-ion rechargeable battery.

Perform the initialization as the following procedure.

1. Select the manual mode of the test mode, and set item number 043 (Resume clear and time set clear).

*Remote commander LCD display*

043 Resume 00

└ adjusted value

2. Adjust with the **[VOL +]** key so that the adjusted value becomes 02, and press the **[HOLD]** key or **[PAGE-]** key on the remote commander.

*Remote commander LCD display*

043 \*\*\*\* 02

3. Resume clear is completed when the following display appears.

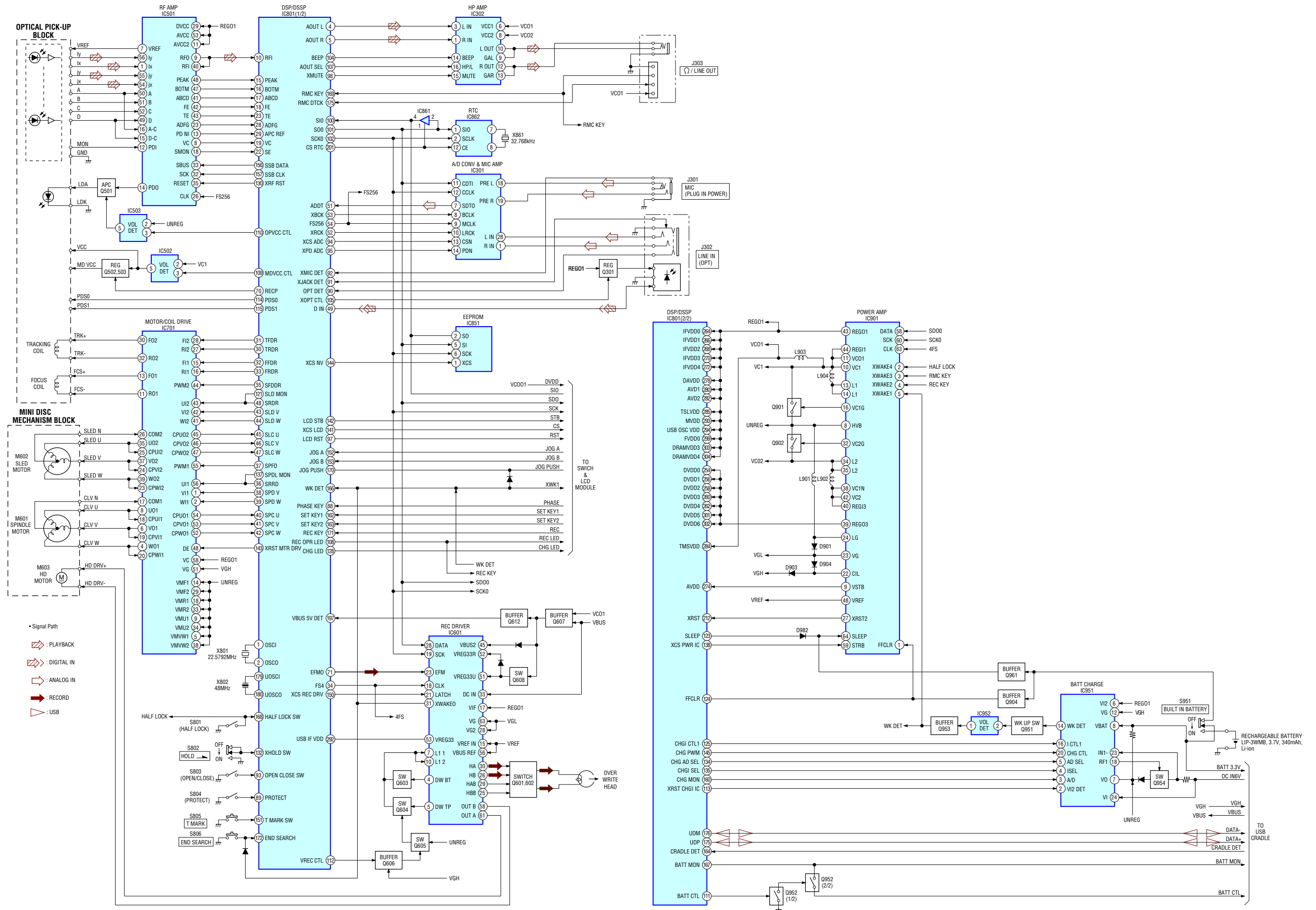
*Remote commander LCD display*

043 ResC1r

4. Press the **[ESC]** key to return to the test mode (display check mode).

# SECTION 6 DIAGRAMS

## 6-1. Block Diagram



**6-2. Note for Printed Wiring Board and Schematic Diagrams**

**Note on Printed Wiring Board:**

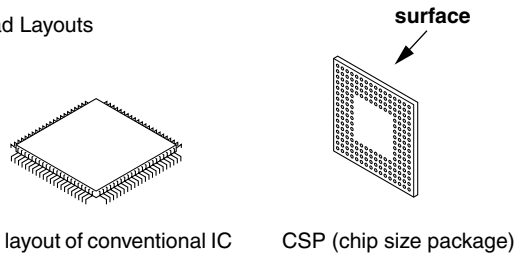
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing.  
(The other layers' patterns are not indicated.)

**Caution:**  
Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.  
(Side B)  
Parts face side: Parts on the parts face side seen from the parts face are indicated.  
(Side A)

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

\* Replacement of IC501, IC801 on MAIN board requires a special tool.

**Lead Layouts**



Lead layout of conventional IC      CSP (chip size package)

**Note on Schematic Diagram:**

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

<b>Note:</b> The components identified by mark $\Delta$ or dotted line with mark $\Delta$ are critical for safety. Replace only with part number specified.	<b>Note:</b> Les composants identifiés par une marque $\Delta$ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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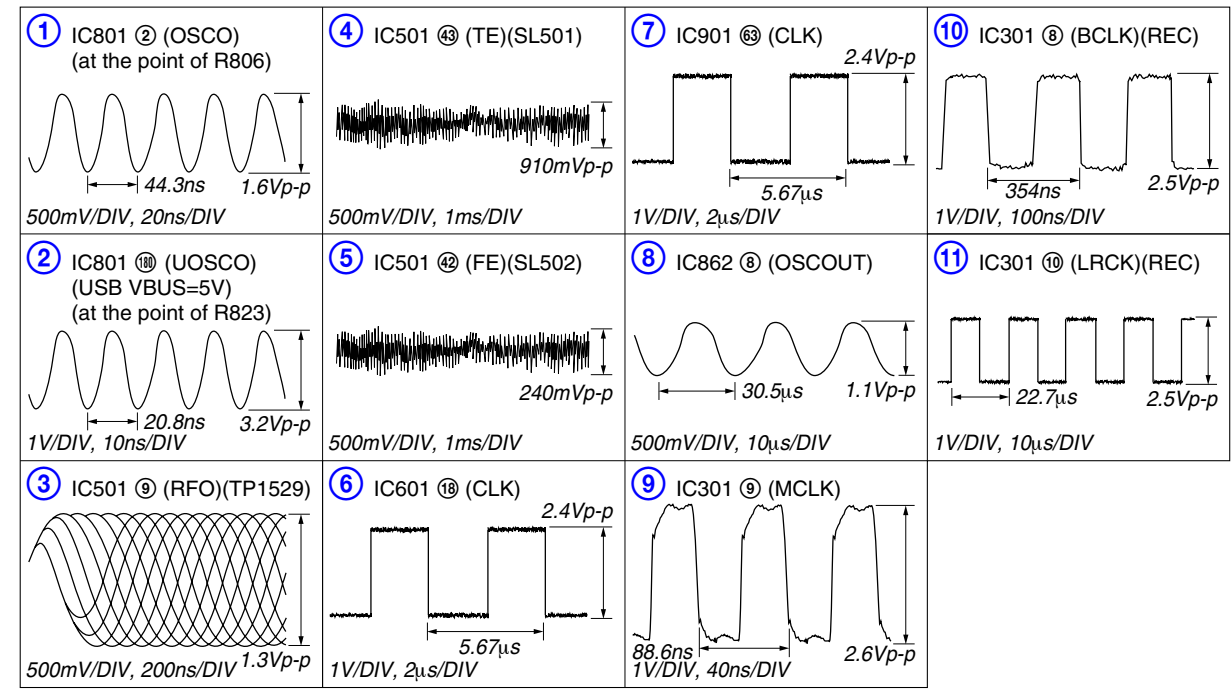
- : B+ Line.
- Total current is measured with MD installed.
- Power voltage is dc 6 V and fed with regulated dc power supply from TP1976(+), TP1953(-) on MAIN board.  
+side : TP1976(CN952 ⑩pin)  
-side : TP1953(CN952 ①pin)
- Voltages and waveforms are dc with respect to ground in playback mode(servo on).  
no mark : PLAYBACK(SERVO ON)  
\* : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). 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.  
⇒ : PLAYBACK  
⇒ : DIGITAL IN  
⇒ : ANALOG IN  
⇒ : RECORD  
▷ : USB

\* Replacement of IC501, IC801 on MAIN board requires a special tool.

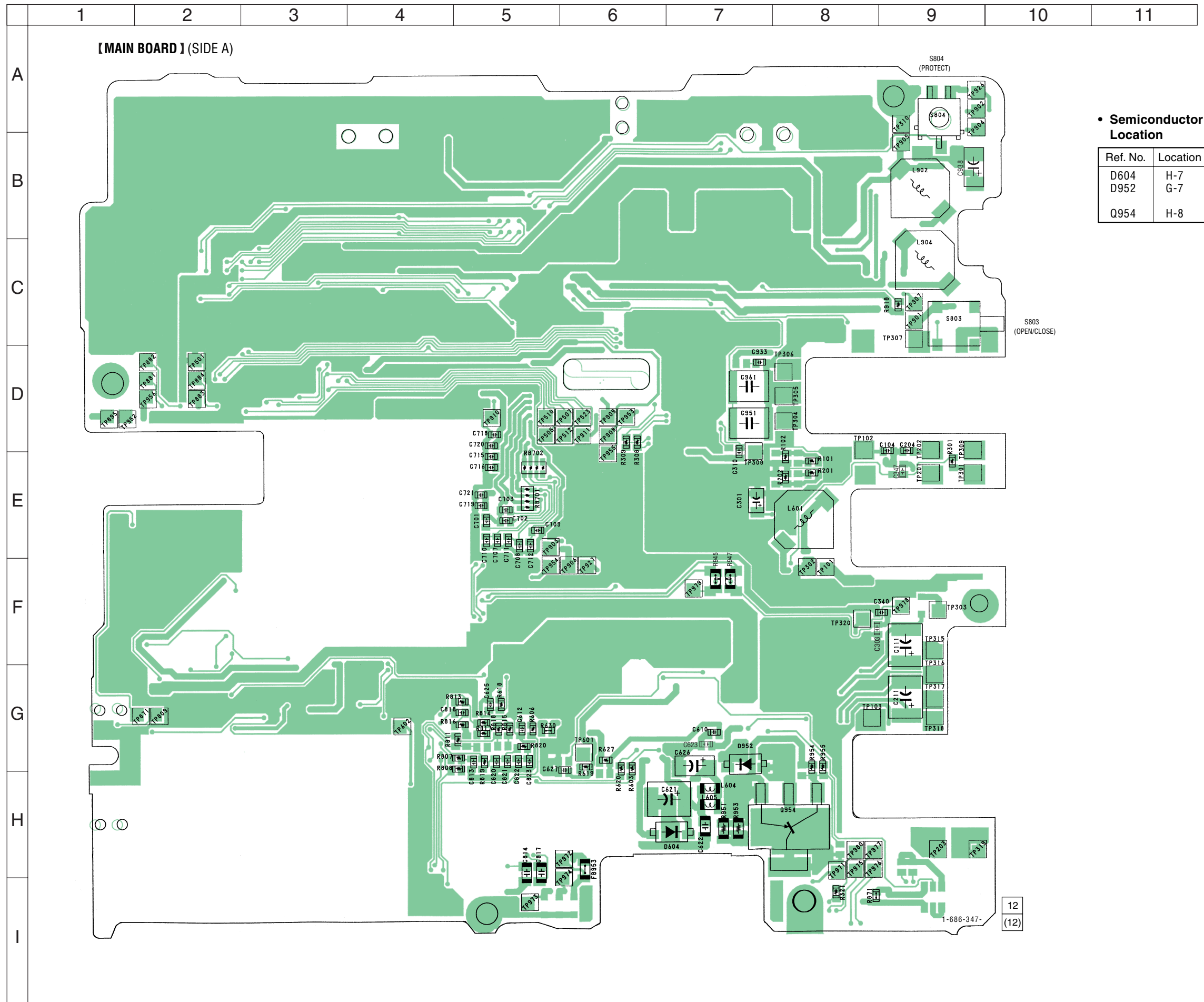
- The voltage and waveform of CSP (chip size package) cannot be measured, because its lead layout is different form that of conventional IC.

☆When IC851 is damaged, replace the MAIN board.

**• Waveforms**

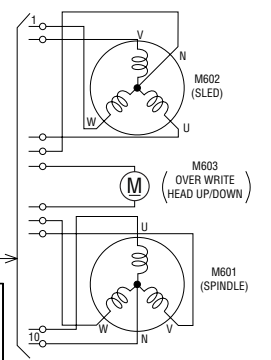
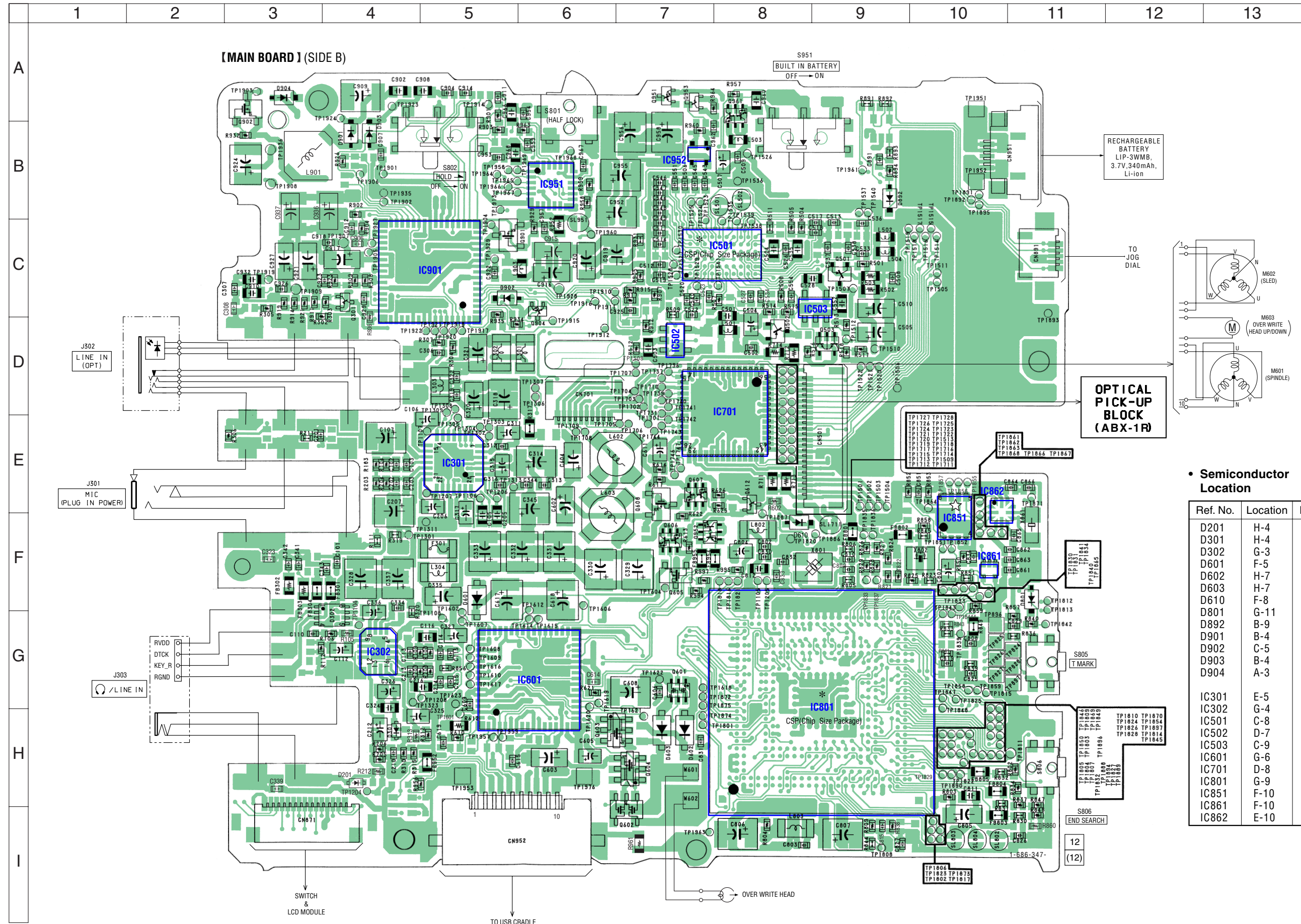


6-3. Printed Wiring Board – MAIN Board (Side A) –  :Uses unleaded solder.





– MAIN Board (Side B) –  :Uses unleaded solder.

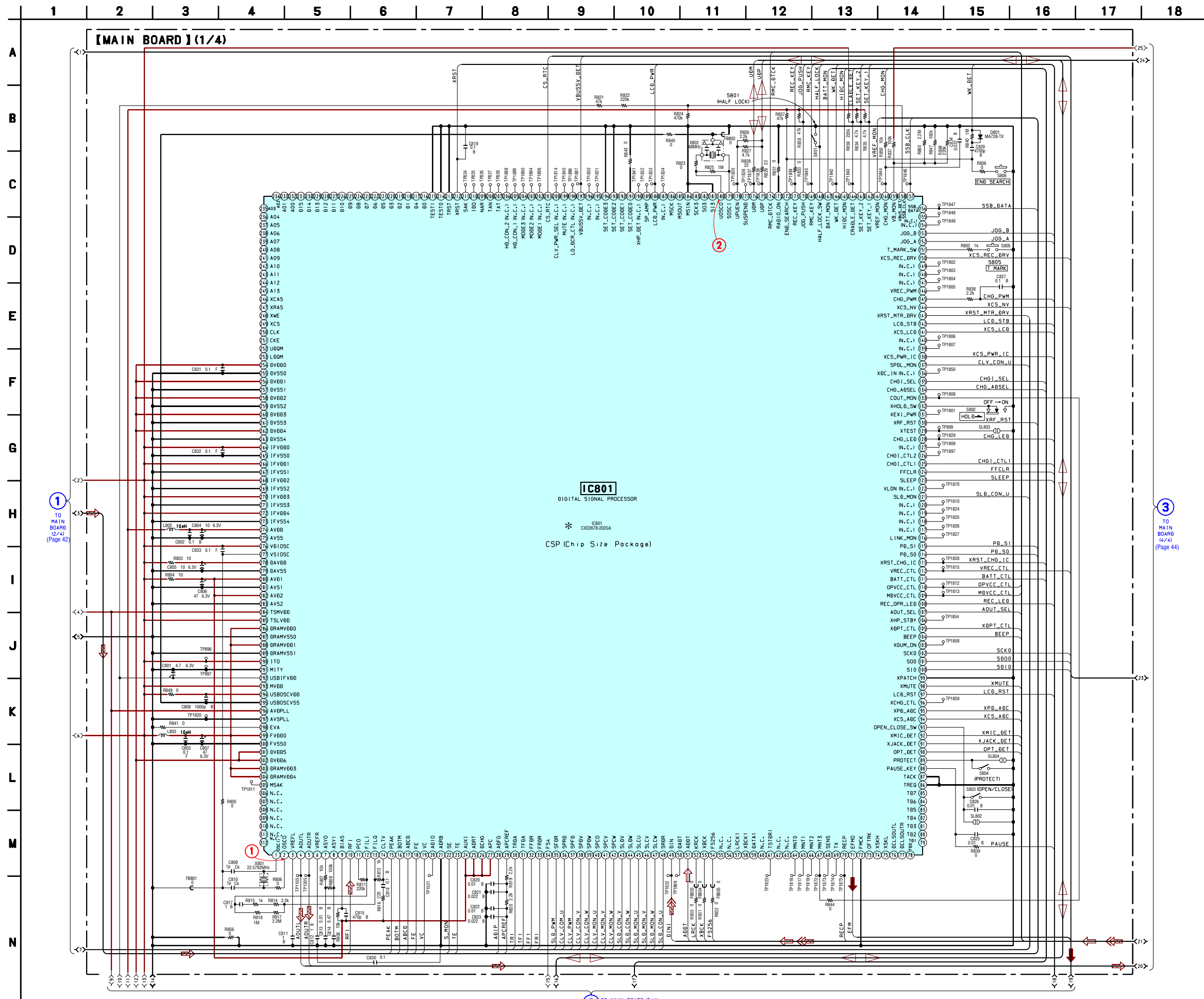


• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D201	H-4	IC901	C-5
D301	H-4	IC951	B-6
D302	G-3	IC952	B-7
D601	F-5		
D602	H-7	Q301	C-4
D603	H-7	Q501	C-9
D610	F-8	Q502	D-8
D801	G-11	Q503	D-9
D892	B-9	Q601	G-7
D901	B-4	Q602	I-7
D902	C-5	Q603	H-6
D903	B-4	Q604	H-7
D904	A-3	Q605	F-7
		Q606	F-7
IC301	E-5	Q607	E-7
IC302	G-4	Q608	F-7
IC501	C-8	Q612	E-8
IC502	D-7	Q901	C-5
IC503	C-9	Q902	A-3
IC601	G-6	Q904	D-6
IC701	D-8	Q951	A-7
IC801	G-9	Q952	F-7
IC851	F-10	Q953	A-7
IC861	F-10	Q961	A-8
IC862	E-10		



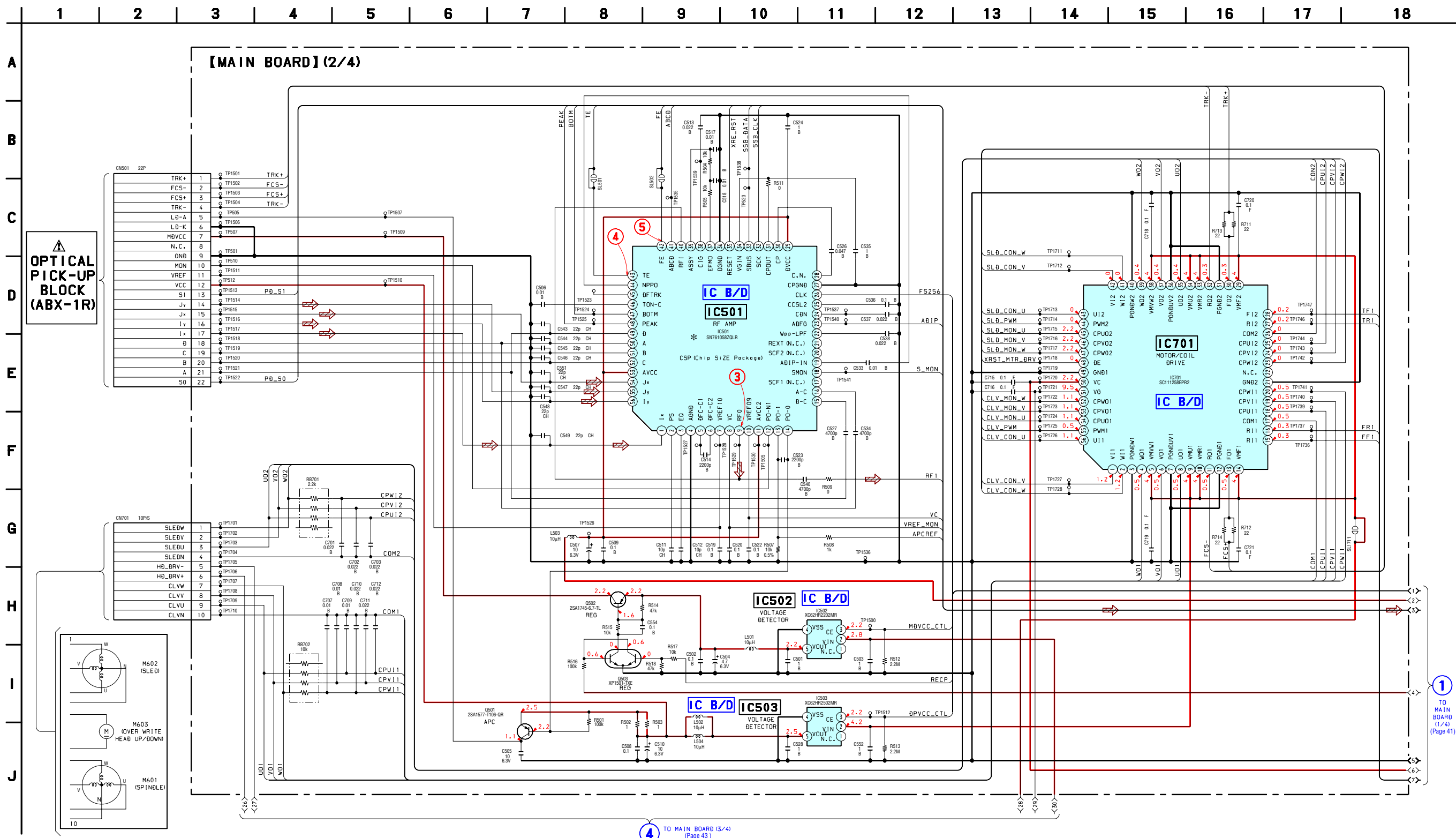
6-4. Schematic Diagrams – MAIN Board (1/4) – • See page 38 for Waveforms.



1 TO MAIN BOARD (2/4) (Page 42)

3 TO MAIN BOARD (4/4) (Page 44)

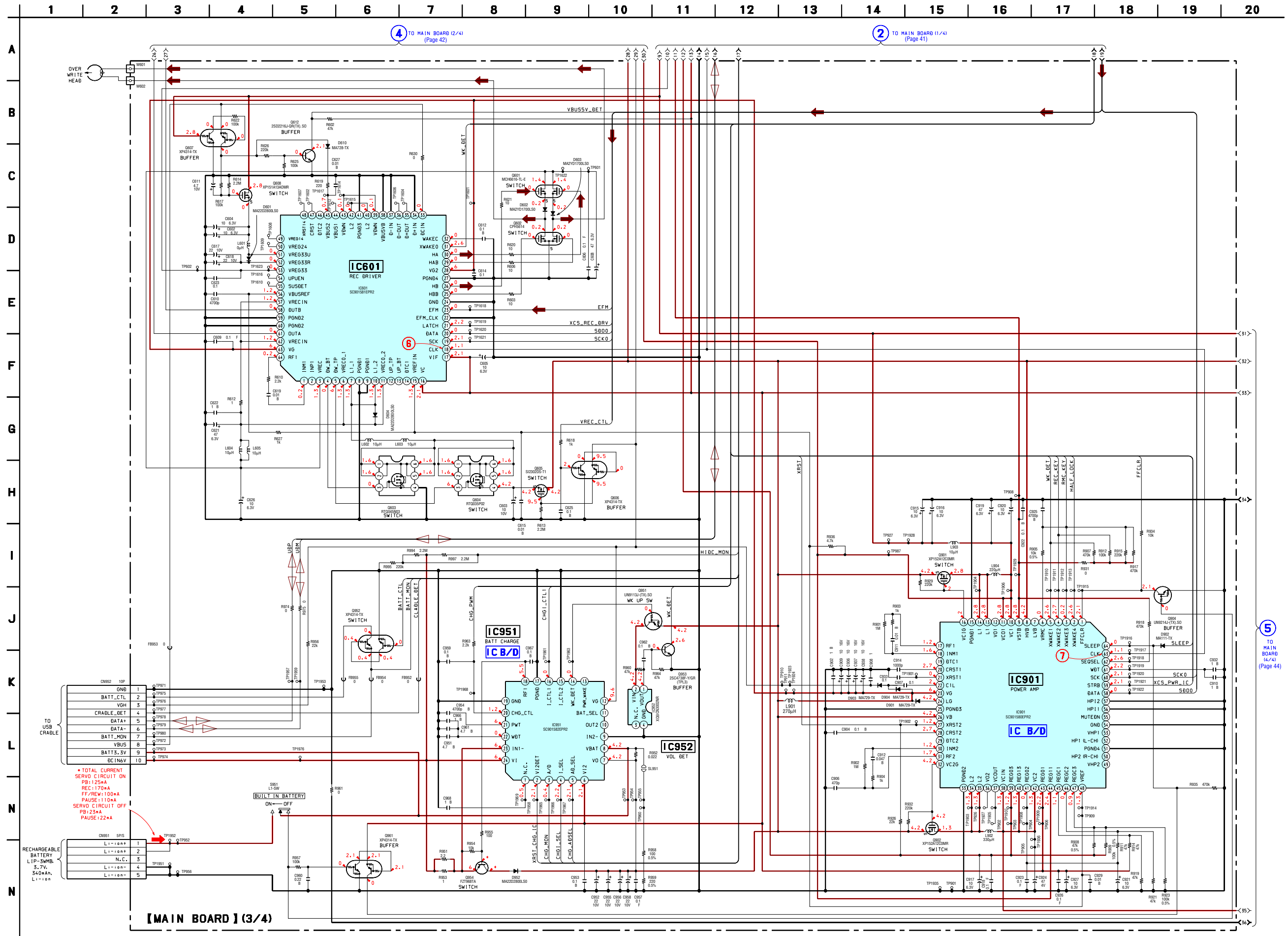
2 TO MAIN BOARD (3/4) (Page 43)



4 TO MAIN BOARD (3/4) (Page 43)

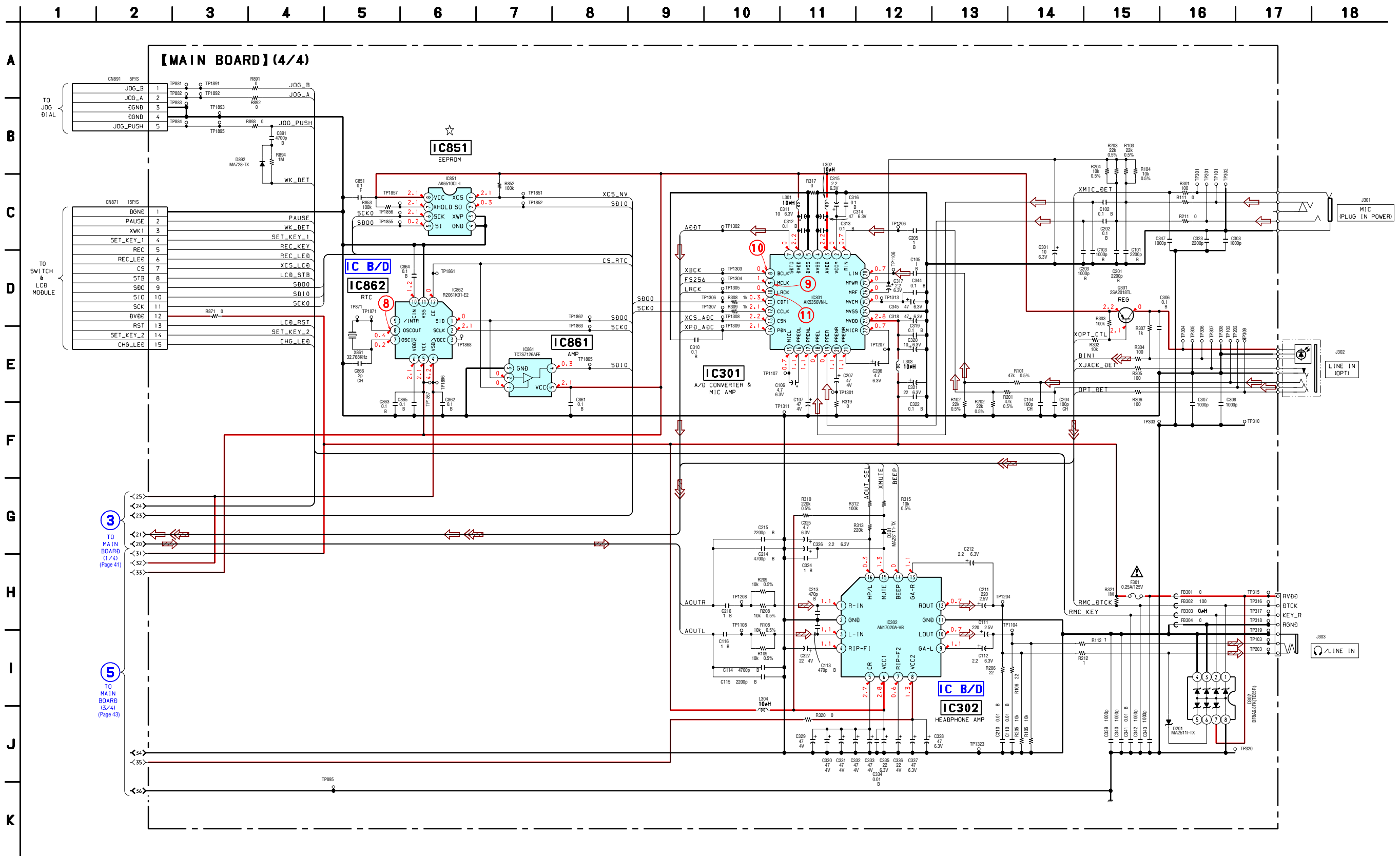
1 TO MAIN BOARD (1/4) (Page 41)

– MAIN Board (3/4) – • See page 38 for Waveforms. • See page 47, 48 for IC Block Diagrams.



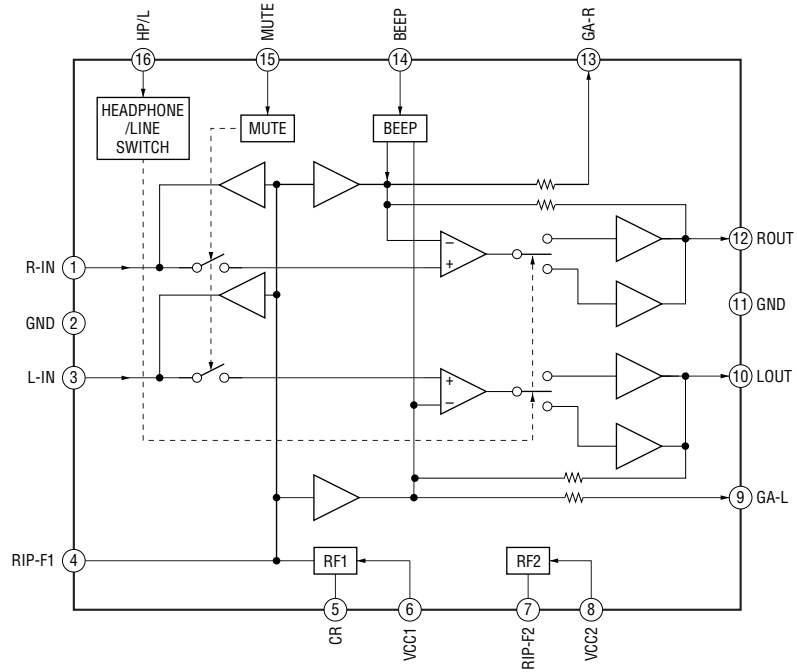
MZ-N10

– MAIN Board (4/4) – • See page 38 for Waveforms. • See page 45, 47 for IC Block Diagrams.

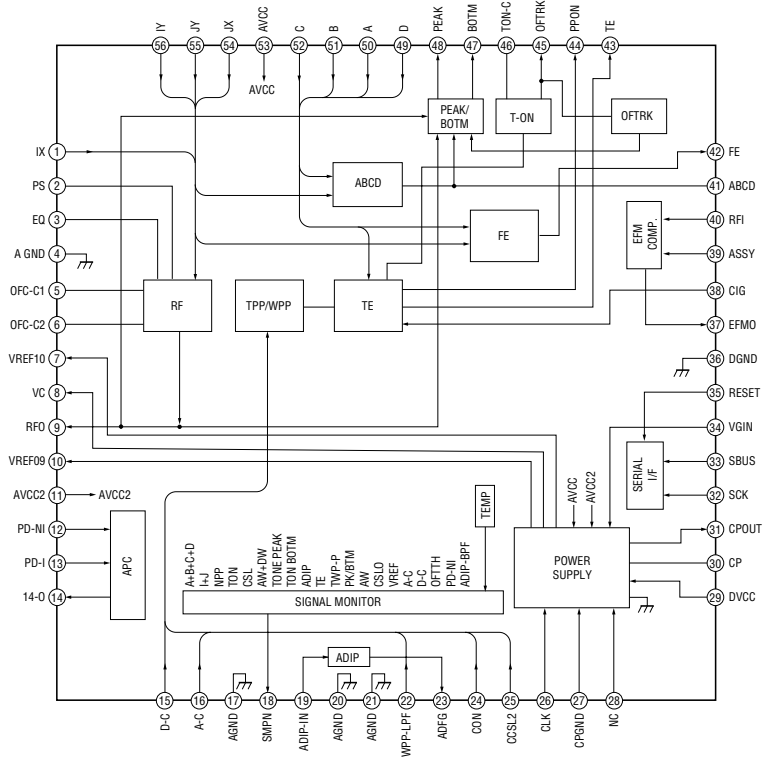


• IC Block Diagrams

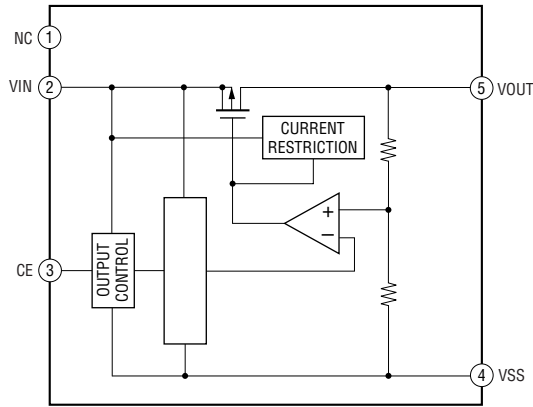
IC302 AN17020A-VB



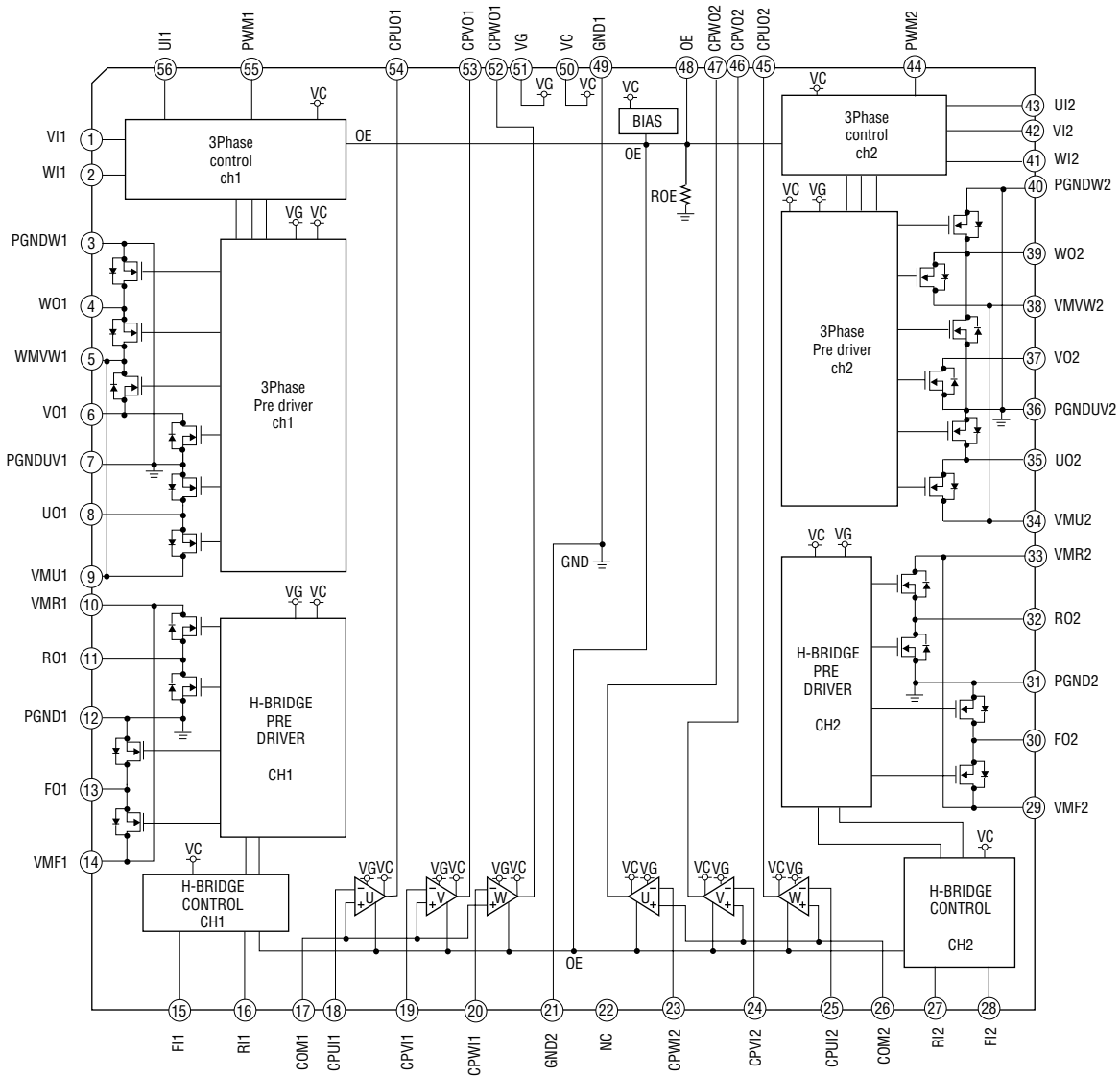
IC501 SN761058ZQLR



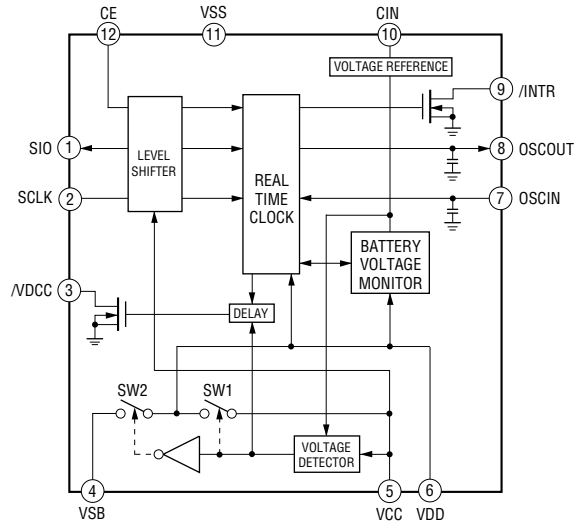
IC502 XC62HR2202MR  
IC503 XC62HR2502MR



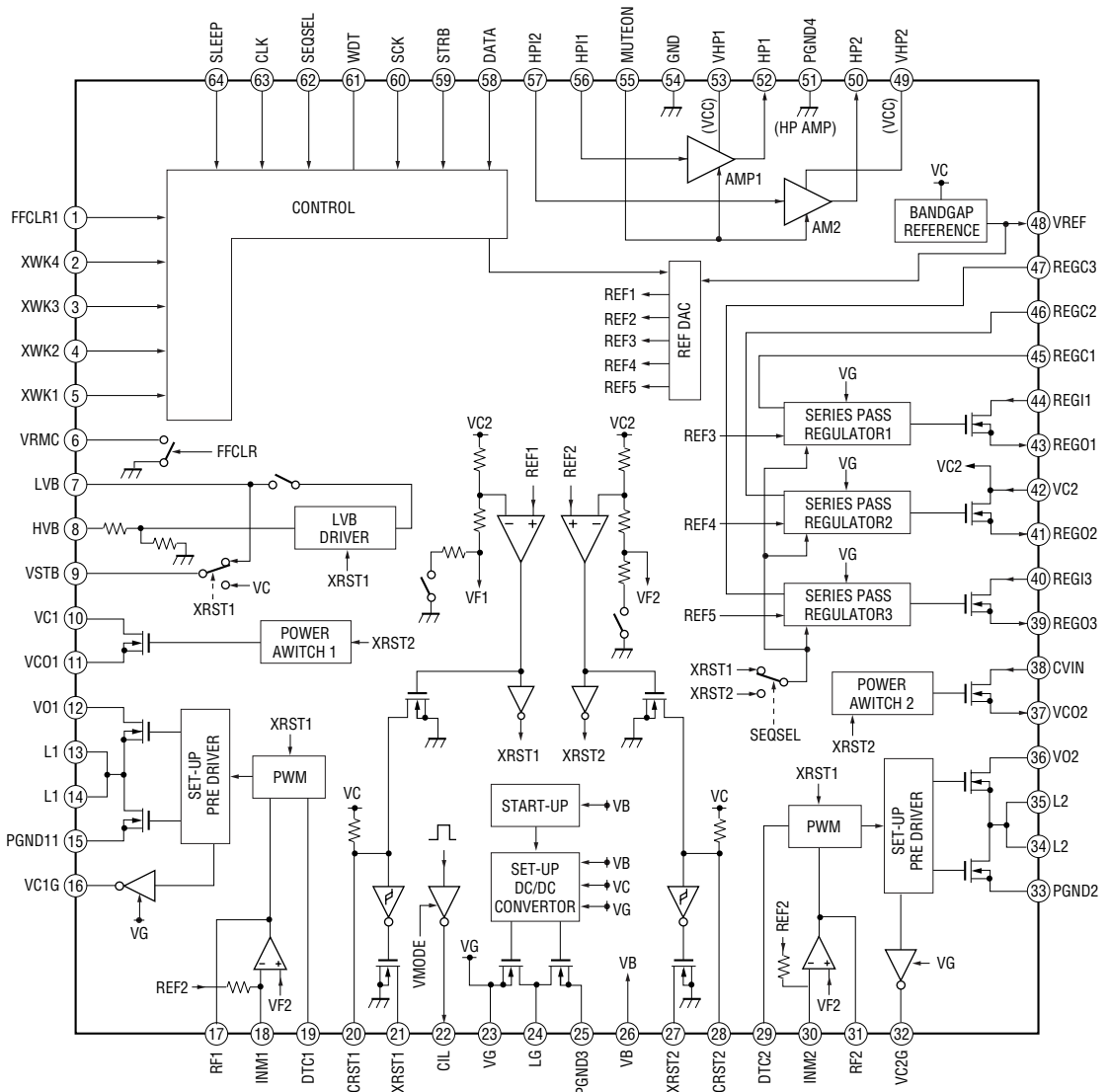
IC701 SC111258EPR2



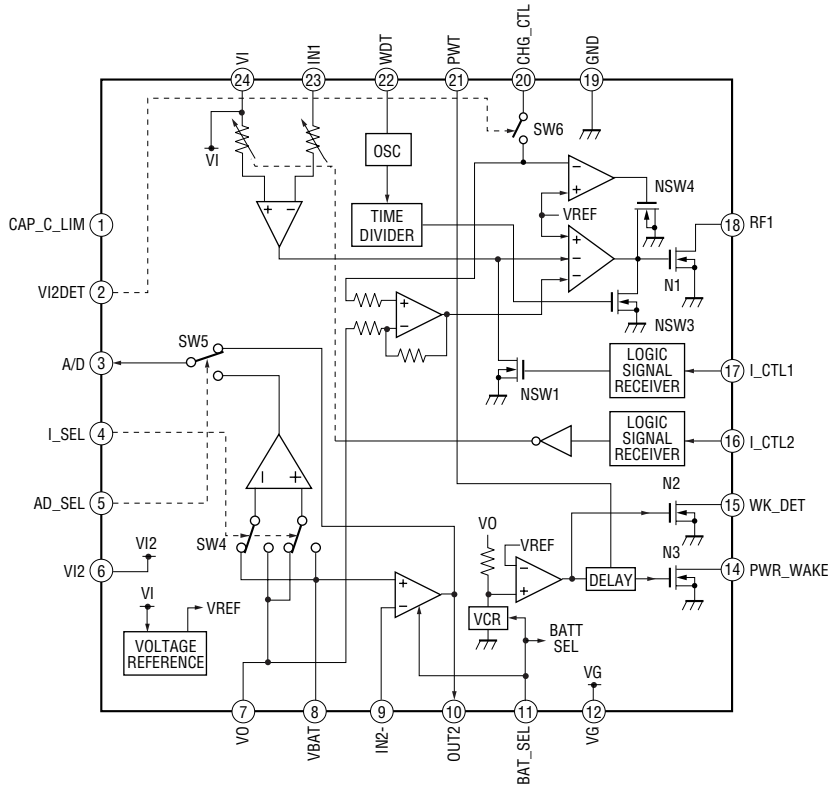
IC862 R2061K01-E2



IC901 SC901580EPR2



IC951 SC901582EPR2





## 6-5. IC Pin Function Description

### • IC801 CXD2678-202GA (SYSTEM CONTROLLER, DIGITAL SIGNALPROCESSOR)

Pin No.	Pin Name	I/O	Description
1	OSCI	I	Resonator connection terminal for the system clock (22.5792MHz)
2	OSCO	O	Resonator connection terminal for the system clock (22.5792MHz)
3	VREFL	O	Reference voltage terminal connected to the capacitor (for the built-in D/A converter L-CH)
4	AOUTL	O	Built-in D/A converter L-CH signal output
5	AOUTR	O	Built-in D/A converter R-CH signal output
6	VREFR	O	Reference voltage terminal connected to the capacitor (for the built-in D/A converter R-CH)
7	ASYO	O	Playback EFM duplex signal output
8	ASYI	I	Playback EFM comparator slice level input
9	BIAS	I	Bias current input terminal for the playback EFM comparator
10	RFI	I	Playback EFM RF signal input from the RF amplifier
11	PCO	O	Phase comparison output terminal for the playback EFM system master PLL
12	FILI	I	Filter input terminal for the playback EFM system master PLL
13	FILO	O	Filter output terminal for the playback EFM system master PLL
14	CLTV	I	Internal VCO control voltage input terminal for the playback EFM system master PLL
15	PEAK	I	Peak hold signal input of the light amount signal (RF/ABCD) from the RF amplifier
16	BOTM	I	Bottom hold signal input of the light amount signal (RF/ABCD) from the RF amplifier
17	ABCD	I	Light amount signal (ABCD) input from the RF amplifier
18	FE	I	Focus error signal input from the RF amplifier
19	VC	I	Middle point voltage input from the RF amplifier
20	ADIO	O	Monitor output terminal of A/D converter input signal Not used (open)
21	ADRB	I	The lower limit voltage of A/D converter input terminal (connected to the ground)
22	SE	I	Sled error signal input from the RF amplifier
23	TE	I	Tracking error signal input from the RF amplifier
24	AUX1	I	Auxiliary A/D input (fixed at "H" in this set)
25	ADRT	I	The upper limit voltage of A/D converter input terminal (fixed at "H" in this set)
26	DCHG	I	Connecting terminal with the analog power supply of low impedance (fixed at "H" in this set)
27	APC	I	Error signal input for the laser automatic power control (fixed at "H" in this set)
28	ADFG	I	ADIP duplex FM signal (22.05±1kHz) input from the RF amplifier
29	APCREF	O	Reference PWM signal output for the laser automatic power control to the RF amplifier
30	TRDR	O	Tracking servo drive PWM signal output (-) to the coil driver
31	TFDR	O	Tracking servo drive PWM signal output (+) to the coil driver
32	FFDR	O	Focus servo drive PWM signal output (+) to the coil driver
33	FRDR	O	Focus servo drive PWM signal output (-) to the coil driver
34	FS4	O	176.4kHz clock signal output
35	SFDR	O	Sled servo drive PWM signal output to the motor driver
36	SPRD	O	Spindle motor drive control signal output (U) to the motor driver
37	SPFD	O	Spindle servo drive PWM signal output to the motor driver
38	SPDV	O	Spindle motor drive control signal output (V) to the motor driver
39	SPDW	O	Spindle motor drive control signal output (W) to the motor driver
40	SPCU	I	Spindle motor drive comparison signal input (U) from the motor driver
41	SPCV	I	Spindle motor drive comparison signal input (V) from the motor driver
42	SPCW	I	Spindle motor drive comparison signal input (W) from the motor driver
43	SLDV	O	Sled motor drive control signal output (V) to the motor driver
44	SLDW	O	Sled motor drive control signal output (W) to the motor driver
45	SLCU	I	Sled motor drive comparison signal input (U) from the motor driver
46	SLCV	I	Sled motor drive comparison signal input (V) from the motor driver
47	SLCW	I	Sled motor drive comparison signal input (W) from the motor driver
48	SRDR	O	Sled motor drive control signal output (U) to the motor driver
49	DIN	I	Digital audio signal input
50	DADT	O	Audio data output terminal Not used (open)

Pin No.	Pin Name	I/O	Description
51	ADDT	I	Data input from the external A/D converter
52	KRCK	O	L/R sampling clock (44.1KHz) output to the external A/D converter
53	XBCK	O	Bit clock (2.8224MHz) output to the external A/D converter
54	FS256	O	11.2896MHz clock output
55	NC	O	Filter cutoff control signal output Not used (open)
56	NC	I	Clock input from the external VCO Not used (open)
57	LRCKI	I	Input terminal for the PCM data I/F/ ATRAC data I/F Not used (open)
58	XBCKI	I	Input terminal for the PCM data I/F/ ATRAC data I/F Not used (open)
59	DATAI	I	Input terminal for the PCM data I/F/ ATRAC data I/F Not used (open)
60	NC	—	Not used (open)
61	TSTDR1	O	Not used (open)
62, 63	NC	—	Not used (open)
64 to 66	MNT0 to 2	O	DSP monitor (0) to (2) output terminal Not used (open)
67	MNT3	O	DSP monitor (3) output terminal
68	SENS	O	DSP internal status (DSP SENS monitor) signal output terminal Not used (open)
69	TX	O	Record data output enable signal output Not used (open)
70	RECP	O	Laser power changeover signal output
71	EFMO	O	EFM encode data output for the record to the REC driver
72	FMCK	I	FMCK signal input Not used (connected to the ground)
73	OFTRK	I/O	Tracking signal input/output Not used (open)
74	XSKH	O	L circuit signal output Not used (open)
75	XSKL	O	K-SHOCK circuit signal output Not used (open)
76	DCLSOUTL	O	PWM modulator signal output for the D class headphone amplifier Not used (open)
77	DCLSOUTR	O	PWM modulator signal output for the D class headphone amplifier Not used (open)
78 to 85	TD0 to 7	—	TigerI/F data 0 to 7 terminal Not used (open)
86	TREQ	—	TigerI/F REQUEST terminal Not used (connected to the ground)
87	TACK	—	TigerI/F ACK terminal Not used (connected to the ground)
88	PAUSE_KEY	I	Pause key detection input terminal from the switch & liquid crystal display module
89	PROTECT	I	Detection signal input terminal of the record check claw from the protect detection switch “H”: protect
90	OPT_DET	I	DIN plug detection signal input “H”: DIN plug detect
91	XJACK_DET	I	LINE IN plug detection signal input “L”: LINE or OPT plug detect
92	XMIC_DET	I	Microphone plug detection signal input “L”: microphone plug detect
93	OPEN_CLOSE_SW	I	Open/close detection switch of the upper panel input terminal “L”: when upper panel close
94	XCS_ADC	O	Chip select signal output to the A/D converter
95	XPD_ADC	O	Power supply control signal output to the A/D converter
96	CHG_CTL	O	Charge ON/OFF control signal output Not used (open)
97	LCD_RST	O	Reset control signal output to the liquid crystal display module
98	XMUTE	O	Analog muting control signal output to the headphone amplifier “L”: muting ON
99	XPATCH	I	Patch function detection terminal “L”: patch function (fixed at “L” in this set)
100	SI0	I	Serial data input from the real time clock, A/D converter, nonvolatile memory and liquid crystal display module
101	SO0	O	Serial data output to the real time clock, A/D converter, nonvolatile memory, liquid crystal display module, power control and REC driver
102	SCK0	O	Serial clock output to the real time clock, A/D converter, nonvolatile memory, liquid crystal display module, power control and REC driver
103	XGUM_ON	I	Rechargeable battery detection switch input terminal “L”: rechargeable battery in detect Not used (open)
104	BEEP	O	Beep sound control signal output to the headphone amplifier
105	XOPT_CTL	O	Power supply ON/OFF control signal output for the DIN PD drive
106	XHP_STBY	O	Power supply control signal output to the headphone amplifier Not used (open)
107	AOUT_SEL	O	HP/LINE changeover signal output to the headphone amplifier
108	REC_OPR_LED	O	LED ON/OFF control signal output for the REC display

Pin No.	Pin Name	I/O	Description
109	MDVCC_CTL	O	Power supply control signal output for the OP modulation
110	OPVCC_CTL	O	Power supply control signal output for the OP laser
111	BATT_CTL	O	Control signal output for the voltage step up circuit in the external battery case
112	VREC_CTL	O	VREC voltage control signal output
113	XRST_CHG_IC	O	Reset signal output to the battery charge control IC
114, 115	PD_S0, 1	O	PD IC mode changeover signal output to the optical pick up
116	LINK_MON	O	Linking area monitor signal output Not used (open)
117	NC	O	Plunger control signal output Not used (open)
118	NC	O	Ground changeover switch control signal output Not used (open)
119, 120	NC	O	Not used (open)
121	SLD_MON	I	Sled servo monitor signal input
122	VLON(NC)	O	Not used (open)
123	SLEEP	O	System sleep control signal output to the power control
124	FFCLR	O	Input latch output for the start switching to the power control
125	CHGI_CTL1	O	Charge current limit ON/OFF control signal output at the time of adaptor use
126	CHGI_CTL2	O	Charge current limit value changeover control signal output at the time of adaptor use Not used (open)
127	NC	O	Orange LED ON/OFF control signal output Not used (open)
128	CHG_LED	O	LED ON/OFF control signal output for CHG (charge display)
129	XTEST	I	Terminal for the test mode setting (normally open) "L": test mode
130	XRF_RST	O	Reset control signal output to the RF amplifier "L": reset
131	XEXT_PWR	I	External power supply (AC adaptor/charging stand) detection signal input Not used (open)
132	XHOLD_SW	I	HOLD switch input terminal "L": hold ON
133	COUT_MON	I	Traverse count measurement monitor input
134	CHG_ADSEL	O	A/D terminal of the battery charge control IC output selection signal output
135	CHGI_SEL	O	Charge/discharge changeover control signal output for the current sense amplifier
136	XDC_IN	I	DC plug detection signal input Not used (open)
137	SPDL_MON	I	Spindle servo monitor signal input
138	XCS_PWR_IC	O	Chip select signal output to the power control
139, 140	NC	O	Control signal output for the D class headphone amplifier Not used (open)
141	XCS_LCD	O	Chip select signal output to the liquid crystal display module
142	LCD_STB	O	Strobe signal output to the liquid crystal display module
143	XRST_MTR_DRV	O	Reset control signal output to the motor driver "L": reset
144	XCS_NV	O	Chip select signal output to the nonvolatile memory
145	CHG_PWM	O	Output voltage control signal output to the battery charge control
146	VREC_PWM	O	PWM signal output for the power supply voltage control to the REC driver Not used (open)
147	NC	O	PWM signal output for the laser power supply voltage control to the power control Not used (open)
148	NC	O	Muting control signal to the headphone amplifier (NJM type made by JRC) Not used (open)
149	NC	O	Power supply control signal output for the D class headphone amplifier Not used (open)
150	XCS_REC_DRV	O	Chip select signal output to the REC driver
151	T_MARK_SW	I	T MARK (track mark) switch input terminal "L": track mark detection
152	JOG_A	I	Jog dial pulse input from the switch & liquid crystal display module
153	JOG_B	I	Jog dial pulse input from the switch & liquid crystal display module
154, 155	NC	O	Not used (open)
156	SSB_DATA	I/O	SSB data input/output with the RF amplifier
157	SSB_CLK	O	SSB clock output to the RF amplifier
158	VBUS_DET	I	USB power supply voltage detection terminal
159	VB_MON	I	Voltage monitor input terminal (A/D input) of the UNREG power supply
160	CHG_MON	I	Decrement of voltage detection and charge/discharge current monitor input from the battery charge control
161	VREF_MON	I	Reference voltage monitor input (A/D input) from the RF amplifier
162, 163	SET_KEY_1, 2	I	Key input (A/D input) from the switch & liquid crystal display module

Pin No.	Pin Name	I/O	Description
164	CRADLE_DET	I	USB cradle or battery case detection signal input
165	HIDC_MON	I	HIGH DC voltage monitor input (A/D input)
166	WK_DET	I	Set key WAKE detection signal input
167	BATT_MON	I	External battery voltage monitor input
168	HALF_LOCK_SW	I	Open button detection switch input (A/D input) "L" : the open button is pressed
169	RMC_KEY	I	Key input (A/D input) from the remote commander
170	JOG_PUSH	I	Jog dial push detection signal input
171	REC_KEY	I	REC key input (A/D input)
172	END_SEARCH	I	END SEARCH key input (A/D input)
173	RADIO_ON	I	RADIO ON detection signal input Not used (connected to the ground)
174	RMC_DTCK	I/O	TSB master data clock input/output or SSB data input/output
175	UDP	I/O	USB data (+) input terminal
176	UDM	I/O	USB data (-) input terminal
177	SUSPEND	O	USB suspend signal output Not used (open)
178	UPUEN	O	USB pull-up resistor connection control output terminal
179	UOSCI	I	Resonator (48MHz) connection terminal for the USB oscillation circuit
180	UOSCO	O	Resonator (48MHz) connection terminal for the USB oscillation circuit
181	SI3	I	Not used (connected to the ground)
182	SO3	O	Not used (open)
183	SCK3	I/O	Not used (open)
184	MSIN	I	Not used (connected to the ground)
185	MSOUT	O	Not used (open)
186	MSCK	I/O	Not used (open)
187	NC	O	Power supply control signal output to the RF amplifier Not used (open)
188	LCD_PWR	O	Power supply control signal output to the liquid crystal display module Not used (open)
189	SP_AMP	O	Built-in speaker control signal output "H": activate Not used (open)
190	XHP_DET	I	Headphone jack detection signal input Not used (open)
191	SET_CODE0	I	Input terminal for the set (fixed at "L" in this set)
192	SET_CODE1	I	Input terminal for the set (open in this set)
193	SET_CODE2	I	Input terminal for the set (fixed at "L" in this set)
194	SET_CODE3	I	Input terminal for the set (fixed at "L" in this set)
195, 196	NC	O	Not used (open)
197	VBUS5V_DET	I	USB power supply voltage detection terminal 2
198	LG_DCR_CTL	O	LG DCR control signal output Not used (open)
199	MUTE	O	Analog muting control signal output to the headphone amplifier "H": muting ON Not used (open)
200	CLV_PWR_SEL	O	CLV motor power supply selection control signal output Not used (open)
201	CS_RTC	O	Chip select signal output to the real time clock
202 to 204	MODE1 to 3	O	Power supply control signal output for the over write head to the REC driver Not used (open)
205, 206	HD_CON_1, 2	O	Over write head control signal output to the REC driver Not used (open)
207	TAT	I	Not used (open)
208	TAN	I	Not used (open)
209	NAR	I	Not used (open)
210	IDO	I	Not used (open)
211	SAK	O	Not used (open)
212	XRST	I	System reset signal input from the power control "L": reset
213	TRST	I	Terminal for the test mode setting (normally fixed at "L")
214, 215	TEST0, 1	I	Input terminal for the main test (normally fixed at "L")
216 to 231	D0 to 15	—	DRAM data0 to 15 terminal Not used (open)
232 to 245	A00 to 13	—	DRAM address0 to 13 terminal Not used (open)
246	XCAS	—	DRAM CAS terminal Not used (open)

Pin No.	Pin Name	I/O	Description
247	XRAS	—	DRAM RAS terminal Not used (open)
248	XWE	—	DRAM write enable terminal Not used (open)
249	XCS	—	DRAM chip select terminal Not used (open)
250	CLK	—	DRAM clock terminal Not used (open)
251	CKE	—	DRAM clock enable terminal Not used (open)
252	UDQM	—	DRAM byte mask terminal Not used (open)
253	LDQM	—	DRAM byte mask terminal Not used (open)
254	DVDD0	—	Power supply terminal
255	DVSS0	—	Ground terminal
256	DVDD1	—	Power supply terminal
257	DVSS1	—	Ground terminal
258	DVDD2	—	Power supply terminal
259	DVSS2	—	Ground terminal
260	DVDD3	—	Power supply terminal
261	DVSS3	—	Ground terminal
262	DVDD4	—	Power supply terminal
263	DVSS4	—	Ground terminal
264	IFVDD0	—	Power supply terminal (for the microcomputer I/F block)
265	IFVSS0	—	Ground terminal (for the microcomputer I/F block)
266	IFVDD1	—	Power supply terminal (for the microcomputer I/F block)
267	IFVSS1	—	Ground terminal (for the microcomputer I/F block)
268	IFVDD2	—	Power supply terminal (for the microcomputer I/F block)
269	IFVSS2	—	Ground terminal (for the microcomputer I/F block)
270	IFVDD3	—	Power supply terminal (for the microcomputer I/F block)
271	IFVSS3	—	Ground terminal (for the microcomputer I/F block)
272	IFVDD4	—	Power supply terminal (for the microcomputer I/F block)
273	IFVSS4	—	Ground terminal (for the microcomputer I/F block)
274	AVDD	—	Power supply terminal (for the microcomputer analog)
275	AVSS	—	Ground terminal (for the microcomputer analog)
276	VDIOSC	—	Power supply terminal (for the OSC cell)
277	VSIOSC	—	Ground terminal (for the OSC cell)
278	DAVDD	—	Power supply terminal (for the built-in D/A converter)
279	DAVSS	—	Ground terminal (for the built-in D/A converter)
280	AVD1	—	Power supply terminal (for the DSP asymmetry system analog)
281	AVS1	—	Ground terminal (for the DSP asymmetry system analog)
282	AVD2	—	Power supply terminal (for the DSP servo system analog)
283	AVS2	—	Ground terminal (for the DSP servo system analog)
284	TSMVDD	—	Power supply terminal (for the TSB master communication)
285	TSLVDD	—	Power supply terminal (for the TSB slave I/F)
286	DRAMVDD0	—	Power supply terminal (for DRAM)
287	DRAMVSS0	—	Ground terminal (for DRAM)
288	DRAMVDD1	—	Power supply terminal (for DRAM)
289	DRAMVSS1	—	Ground terminal (for DRAM)
290	ITO	—	Power supply terminal (for writing the flash memory)
291	MITY	—	Ground terminal (for writing the flash memory)
292	USBIFVDD	—	Power supply terminal (for USB I/F)
293	MVDD	—	Power supply terminal (for the microcomputer I/F block)
294	USBOSCVDD	—	Power supply terminal (for the USB oscillation circuit)
295	USBOSCVSS	—	Ground terminal (for the USB oscillation circuit)
296	AVDPLL	—	Power supply terminal (for PLL)

<b>Pin No.</b>	<b>Pin Name</b>	<b>I/O</b>	<b>Description</b>
297	AVSPLL	—	Ground terminal (for PLL)
298	EVA	I	EVA terminal (fixed at “L” in this set)
299	FVDD0	—	Power supply terminal (for the built-in flash memory)
300	FVSS0	—	Ground terminal (for the built-in flash memory)
301, 302	DVDD5, 6	—	Power supply terminal
303, 304	DRAMVDD3, 4	—	Power supply terminal (for DRAM)
305	MSAK	—	Not used (open)
306 to 312	NC	—	Not used (open)

## SECTION 7 EXPLODED VIEWS

**NOTE:**

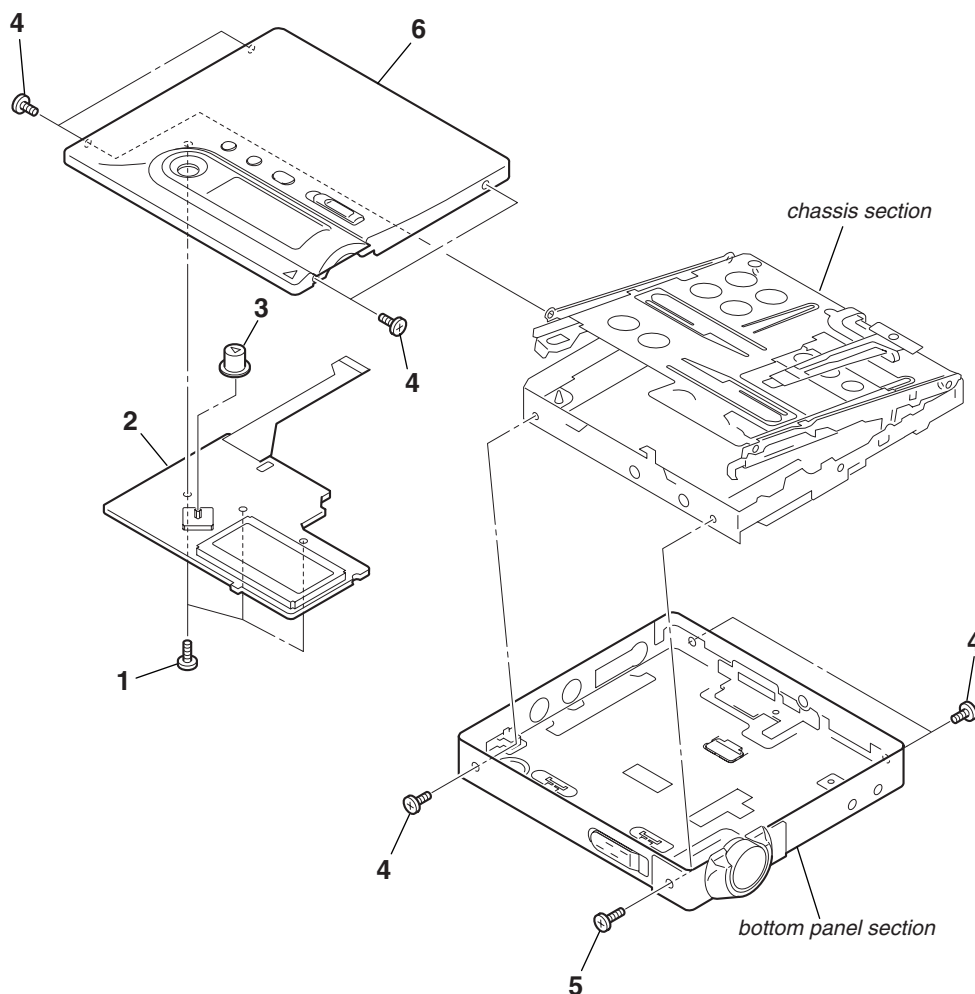
- XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts  
Example:  
KNOB, BALANCE (WHITE) . . . (RED)  
↑ ↑  
Parts Color Cabinet's Color
- Items marked "\*" are not stocked since they are seldom required for routine service.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

- Accessories are given in the last of the electrical parts list.
- Abbreviation  
CND : Canadian model  
3CED : Spanish, Swedish, Portuguese and Finnish model  
4CED : French, German, Italian and Dutch model  
KR : Korean model  
TW : Taiwan model  
E18 : 100-240V AC Area in E model  
CH : Chinese model  
JE : Tourist model

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

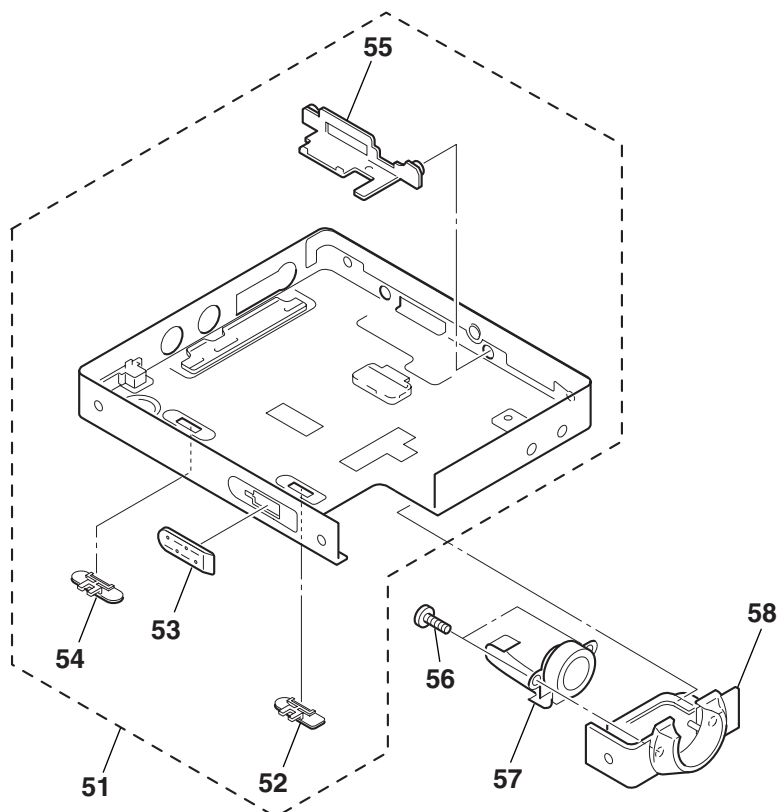
Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

### 7-1. Upper Panel Section



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	4-984-017-01	SCREW (1.7), TAPPING		5	3-225-873-25	SCREW (M1.4) (SILVER)	
2	1-804-970-11	LCD MODULE		5	3-225-873-27	SCREW (M1.4) (GRAY) (HK,KR,E18,CH)	
3	3-246-979-01	BUTTON (CONTROL B)		6	X-3383-355-1	UPPER PANEL SUB ASSY (SILVER)	
4	3-234-449-09	SCREW (M1.4) (GRAY) (HK,KR,E18,CH)		6	X-3383-356-1	UPPER PANEL SUB ASSY (GRAY)	
4	3-234-449-11	SCREW (M1.4) (SILVER)					(HK,KR,E18,CH)

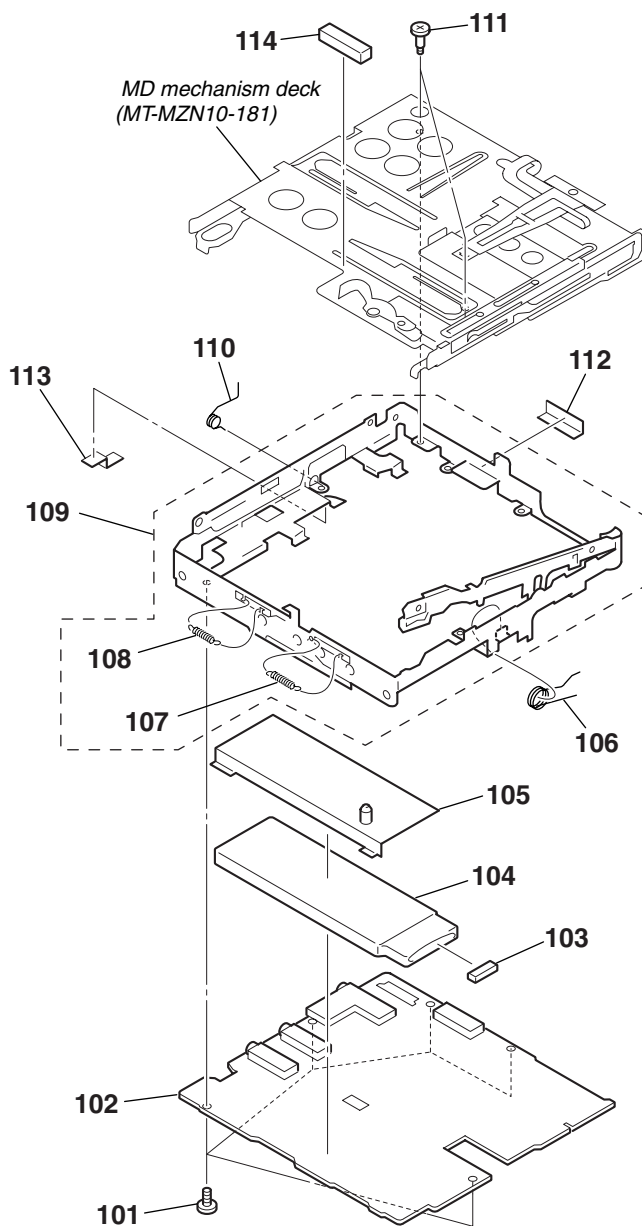
**7-2. Bottom Panel Section**



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3383-400-1	SERVICE ASSY, PANEL (S-CE) (SILVER) (3CED,4CED,UK)		54	3-247-000-01	KNOB (HOLD) (SILVER)	
51	X-3383-402-1	SERVICE ASSY, PANEL (S-JE) (SILVER) (JE)		54	3-247-000-11	KNOB (HOLD) (GRAY) (HK, KR, E18, CH)	
51	X-3383-404-1	SERVICE ASSY, PANEL (S-NONCE) (SILVER) (US, CND, HK, KR, TW, E18, CH)		55	3-247-006-01	ESCUTCHEON (CONNECTOR) (SILVER)	
51	X-3383-405-1	SERVICE ASSY, PANEL (H-NONCE) (GRAY) (HK, KR, E18, CH)		55	3-247-006-11	ESCUTCHEON (CONNECTOR) (GRAY) (HK, KR, E18, CH)	
52	3-247-001-01	KNOB (BATT) (SILVER)		56	4-984-017-91	SCREW (1.7), TAPPING	
52	3-247-001-11	KNOB (BATT) (GRAY) (HK, KR, E18, CH)		57	1-477-512-11	SWITCH UNIT (WITH JOG DIAL)	
53	3-247-005-01	KNOB (OPEN)		58	X-3383-353-1	ORNAMENT (JOG) SUB ASSY (SILVER)	
				58	X-3383-354-1	ORNAMENT (JOG) SUB ASSY (GRAY) (HK, KR, E18, CH)	



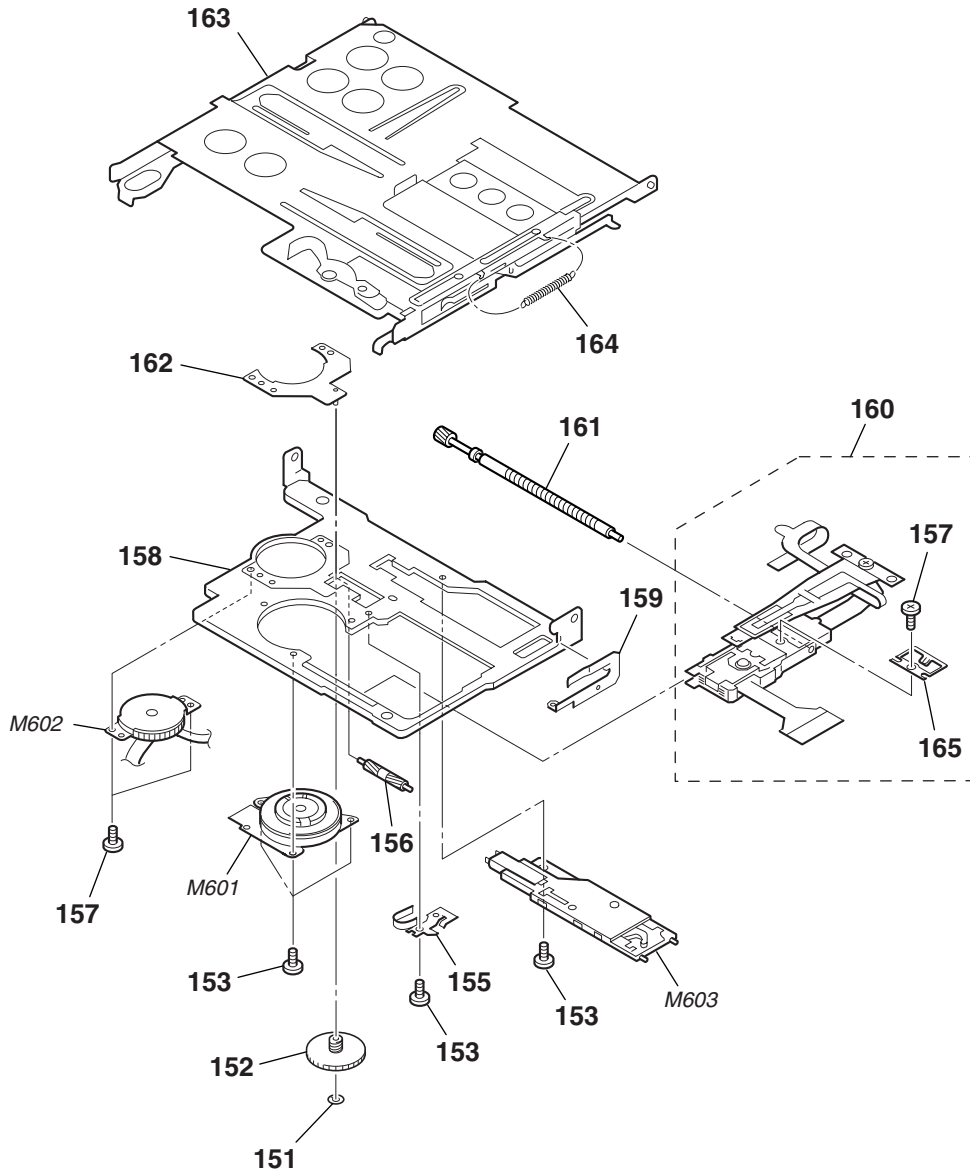
**7-3. Chassis Section**



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	3-238-876-07	SCREW (M1.4), TOOTHED LOCK		106	3-246-995-01	SPRING (POP-R), TORSION	
102	A-3663-958-B	MAIN BOARD, COMPLETE (EXCEPT,3CED,4CED,UK)		107	3-246-997-01	SPRING (OPEN), EXTENSION	
102	A-3663-959-B	MAIN BOARD, COMPLETE (3CED,4CED,UK)		108	3-246-998-01	SPRING (LOCK) (POWER TENSION)	
103	3-247-009-01	CUSHION (BATTERY)		109	X-3382-681-1	CHASSIS ASSY, SET	
△104	1-756-318-21	BATTERY, LITHIUM ION STORAGE (US,CND)		110	3-246-994-01	SPRING (POP-L), TORSION	
△104	1-756-318-31	BATTERY, LITHIUM ION STORAGE (EXCEPT US,CND)		111	3-246-996-01	SCREW (MD), STEP	
105	3-246-993-01	CASE, BATTERY		112	3-251-164-01	SPACER (10P)	
				113	3-251-161-01	SPACER (MIC)	
				114	3-251-939-01	SPACER (HOLDER)	

<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>
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7-4. MD Mechanism Deck Section  
(MT-MZN10-181)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-338-645-31	WASHER (0.8-2.5)		161	A-3174-607-A	SCREW BLOCK ASSY, LEAD	
152	3-244-882-01	GEAR (SA)		162	X-3382-398-1	BASE ASSY, MOTOR	
153	3-225-278-02	SCREW, TAPPING		163	X-3382-416-1	HOLDER ASSY	
155	3-244-880-01	SPRING, ***		164	3-245-020-01	SPRING (EJECT), TENSION	
156	3-244-883-01	GEAR (SB)		165	3-244-879-01	SPRING, RACK	
157	3-225-996-17	SCREW (M1.4)(EG),PRECISION PAN		M601	8-835-782-01	MOTOR, DC SSM18D/C-NP (SPINDLE)	
158	3-245-013-01	CHASSIS (REC)		M602	8-835-778-01	MOTOR, DC SSM21A/C-NP (SLED)	
159	3-245-021-01	PLATE, RATCHET		M603	1-477-519-11	MOTOR UNIT, DC (OVER WRITE HEAD UP/ DOWN)	
△ 160	X-3382-955-1	OP SERVICE ASSY (ABX-1R)					

<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>
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MAIN

SECTION 8  
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable
- Items marked "\*" are not stocked since they are seldom required for routine service.  
Some delay should be anticipated when ordering these items.

- SEMICONDUCTORS  
In each case, u:  $\mu$ , for example:  
uA. . :  $\mu$ A. .      uPA. . :  $\mu$ PA. .  
uPB. . :  $\mu$ PB. .    uPC. . :  $\mu$ PC. .  
uPD. . :  $\mu$ PD. .
- CAPACITORS  
uF:  $\mu$ F
- COILS  
uH:  $\mu$ H
- Abbreviation  
CND : Canadian model  
3CED : Spanish, Swedish, Portuguese and Finnish model  
4CED : French, German, Italian and Dutch model

- KR : Korean model
- TW : Taiwan model
- E18 : 100-240V AC Area in E model
- CH : Chinese model
- JE : Tourist model

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

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

Les composants identifiés par une marque  $\Delta$  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
	A-3663-958-B	MAIN BOARD, COMPLETE (EXCEPT,3CED,4CED,UK)		C313	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
	A-3663-959-B	MAIN BOARD, COMPLETE (3CED,4CED,UK) *****		C314	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
				C315	1-113-600-11	TANTAL. CHIP 2.2uF	20.00% 6.3V
	3-251-171-01	SPACER (***)  < CAPACITOR >		C316	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C101	1-164-939-11	CERAMIC CHIP 0.0022uF	10.00% 50V	C317	1-113-600-11	TANTAL. CHIP 2.2uF	20.00% 6.3V
C102	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V	C318	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C103	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V	C319	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C104	1-164-874-11	CERAMIC CHIP 100PF	5.00% 50V	C320	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C105	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	C321	1-100-453-91	CAP, CHIP TANTALUM ELECT 22uF	
C106	1-125-926-91	TANTAL. CHIP 4.7uF	20% 6.3V	C322	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C107	1-131-725-91	TANTAL. CHIP 47uF	20% 4V	C323	1-164-939-11	CERAMIC CHIP 0.0022uF	10.00% 50V
C110	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V	C324	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C111	1-135-868-91	TANTAL. CHIP 220uF	20% 2.5V	C325	1-125-926-91	TANTAL. CHIP 4.7uF	20% 6.3V
C112	1-113-600-11	TANTAL. CHIP 2.2uF	20.00% 6.3V	C326	1-113-600-11	TANTAL. CHIP 2.2uF	20.00% 6.3V
C113	1-164-935-11	CERAMIC CHIP 470PF	10.00% 50V	C327	1-127-895-91	TANTAL. CHIP 22uF	20% 4V
C114	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V	C328	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C115	1-164-939-11	CERAMIC CHIP 0.0022uF	10.00% 50V	C329	1-131-725-91	TANTAL. CHIP 47uF	20% 4V
C116	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	C330	1-131-725-91	TANTAL. CHIP 47uF	20% 4V
C201	1-164-939-11	CERAMIC CHIP 0.0022uF	10.00% 50V	C331	1-131-725-91	TANTAL. CHIP 47uF	20% 4V
C202	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V	C332	1-131-725-91	TANTAL. CHIP 47uF	20% 4V
C203	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V	C333	1-131-725-91	TANTAL. CHIP 47uF	20% 4V
C204	1-164-874-11	CERAMIC CHIP 100PF	5.00% 50V	C334	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C205	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	C335	1-100-453-91	CAP, CHIP TANTALUM ELECT 22uF	
C206	1-125-926-91	TANTAL. CHIP 4.7uF	20% 6.3V	C336	1-127-895-91	TANTAL. CHIP 22uF	20% 4V
C207	1-131-725-91	TANTAL. CHIP 47uF	20% 4V	C337	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C210	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V	C339	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V
C211	1-135-868-91	TANTAL. CHIP 220uF	20% 2.5V	C340	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V
C212	1-113-600-11	TANTAL. CHIP 2.2uF	20.00% 6.3V	C341	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C213	1-164-935-11	CERAMIC CHIP 470PF	10.00% 50V	C342	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V
C214	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V	C343	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V
C215	1-164-939-11	CERAMIC CHIP 0.0022uF	10.00% 50V	C344	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C216	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V	C345	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C301	1-117-919-11	TANTAL. CHIP 10uF	20.00% 6.3V	C347	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V
C303	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V	C501	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C306	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V	C502	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C307	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V	C503	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C308	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V	C504	1-125-926-91	TANTAL. CHIP 4.7uF	20% 6.3V
C310	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V	C505	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C311	1-117-919-11	TANTAL. CHIP 10uF	20.00% 6.3V	C506	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C312	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V	C507	1-117-919-11	TANTAL. CHIP 10uF	20.00% 6.3V
				C508	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
				C509	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
				C510	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
				C511	1-164-850-11	CERAMIC CHIP 10PF	0.50PF 50V

Ref. No.	Part No.	Description	Remark
C520	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C522	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C523	1-164-939-11	CERAMIC CHIP 0.0022uF	10.00% 50V
C524	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C526	1-119-923-81	CERAMIC CHIP 0.047uF	10.00% 10V
C527	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V
C528	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C533	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C534	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V
C535	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C536	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C537	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C538	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C540	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V
C543	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C544	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C545	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C546	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C547	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C548	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C549	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C551	1-164-858-11	CERAMIC CHIP 22PF	5.00% 50V
C552	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C554	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C602	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C603	1-137-704-91	TANTAL. CHIP 10uF	20% 10V
C604	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C605	1-117-919-11	TANTAL. CHIP 10uF	20.00% 6.3V
C606	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C608	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C609	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C610	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V
C611	1-131-860-91	TANTAL. CHIP 4.7uF	20% 10V
C612	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C614	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C615	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C617	1-128-694-91	TANTAL. CHIP 22uF	20% 10V
C618	1-128-694-91	TANTAL. CHIP 22uF	20% 10V
C619	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C621	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C622	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C623	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C625	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C626	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C627	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C701	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C702	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C703	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C707	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C708	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C709	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C710	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C711	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C712	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C715	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C716	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C718	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C719	1-107-820-11	CERAMIC CHIP 0.1uF	16V

Ref. No.	Part No.	Description	Remark
C720	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C721	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C801	1-125-926-91	TANTAL. CHIP 4.7uF	20% 6.3V
C802	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C803	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C804	1-117-919-11	TANTAL. CHIP 10uF	20.00% 6.3V
C805	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C806	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C807	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C808	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V
C809	1-164-840-11	CERAMIC CHIP 1PF	0.25PF 50V
C810	1-164-840-11	CERAMIC CHIP 1PF	0.25PF 50V
C811	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C812	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C813	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C814	1-125-891-11	CERAMIC CHIP 0.47uF	10.00% 10V
C815	1-164-935-11	CERAMIC CHIP 470PF	10.00% 50V
C817	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C818	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C819	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C820	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C821	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C822	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C823	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C825	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C826	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C827	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C829	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V
C830	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C831	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C832	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C833	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C834	1-107-819-11	CERAMIC CHIP 0.022uF	10.00% 16V
C851	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C861	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C862	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C863	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C864	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C865	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C866	1-164-842-11	CERAMIC CHIP 2PF	0.25PF 50V
C891	1-164-941-11	CERAMIC CHIP 0.0047uF	10.00% 16V
C902	1-100-352-91	CAP, CHIP CERAMIC	1uF B (1608)
C904	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C906	1-164-935-11	CERAMIC CHIP 470PF	10.00% 50V
C907	1-125-777-11	CERAMIC CHIP 0.1uF	10.00% 10V
C908	1-100-352-91	CAP, CHIP CERAMIC	1uF B (1608)
C909	1-135-957-91	TANTAL. CHIP 10uF	20% 16V
C910	1-125-837-91	CERAMIC CHIP 1uF	10% 6.3V
C911	1-164-943-11	CERAMIC CHIP 0.01uF	10.00% 16V
C912	1-119-923-81	CERAMIC CHIP 0.047uF	10.00% 10V
C914	1-164-937-11	CERAMIC CHIP 0.001uF	10.00% 50V
C915	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C916	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C917	1-125-840-91	TANTALUM 10uF	20.00% 6.3V
C918	1-107-820-11	CERAMIC CHIP 0.1uF	16V
C919	1-125-839-91	TANTAL. CHIP 47uF	20.00% 6.3V
C920	1-125-840-91	TANTALUM 10uF	20.00% 6.3V

## MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C921	1-125-840-91	TANTALUM	10uF 20.00% 6.3V			< FERRITE BEAD >	
C922	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V				
C923	1-107-820-11	CERAMIC CHIP	0.1uF 16V				
C924	1-131-725-91	TANTAL. CHIP	47uF 20% 4V	FB301	1-216-864-11	METAL CHIP	0 5% 1/10W
C925	1-164-941-11	CERAMIC CHIP	0.0047uF 10.00% 16V	FB302	1-216-809-11	METAL CHIP	100 5% 1/10W
C926	1-107-820-11	CERAMIC CHIP	0.1uF 16V	FB303	1-469-777-21	FERRITE	0UH
C927	1-125-840-91	TANTALUM	10uF 20.00% 6.3V	FB304	1-216-864-11	METAL CHIP	0 5% 1/10W
C929	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	FB801	1-216-864-11	METAL CHIP	0 5% 1/10W
C932	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	FB802	1-216-864-11	METAL CHIP	0 5% 1/10W
C933	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	FB803	1-216-864-11	METAL CHIP	0 5% 1/10W
C936	1-135-957-91	TANTAL. CHIP	10uF 20% 16V	FB804	1-216-864-11	METAL CHIP	0 5% 1/10W
C937	1-135-957-91	TANTAL. CHIP	10uF 20% 16V	FB805	1-216-864-11	METAL CHIP	0 5% 1/10W
C938	1-137-910-11	TANTAL. CHIP	10uF 20% 16V	FB952	1-216-864-11	METAL CHIP	0 5% 1/10W
C951	1-100-353-91	CAP,CHIP CERAMIC	4.7uF B (3225)	FB953	1-216-864-11	METAL CHIP	0 5% 1/10W
C952	1-128-694-91	TANTAL. CHIP	22uF 20% 10V	FB954	1-216-864-11	METAL CHIP	0 5% 1/10W
C953	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	FB955	1-216-864-11	METAL CHIP	0 5% 1/10W
C954	1-164-941-11	CERAMIC CHIP	0.0047uF 10.00% 16V			< IC >	
C955	1-128-694-91	TANTAL. CHIP	22uF 20% 10V	IC301	6-702-894-01	IC AK5356VN-L	
C956	1-128-694-91	TANTAL. CHIP	22uF 20% 10V	IC302	6-700-662-01	IC AN17020A-VB	
C957	1-107-820-11	CERAMIC CHIP	0.1uF 16V	IC501	6-702-869-01	IC SN761058ZQLR	
C958	1-128-694-91	TANTAL. CHIP	22uF 20% 10V	IC502	8-759-565-56	IC XC62HR2202MR	
C959	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	IC503	6-703-691-01	IC XC62HR2502MR	
C960	1-115-467-11	CERAMIC CHIP	0.22uF 10.00% 10V	IC601	6-702-866-01	IC SC901581EPR2	
C961	1-100-353-91	CAP,CHIP CERAMIC	4.7uF B (3225)	IC701	6-702-786-01	IC SC111258EPR2	
C962	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	IC801	8-753-000-74	IC CXD2678-202GA	
C966	1-100-352-91	CAP, CHIP CERAMIC	1uF B (1608)	☆ IC851	—————	IC AK6510L-L (NOT SUPPLIED)	
C967	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	IC861	6-703-011-01	IC TC7SZ126AFE	
C968	1-100-352-91	CAP, CHIP CERAMIC	1uF B (1608)	IC862	6-703-012-01	IC R2061K01-E2	
		< CONNECTOR >		IC901	6-702-865-01	IC SC901580EPR2	
CN501	1-816-934-21	CONNECTOR, FPC (ZIF)		IC951	6-702-867-01	IC SC901582EPR2	
CN701	1-816-935-21	CONNECTOR, FPC (ZIF)		IC952	8-759-824-57	IC XC61CN3002NR	
* CN871	1-794-756-21	CONNECTOR, FPC (ZIF) 15P				< JACK >	
CN891	1-817-277-21	CONNECTOR, FPC (ZIF)		J301	1-816-945-21	CONNECTOR (MIC (PLUG IN POWER))	
CN951	1-817-122-21	CONNECTOR, FFC/FPC (ZIF) 5P		J302	1-816-946-21	CONNECTOR (LINE IN (OPT))	
CN952	1-816-943-21	CONNECTOR		J303	1-816-944-11	CONNECTOR (⌀/LINE IN)	
		< DIODE >				< COIL >	
D201	8-719-046-90	DIODE MA2S111-TX		L301	1-469-535-21	INDUCTOR	10uH
D301	8-719-046-91	DIODE MA2S111-TX		L302	1-469-535-21	INDUCTOR	10uH
D302	8-719-081-71	DIODE DF8A6.8FK(TE85R)		L303	1-469-535-21	INDUCTOR	10uH
D601	6-500-483-01	DIODE MA22D2800LSO		L304	1-469-535-21	INDUCTOR	10uH
D602	8-719-081-35	DIODE MA2YD1700LSO		L501	1-400-342-21	INDUCTOR	10uH
D603	8-719-081-35	DIODE MA2YD1700LSO		L502	1-400-342-21	INDUCTOR	10uH
D604	6-500-483-01	DIODE MA22D2800LSO		L503	1-400-342-21	INDUCTOR	10uH
D610	8-719-421-27	DIODE MA728-TX		L504	1-400-342-21	INDUCTOR	10uH
D801	8-719-421-27	DIODE MA728-TX		L601	1-400-305-11	INDUCTOR	47uH
D892	8-719-421-27	DIODE MA728-TX		L602	1-456-170-21	INDUCTOR	10uH
D901	8-719-420-51	DIODE MA729-TX		L603	1-456-170-21	INDUCTOR	10uH
D902	8-719-404-50	DIODE MA111-TX		L604	1-400-342-21	INDUCTOR	10uH
D903	8-719-420-51	DIODE MA729-TX		L605	1-400-342-21	INDUCTOR	10uH
D904	8-719-420-51	DIODE MA729-TX		L802	1-469-535-21	INDUCTOR	10uH
D952	6-500-483-01	DIODE MA22D2800LSO		L803	1-469-535-21	INDUCTOR	10uH
		< FUSE >		L901	1-400-360-11	INDUCTOR	270uH
△ F301	1-576-439-	FUSE (SMD)	0.25A 125V				

☆ When IC851 is damaged, replace the MAIN board.

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
L902	1-400-362-11	INDUCTOR	330uH	R312	1-218-977-11	RES-CHIP	100K 5% 1/16W
L903	1-400-342-21	INDUCTOR	10uH	R313	1-218-981-11	RES-CHIP	220K 5% 1/16W
L904	1-400-361-11	INDUCTOR	220uH	R315	1-208-707-11	METAL CHIP	10K 0.5% 1/16W
		< TRANSISTOR >		R317	1-216-864-11	METAL CHIP	0 5% 1/10W
				R319	1-218-990-11	SHORT CHIP	0
Q301	8-729-051-23	TRANSISTOR	2SA2018TL	R320	1-218-990-11	SHORT CHIP	0
Q501	8-729-922-10	TRANSISTOR	2SA1577-T106-QR	R321	1-218-989-11	RES-CHIP	1M 5% 1/16W
Q502	8-729-034-59	TRANSISTOR	2SA1745-6.7-TL	R501	1-218-977-11	RES-CHIP	100K 5% 1/16W
Q503	8-729-429-44	TRANSISTOR	XP1501-TXE	R502	1-218-446-11	METAL CHIP	1 5% 1/10W
Q601	6-550-356-01	TRANSISTOR	MCH6616-TL-E	R503	1-218-446-11	METAL CHIP	1 5% 1/10W
Q602	6-550-357-01	TRANSISTOR	CPH5614-TL-E	R504	1-218-965-11	RES-CHIP	10K 5% 1/16W
Q603	6-550-355-01	TRANSISTOR	RTQ045N03	R505	1-218-965-11	RES-CHIP	10K 5% 1/16W
Q604	6-550-354-01	TRANSISTOR	RTQ035P02	R507	1-208-707-11	METAL CHIP	10K 0.5% 1/16W
Q605	8-729-046-45	TRANSISTOR	SI2302DS-T1	R508	1-218-953-11	RES-CHIP	1K 5% 1/16W
Q606	8-729-030-46	TRANSISTOR	XP4314-TX	R509	1-218-990-11	SHORT CHIP	0
Q607	8-729-030-46	TRANSISTOR	XP4314-TX	R511	1-218-990-11	SHORT CHIP	0
Q608	8-729-052-37	TRANSISTOR	XP151A13A0MR	R512	1-220-804-11	RES-CHIP	2.2M 5% 1/16W
Q612	8-729-037-52	TRANSISTOR	2SD2216J-QR(TX).SO	R513	1-218-981-11	RES-CHIP	220K 5% 1/16W
Q901	8-729-051-50	TRANSISTOR	XP152A12C0MR	R514	1-218-973-11	RES-CHIP	47K 5% 1/16W
Q902	8-729-051-50	TRANSISTOR	XP152A12C0MR	R515	1-218-965-11	RES-CHIP	10K 5% 1/16W
Q904	8-729-037-75	TRANSISTOR	UN9214J-(TX).SO	R516	1-218-977-11	RES-CHIP	100K 5% 1/16W
Q951	8-729-037-61	TRANSISTOR	UN9113J-(TX).SO	R517	1-218-965-11	RES-CHIP	10K 5% 1/16W
Q952	8-729-030-46	TRANSISTOR	XP4314-TX	R518	1-218-973-11	RES-CHIP	47K 5% 1/16W
Q953	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)	R602	1-218-973-11	RES-CHIP	47K 5% 1/16W
Q954	6-550-326-01	TRANSISTOR	FZT968TA	R603	1-208-635-11	RES-CHIP	10 5% 1/16W
Q961	8-729-030-46	TRANSISTOR	XP4314-TX	R606	1-208-635-11	RES-CHIP	10 5% 1/16W
		< RESISTOR >		R610	1-218-957-11	RES-CHIP	2.2K 5% 1/16W
R101	1-208-927-11	METAL CHIP	47K 0.5% 1/16W	R612	1-218-446-11	METAL CHIP	1 5% 1/10W
R102	1-208-715-11	METAL CHIP	22K 0.5% 1/16W	R613	1-220-804-11	RES-CHIP	2.2M 5% 1/16W
R103	1-208-715-11	METAL CHIP	22K 0.5% 1/16W	R614	1-220-804-11	RES-CHIP	2.2M 5% 1/16W
R104	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	R617	1-218-977-11	RES-CHIP	100K 5% 1/16W
R105	1-218-965-11	RES-CHIP	10K 5% 1/16W	R618	1-218-953-11	RES-CHIP	1K 5% 1/16W
R106	1-218-933-11	RES-CHIP	22 5% 1/16W	R619	1-218-945-11	RES-CHIP	220 5% 1/16W
R108	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	R620	1-208-635-11	RES-CHIP	10 5% 1/16W
R109	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	R621	1-208-635-11	RES-CHIP	10 5% 1/16W
R111	1-218-990-11	SHORT CHIP	0	R622	1-218-977-11	RES-CHIP	100K 5% 1/16W
R112	1-242-967-81	RES-CHIP	1 5% 1/16W	R625	1-218-977-11	RES-CHIP	100K 5% 1/16W
R201	1-208-927-11	METAL CHIP	47K 0.5% 1/16W	R626	1-218-981-11	RES-CHIP	220K 5% 1/16W
R202	1-208-715-11	METAL CHIP	22K 0.5% 1/16W	R627	1-218-953-11	RES-CHIP	1K 5% 1/16W
R203	1-208-715-11	METAL CHIP	22K 0.5% 1/16W	R630	1-218-990-11	SHORT CHIP	0
R204	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	R711	1-216-801-11	METAL CHIP	22 5% 1/10W
R205	1-218-965-11	RES-CHIP	10K 5% 1/16W	R712	1-216-801-11	METAL CHIP	22 5% 1/10W
R206	1-218-933-11	RES-CHIP	22 5% 1/16W	R713	1-216-801-11	METAL CHIP	22 5% 1/10W
R208	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	R714	1-216-801-11	METAL CHIP	22 5% 1/10W
R209	1-208-707-11	METAL CHIP	10K 0.5% 1/16W	R802	1-218-953-11	RES-CHIP	1K 5% 1/16W
R211	1-218-990-11	SHORT CHIP	0	R803	1-208-635-11	RES-CHIP	10 5% 1/16W
R212	1-242-967-81	RES-CHIP	1 5% 1/16W	R804	1-208-635-11	RES-CHIP	10 5% 1/16W
R301	1-218-941-81	RES-CHIP	100 5% 1/16W	R805	1-218-990-11	SHORT CHIP	0
R302	1-218-965-11	RES-CHIP	10K 5% 1/16W	R806	1-218-990-11	SHORT CHIP	0
R303	1-218-977-11	RES-CHIP	100K 5% 1/16W	R807	1-218-965-11	RES-CHIP	10K 5% 1/16W
R304	1-218-941-81	RES-CHIP	100 5% 1/16W	R808	1-218-965-11	RES-CHIP	10K 5% 1/16W
R305	1-218-941-81	RES-CHIP	100 5% 1/16W	R809	1-218-977-11	RES-CHIP	100K 5% 1/16W
R306	1-218-941-81	RES-CHIP	100 5% 1/16W	R811	1-218-981-11	RES-CHIP	220K 5% 1/16W
R307	1-218-953-11	RES-CHIP	1K 5% 1/16W	R813	1-218-953-11	RES-CHIP	1K 5% 1/16W
R308	1-218-953-11	RES-CHIP	1K 5% 1/16W	R814	1-218-957-11	RES-CHIP	2.2K 5% 1/16W
R309	1-218-953-11	RES-CHIP	1K 5% 1/16W	R815	1-218-953-11	RES-CHIP	1K 5% 1/16W
R310	1-208-943-11	METAL CHIP	220K 0.5% 1/16W	R816	1-218-945-11	RES-CHIP	220 5% 1/16W
				R817	1-220-804-11	RES-CHIP	2.2M 5% 1/16W

**MAIN**

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R818	1-218-989-11	RES-CHIP	1M	5%	1/16W	R918	1-218-985-11	RES-CHIP	470K	5%	1/16W
R819	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W	R919	1-218-973-11	RES-CHIP	47K	5%	1/16W
R820	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W	R921	1-218-973-11	RES-CHIP	47K	5%	1/16W
R821	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R923	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R822	1-208-943-11	METAL CHIP	220K	0.5%	1/16W	R926	1-218-969-11	RES-CHIP	22K	5%	1/16W
R823	1-218-990-11	SHORT CHIP	0			R929	1-218-981-11	RES-CHIP	220K	5%	1/16W
R824	1-218-985-11	METAL CHIP	470K	0.5%	1/16W	R931	1-218-990-11	SHORT CHIP	0		
R825	1-218-989-11	RES-CHIP	1M	5%	1/16W	R932	1-218-981-11	RES-CHIP	220K	5%	1/16W
R826	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R934	1-218-965-11	RES-CHIP	10K	5%	1/16W
R827	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R935	1-218-985-11	RES-CHIP	470K	5%	1/16W
R828	1-218-933-11	RES-CHIP	22	5%	1/16W	R936	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R829	1-218-933-11	RES-CHIP	22	5%	1/16W	R951	1-245-457-21	METAL	2.2	1%	1/5W
R830	1-218-990-11	SHORT CHIP	0			R952	1-245-454-21	METAL	0.022	1%	1/5W
R831	1-218-990-11	SHORT CHIP	0			R953	1-245-456-21	METAL	1	1%	1/5W
R832	1-218-990-11	SHORT CHIP	0			R954	1-218-965-11	RES-CHIP	10K	5%	1/16W
R833	1-218-990-11	SHORT CHIP	0			R955	1-218-941-81	RES-CHIP	100	5%	1/16W
R834	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W	R956	1-218-969-11	RES-CHIP	22K	5%	1/16W
R835	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W	R957	1-218-977-11	RES-CHIP	100K	5%	1/16W
R836	1-218-990-11	SHORT CHIP	0			R958	1-218-941-11	METAL CHIP	100	0.5%	1/16W
R837	1-208-935-11	METAL CHIP	100K	0.5%	1/16W	R959	1-218-945-11	METAL CHIP	220	0.5%	1/16W
R838	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R960	1-218-973-11	RES-CHIP	47K	5%	1/16W
R839	1-218-990-11	SHORT CHIP	0			R961	1-216-864-11	METAL CHIP	0	5%	1/10W
R840	1-218-989-11	RES-CHIP	1M	5%	1/16W	R963	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R841	1-218-990-11	SHORT CHIP	0			R964	1-218-973-11	RES-CHIP	47K	5%	1/16W
R843	1-218-990-11	SHORT CHIP	0			R974	1-216-864-11	METAL CHIP	0	5%	1/10W
R844	1-218-990-11	SHORT CHIP	0			R975	1-216-864-11	METAL CHIP	0	5%	1/10W
R845	1-218-990-11	SHORT CHIP	0			R994	1-220-804-11	RES-CHIP	2.2M	5%	1/16W
R847	1-208-935-11	METAL CHIP	100K	0.5%	1/16W	R995	1-218-981-11	RES-CHIP	220K	5%	1/16W
R848	1-208-943-11	METAL CHIP	220K	0.5%	1/16W	R997	1-220-804-11	RES-CHIP	2.2M	5%	1/16W
R849	1-216-864-11	METAL CHIP	0	5%	1/10W						< COMPOSITION CIRCUIT BLOCK >
R850	1-218-965-11	RES-CHIP	10K	5%	1/16W	RB701	1-233-963-21	RES, NETWORK (CHIP TYPE)	2.2K		
R851	1-218-990-11	SHORT CHIP	0			RB702	1-233-967-11	RES, NETWORK (CHIP TYPE)	10K		
R852	1-218-977-11	RES-CHIP	100K	5%	1/16W						< SWITCH >
R853	1-218-977-11	RES-CHIP	100K	5%	1/16W	S801	1-786-448-21	SWITCH, PUSH (1 KEY) (HALF LOCK)			
R856	1-218-990-11	SHORT CHIP	0			S802	1-786-436-21	SWITCH, SLIDE (HOLD $\blacktriangleright$ )			
R857	1-218-973-11	RES-CHIP	47K	5%	1/16W	S803	1-786-101-22	SWITCH, DETECTION (OPEN/CLOSE)			
R858	1-218-973-11	RES-CHIP	47K	5%	1/16W	S804	1-786-447-21	SWITCH, PUSH (PROTECT)			
R859	1-218-981-11	RES-CHIP	220K	5%	1/16W	S805	1-786-446-21	SWITCH, TACTILE (T MARK)			
R860	1-220-804-11	RES-CHIP	2.2M	5%	1/16W	S806	1-786-446-21	SWITCH, TACTILE (END SEARCH)			
R871	1-218-990-11	SHORT CHIP	0			S951	1-786-436-41	SWITCH, SLIDE (BUILT IN BATTERY)			
R891	1-218-990-11	SHORT CHIP	0								< VIBRATOR >
R892	1-218-990-11	SHORT CHIP	0			X801	1-795-779-21	VIBRATOR, CRYSTAL 22.5792MHz			
R893	1-218-990-11	SHORT CHIP	0			X802	1-795-780-21	VIBRATOR, CERAMIC 48MHz			
R894	1-218-989-11	RES-CHIP	1M	5%	1/16W	X861	1-795-602-11	VIBRATOR, CRYSTAL 32.768kHz			
R901	1-218-989-11	RES-CHIP	1M	5%	1/16W						*****
R902	1-218-989-11	RES-CHIP	1M	5%	1/16W						
R903	1-218-953-11	RES-CHIP	1K	5%	1/16W						
R904	1-218-953-11	RES-CHIP	1K	5%	1/16W						
R905	1-208-707-11	METAL CHIP	10K	0.5%	1/16W						
R907	1-218-985-11	RES-CHIP	470K	5%	1/16W						
R908	1-208-927-11	METAL CHIP	47K	0.5%	1/16W						
R909	1-208-935-11	METAL CHIP	100K	0.5%	1/16W						
R911	1-218-973-11	RES-CHIP	47K	5%	1/16W						
R912	1-218-977-11	RES-CHIP	100K	5%	1/16W						
R914	1-218-973-11	RES-CHIP	47K	5%	1/16W						
R915	1-218-981-11	RES-CHIP	220K	5%	1/16W						
R917	1-218-985-11	RES-CHIP	470K	5%	1/16W						



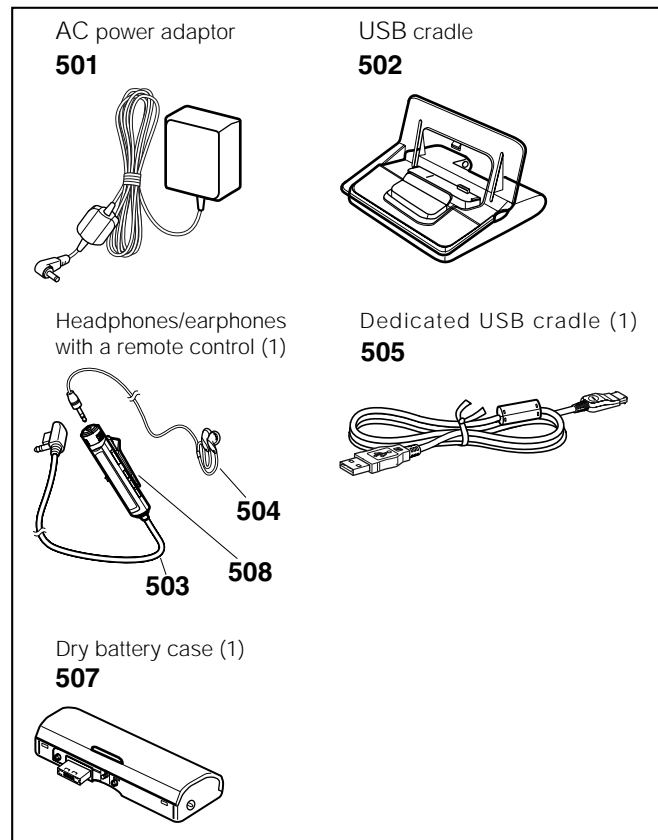
Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *****	
2	1-804-970-11	LCD MODULE	
65	1-477-512-11	SWITCH UNIT (WITH JOG DIAL)	
△ 104	1-756-318-11	BATTERY, LITHIUM ION STORAGE	
△ 160	X-3382-955-1	OP SERVICE ASSY (ABX-1R)	
M601	8-835-782-01	MOTOR, DC SSM18D/C-NP (SPINDLE)	
M602	8-835-778-01	MOTOR, DC SSM21A/C-NP (SLED)	
M603	1-477-519-11	MOTOR UNIT, DC (OVER WRITE HEAD UP/DOWN)	

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ACCESSORIES  
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△	1-569-007-12	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)	
	3-220-749-01	CASE, CARRYING (HK,KR,TW,E18,CH,JE)	
	3-228-300-11	CASE, BELT CLIP CARRYING (CND,3CED,4CED,UK)	
	3-247-016-01	MANUAL, INSTRUCTION (FRENCH)(CND)	
	3-250-372-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-250-372-21	MANUAL, INSTRUCTION (FRENCH) (US,CND,4CED)	
	3-250-372-31	MANUAL, INSTRUCTION (GERMAN) (4CED)	
	3-250-372-41	MANUAL, INSTRUCTION (SPANISH) (3CED,JE)	
	3-250-372-51	MANUAL, INSTRUCTION (DUTCH) (4CED)	
	3-250-372-61	MANUAL, INSTRUCTION (SWEDISH) (3CED)	
	3-250-372-71	MANUAL, INSTRUCTION (ITALIAN) (4CED)	
	3-250-372-81	MANUAL, INSTRUCTION (PORTUGUESE) (3CED,JE)	
	3-250-372-91	MANUAL, INSTRUCTION (FINNISH) (3CED)	
	3-250-549-11	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (HK,TW,E18,JE)	
	3-250-549-21	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (CH)	
	3-250-549-31	MANUAL, INSTRUCTION (KOREAN) (JE)	
	X-3383-268-1	CD-ROM (APPLICATION) ASSY (US,CND)	
	X-3383-269-3	CD-ROM (APPLICATION) ASSY (3CED,4CED,UK)	
	X-3383-270-2	CD-ROM (APPLICATION) ASSY (HK,KR,TW,E18,CH)	
	X-3383-271-1	CD-ROM (APPLICATION) ASSY (JE)	
△ 501	1-477-536-11	ADAPTOR (AC-ES605K), AC (JE)	
△ 501	1-477-537-11	ADAPTOR (AC-ES605K), AC (HK, UK)	
△ 501	1-477-538-11	ADAPTOR (AC-ES605K), AC (3CED,4CED)	
△ 501	1-477-539-11	ADAPTOR (AC-ES605K), AC (US,CND,TW)	

Ref. No.	Part No.	Description	Remark
△ 501	1-477-540-11	ADAPTOR (AC-ES605K), AC (E18)	
△ 501	1-477-541-11	ADAPTOR (AC-ES605K), AC (KR)	
△ 501	1-477-543-11	ADAPTOR (AC-ES605K), AC (CH)	
△ 501	1-477-542-11	AC ADAPTOR (AC-ES605K), AC (AUS)	
△ 502	1-477-513-11	CRADLE UNIT (SILVER)	
△ 502	1-477-513-21	CRADLE UNIT (GRAY) (HK,KR,E18,CH)	
503	1-477-573-11	REMOTE COMMANDER (RM-MC33EL)	
504	8-953-218-91	RECEIVER MDR-E838SP/SK SET (EXCEPT US)	
504	8-954-019-90	HEADPHONE MDR-A034SP110 (SET)(US)	
505	1-824-647-11	CORD, CONNECTION (EXCEPT 3CED,4CED,UK,KR,TW,CH)	
505	1-824-647-21	CORD, CONNECTION (3CED,4CED,UK,KR,TW,CH)	
507	1-417-304-11	BATTERY CASE	
508	3-252-648-01	CRIP (REMOTE CONTROL)	



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.



MEMO

