

MZ-R900

SERVICE MANUAL

Ver 1.2 2001.03



Photo: Red type

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

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	NEW
Mechanism Type	MT-MZR900-171
Optical Pick-up Name	LCX-4R

SPECIFICATIONS

Audio playing system

MiniDisc digital audio system

Laser diode properties

Material: GaAlAs

Wavelength: $\lambda = 790$ nm

Emission duration: continuous

Laser output: less than 44.6 μ W

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

Recording and playback time

When using MDW-80:

Maximum 160 min. in monaural

Maximum 320 min. in stereo

Revolutions

350 rpm to 2,800 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

ATRAC3 — LP4

Modulation system

EFM (Eight to Fourteen Modulation)

Number of channels

2 stereo channels

1 monaural channel

Frequency response

20 to 20,000 Hz \pm 3 dB

Wow and Flutter

Below measurable limit

Inputs

Microphone: stereo mini-jack, minimum input level 0.25 mV

Line in¹⁾: stereo mini-jack, minimum input level 49 mV

Optical (Digital) in¹⁾: optical (digital) mini-jack

Outputs

ϕ /LINE OUT²⁾: stereo mini-jack

headphones/earphones: maximum output level 5 mW + 5 mW, load impedance 16 ohm
LINE OUT: 194 mV, load impedance 10 kilohm

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

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

Power requirements

Sony AC Power Adaptor connected at the DC IN 3V jack:

120 V AC, 60 Hz (US model)

230–240 V AC, 50/60 Hz (UK and Hong Kong model)

220–230 V AC, 50/60 Hz (European model)

120 V AC, 50 Hz (Canadian model)

240 V AC, 50 Hz (Australian model)

220 V AC, 50 Hz (Chinese model)

110/220 V AC, 60 Hz (Korean model)

100–240 V AC, 50/60 Hz (Other models)

Nickel metal hydride rechargeable battery NH-14WM

LR6 (size AA) alkaline battery

Battery operation time

Battery life¹⁾

When recording²⁾

(Unit: approx. hours)(EIAJ³⁾)

Batteries	Stereo	LP2	LP4
NH-14WM nickel metal hydride rechargeable battery ⁴⁾	8	10.5	13
LR6 (SG) Sony alkaline dry battery ⁵⁾	7	10	14
NH-14WM nickel metal hydride rechargeable battery ⁴⁾ + One LR6 (SG) ⁵⁾	19	26	30

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

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

– Continued on next page –

PORTABLE MINIDISC RECORDER

9-927-991-13

2001C0500-1

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Sony Corporation

Audio Entertainment Group

General Engineering Dept.

SONY®

³⁾ Measured in accordance with the EIAJ (Electronic Industries Association of Japan) standard.

⁴⁾ When using a 100% fully charged rechargeable battery.

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

When playing

(Unit: approx. hours)(EIAJ¹⁾)

Batteries	Stereo	LP2	LP4
NH-14WM nickel metal hydride rechargeable battery ²⁾	21	23	26
LR6 (SG) Sony alkaline dry battery ³⁾	30	35	38
NH-14WM nickel metal hydride rechargeable battery ²⁾ + One LR6 (SG) ³⁾	53	60	66

¹⁾ Measured in accordance with the EIAJ (Electronic Industries Association of Japan) standard.

²⁾ When using a 100% fully charged rechargeable battery.

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

Dimensions

Approx. 78.9 × 17.1 × 72.0 mm (w/h/d)
(3¹/₈ × 1¹/₁₆ × 2⁷/₈ in.)

Mass

Approx. 110 g (3.9 oz) the recorder only

Supplied accessories

AC power adaptor (1)

Headphones/earphones with a remote control

(1)

Rechargeable battery (1)

Dry battery case (1)

Rechargeable battery carrying case (1)

Carrying pouch/carrying case with a belt clip

(except U.S.A model) (1)

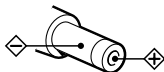
AC plug adaptor (World model only) (1)

Optical cable (1)

On power sources

- For use in your house: 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



Design and specifications are subject to change without notice.

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SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

SECTION 1 SERVICING NOTES

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

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.

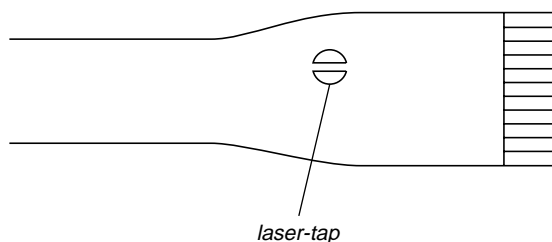
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

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

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (LCX-4R)

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



OPTICAL PICK-UP FLEXIBLE BOARD

CAUTION

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

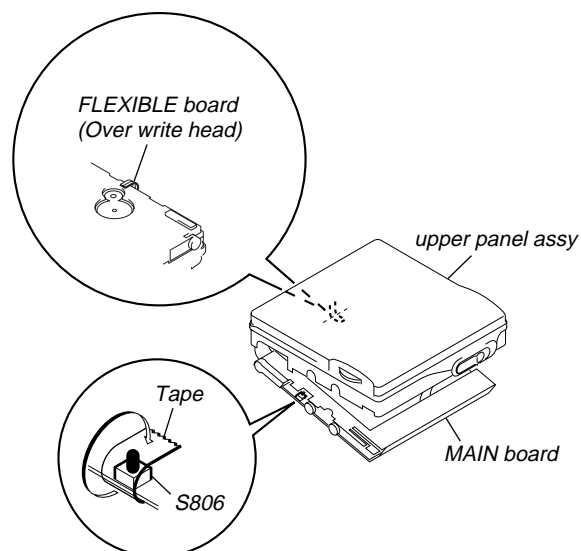
Notes on chip component replacement

- 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.

- 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 (S806 on MAIN board) with a tape in advance. Handle the FLEXIBLE board (overwrite 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 (overwrite head) and the MAIN board with the lead wires in advance. (See page 7)

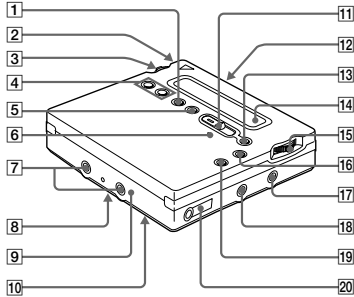


- Replacement of CDX2671-203GA (IC801) used in this set requires a special tool.
- On the set having the microcomputer version 1.000, some adjusted values were set in the manual mode at the shipment, but these data will be cleared when the NV is reset. Therefore, on the set having the microcomputer version 1.000, change the adjusted values following the Change of Adjusted Values immediately after the NV was reset. (See page 17)
- If the nonvolatile memory was replaced on the set, the modified program data must be written to the nonvolatile memory. In such a case, write the modified data that meets the microcomputer version following the patch data rewriting procedure at the replacement of nonvolatile memory. (See page 22)

Looking at controls

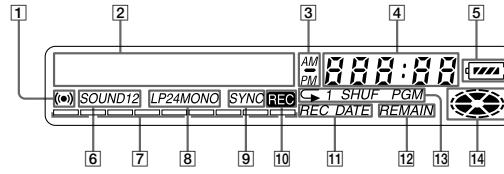
See pages in () for more details.

The recorder



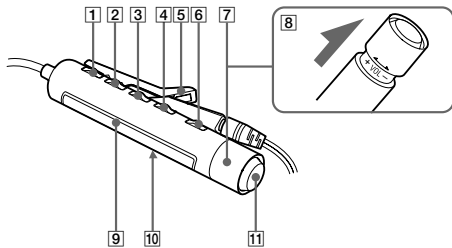
- 1 END SEARCH button (17) (47)
- 2 Battery compartment (13)
- 3 Jog lever (L) (MENU/ENTER) (11) (20) (25) (34) (43) (53)
- 4 VOL +/- button (19) (47)
- 5 REC MODE button (23)
- 6 REC indicator (29)
- 7 Terminals for attaching dry battery case (14)
- 8 SYNCHRO REC ON/OFF (synchro-recording) switch (at the rear) (24)
- 9 DC IN 3V jack (13) (16)
- 10 HOLD switch (at the rear) (14) (55)
- 11 REC (record) switch (17) (25)
- 12 OPEN button (15)
- 13 ■ (pause) button (17) (19) (27) (31) (44) (47) (51)
- 14 Display window (24) (34) (53)
- 15 Jog lever (R) (▶◀◀▶▶▶) (12) (17) (19) (44) (47)
- 16 ■ (stop)/CHARGE button (13) (17) (19) (23) (43)
- 17 LINE IN (OPT) jack (16) (22)
- 18 MIC (PLUG IN POWER) jack (25)
- 19 T MARK button (44)
- 20 ◁ (headphones/earphones)/LINE OUT jack (14) (31) (41)

The display window of the recorder



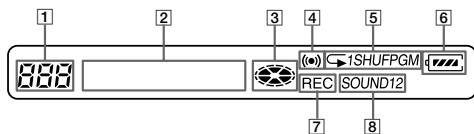
- 1 Alarm indication (53)
- 2 Character information display (29) (34)
Displays the disc and track names, date, error messages, track numbers, etc.
- 3 AM/PM indication (30)
Lights up along with the time indication in the 12-hour system.
- 4 Time display (29) (40)
Shows the recorded time, current time, elapsed time of the track or MD being recorded or played.
- 5 Battery indication (13)
Shows approximate battery condition.
- 6 Sound indication (36)
Lights up when Digital Sound Preset is on.
- 7 Level meter (28)
Shows the volume of the MD being played or recorded.
- 8 LP2, LP4, MONO (monaural) indication (23)
- 9 SYNC (synchro-recording) indication (24)
Lights up while synchro-recording.
- 10 REC indication (17)
Lights up while recording. When flashing, the recorder is in record standby mode.
- 11 REC DATE (recorded/current date) indication (40)
Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.
- 12 REMAIN (remaining time/tracks) indication (28) (40)
Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.
- 13 Play mode indication (34)
Shows the play mode of the MD.
- 14 Disc indication (24) (34)
Shows that the disc is rotating for recording, playing or editing an MD.

The headphones/earphones with a remote control



- 1 DISPLAY button (29) (38) (46) (48) (53)
- 2 PLAYMODE button (35) (48)
- 3 RPT/ENT (repeat/enter) button (36) (37)
- 4 SOUND button (36)
- 5 Clip
- 6 ■ (pause) button (19) (48) (51)
- 7 Control (◀◀▶▶▶▶) (12) (19) (36) (46) (48) (51) (53)
▶▶▶▶ : play, AMS, FF
◀◀ : REW
- 8 Control (VOL +/-) (12) (19) (48)
Pull and turn to adjust the volume.
- 9 Display window (29) (36)
- 10 HOLD switch (14) (55)
- 11 ■ (stop) button (19) (38) (46) (53)

The display window of the remote control



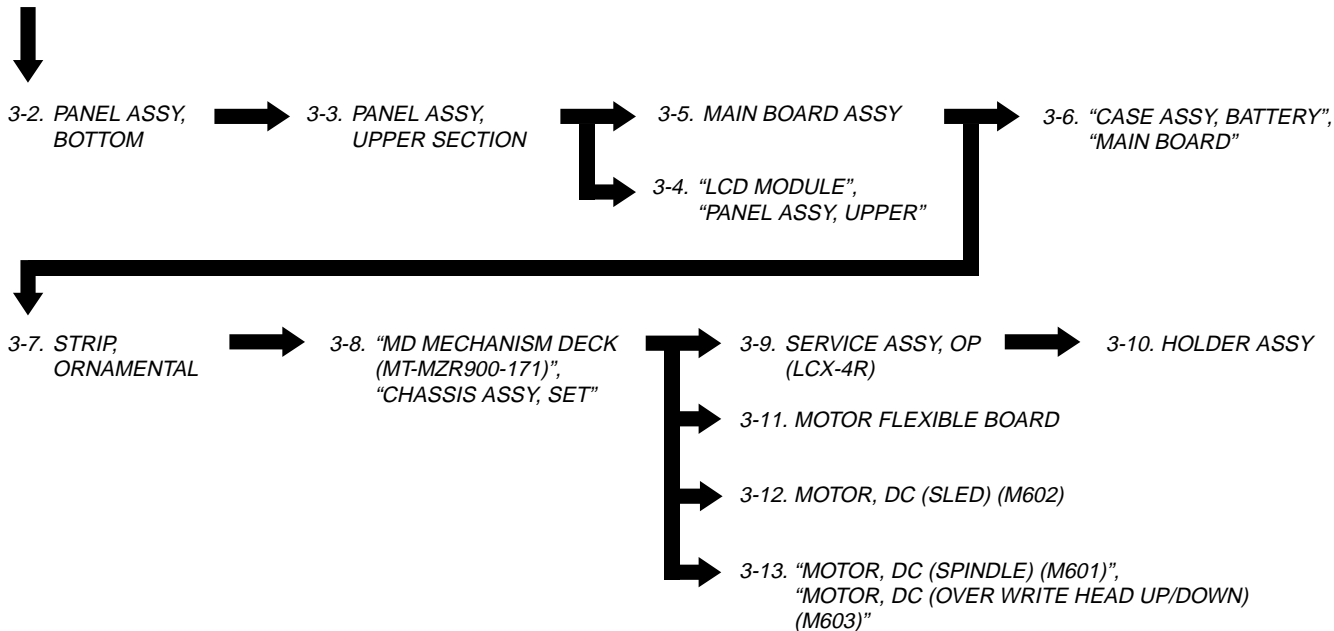
- 1 Track number display (29) (36) (54)
- 2 Character information display (29) (36) (54)
- 3 Disc indication (29) (36) (54)
- 4 Alarm indication (54)
- 5 Play mode indication (36)
- 6 Battery indication (29) (36) (54)
- 7 REC indication (17) (29)
- 8 SOUND indication (36)

SECTION 3 DISASSEMBLY

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

3-1. DISASSEMBLY FLOW

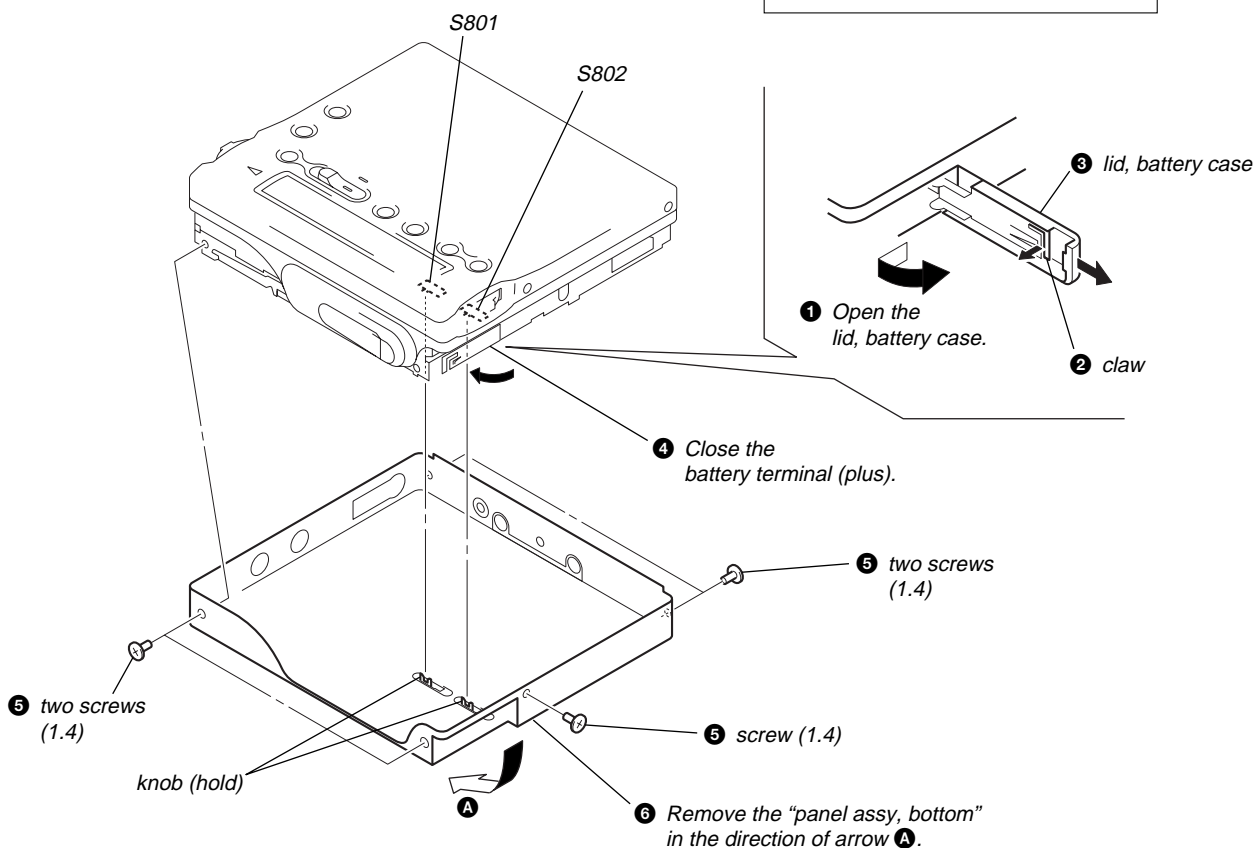
SET



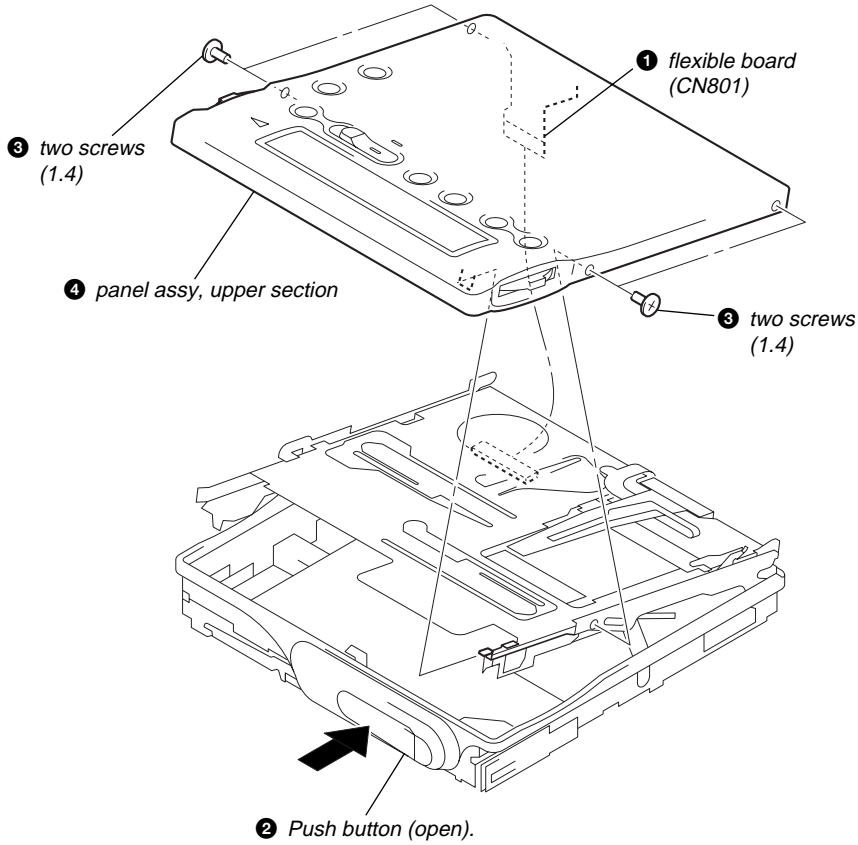
Note: Follow the disassembly procedure in the numerical order given.

3-2. PANEL ASSY, BOTTOM

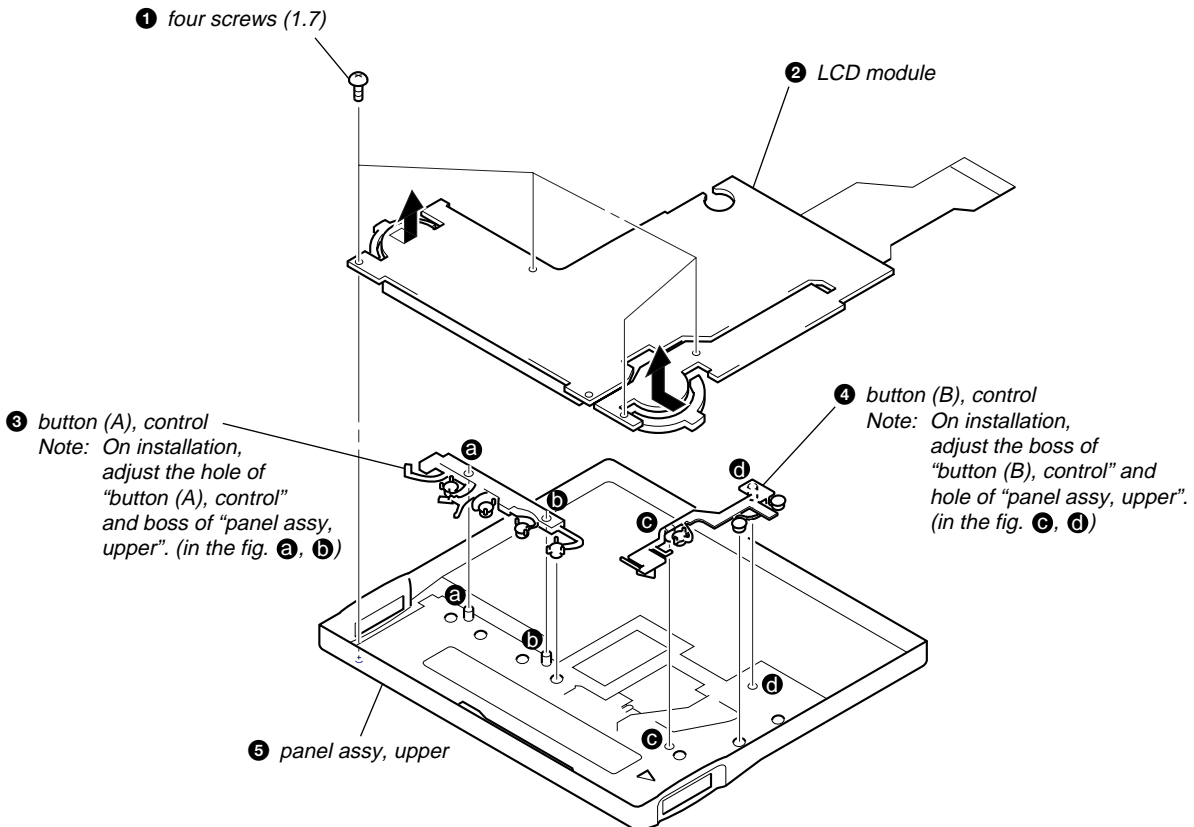
Note: On installation, adjust the position of both two switches (S801, S802) and two knobs (hold).



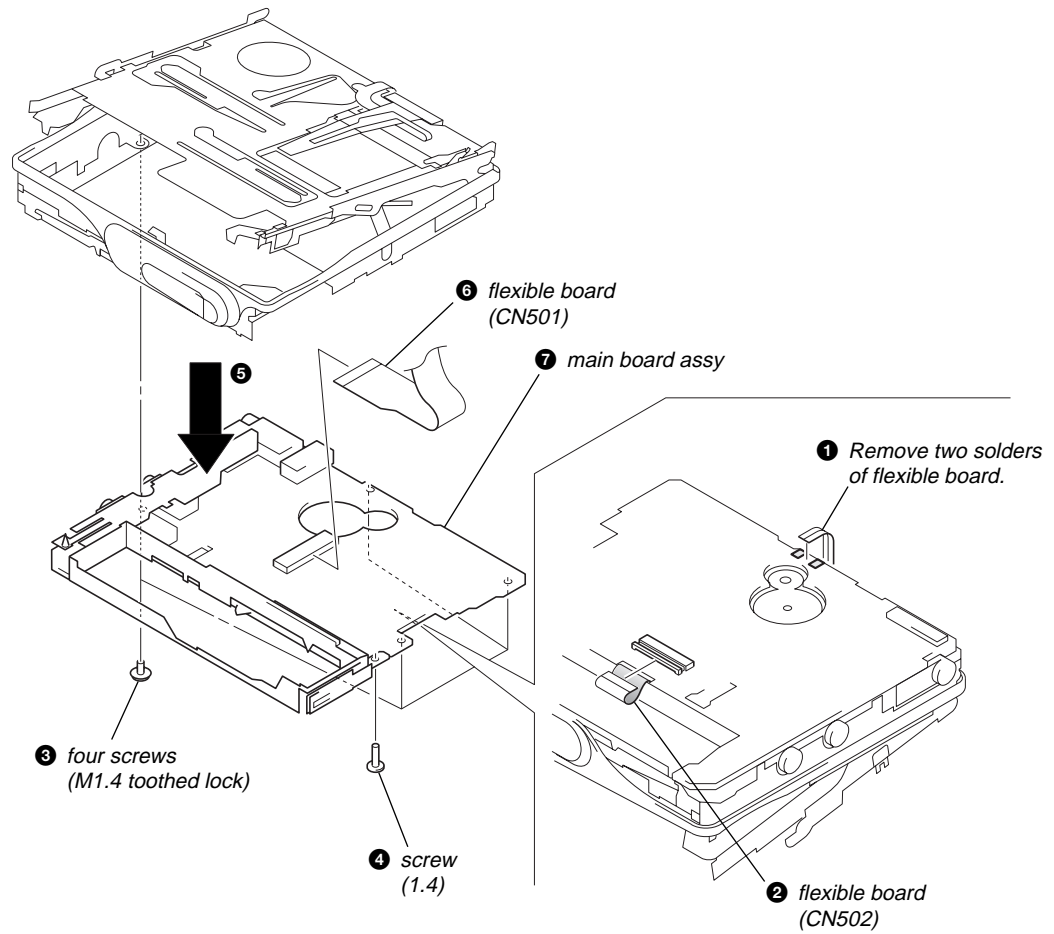
3-3. PANEL ASSY, UPPER SECTION



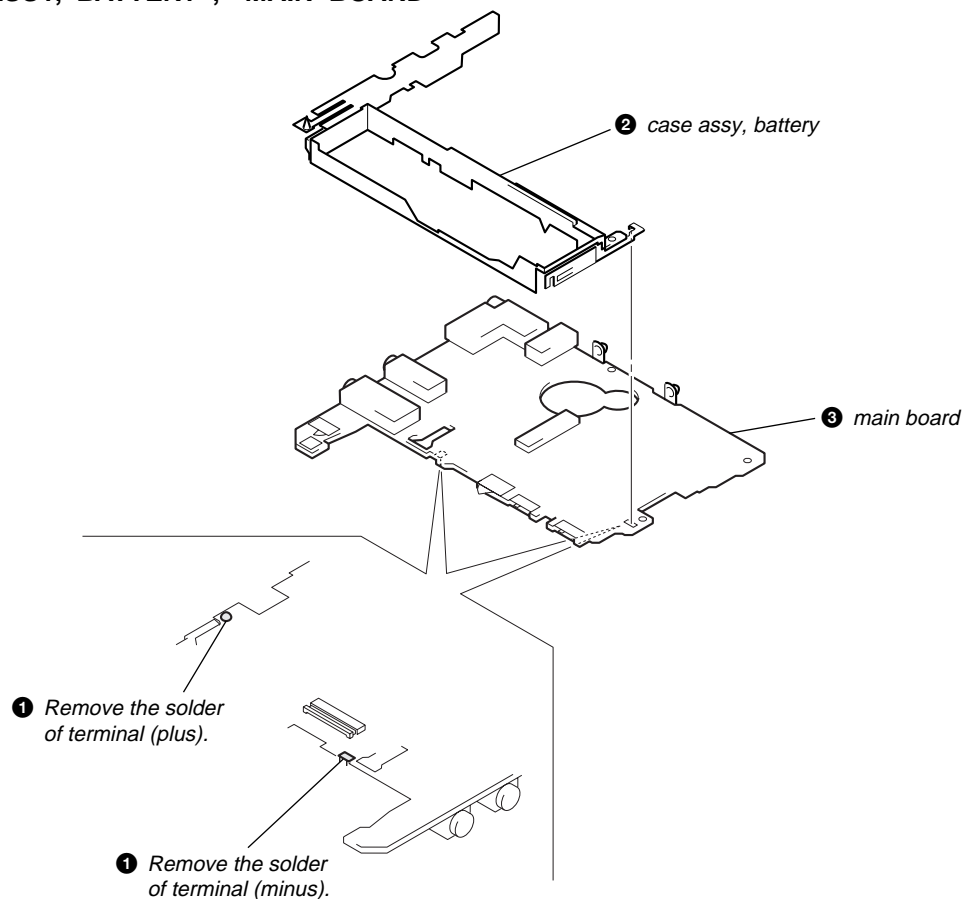
3-4. "LCD MODULE", "PANEL ASSY, UPPER"



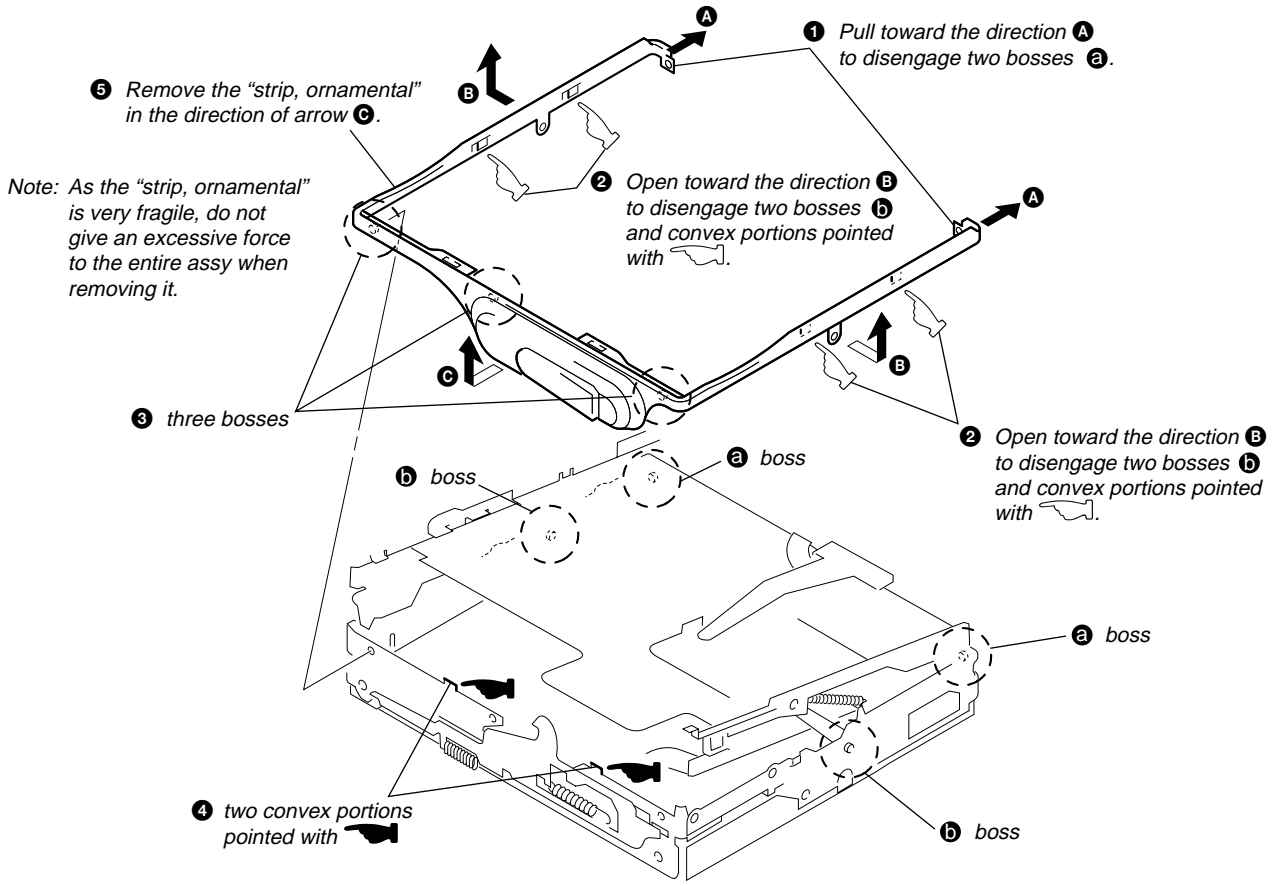
3-5. MAIN BOARD ASSY



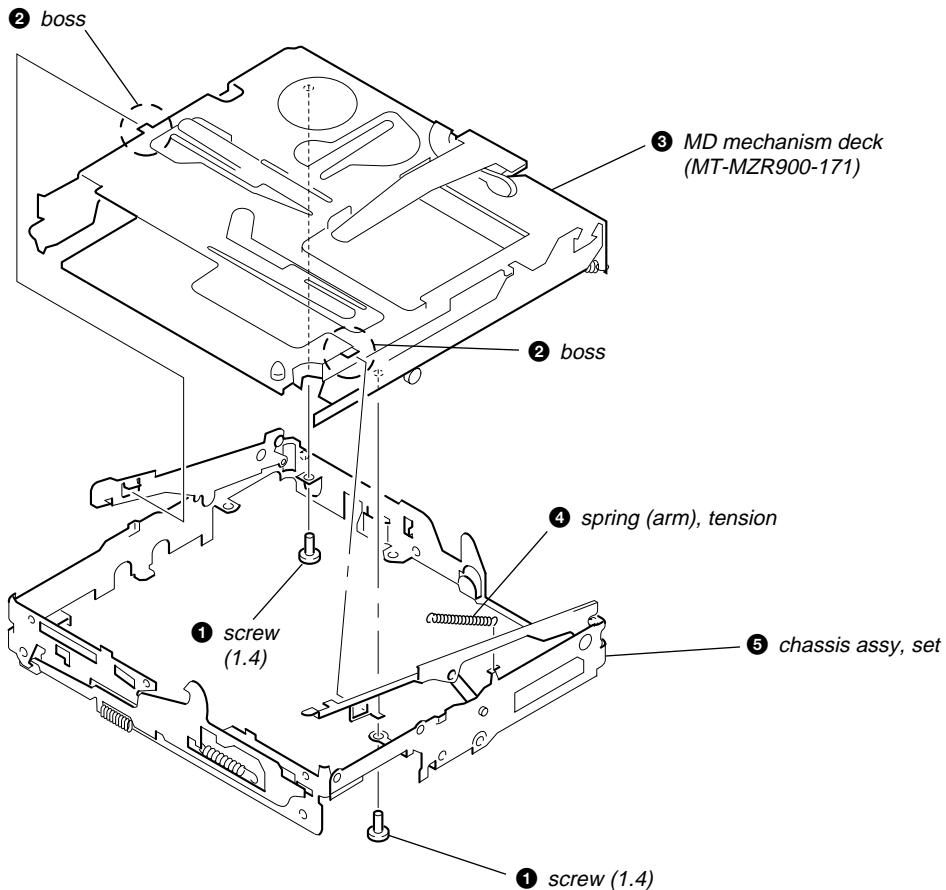
3-6. "CASE ASSY, BATTERY", "MAIN BOARD"



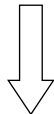
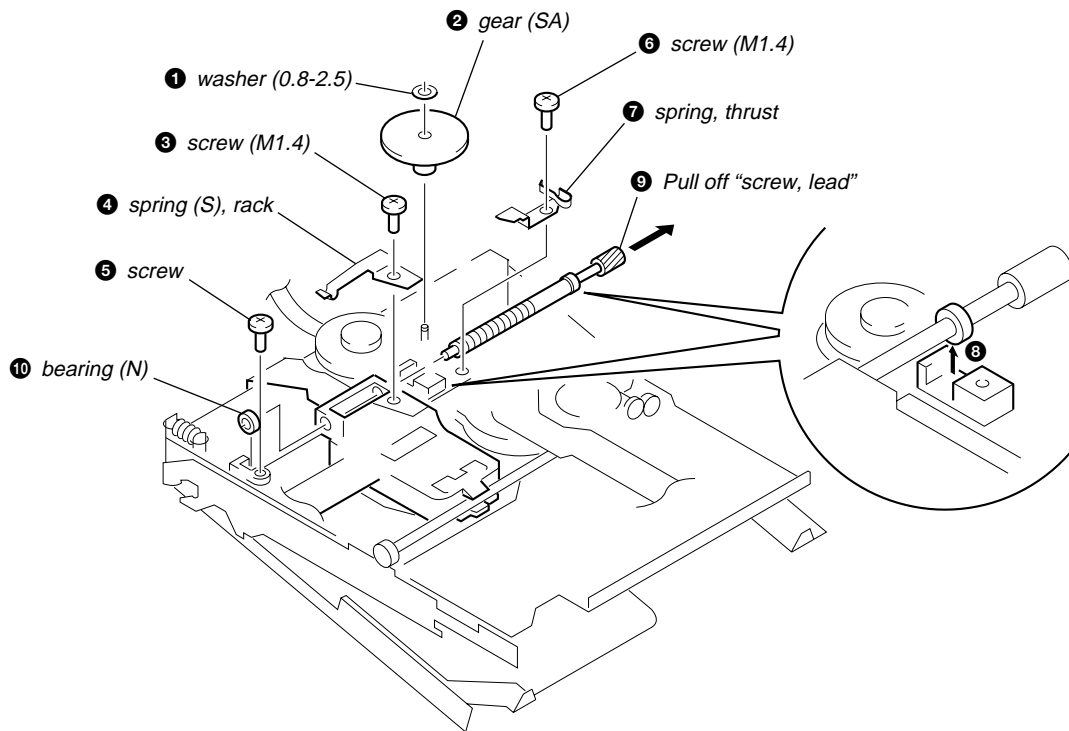
3-7. STRIP, ORNAMENTAL



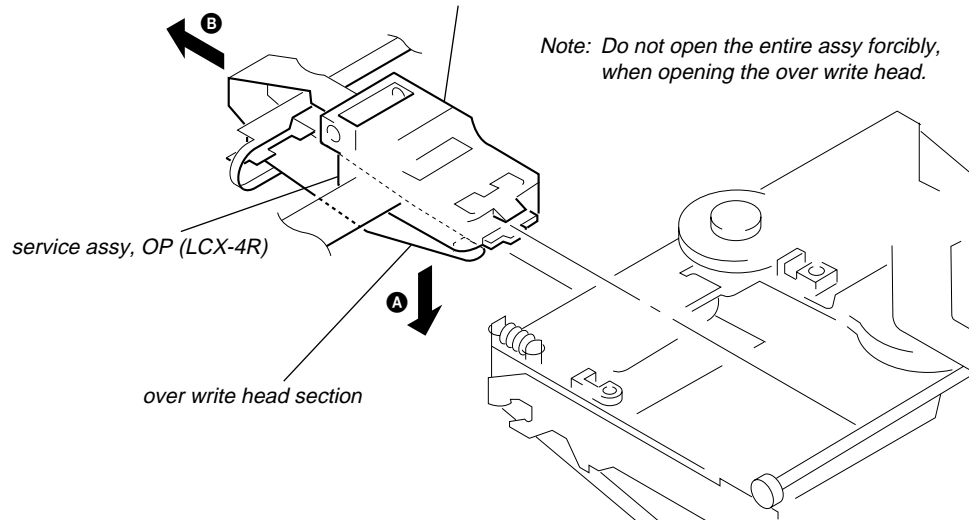
3-8. "MD MECHANISM DECK (MT-MZR900-171)", "CHASSIS ASSY, SET"



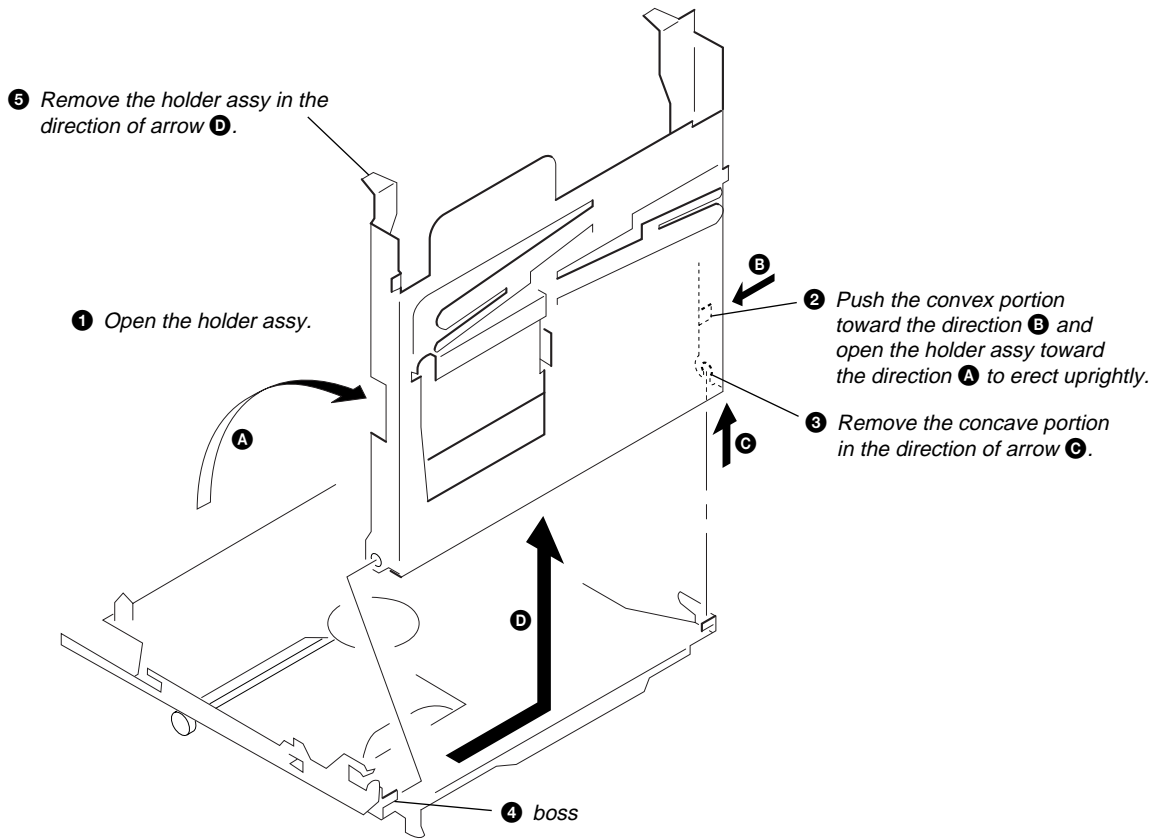
3-9. SERVICE ASSY, OP (LCX-4R)



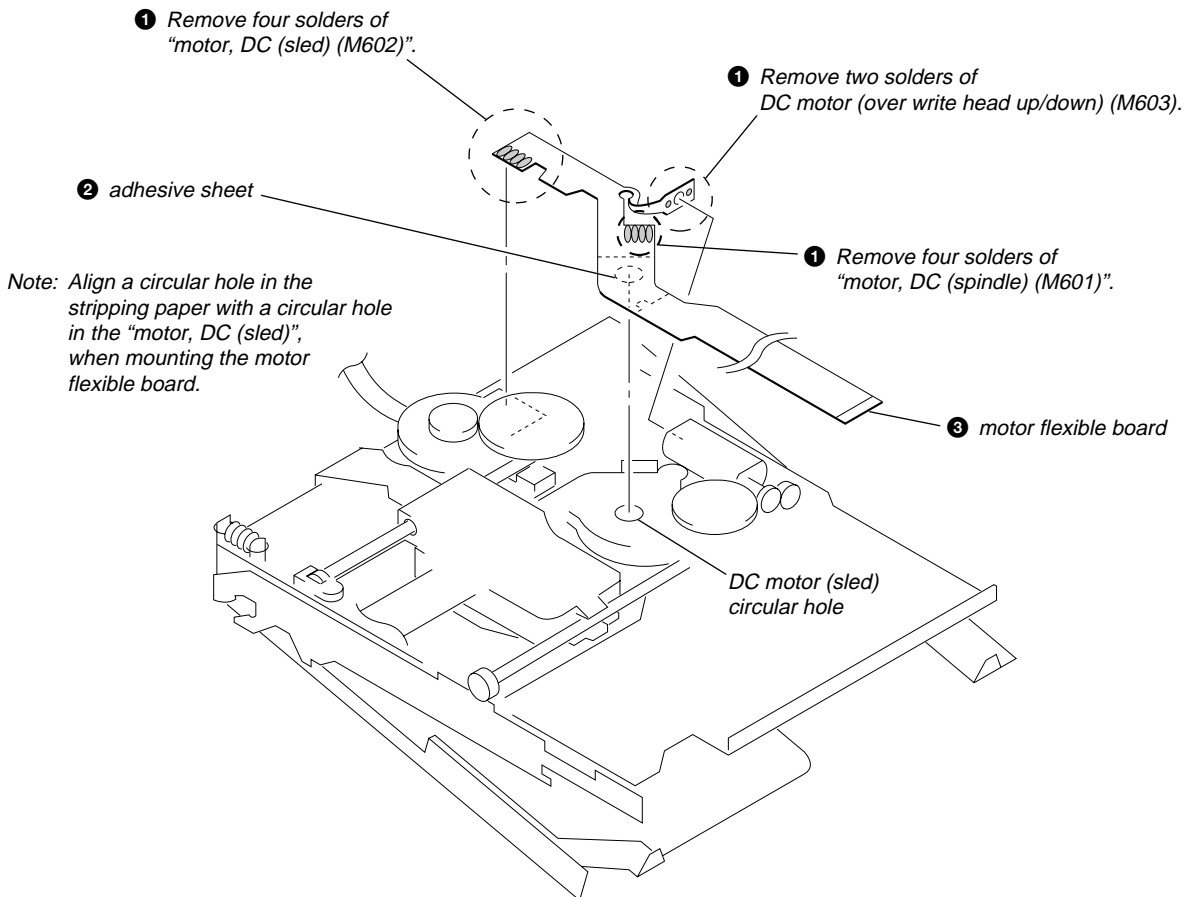
- 11 Opening the over write head toward the direction **A**, remove the "service assy, OP (LCX-4R)" toward the direction **B**.



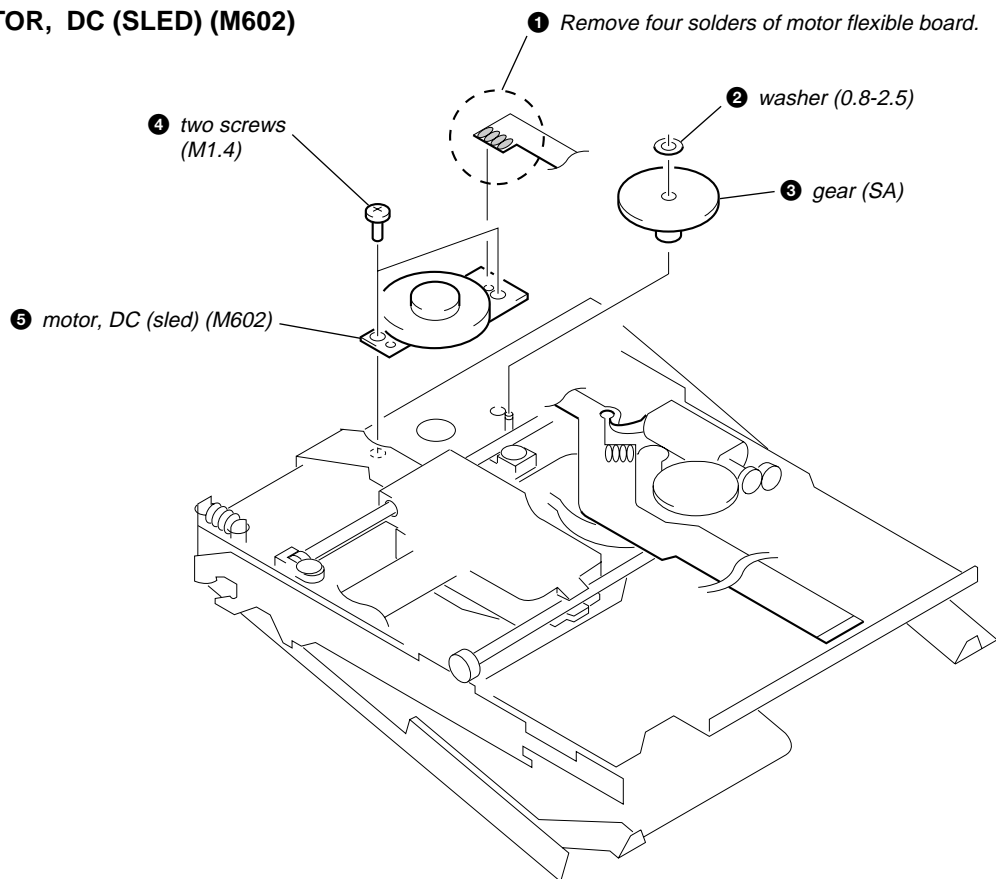
3-10. HOLDER ASSY



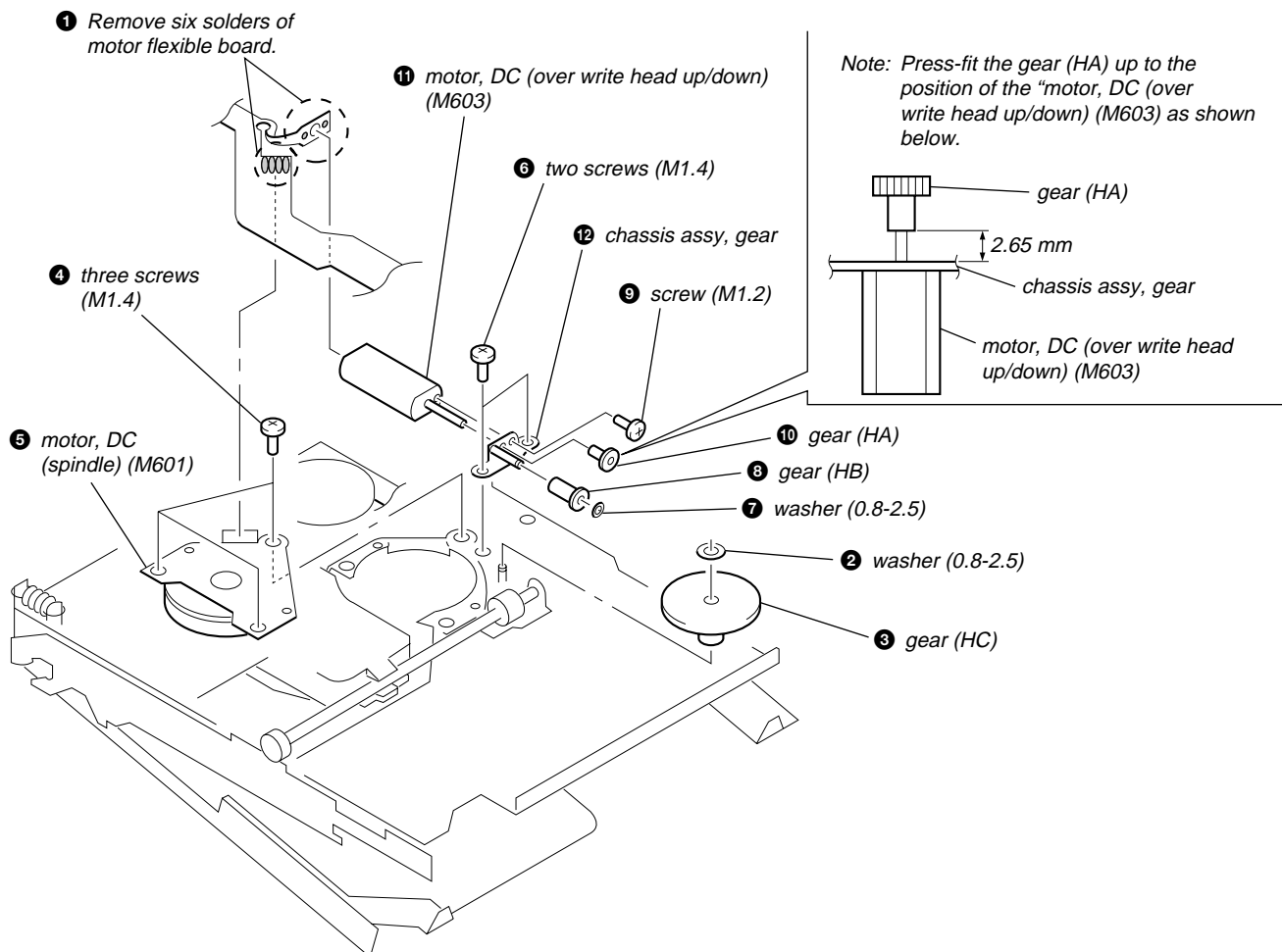
3-11. MOTOR FLEXIBLE BOARD



3-12. MOTOR, DC (SLED) (M602)



3-13. "MOTOR, DC (SPINDLE) (M601)", "MOTOR, DC (OVER WRITE HEAD UP/DOWN) (M603)"



SECTION 4 TEST MODE

Outline

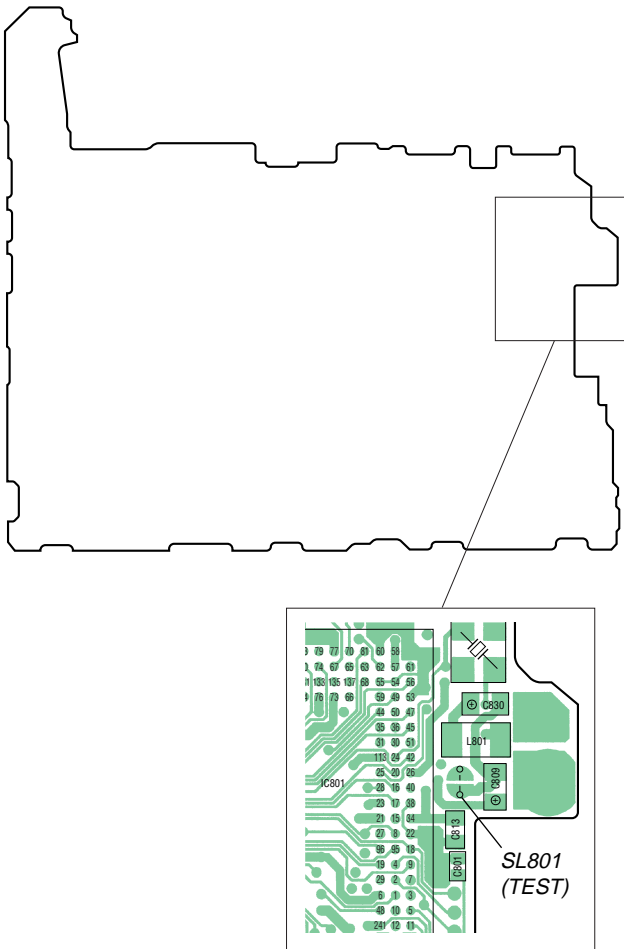
- This set provides the Overall adjustment mode that allows CD and MO discs to be automatically adjusted when in the test mode. In this overall adjustment mode, the disc is discriminate between CD and MO, and each adjustment is automatically executed in order. If a fault is found, the system displays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

Setting Method of Test Mode

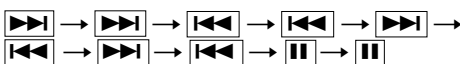
There are two different methods to set the test mode:

- ① Short SL801 (TEST) on the MAIN board with a solder bridge (connect pin ③ of IC801 to the ground). Then, turn on the power.

– MAIN Board (Conductor Side) –



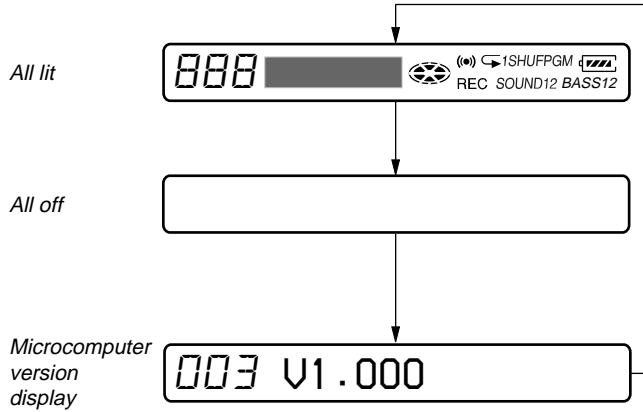
- ② In the normal mode, turn on the **HOLD** switch. While pressing the **VOL-** key press the following order:



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



Destination code

- 002 : Except US, Canadian models
- 003 : US, Canadian models

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

Caution: On the set having the microcomputer version 1.000, some adjusted values were set in the manual mode at the shipment, but these data will be cleared when the NV is reset. Therefore, on the set having the microcomputer version 1.000, change the adjusted values following the Change of Adjusted Values immediately after the NV was reset (see page 17).

Releasing the Test Mode

For test mode set with the method ①:

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

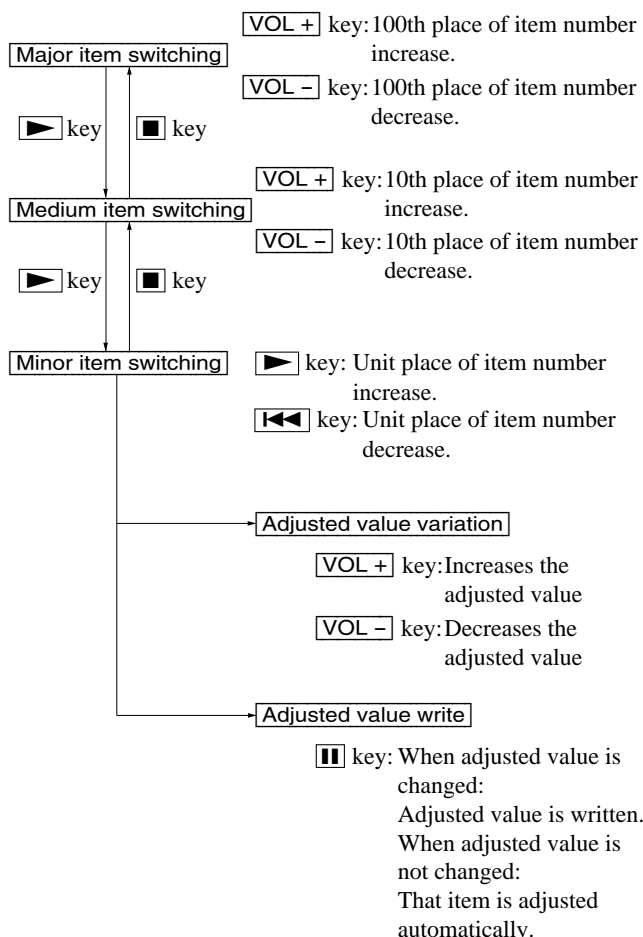
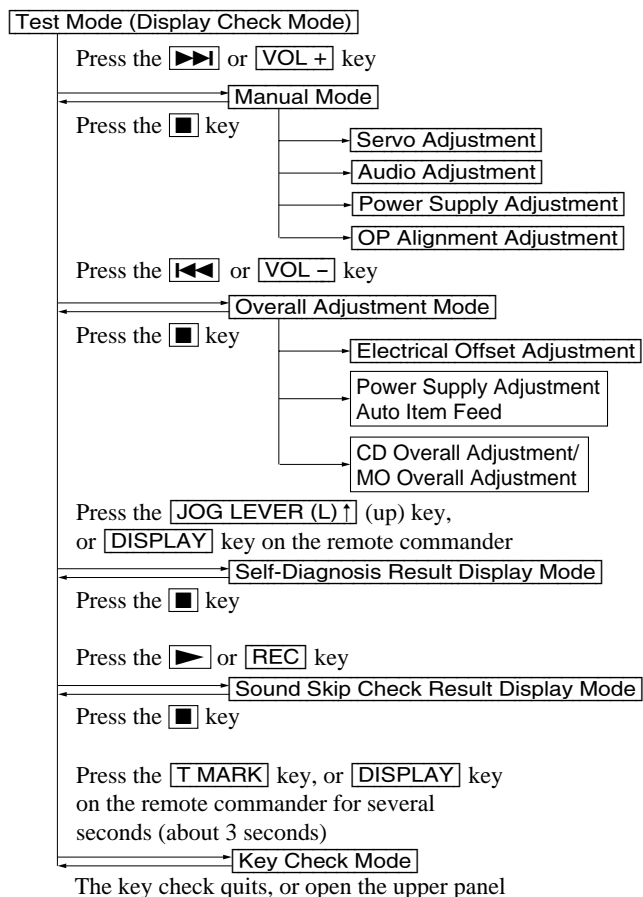
Note: Remove the solders completely. Remaining could be shorted with the chassis, etc.

For test mode set with the method ②:

Turn off the power.

Note: If electrical adjustment (see page 17) has not been finished completely, always start in the test mode. (The set cannot start in normal mode)

Configuration of Test Mode



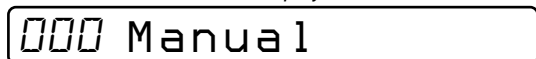
Manual Mode

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

• Transition method in Manual Mode

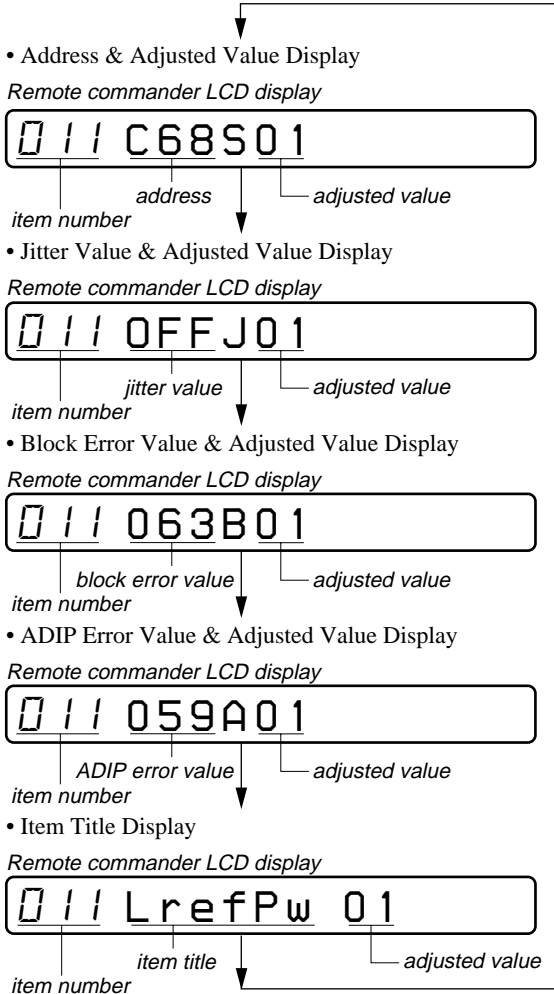
1. Setting the test mode (see page 12).
2. Press the ►► or VOL+ key activates the manual mode where the LCD display as shown below.

Remote commander LCD display



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

5. The display changes a shown below each time the **JOG LEVER (L) ↑** (up) key or **DISPLAY** key on the remote commander is pressed.



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

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

Overall Adjustment Mode

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

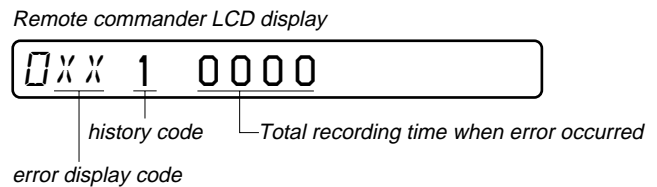
By checking this history in the test mode, you can analyze a fault and determine its location.

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

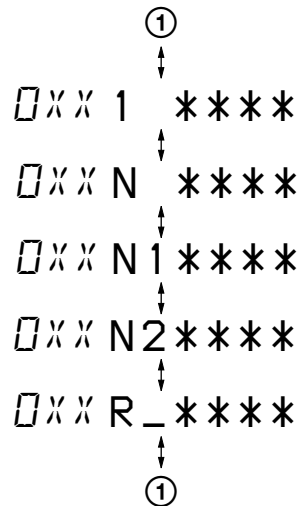
Clear both self-diagnosis history data and total recording time, if the optical pickup was replaced.

Self-Diagnosis Result Display Mode Setting Method

1. Setting the test mode (see page 12).
2. In the display check mode, press the **JOG LEVER (L) ↑** (up) key or **DISPLAY** key on the remote commander activates the self-diagnosis result display mode where the LCD display as shown below.



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



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

If the **JOG LEVER (L) ↑** (up) key or the **DISPLAY** key on remote commander is pressed with this display, the LCD switches to the simple display mode.

4. Quit the self-diagnosis result display mode, and press the **■** 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
	03	Focus error	Fcus	Disordered focus
	04	Spindle error	Spdl	Abnormal rotation of disc
TOC error	11	TOC error	TOC	Faulty TOC contents
	12	Data reading error	Data	Data could not be read at SYNC
Power supply system error	22	Low battery	LBat	Momentary interruption detected
Offset system error	31	Offset error	Ofst	Offset error
	32	Focus error ABCD offset error	ABCD	Focus error ABCD offset error
	33	Tracking error Offset error	TE	Tracking error Offset error
	34	X1 tracking error Offset error	X1TE	X1 tracking error Offset error

• 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. Setting the test mode (see page 12).
2. Press the **[JOG LEVER (L)↑]** (up) key or **[DISPLAY]** key on the remote commander activates the self-diagnosis result display mode.
3. To reset the error display code, press the **[■]** key (2 times) when the code is displayed (except "R_***").
(All the data on the 1, N, N1, and N2 will be reset)

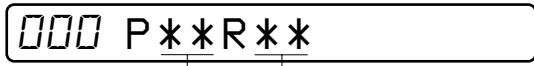
Sound Skip Check Result Display Mode

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

• Setting method of sound skip check result display mode

1. Set the test mode (see page 12).
2. Press the key or key, and the playing or recording sound skip result display mode becomes active respectively where the LCD displays the following.

Remote commander LCD display

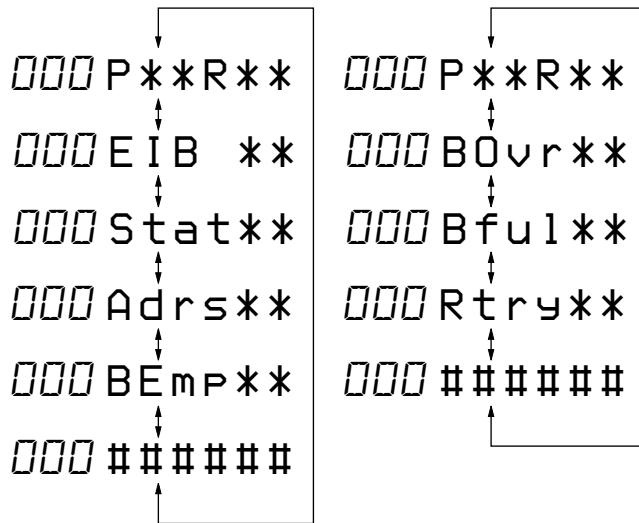


Total count of play system errors (hex.)
Total count of record system errors (hex.)

3. When the key is pressed, total error count is displayed on the LCD, and each time the key is pressed, the display item moves down by one as shown below. Also, if the key is pressed, the display item moves up by one, then if the 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.

Playing sound skip result display

Recording sound skip result display



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

• Cause of Sound Skip Error

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

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

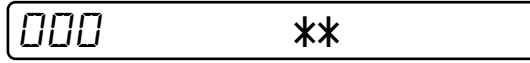
Key Check Mode

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

• Setting Method of Key Check Mode

1. Setting the test mode (see page 12).
2. Press 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)

Remote commander LCD display

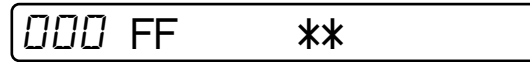


** : AD value of the remote commander key (hexadecimal 00 to FF)

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

Example1: When key on the set is pressed:

Remote commander LCD display



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

Example2: When key on the remote commander is pressed:

Remote commander LCD display



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

4. When all the keys on the set and on the remote commander are considered as OK, the following displays are shown for 4 seconds.

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

Remote commander LCD display



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

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

Remote commander LCD display



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

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

SECTION 5 ELECTRICAL ADJUSTMENTS

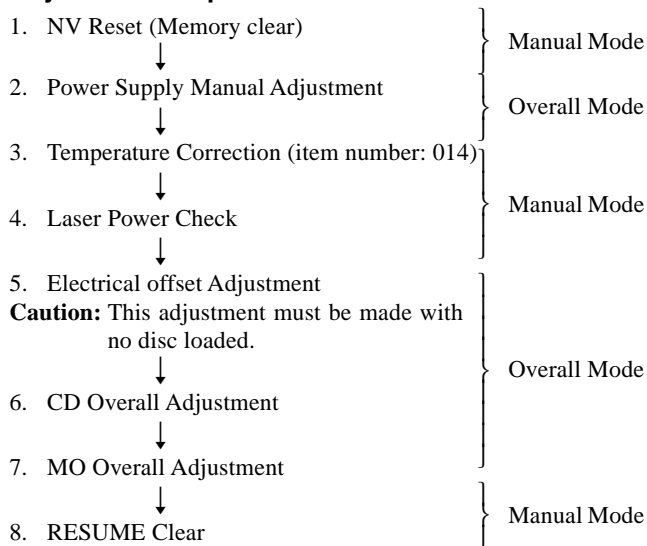
Outline

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode (see page 12). 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

- Adjustment must be done in the test mode only. After adjusting, release the test mode.
- 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)
 - Thermometer (using the Temperature Correction)
- Unless specified otherwise, supply DC 3V from the DC IN 3V jack (J601).
- Switch position
 SYNCHRO REC switch OFF
 HOLD switch OFF

Adjustment Sequence



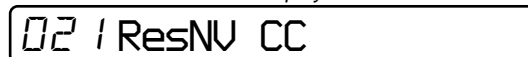
NV Reset

Caution: On the set having the microcomputer version 1.000, some adjusted values were set in the manual mode at the shipment, but these data will be cleared when the NV is reset. Therefore, on the set having the microcomputer version 1.000, change the adjusted values following the Change of Adjusted Values immediately after the NV was reset.

Setting method of NV reset

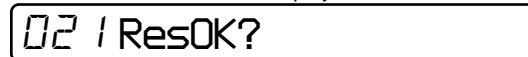
- Select the manual mode of the test mode, and set item number 021NV Reset (see page 13).

Remote commander LCD display



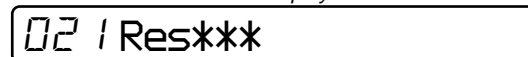
- Press the **[]** key.

Remote Commander LCD display

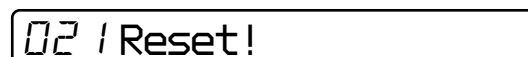


- Press the **[]** key once more.

Remote commander LCD display



↓ NV reset (after several seconds)



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

Change of Adjusted Values

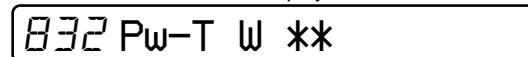
On the set having the microcomputer version 1.000, some adjusted values were set in the manual mode at the shipment, but these data will be cleared when the NV is reset. Therefore, on the set having the microcomputer version 1.000, modify the adjusted values through the following procedure immediately after the NV was reset.

- Item numbers in which the adjusted values are to be modified
 Item number 832
 Item number 862
 Item number 871
 Item number 872

Adjusted values modifying procedure

- Select the manual mode of the test mode, and set item number 832 (see page 13).

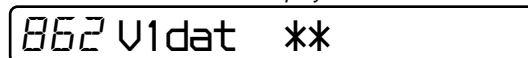
Remote commander LCD display



** : Adjusted value

- Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes E4.
- Press the **[]** key to write the adjusted value.
- Select the manual mode of the test mode, and set item number 862 (see page 13).

Remote commander LCD display



** : Adjusted value

- Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 01.
- Press the **[]** key to write the adjusted value.

- 7) Select the manual mode of the test mode, and set item number 871 (see page 13).

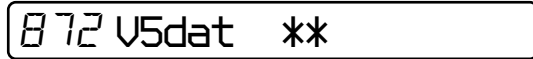
Remote commander LCD display



** : Adjusted value

- 8) Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 20.
- 9) Press the **[]** key to write the adjusted value.
- 10) Select the manual mode of the test mode, and set item number 872 (see page 13).

Remote commander LCD display



** : Adjusted value

- 11) Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 39.
- 12) Press the **[]** key to write the adjusted value.

Power Supply Manual Adjustment

• Adjustment sequence

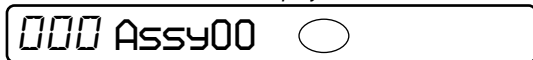
Adjustment must be done with the following steps.

1. Vc PWM Duty (L) adjustment (item number: 762)
- ↓
2. Vc PWM Duty (H) adjustment (item number: 763)
- ↓
3. VI PWM Duty adjustment (item number: 764)

• Setting method of power supply manual adjustment

1. Make sure that the power supply voltage is 3V.
2. Set the test mode (see page 12).
3. Press the **[]** or **[VOL-]** key to activate the overall adjustment mode.

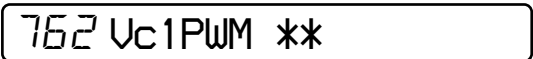
Remote commander LCD display



4. Press the **[JOG LEVER (L) ↓]** (down) key, or **[PLAYMODE]** key on the remote commander.
(Pressing the **[JOG LEVER (L) ↓]** (down) key, or **[PLAYMODE]** key on the remote commander causes the item number to be switched to 762.)

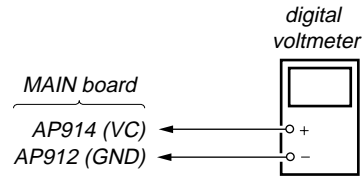
• Adjustment method of Vc PWM Duty (L) (item number: 762)

Remote commander LCD display



** : Adjusted value

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

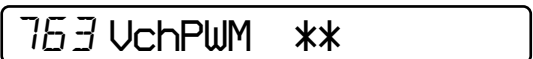


2. Press the **[]** key to write the adjusted value.
(The item number changes to 763 when **[]** key is pressed)

Adjustment and Connection Location: MAIN board
(see page 19)

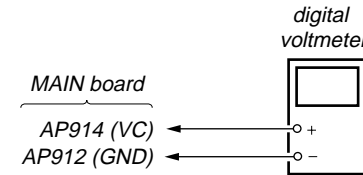
• Adjustment method of Vc PWM Duty (H) (item number: 763)

Remote commander LCD display



** : Adjusted value

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

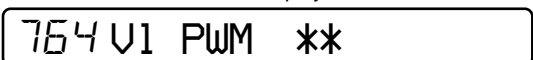


2. Press the **[]** key to write the adjusted value.
(The item number changes to 764 when **[]** key is pressed)

Adjustment and Connection Location: MAIN board
(see page 19)

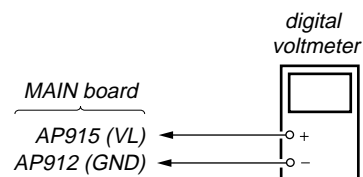
• Adjustment method of VI PWM Duty (item number: 764)

Remote commander LCD display



** : Adjusted value

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



- When press the **[]** key to write the adjusted value, LCD displays as follows and power supply manual adjustment has completed.

Remote commander LCD display



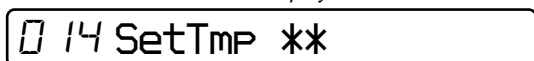
Adjustment and Connection Location: MAIN board

Temperature Correction

• Adjustment Method of temperature correction

- Select the manual mode of test mode, and set the mode number 014 (see page 13).

Remote commander LCD display

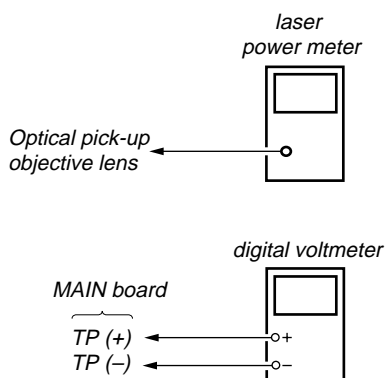


** : Adjusted value

- Measure the ambient temperature.
- Adjust with **[VOL +]**, **[VOL -]** key so that the adjusted value (hexadecimal value) becomes the ambient temperature. (Initial value: 14h = 20 °C, Adjusting range: 80h to 7fh (-128 °C to +127 °C))
- Press the **[]** key to write the adjusted value.

Laser Power Check

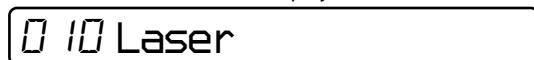
Connection :



Checking Method :

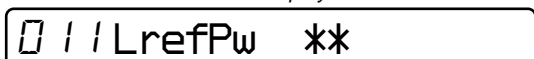
- Select the manual mode of test mode (see page 13), and set the laser power adjusting mode (item number 010).

Remote commander LCD display



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

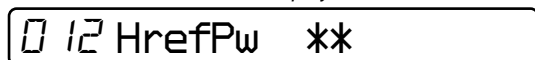
Remote commander LCD display



- Check that the laser power meter reading is 0.81 ± 0.08 mW.
- Check that the voltage both ends (TP (+) and TP (-)) of resistor R521 at this time is below 44 mV.

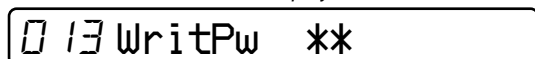
- Press the **[>]** key, and set the laser CD read adjustment mode (item number 012).

Remote commander LCD display



- Check that the laser power meter reading is 0.97 ± 0.10 mW.
- Check that the voltage both ends (TP (+) and TP (-)) of resistor R521 at this time is below 44 mV.
- Press the **[>]** key, and set the laser MO write adjustment mode (item number 013).

Remote commander LCD display

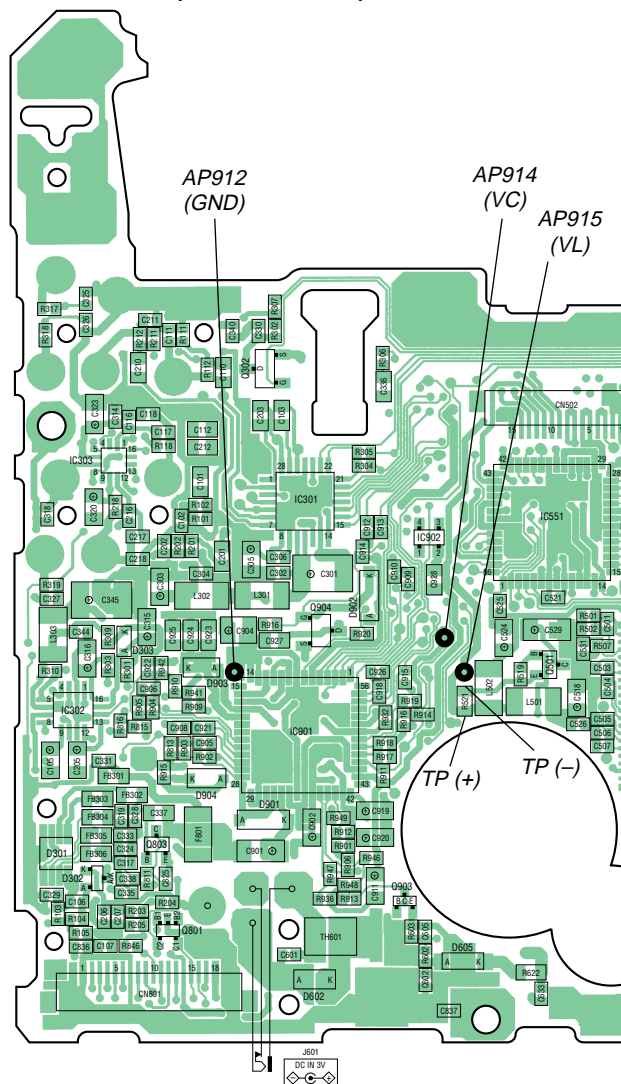


- Check that the laser power meter reading is 4.95 ± 0.50 mW.
- Check that the voltage both ends (TP (+) and TP (-)) of resistor R521 at this time is below 80 mV.
- Press the **[]** key to quit the manual mode, and activate the test mode (display check mode).

Checking and Connection Location: MAIN board

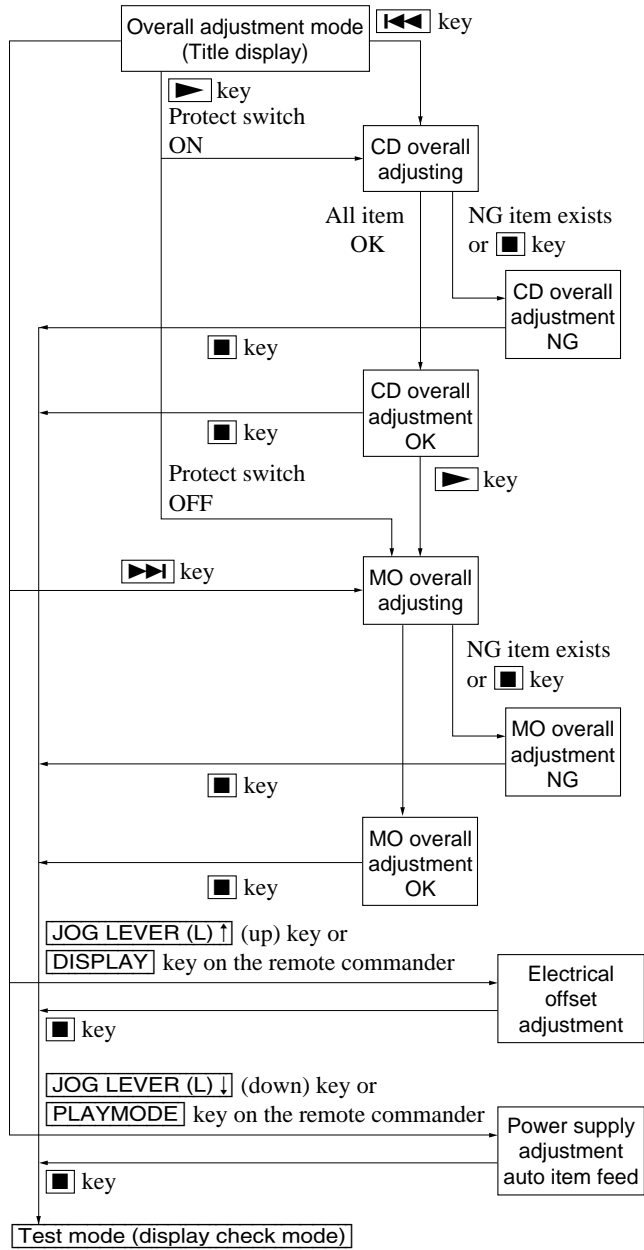
Adjustment/checking and Connection Location:

- MAIN Board (Conductor side) -



Overall Adjustment Mode

• Configuration of overall adjustment



Note: Adjust the CD first, when performing adjustment.

• Overall Adjustment Mode (Title Display)

Remote commander LCD display



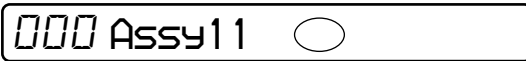
⊗: (Disc mark) At end of power supply adjustment: Outside lit
 At end of electrical offset adj.: Inside lit
 Note: On the set having microcomputer version 1.000, the disc mark is displayed on the remote commander LCD only.
 **: Left side = MO overall adjustment information
 F*: MO overall adjustment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

• Electrical Offset Adjusting Method

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

1. Make sure that the power supply voltage is 3 V.
2. Set the test mode (see page 12).
3. Press the [←] or [VOL-] key to activate the overall adjustment mode.

Remote commander LCD display



4. Press the [JOG LEVER (L) ↑] (up) key, or [DISPLAY] key on the remote commander.

Remote commander LCD display



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

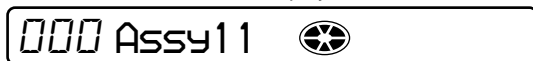
Remote commander LCD display



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

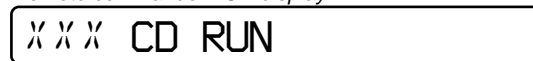
1. Setting the test mode (see page 12).
2. Press the **[◀◀]** or **[VOL -]** key activates the overall adjustment mode.

Remote commander LCD display



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

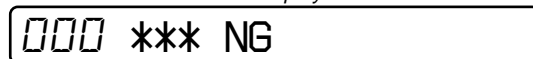
Remote commander LCD display



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

4. In case of CD overall adjustment NG, reset the NV (see page 17), then readjust from the temperature correction (see page 19).

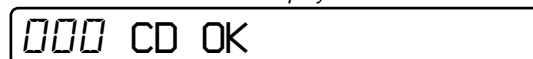
Remote commander LCD display



***: NG item number.

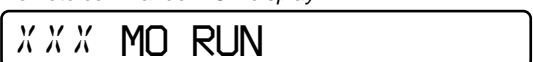
5. If OK through the overall CD adjustments, then perform overall MO adjustments.

Remote commander LCD display



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

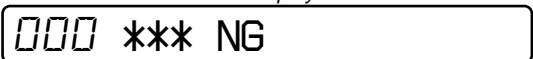
Remote commander LCD display



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

7. In case of MO overall adjustment NG, reset the NV (see page 17), then readjust from the temperature correction (see page 19).

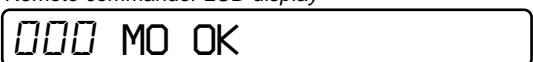
Remote commander LCD display



***: NG item number.

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

Remote commander LCD display



• **Overall CD and MO adjustment items**

1. Overall CD adjustment items

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

2. Overall MO adjustment items

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

Resume Clear

Perform the Resume clear when all adjustments completed.

• **Resume Clear Setting Method**

1. Select the manual mode of the test mode, and set item number 043 (see page 13).

Remote commander LCD display

043 Resume CC

2. Press the **[F1]** key.

Remote commander LCD display

043 Res***

Resume clear complete

043 ResC1r

3. Press the **[F2]** key to return to the test mode (display check mode).

Patch Data Rewriting When Nonvolatile Memory was Replaced

On this set, if the nonvolatile memory was replaced, the modified program data must be written to the nonvolatile memory.

In such a case, write the modified data that meets the microcomputer version following the procedure provided below.

• **Modified Data Writing Method (version 1.000)**

1. Select the manual mode of the test mode, and set item number 022 (see page 13).

Remote commander LCD display

022 PatC1r CC

2. Press the **[F1]** key to initialize the patch data. (The modified data writing is over, if the adjusted value changes to DD)

Remote commander LCD display

022 ***SDD

DD:Adjusted value

3. Press the **[F3]** key or **[F4]** key to set item number 023.

Remote commander LCD display

023 Patch00

00:Adjusted value

4. Press the **[VOL+]** key once to change the adjusted value to 01.
5. Press the **[DISPLAY]** key on the remote commander for several seconds (about 3 seconds) to activate the patch data write mode. (The following display will appear where 00 is blinking)

Remote commander LCD display

023 0D5800

00:Adjusted value

6. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 1E.

Remote commander LCD display

023 0D581E

1E:Adjusted value

7. Press the **[F1]** key. (0D58 is blinking)

Remote commander LCD display

023 0D581E

1E:Adjusted value

8. Press the **[VOL+]** key once to change the blinking portion to 0D59.

Remote commander LCD display

023 0D5900

00:Adjusted value

9. Press the **[F2]** key. (00 is blinking)

10. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes B2.

Remote commander LCD display

023 0D59B2

B2:Adjusted value

11. Press the **[F1]** key. (0D59 is blinking)

12. Press the **[VOL+]** key once to change the blinking portion to 0D5E.

Remote commander LCD display

023 0D5E00

00:Adjusted value

13. Press the **[F2]** key. (00 is blinking)

14. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 8B.

Remote commander LCD display

023 0D5E8B

8B:Adjusted value

15. Press the **[F1]** key. (0D5E is blinking)

16. Press the **[VOL+]** key once to change the blinking portion to 0D5F.

Remote commander LCD display

023 0D5F00

00:Adjusted value

17. Press the **[F2]** key. (00 is blinking)

18. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 20.

Remote commander LCD display

023 0D5F20

20:Adjusted value

19. Press the **[F1]** key. (0D5F is blinking)

20. Press the **[VOL+]** key once to change the blinking portion to 0D60.

Remote commander LCD display

023 0D6000

00:Adjusted value

21. Press the **[■]** key.
(00 is blinking)
22. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 08.

Remote commander LCD display

023 0D6008

08:Adjusted value

23. Press the **[■]** key.
(0D60 is blinking)
24. Press the **[VOL+]** key once to change the blinking portion to 0D61.

Remote commander LCD display

023 0D6100

00:Adjusted value

25. Press the **[■]** key.
(00 is blinking)
26. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes A1.

Remote commander LCD display

023 0D61A1

A1:Adjusted value

27. Press the **[■]** key.
(0D61 is blinking)
28. Press the **[VOL+]** key once to change the blinking portion to 0D62.

Remote commander LCD display

023 0D6200

00:Adjusted value

29. Press the **[■]** key.
(00 is blinking)
30. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 04.

Remote commander LCD display

023 0D6204

04:Adjusted value

31. Press the **[■]** key.
(0D62 is blinking)
32. Press the **[VOL+]** key once to change the blinking portion to 0D65.

Remote commander LCD display

023 0D6500

00:Adjusted value

33. Press the **[■]** key.
(00 is blinking)

34. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 20.

Remote commander LCD display

023 0D6520

20:Adjusted value

35. Press the **[■]** key.
(0D65 is blinking)
36. Press the **[DISPLAY]** key on the remote commander for several seconds (about 3 seconds) to exit the patch data write mode (to return to the manual mode display in the test mode).

Remote commander LCD display

023 Patch01

01:Adjusted value

37. Press the **[■]** key to write the modified data. (The adjusted value changes to CC)
38. The modified data writing is over, if the adjusted value changes to DD.

Remote commander LCD display

023 ***SDD

DD:Adjusted value

39. Turn the power off.

• Modified Data Writing Method (version 1.100)

1. Select the manual mode of the test mode, and set item number 022 (see page 13).

Remote commander LCD display

022 PatC1r CC

2. Press the **[■]** key to initialize the patch data.
(The modified data writing is over, if the adjusted value changes to DD)

Remote commander LCD display

022 ***SDD

DD:Adjusted value

3. Press the **[▶]** key or **[▶▶]** key to set item number 023.

Remote commander LCD display

023 Patch00

00:Adjusted value

4. Press the **[VOL+]** key once to change the adjusted value to 01.
5. Press the **[DISPLAY]** key on the remote commander for several seconds (about 3 seconds) to activate the patch data write mode.
(The following display will appear where 00 is blinking)

Remote commander LCD display

023 0D5C00

00:Adjusted value

6. Press the **[■]** key.
(0D5C is blinking)
7. Press the **[VOL+]** key once to change the blinking portion to 0D5D.

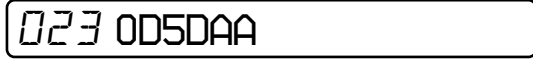
Remote commander LCD display

023 0D5D00

00:Adjusted value

8. Press the **[]** key.
(00 is blinking)
9. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes AA.

Remote commander LCD display



AA:Adjusted value

10. Press the **[]** key.
(0D5D is blinking)
11. Press the **[VOL+]** key once to change the blinking portion to 0D5E.

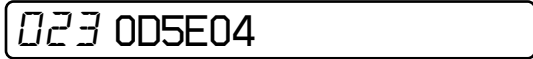
Remote commander LCD display



00:Adjusted value

12. Press the **[]** key.
(00 is blinking)
13. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 04.

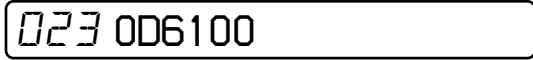
Remote commander LCD display



04:Adjusted value

14. Press the **[]** key.
(0D5E is blinking)
15. Press the **[VOL+]** key to change the blinking portion to 0D61.

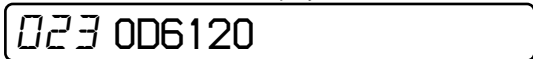
Remote commander LCD display



00:Adjusted value

16. Press the **[]** key.
(00 is blinking)
17. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 20.

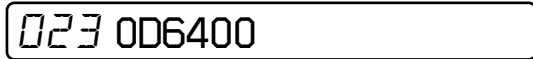
Remote commander LCD display



20:Adjusted value

18. Press the **[]** key.
(0D61 is blinking)
19. Press the **[VOL+]** key to change the blinking portion to 0D64.

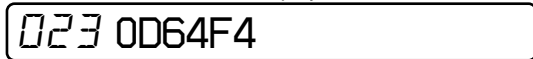
Remote commander LCD display



00:Adjusted value

20. Press the **[]** key.
(00 is blinking)
21. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes F4.

Remote commander LCD display

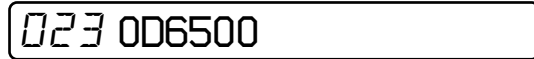


F4:Adjusted value

22. Press the **[]** key.
(0D64 is blinking)

23. Press the **[VOL+]** key once to change the blinking portion to 0D65.

Remote commander LCD display



00:Adjusted value

24. Press the **[]** key.
(00 is blinking)
25. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 1C.

Remote commander LCD display



1C:Adjusted value

26. Press the **[]** key.
(0D65 is blinking)
27. Press the **[VOL+]** key once to change the blinking portion to 0D66.

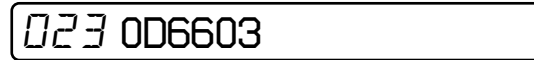
Remote commander LCD display



00:Adjusted value

28. Press the **[]** key.
(00 is blinking)
29. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 03.

Remote commander LCD display



03:Adjusted value

30. Press the **[]** key.
(0D66 is blinking)
31. Press the **[VOL+]** key to change the blinking portion to 0D68.

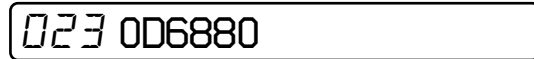
Remote commander LCD display



00:Adjusted value

32. Press the **[]** key.
(00 is blinking)
33. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 80.

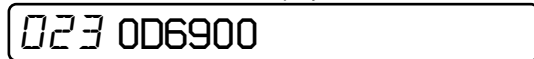
Remote commander LCD display



80:Adjusted value

34. Press the **[]** key.
(0D68 is blinking)
35. Press the **[VOL+]** key once to change the blinking portion to 0D69.

Remote commander LCD display



00:Adjusted value

36. Press the **[]** key.
(00 is blinking)

37. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 09.

Remote commander LCD display

023 0D6909

09: Adjusted value

38. Press the **[II]** key.
(0D69 is blinking)
39. Press the **[VOL+]** key to change the blinking portion to 0D6C.

Remote commander LCD display

023 0D6C00

00: Adjusted value

40. Press the **[■]** key.
(00 is blinking)
41. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes F6.

Remote commander LCD display

023 0D6CF6

F6: Adjusted value

42. Press the **[II]** key.
(0D6C is blinking)
43. Press the **[VOL+]** key once to change the blinking portion to 0D6D.

Remote commander LCD display

023 0D6D00

00: Adjusted value

44. Press the **[■]** key.
(00 is blinking)
45. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 1C.

Remote commander LCD display

023 0D6D1C

1C: Adjusted value

46. Press the **[II]** key.
(0D6D is blinking)
47. Press the **[VOL+]** key once to change the blinking portion to 0D6E.

Remote commander LCD display

023 0D6E00

00: Adjusted value

48. Press the **[■]** key.
(00 is blinking)
49. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 03.

Remote commander LCD display

023 0D6E03

03: Adjusted value

50. Press the **[II]** key.
(0D6E is blinking)

51. Press the **[VOL+]** key to change the blinking portion to 0D72.

Remote commander LCD display

023 0D7200

00: Adjusted value

52. Press the **[■]** key.
(00 is blinking)
53. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 05.

Remote commander LCD display

023 0D7205

05: Adjusted value

54. Press the **[II]** key.
(0D72 is blinking)
55. Press the **[VOL+]** key once to change the blinking portion to 0D73.

Remote commander LCD display

023 0D7300

00: Adjusted value

56. Press the **[■]** key.
(00 is blinking)
57. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes D3.

Remote commander LCD display

023 0D73D3

D3: Adjusted value

58. Press the **[II]** key.
(0D73 is blinking)
59. Press the **[VOL+]** key once to change the blinking portion to 0D74.

Remote commander LCD display

023 0D7400

00: Adjusted value

60. Press the **[■]** key.
(00 is blinking)
61. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes F8.

Remote commander LCD display

023 0D74F8

F8: Adjusted value

62. Press the **[II]** key.
(0D74 is blinking)
63. Press the **[VOL+]** key once to change the blinking portion to 0D75.

Remote commander LCD display

023 0D7500

00: Adjusted value

64. Press the **[■]** key.
(00 is blinking)

65. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 1C.

Remote commander LCD display



1C:Adjusted value

66. Press the **[]** key.
(0D75 is blinking)
67. Press the **[VOL+]** key once to change the blinking portion to 0D76.

Remote commander LCD display



00:Adjusted value

68. Press the **[]** key.
(00 is blinking)
69. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 03.

Remote commander LCD display



03:Adjusted value

70. Press the **[]** key.
(0D76 is blinking)
71. Press the **[VOL+]** key to change the blinking portion to 0D78.

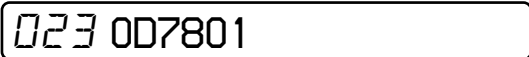
Remote commander LCD display



00:Adjusted value

72. Press the **[]** key.
(00 is blinking)
73. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes 01.

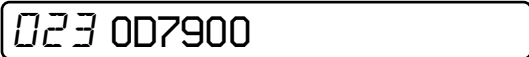
Remote commander LCD display



01:Adjusted value

74. Press the **[]** key.
(0D78 is blinking)
75. Press the **[VOL+]** key once to change the blinking portion to 0D79.

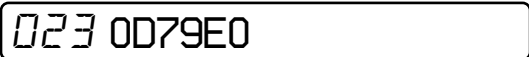
Remote commander LCD display



00:Adjusted value

76. Press the **[]** key.
(00 is blinking)
77. Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes E0.

Remote commander LCD display



E0:Adjusted value

78. Press the **[]** key.
(0D79 is blinking)

79. Press the **[DISPLAY]** key on the remote commander for several seconds (about 3 seconds) to exit the patch data write mode (to return to the manual mode display in the test mode).

Remote commander LCD display



01:Adjusted value

80. Press the **[]** key to write the modified data. (The adjusted value changes to CC)
81. The modified data writing is over, if the adjusted value changes to DD.

Remote commander LCD display



DD:Adjusted value

82. Turn the power off.

• **Modified Data Writing Method (version 1.200 and later)**

1. Select the manual mode of the test mode, and set item number 022 (see page 13).

Remote commander LCD display



2. Press the **[]** key to initialize the patch data.
(The modified data writing is over, if the adjusted value changes to DD)

Remote commander LCD display

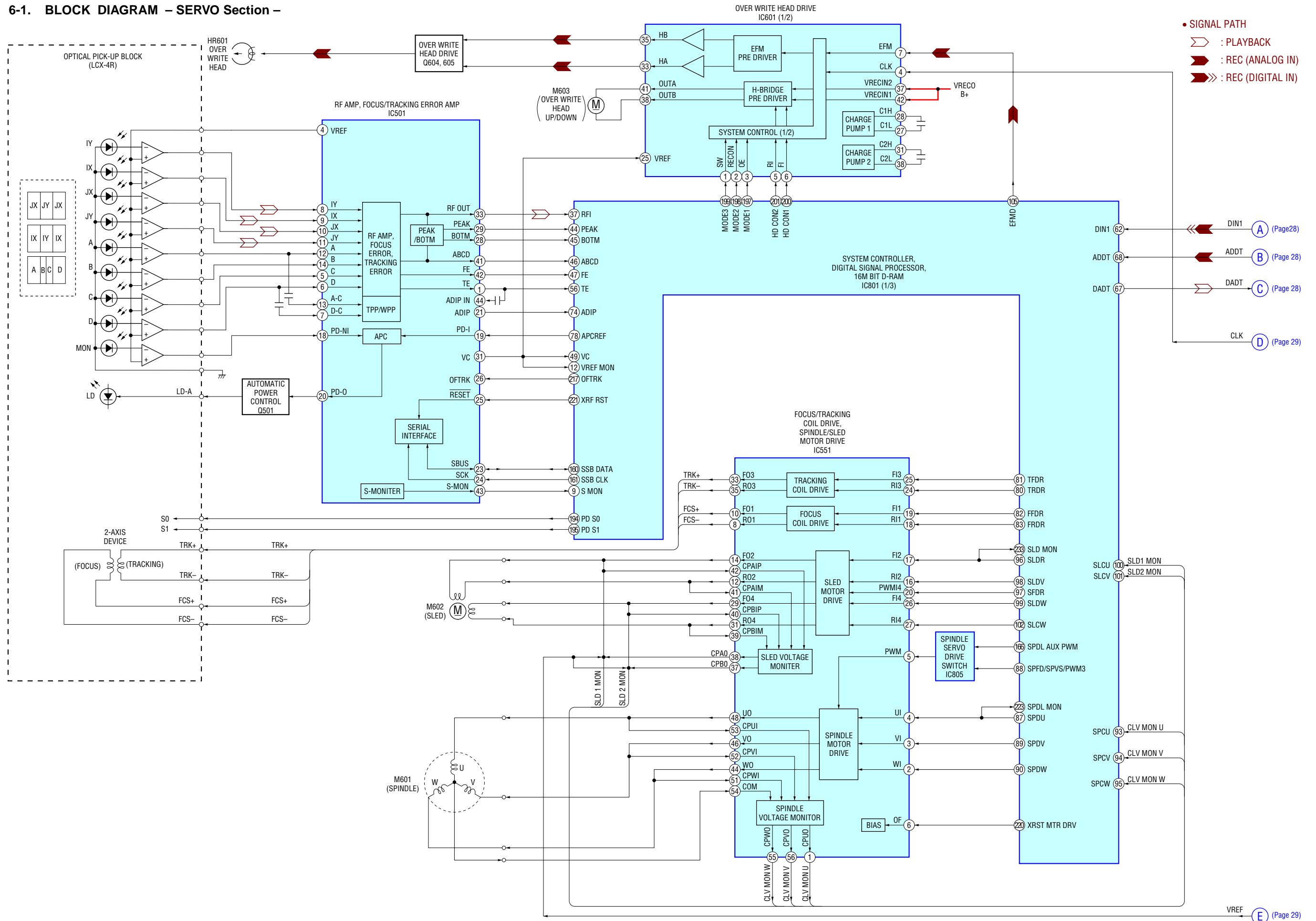


DD:Adjusted value

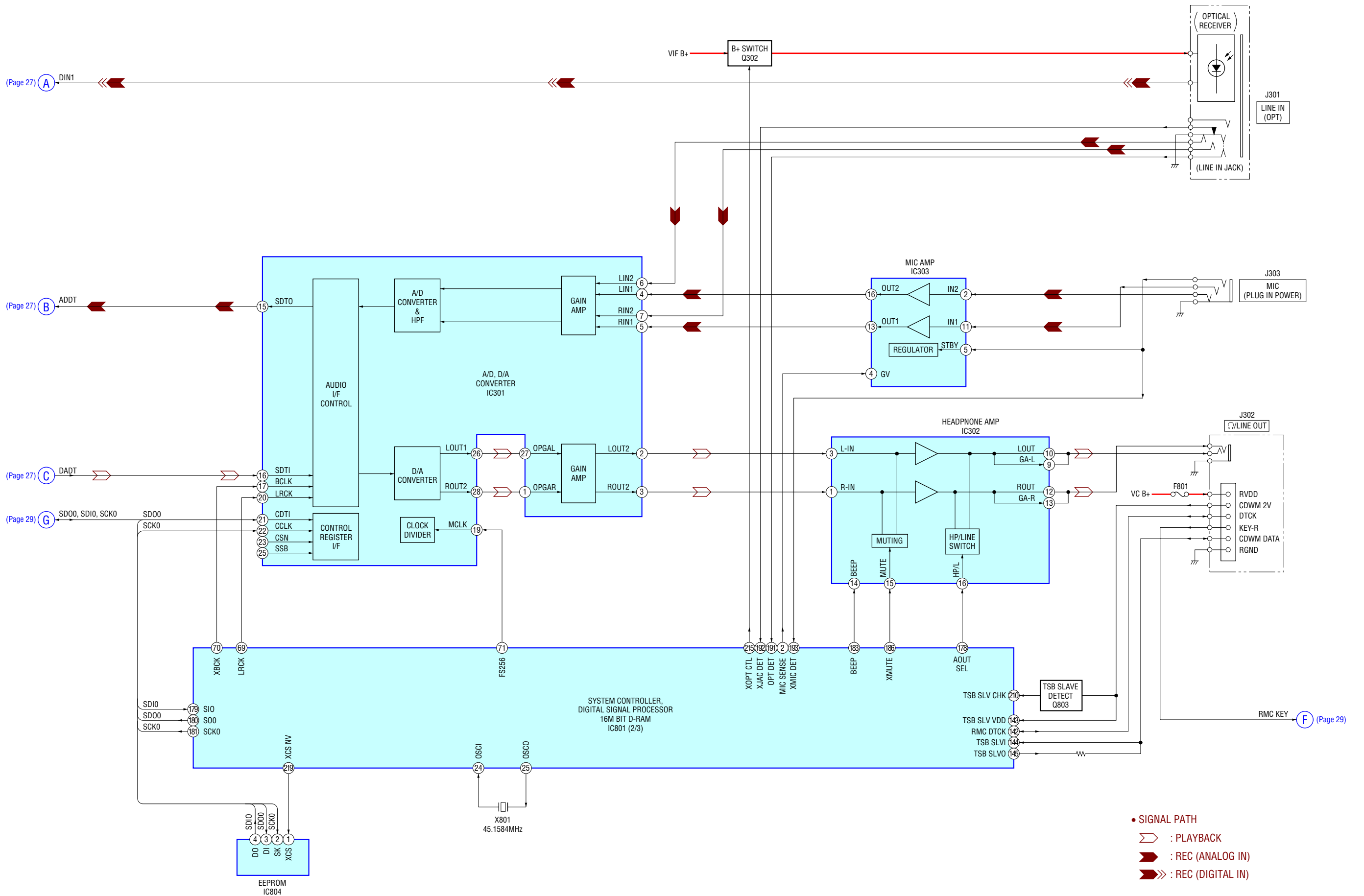
3. Turn the power off.

SECTION 6
DIAGRAMS

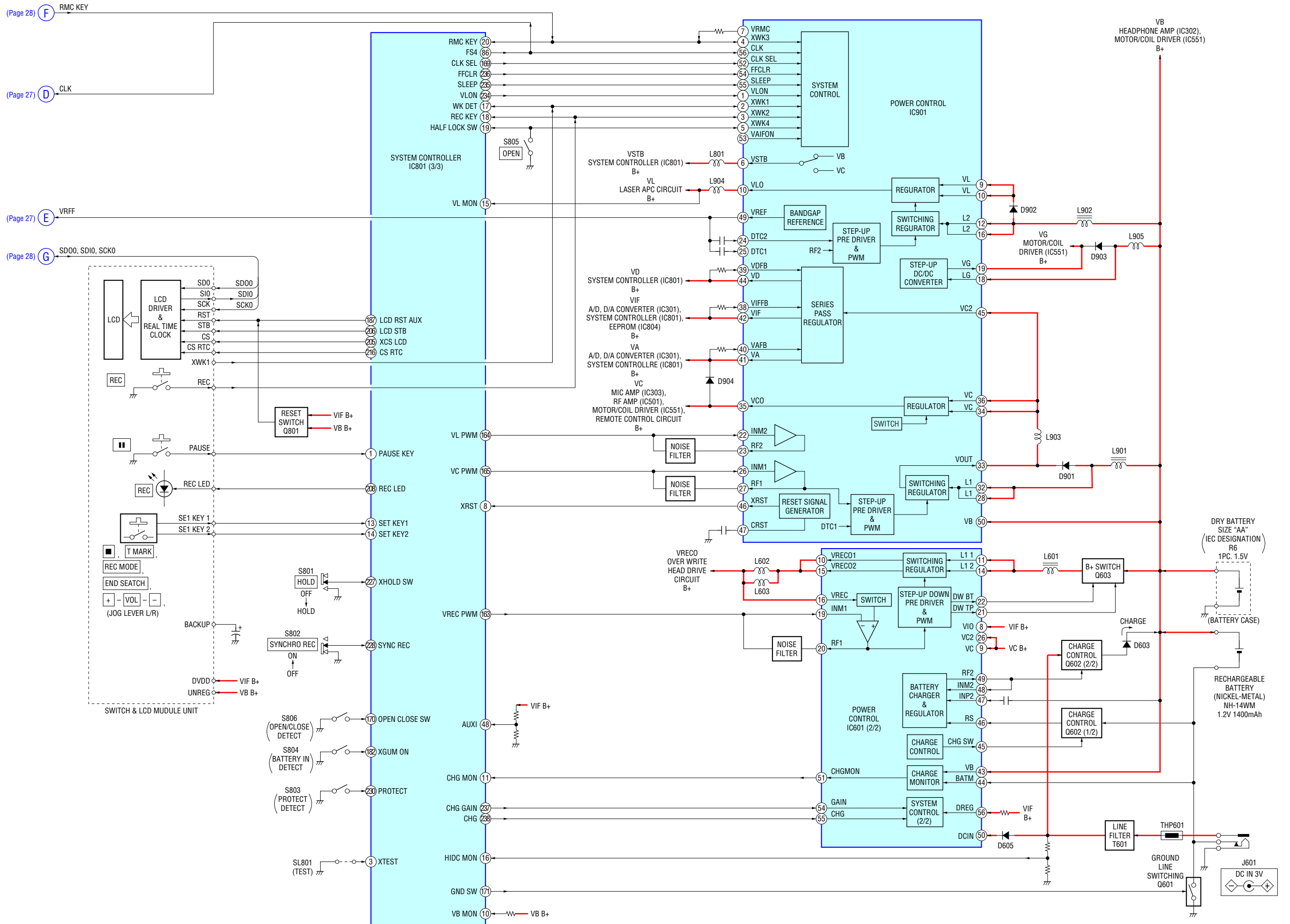
6-1. BLOCK DIAGRAM – SERVO Section –



6-2. BLOCK DIAGRAM – AUDIO Section –

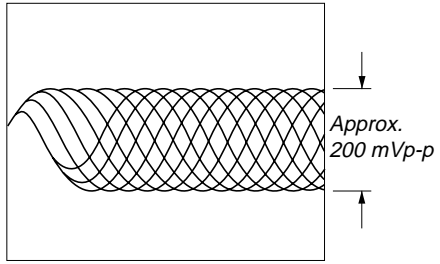


6-3. BLOCK DIAGRAM – KEY CONTROL/DISPLAY/POWER SUPPLY Section –

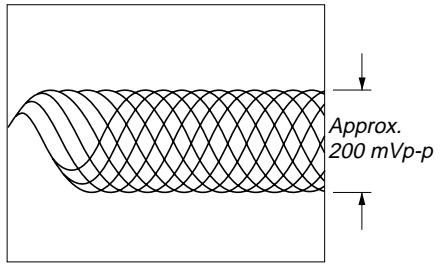


• Waveforms

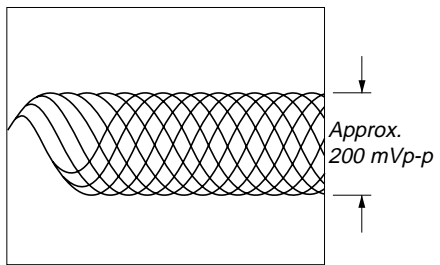
1 IC501 ③ (IY) (PLAYBACK mode)
100 mV/DIV, 1 μs/DIV



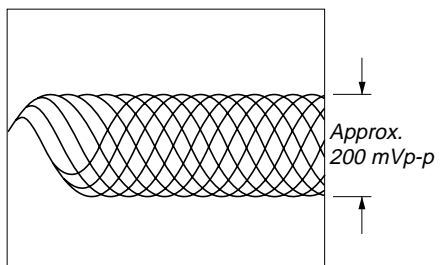
2 IC501 ⑨ (IX) (PLAYBACK mode)
100 mV/DIV, 1 μs/DIV



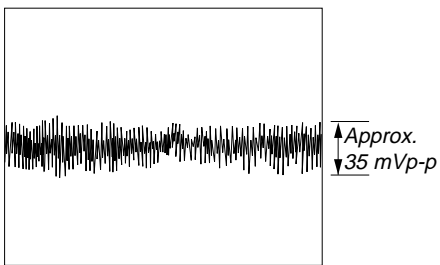
3 IC501 ⑩ (JX) (PLAYBACK mode)
100 mV/DIV, 1 μs/DIV



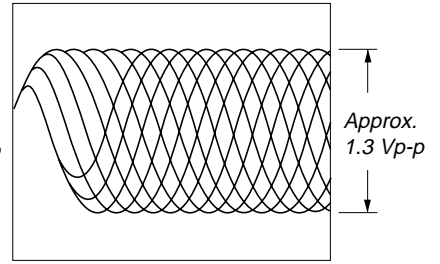
4 IC501 ⑪ (JY) (PLAYBACK mode)
100 mV/DIV, 1 μs/DIV



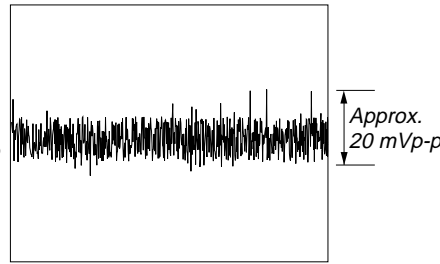
5 IC501 ① (TE) (PLAYBACK mode)
20 mV/DIV, 500 ns/DIV



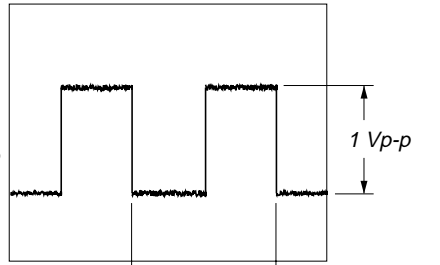
6 IC501 ③③ (RF OUT) (PLAYBACK mode)
500 mV/DIV, 500 ns/DIV



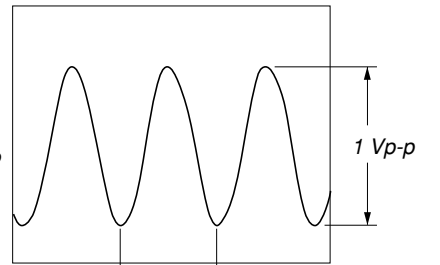
7 IC501 ②② (FE) (PLAYBACK mode)
10 mV/DIV, 500 ns/DIV



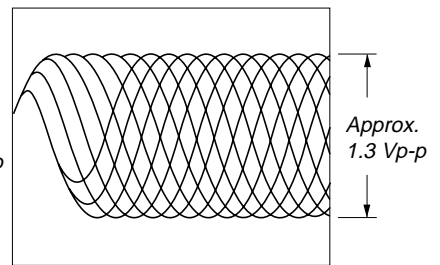
8 IC601 ④ (CLK)
500 mV/DIV, 2 μs/DIV



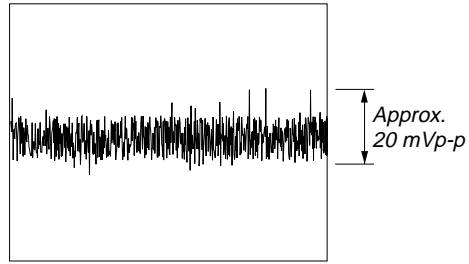
9 IC801 ②⑤ (OSCO)
200 mV/DIV, 10 ns/DIV



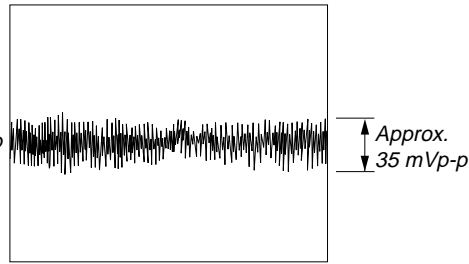
10 IC801 ③⑦ (RFI) (PLAYBACK mode)
500 mV/DIV, 500 ns/DIV



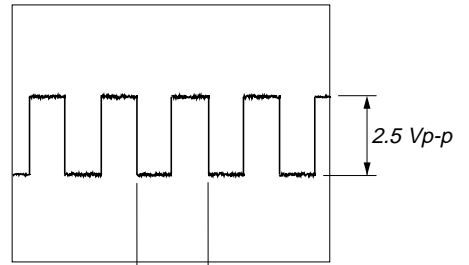
11 IC801 ④⑦ (FE) (PLAYBACK mode)
10 mV/DIV, 500 ns/DIV



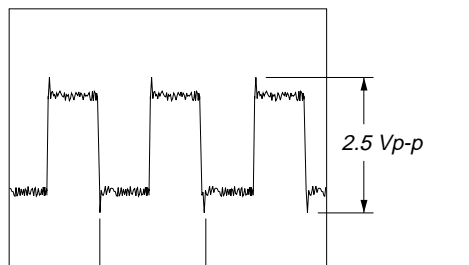
12 IC801 ⑤⑥ (TE) (PLAYBACK mode)
20 mV/DIV, 500 ns/DIV



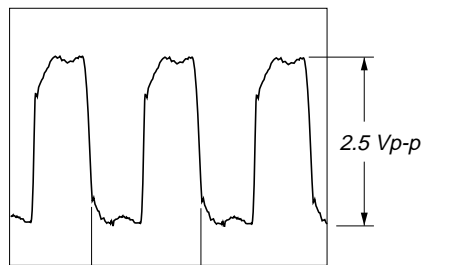
13 IC801 ⑥⑨ (LRCK)
1 V/DIV, 10 μs/DIV



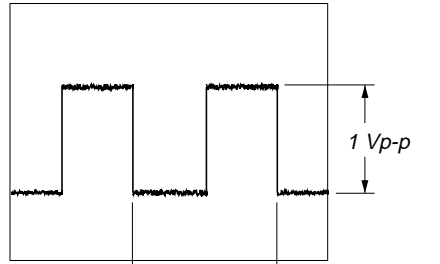
14 IC801 ⑦⑩ (XBCK)
1 V/DIV, 200 ns/DIV



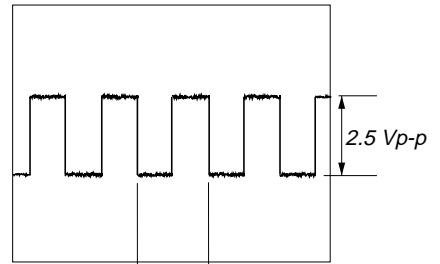
15 IC801 ⑦① (FS256)
1 V/DIV, 50 ns/DIV



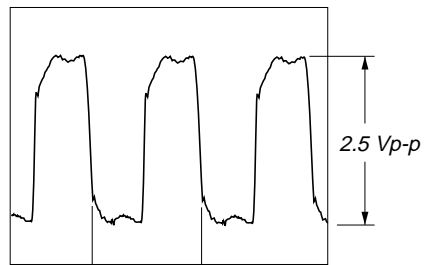
16 IC801 ⑥⑥ (FS4)
500 mV/DIV, 2 μs/DIV



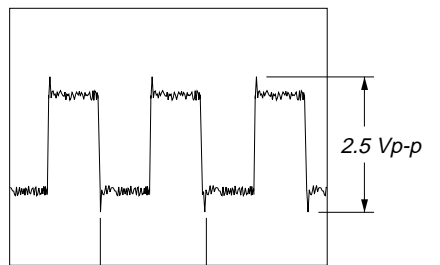
17 IC301 ②⑩ (LRCK)
1 V/DIV, 10 μs/DIV



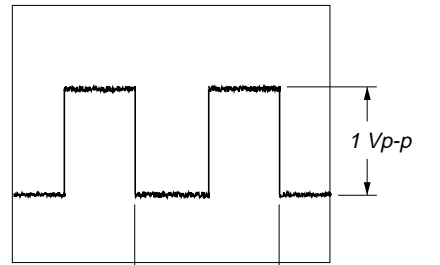
18 IC301 ①⑨ (MCLK)
1 V/DIV, 50 ns/DIV



19 IC301 ①⑦ (BCLK)
1 V/DIV, 200 ns/DIV



20 IC901 ⑤⑥ (CLK)
500 mV/DIV, 2 μs/DIV



Note on Schematic Diagram:

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

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

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

- : B+ Line.
- Total current is measured with MD installed.
- Power voltage is dc 3 V and fed with regulated dc power supply from external power voltage jack.
- Voltages and waveforms are dc with respect to ground in playback mode.
- no mark : PLAYBACK
- () : REC
- * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- ▷ : PLAYBACK
- ▷ : REC (ANALOG IN)
- ▷ : REC (DIGITAL IN)

* Replacement of IC801 used in this set 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.

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:

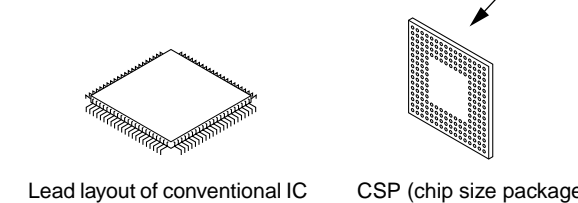
Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.

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

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

* Replacement of IC801 used in this set requires a special tool.

Lead Layouts

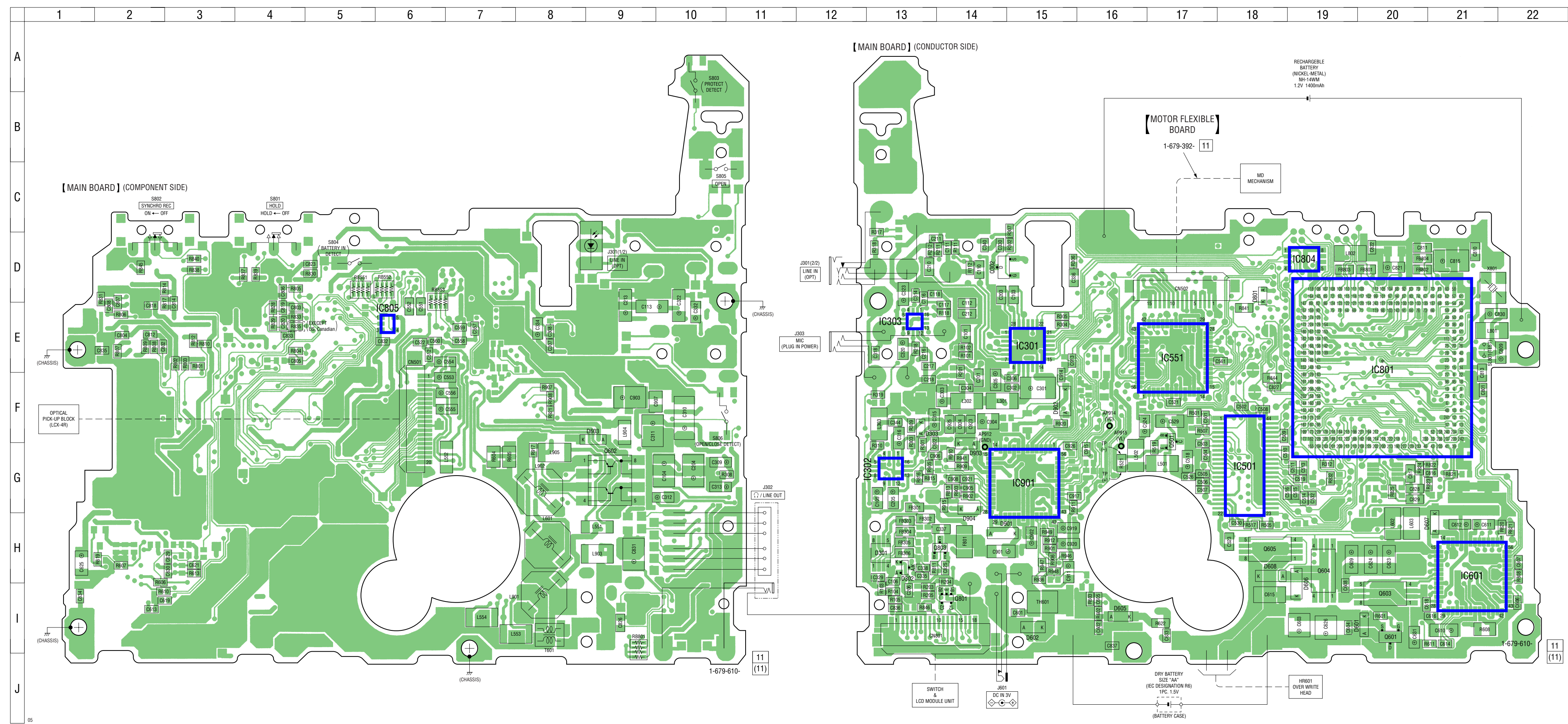


Lead layout of conventional IC CSP (chip size package)

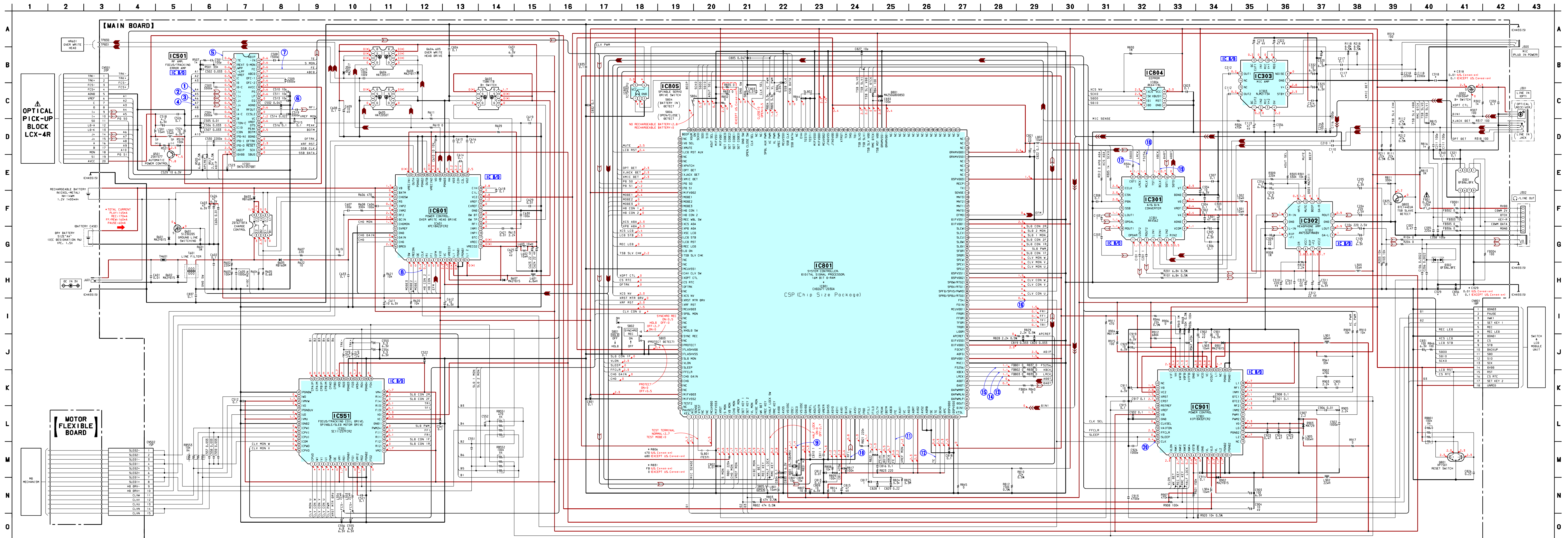
6-4. PRINTED WIRING BOARDS

• Semiconductor Location

Ref. No.	Location
D301	H-13
D302	H-13
D303	F-13
D601	I-20
D602	I-15
D603	F-9
D605	I-16
D606	I-19
D607	H-21
D608	H-18
D801	D-18
D901	H-14
D902	F-15
D903	G-14
D904	G-14
IC301	E-15
IC302	G-13
IC303	E-13
IC501	G-18
IC551	E-17
IC601	H-21
IC801	E-20
IC804	D-19
IC805	E-6
IC901	G-15
Q302	D-14
Q501	F-17
Q601	I-20
Q602	G-9
Q603	I-20
Q604	H-19
Q605	H-18
Q801	I-14
Q803	H-14



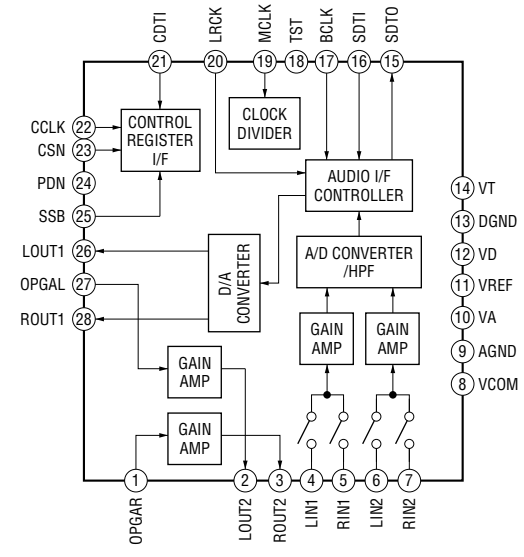
6-5. SCHEMATIC DIAGRAM • See page 33 for Waveforms. • See page 43 for IC Block Diagrams



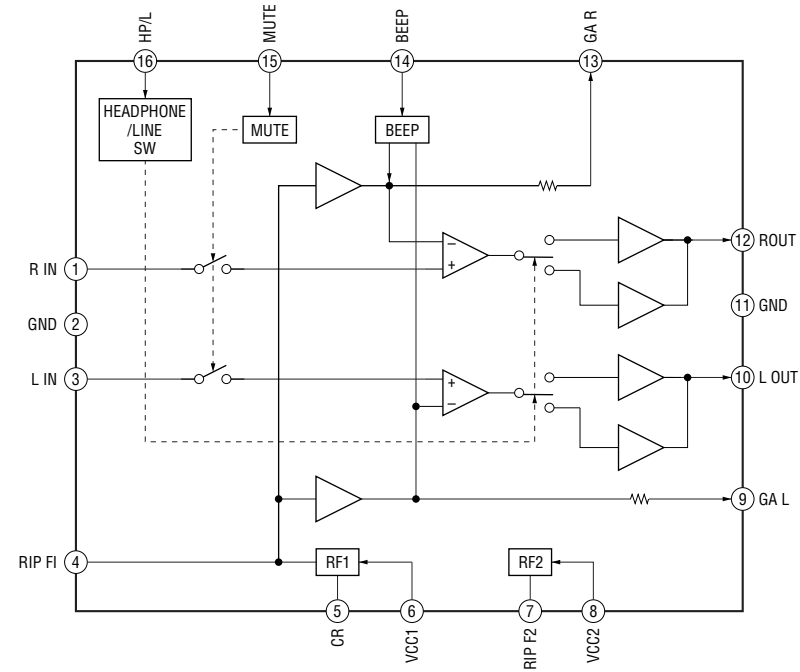
MZ-R900

• IC Block Diagrams

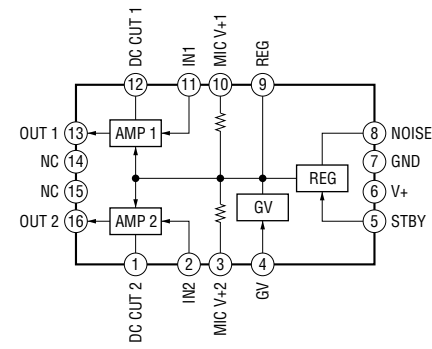
IC301 AK4562VNS-L



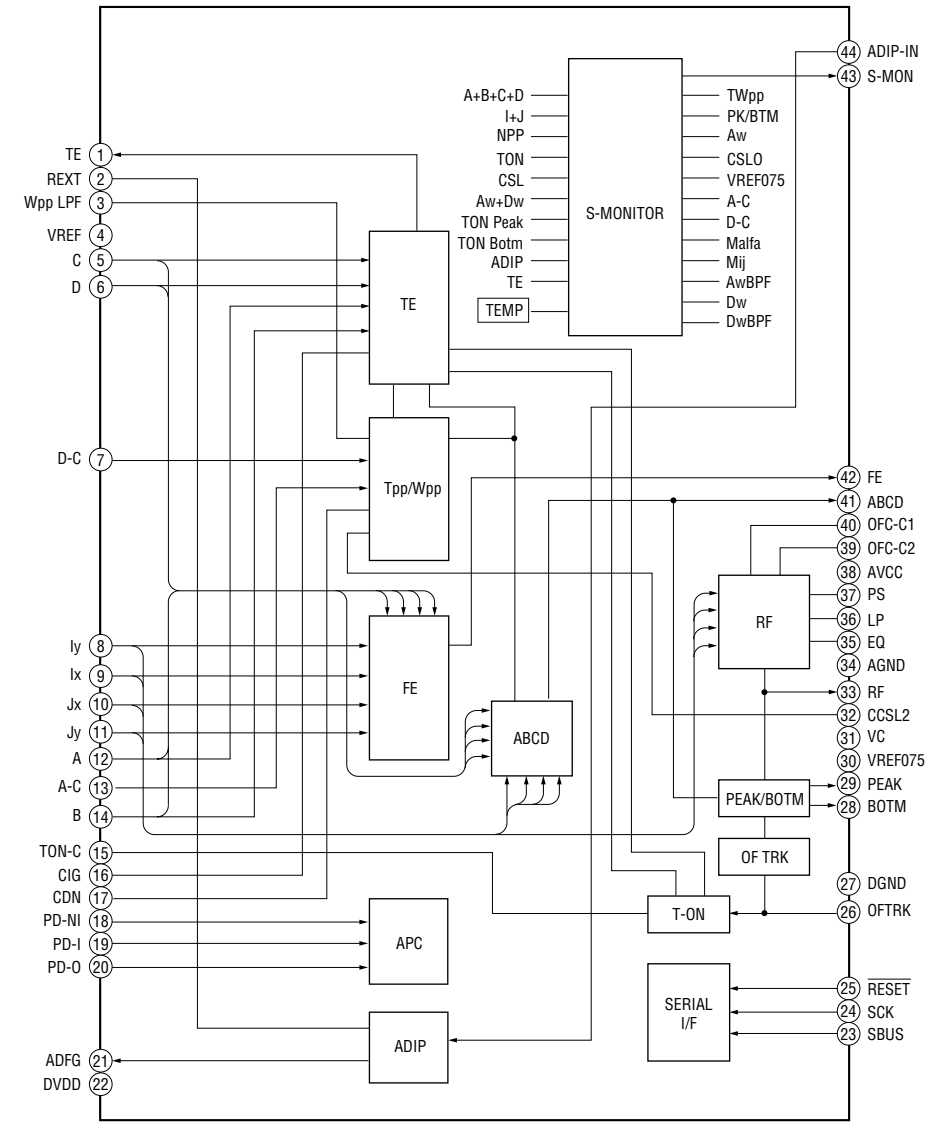
IC302 AN7536FHNA BV



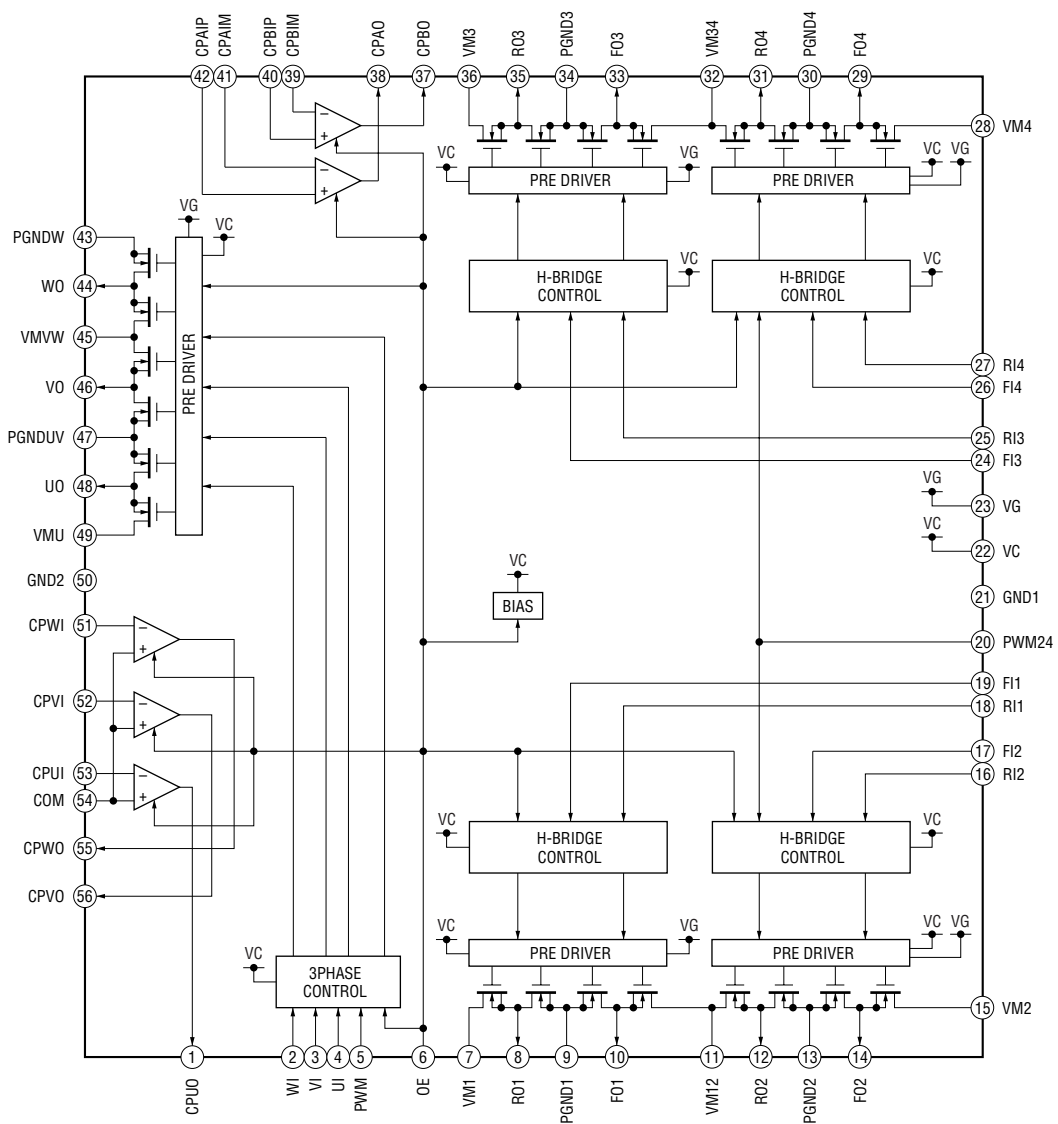
IC303 NJM2173APC1 (TE2)



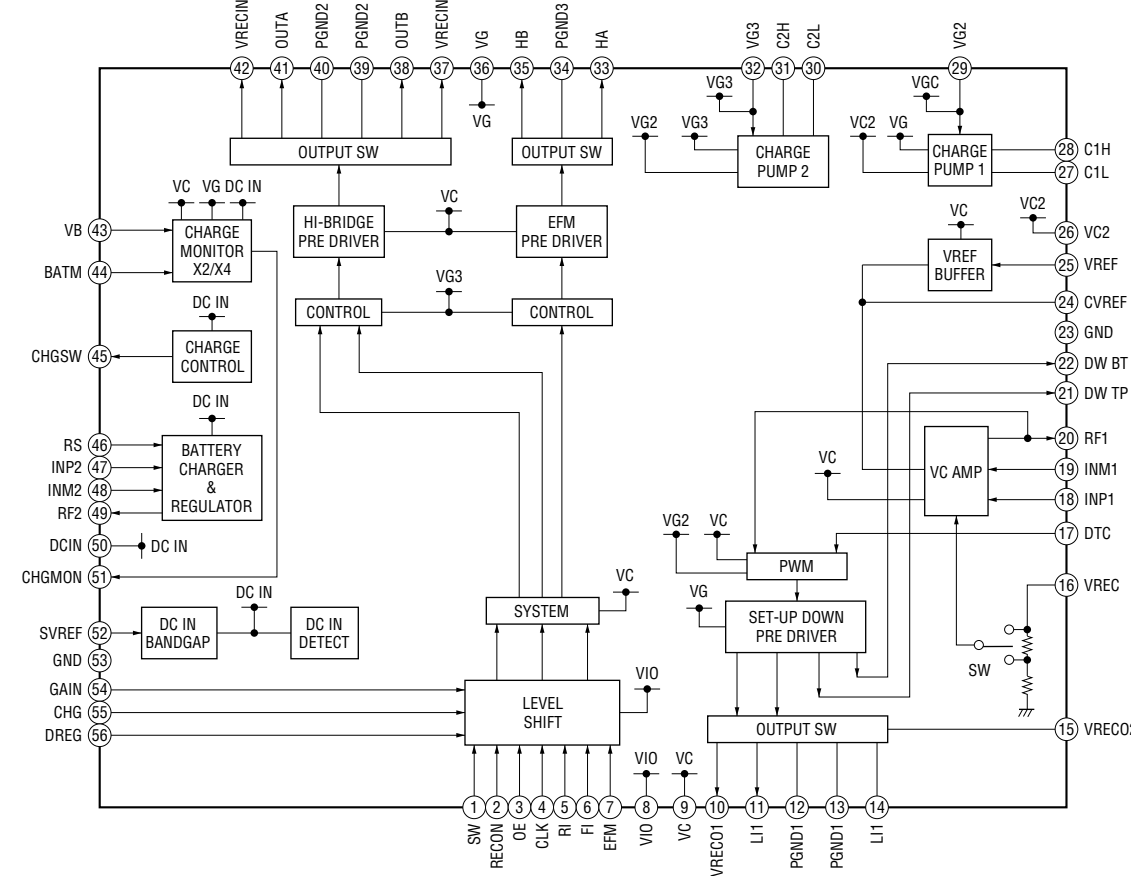
IC501 SN761057DBT



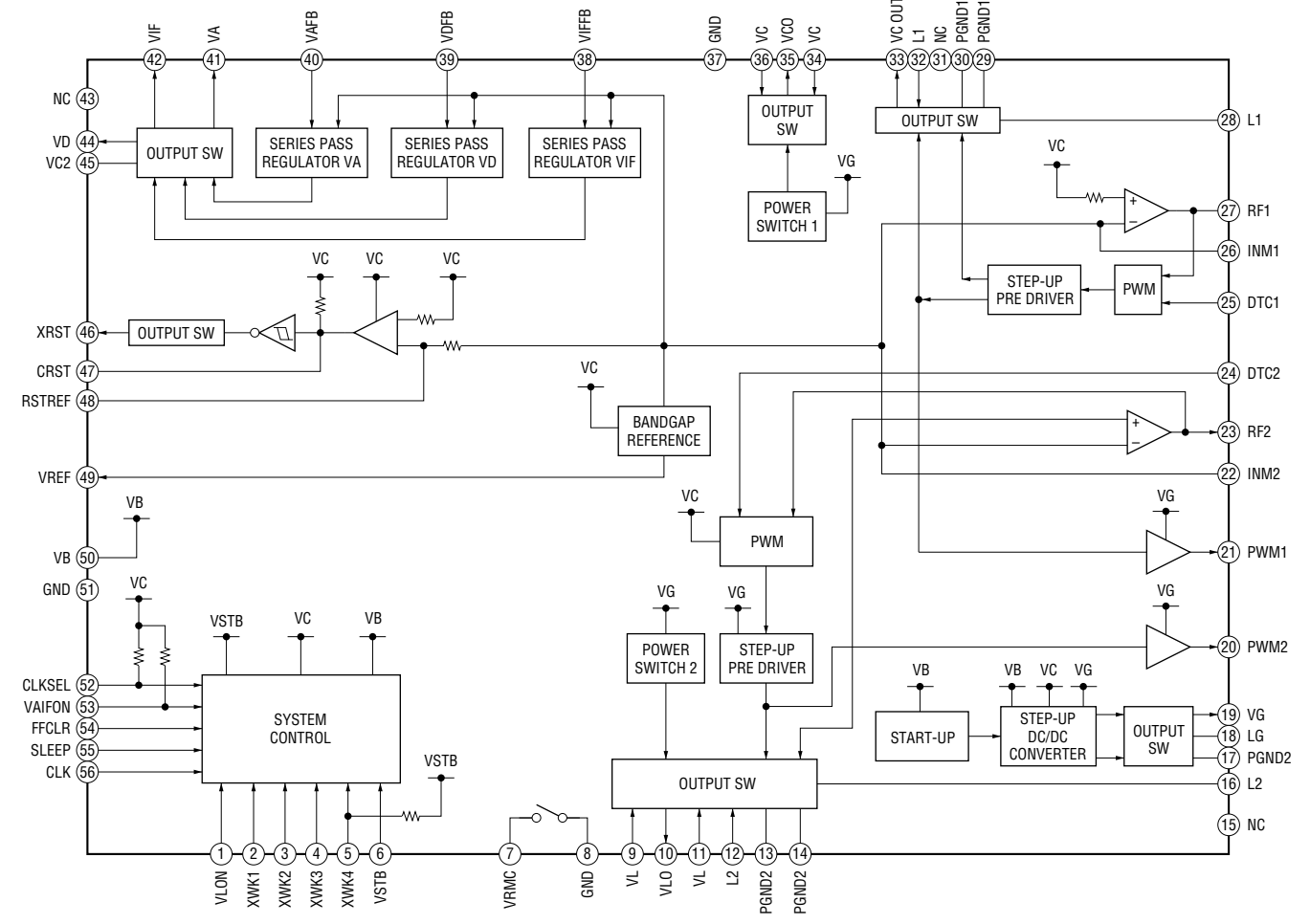
IC551 SC111257FCR2



IC601 XPC18A22FCR2



IC901 XPC18A32FCR2



6-6. IC PIN FUNCTION DESCRIPTION

• IC501 SN761057DBT (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Description
1	TE	O	Tracking error signal output to the system controller (IC801)
2	REXT	—	Connect terminal to the external resistor for ADIP amp control
3	WPPLPF	—	Connect terminal to the external capacitor for TPP/WPP low-pass filter
4	VREF11	O	Reference voltage output terminal (+1V)
5	C	I	Signal (C) input from the optical pickup detector
6	D	I	Signal (D) input from the optical pickup detector
7	D-C	I	Signal (D) input from the optical pickup detector (AC input)
8	IY	I	I-V converted RF signal (IY) input from the optical pickup detector
9	IX	I	I-V converted RF signal (IX) input from the optical pickup detector
10	JX	I	I-V converted RF signal (JX) input from the optical pickup detector
11	JY	I	I-V converted RF signal (JY) input from the optical pickup detector
12	A	I	Signal (A) input from the optical pickup detector
13	A-C	I	Signal (A) input from the optical pickup detector (AC input)
14	B	I	Signal (B) input from the optical pickup detector
15	TON-C	—	Connect terminal to the external capacitor for TON hold
16	CIG	—	Connect terminal to the external capacitor for the low-pass filter of NPP divider denominator
17	CDN	—	Connect terminal to the external capacitor for the low-pass filter of CSL divider denominator
18	PD-NI	I	Light amount monitor input terminal (non-invert input)
19	PD-I	I	Light amount monitor input terminal (invert input)
20	PD-O	O	Light amount monitor output terminal
21	ADFG	O	ADIP duplex FM signal (22.05kHz \pm 1kHz) output to the system controller (IC801)
22	DVDD	—	Power supply terminal (+2.3V) (digital system)
23	SBUS	I/O	SSB serial data input/output with the system controller (IC801)
24	SCK	I	SSB serial clock signal input from the system controller (IC801)
25	RESET	I	Reset signal input from the system controller (IC801) “L”: reset
26	OFTRK	I	Off track signal input from the system controller (IC801)
27	DGND	—	Ground terminal (digital system)
28	BOTM	O	Bottom hold signal output of the light amount signal (RF/ABCD) to the system controller (IC 801)
29	PEAK	O	Peak hold signal output of the light amount signal (RF/ABCD) to the system controller (IC 801)
30	VREF075	—	Connect terminal to the external capacitor for the internal reference voltage
31	VC	O	Middle point voltage (+1.2V) generation output terminal
32	CCSL2	—	Connect terminal to the external capacitor for TPP/WPP low-pass filter
33	RF OUT	O	Playback EFM RF signal output to the system controller (IC801)
34	AGND	—	Ground terminal (analog system)
35~37	EQ, LP, PS	—	Connect terminal to the external capacitor for the RF equalizer
38	AGND	—	Power supply terminal (analog system) (+2.3V)
39, 40	OFC2, OFC-1	—	Connect terminal to the external capacitor for RF AC coupling
41	ABCD	O	Light amount signal (ABCD) output to the system controller (IC801)
42	FE	O	Focus error signal output to the system controller (IC801)
43	S-MON	O	Servo signal monitor output to the system controller (IC801)
44	ADIP-IN	I	ADIP duplex FM signal (22.05kHz \pm 1kHz) input terminal (not used in this set)

• IC801 CXD2671-202GA (SYSTEM CONTROLLER, DIGITAL SIGNAL PROCESSOR, 16M BIT D-RAM)

Pin No.	Pin Name	I/O	Description
1	PAUSE KEY	I	Set key input terminal (■ key input)
2	MIC SENSE	O	Control signal output to the microphone amp (IC303) “H”: HIGH, “L”: LOW, normally: “H”
3	XTEST	I	Input terminal for the test mode set up “L”: test mode (normally fixed at “H”)
4, 5	NC	O	Not used (open)
6	MCUVDD0	—	Power supply terminal (for microcomputer block) (+1.5V)
7	MIFVSS3	—	Ground terminal (for microcomputer I/F)
8	XRST	I	System reset signal input terminal from the power control (IC901) “L”: reset
9	S MON	I	Servo signal monitor input terminal (A/D input) from RF amp (IC501)
10	VB MON	I	Voltage monitor input terminal of UNREG power supply (A/D input)
11	CHG MON	I	Charge voltage monitor input terminal (A/D input) from XPC18A22FCR2 (IC601)
12	VREF MON	I	Clear reference voltage input terminal (A/D input) from RF amp (IC501)
13, 14	SET KEY 1, SET KEY 2	I	Set key input terminal (A/D input)
15	VL MON	I	VL voltage monitor input terminal (A/D input)
16	HIDC MON	I	HIGH DC voltage monitor input terminal (A/D input)
17	WK DET	I	Set key start switching detection signal input terminal (A/D input)
18	REC KEY	I	REC key input terminal (A/D input)
19	HALF LOCK SW	I	Open button detection switch (S805) input terminal (A/D input) “L”: when normal position, “H”: when locked
20	RMC KEY	I	Key input terminal (A/D input) of the remote commander attached headphone
21	AVDD	—	Power supply terminal (for the analog circuit block) (+2.8V)
22	AVSS	—	Ground terminal (for the analog circuit block)
23	VDIOSC	—	Power supply terminal (for OSC cell) (+2.4V)
24	OSCI	I	System clock (45.1584MHz) input terminal
25	OSCO	O	System clock (45.1584MHz) output terminal
26	VSIOSC	—	Ground terminal (for OSC cell)
27	DAVDD	—	Power supply terminal (for the built-in D/A converter) (+2.4V)
28	VREFL	I	Reference voltage input terminal (for the internal D/A converter L-CH)
29	AOUTL	O	Built-in D/A converter (L-CH) output terminal Not used (open)
30	AOUTR	O	Built-in D/A converter (R-CH) output terminal Not used (open)
31	VREFR	I	Reference voltage input terminal (for the built-in D/A converter R-CH)
32	DAVSS	—	Ground terminal (for the built-in D/A converter)
33	ASYO	O	Playback EFM duplex signal output terminal
34	ASYI	I	Playback EFM comparison slice level input terminal
35	AVD1	—	Ground terminal (for the analog) (+2.4V)
36	BIAS	I	Bias input for the playback EFM comparison
37	RFI	I	Playback EFM RF signal input from RF amp (IC501)
38	AVS1	—	Ground terminal (for the analog)
39	PCO	O	Phase comparison output for the master clock of playback EFM system master PLL
40	PDO	O	Phase comparison output for the analog PLL Not used (open)
41	FILI	I	Filter input for the master clock of the playback EFM system master PLL
42	FILO	O	Filter output for the master clock of the playback EFM system master PLL
43	CLTV	I	Internal VCO control voltage input for the playback EFM system master PLL
44	PEAK	I	Peak hold signal input of the light amount signal (RF/ABCD) from RF amp (IC501)
45	BOTM	I	Bottom hold signal input of the light amount signal (RF/ABCD) from RF amp (IC501)
46	ABCD	I	Light amount signal (ABCD) input from RF amp (IC501)

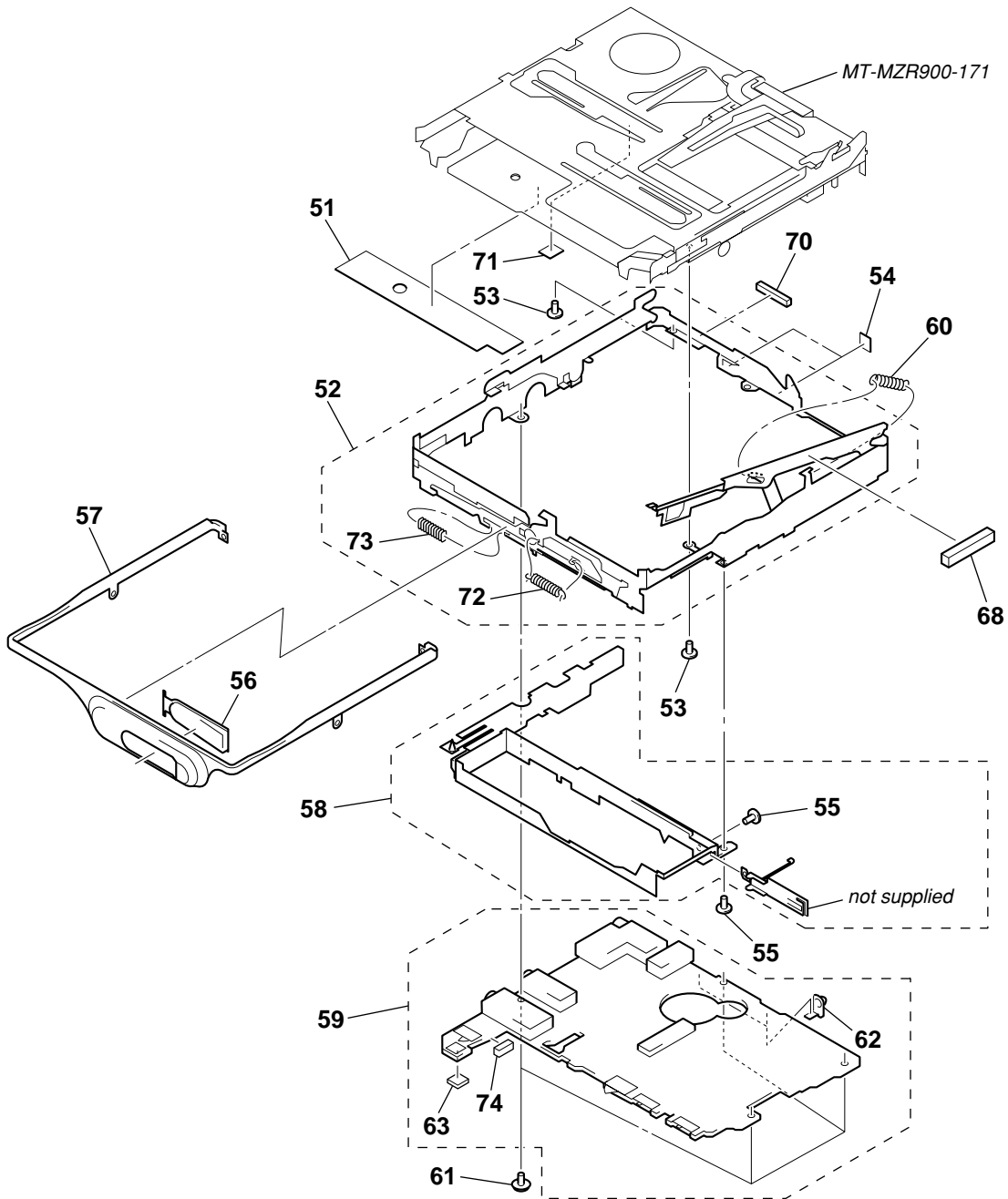
Pin No.	Pin Name	I/O	Description
47	FE	I	Focus error signal input from RF amp (IC501)
48	AUX1	I	Support signal (I ₃ signal/temperature signal) input terminal (A/D input)
49	VC	I	Middle point voltage (+1.2V) input terminal
50	ADIO	O	Monitor output of A/D converter input signal Not used (open)
51	ADRT	I	A/D converter the upper limit voltage input (fixed at "H" in this set)
52	AVD2	—	Power supply terminal (for the analog) (+2.4V)
53	AVS2	—	Ground terminal (for the analog)
54	ADRB	I	A/D converter the lower limit voltage input (fixed at "L" in this set)
55	SE	I	Sled error signal input terminal Not used (fixed at "L")
56	TE	I	Tracking error signal input from RF amp (IC501)
57	DCHG	—	Connecting analog power supply of the low impedance (fixed at "H" in this set)
58	APC	I	Error signal input for the laser automatic power control Not used (fixed at "H")
59	DSPVDD0	—	Power supply terminal (for DSP block) (+1.5V)
60	DSPVSS0	—	Ground terminal (for DSP block)
61	XTSL	I	Input terminal for the frequency set up of the system clock "L": 45.1584MHz, "H": 22.5792MHz (fixed at "L" in this set)
62	DIN1	I	Input terminal of the record system digital audio signal
63	DOUT	O	Output terminal of the playback system digital audio signal Not used (open)
64	DAPWMLP	O	D/A converter PWM output (L-CH right phase) Not used (open)
65	DAPWMLN	O	D/A converter PWM output (L-CH reverse phase) Not used (open)
66	DAPWMRP	O	D/A converter PWM output (R-CH right phase) Not used (open)
67	DADT	O	Audio data output to the external A/D, D/A converter (IC301)
68	ADDT	I	Data signal input from the external A/D, D/A converter (IC301)
69	LRCK	O	L/R sampling block signal (44.1KHz) output to the external A/D, D/A converter (IC301)
70	XBCK	O	Bit clock signal (2.8224MHz) output to the external A/D, D/A converter (IC301)
71	FS256	O	11.2896MHz clock signal output to the external A/D, D/A converter (IC301)
72	MVCI	I	Vibrate input for the digital in PLL from the external VCO Not used (fixed at "L")
73	DSPVDD1	—	Power supply terminal (for DSP block) (+1.5V)
74	ADFG	I	ADIP duplex FM signal (20.05±1KHz) input from RF amp (IC501)
75	FOCNT	O	Filter cut off control signal output Not used
76	DIFVDD0	—	Power supply terminal (for DSP I/F) (+2.3V)
77	DIFVSS0	—	Ground terminal (for DSP I/F)
78	APCREF	O	Control signal output to the reference voltage generation circuit for the laser automatic power control
79	LDDR	O	PWM signal output for the laser automatic power control Not used (open)
80	TRDR	O	Tracking servo drive PWM signal output (–) to the motor driver (IC551)
81	TFDR	O	Tracking servo drive PWM signal output (+) to the motor driver (IC551)
82	FFDR	O	Focus servo drive PWM signal output (+) to the motor driver (IC551)
83	FRDR	O	Focus servo drive PWM signal output (–) to the motor driver (IC551)
84	MCUVDD1	—	Power supply terminal (for the microcomputer block) (+1.5V)
85	FGIN	I	FG signal input terminal for the spindle servo Not used (open)
86	FS4	O	176.4MHz clock signal output to the power control (IC601, IC901)
87	SPRD/SPDU/ RTG0	O	Spindle servo drive PWM signal output terminal (–) to the motor driver (IC551)
88	SPFD/SPVS/ PWM3	O	Spindle servo drive PWM signal output (+)
89	SPDV/RTG1	O	Spindle motor drive control signal output (V)/RTG output 1 to the motor driver (IC551)
90	SPDW/RTG2	O	Spindle motor drive control signal output (W)/RTG output 2 to the motor driver (IC551)

Pin No.	Pin Name	I/O	Description
91	DSPVDD2	—	Power supply terminal (for DSP block) (+1.5V)
92	DSPVSS1	—	Ground terminal (for DSP block)
93	SPCU	I	Spindle motor drive comparison signal input (U) from the motor driver (IC551)
94	SPCV	I	Spindle motor drive comparison signal input (V) from the motor driver (IC551)
95	SPCW	I	Spindle motor drive comparison signal input (W) from the motor driver (IC551)
96	SRDR	O	Sled servo drive PWM signal output (-) to the motor driver (IC551)
97	SFDR	O	Sled servo drive PWM signal output (+) to the motor driver (IC551)
98	SLDV	O	Sled motor drive signal output (V) to the motor driver (IC551)/ drive control signal output (1-)
99	SLDW	O	Sled motor drive signal output (W) to the motor driver (IC551)/ drive control signal output (2+)
100	SLCU	I	Spindle motor drive comparison signal input (U) from the motor driver (IC551)
101	SLCV	I	Spindle motor drive comparison signal input (V) from the motor driver (IC551)
102	SLCW	I	Spindle motor drive comparison signal input (W) from the motor driver (IC551)
103	DIFVDD1	—	Power supply terminal (for DSP I/F) (+2.3V)
104	DIFVSS1	—	Ground terminal (for DSP I/F)
105	EFMO	O	EFM encode data output for the record to the over write head drive (IC601)
106	MNT0	O	Internal DSP monitor output (0) terminal Not used (open)
107	MNT1	O	Internal DSP monitor output (1) terminal Not used (open)
108	MNT2	O	Internal DSP monitor output (2) terminal Not used (open)
109	MNT3	O	Internal DSP monitor output (3) terminal Not used (open)
110	SENSE	O	Internal DSP (SENS) monitor output terminal Not used (open)
111	TX	O	Record data output enable signal output monitor terminal of the internal DSP Not used (open)
112	RECP	O	Laser power changeover signal output monitor terminal Not used (open)
113	DSPVDD3	—	Power supply terminal (for DSP block) (+1.5V)
114 to 117	NC	O	Output terminal for the external D-RAM Not used (open)
118	DRAMVSS0	—	Ground terminal (for the external D-RAM)
119	DRAMVDD0	—	Power supply terminal (for the external D-RAM) (+2.4V)
120 to 138	NC	O	Output terminal for the external D-RAM Not used (open)
139	DRAMVDD1	—	Power supply terminal (for the external D-RAM) (+2.4V)
140	DRAMVSS1	—	Ground terminal (for the external D-RAM)
141	TSB MST VDD	—	Power supply terminal (for TSB master communication) (+2.8V)
142	RMC DTCK	I/O	TSB serial data input/output with the remote commander attached headphone
143	TSB SLV VDD	—	Power supply terminal (for I/F to TSB slave communication) (+2.3V)
144	TSB SLVI	I	TSB slave signal input from the remote commander attached headphone
145	TSB SLVO	O	TSB slave signal output from the remote commander attached headphone
146	TDI	I	Data input terminal for JTAG Not used (open)
147	TMS	I	Test mode control input terminal for JTAG Not used (open)
148	TCK	I	Clock input terminal for JTAG Not used (open)
149	XTRST	I	Reset input terminal for JTAG Not used (open)
150	TDO	O	Data output terminal for JTAG Not used (open)
151	JTAGVDD	—	Power supply terminal (for JTAG) (+2.4V)
152	JTAGVSS	—	Ground terminal (for JTAG)
153	MCUVDD2	—	Power supply terminal (for the microcomputer block) (+1.5V)
154	MIFVDD0	—	Power supply terminal (for the microcomputer I/F block) (+2.3V)
155	MIFVSS0	—	Ground terminal (for the microcomputer I/F block)

Pin No.	Pin Name	I/O	Description
156, 157	TEST1, TEST0	I	Input terminal for the main test (normally fixed at "L")
158	EVA	I	EVA/FLASH chip discrimination terminal "L": FLASH chip, "H": EVA chip
159	NC	O	Not used (open)
160	SSB DATA	I/O	Input/output of SSB serial data with RF amp (IC501)
161	SSB CLK	O	SSB serial clock output to RF amp (IC501)
162	MCUVSS0	—	Ground terminal (for the microcomputer block)
163	VREC PWM	O	Over write head control spare terminal Not used (open)
164	VL PWM	I	PWM for the laser automatic power supply voltage control signal output to the power control (IC901)
165	VC PWM	I	PWM signal output for the system power supply voltage control to the power control (IC901)
166	SPDL AUX PWM	O	PWM signal output for the spindle support to the motor driver (IC551)
167, 168	NC	O	Not used (open)
169	CLK SEL	O	System clock select signal output to the power control (IC901)
170	OPEN CLOSE SW	I	Open/close detection switch (S806) of the upper panel input terminal (A/D input) "L": when upper panel close
171	GND SW	O	Control signal output to the ground (GND) changeover switch
172	SET CODE0	O	Input terminal for the set (fixed at "L" except for US/Canadian)
173	SET CODE1	O	Input terminal for the set (open in this set)
174, 175	SET CODE2, 3	O	Input terminal for the set (fixed at "L" in this set)
176	MIFVDD1	—	Power supply terminal (for the microcomputer I/F block) (+2.3V)
177	MIFVSS1	—	Ground terminal (for the microcomputer I/F block)
178	AOUT SEL	O	HP/LINE changeover signal output to the headphone amp (IC302)
179	SI0	I	Serial data input from the nonvolatile memory (IC804) and liquid crystal display element module
180	SO0	O	Serial data output to the nonvolatile memory (IC804), A/D, D/A converter (IC301) and liquid crystal display element module
181	SCK0	O	Serial clock signal output to the nonvolatile memory (IC804), A/D, D/A converter (IC301) and liquid crystal display element module
182	XGUM ON	I	Battery pack detection switch (S804) input terminal for the charge "L": there is battery pack for the charge
183	BEEP	O	Beep sound control signal output to the headphone amp (IC302)
184	NC	O	Not used (open)
185	VD SEL	O	VD power supply changeover signal output terminal Not used (open)
186	XMUTE	O	Analog muting control signal output terminal to the headphone amp (IC302) "L": muting ON
187	LCD RST AUX	O	Reset control signal output terminal to the liquid crystal display element "L": reset
188, 189	NC	O	Not used (open)
190	XPATCH	I	Patch function detection input terminal "L": patch function Not used (open)
191	OPT DET	I	DIN plug detection signal input terminal
192	XJACK DET	I	LINE IN plug detection signal input terminal
193	XMIC DET	I	Microphone plug detection signal input terminal
194, 195	PD S0, PD S1	O	PD IC mode changeover signal output to the optical pick up
196	MIFVDD2	—	Power supply terminal (for the microcomputer I/F block) (+2.3V)
197 to 199	MODE1 to 3	O	Power supply control signal output (for the over write head drive) to the over write head drive (IC601)
200, 201	HD CON 1, 2	O	Over write head control signal output to the over write head drive (IC601)
202	REC WBL SW	O	LPF changeover switch input terminal when REC/PB control Not used (open)
203	XCS ADA	O	Chip select signal output to A/D, D/A converter (IC301)

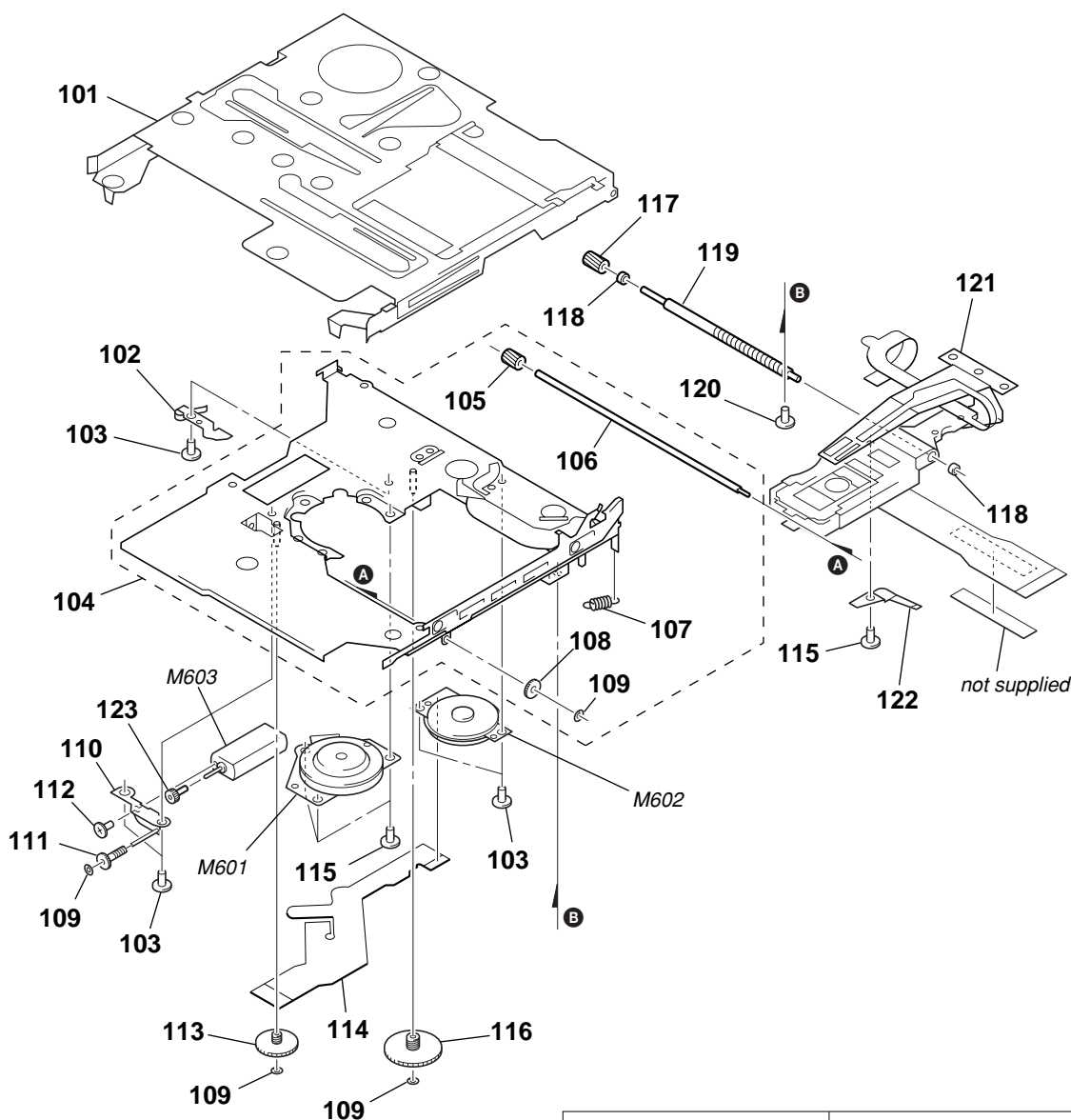
Pin No.	Pin Name	I/O	Description
204	XPD ADA	O	Power supply control signal output for the drive to A/D, D/A converter (IC301)
205	XCS LCD	O	Chip select signal output to the liquid crystal display element
206	LCD STB	O	Strobe signal output to the liquid crystal display element
207	LCD RST	O	Reset control signal output to the liquid crystal display element Not used (open)
208	REC LED	O	LED ON/OFF control signal output for REC display
209	LD ON	O	ON/OFF control signal output terminal of the laser diode Not used (open)
210	TSB SLV CHK	I	TSB slave detection signal input terminal
211, 212	NC	I	Not used (open)
213	MCUVSS1	—	Ground terminal (for the microcomputer block)
214	CAV CLV SW	O	CAV/CLV changeover control signal output Not used (open)
215	XOPT CTL	O	Power supply ON/OFF control signal output for DIN PD drive
216	CS RTC	O	Chip select signal output to the clock IC
217	OFTRK	I	Off track signal input from RF amp (IC501)
218	NC	O	Analog muting control signal output “H”: muting ON Not used (open)
219	XCS NV	O	Chip select signal output to EEPROM (IC804)
220	XRST MTR DRV	O	Reset control signal output to the motor driver (IC551)
221	XRF RST	O	Reset control signal output to RF amp (IC501)
222	MCUVDD3	—	Power supply terminal (for the microcomputer block) (+1.5V)
223	SPDL MON	I	Spindle servo monitor signal input from the motor driver (IC551)
224 to 226	NC	I	Not used (open)
227	XHOLD SW	I	HOLD switch (S801) input terminal “L”: hold ON, “H”: hold OFF
228	SYNC REC	I	SYNCHRO REC switch (S802) input terminal “L”: OFF, “H”: ON
229	NC	O	Not used (open)
230	PROTECT	I	Detection input terminal of the record check claw from the protect detection switch (S803) “L”: recording possible condition, “H”: protect
231	FLASHVDD	—	Power supply terminal (for the internal FLASH ROM) (+2.4V)
232	FLASHVSS	—	Ground terminal (for the internal FLASH ROM)
233	SLD MON	I	Sled servo monitor signal input from the motor driver (IC551)
234	VLON	O	Power supply control signal output for the laser diode drive to the power control (IC901)
235	SLEEP	O	System sleep control signal output to the power control (IC901) “H”: sleep ON
236	FFCLR	O	Input latch output for the start switching to the power control (IC901)
237	CHG GAIN	O	Charge gain control signal output to the power control (IC601)
238	CHG	O	Charge ON/OFF control signal output to the power control (IC601) “H”: charge ON
239, 240	NC	O	Not used (open)
241	MIFVDD3	—	Power supply terminal (for the microcomputer I/F block) (+2.3V)
242	MIFVSS2	—	Ground terminal (for the microcomputer I/F block)
243	TEST2	O	Input terminal for the main test (normally open)
244	NC	—	Not used (open)

7-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-220-477-01	SHEET (MD), INSULATING		* 59	A-3323-704-A	MAIN BOARD, COMPLETE (US, CND)	
52	X-3379-320-5	CHASSIS ASSY, SET		60	3-220-471-01	SPRING (ARM), TENSION	
53	4-218-233-07	SCREW (1.4), MI		61	3-335-797-91	SCREW (M1.4), TOOTHED LOCK	
54	3-224-089-01	SHEET (TERMINAL), INSULATING		62	4-223-110-01	TERMINAL (3)	
55	4-218-229-29	SCREW (1.4), MI		63	3-226-169-01	SPACER (PRO)	
56	3-220-465-03	BUTTON (OPEN)		68	3-226-758-01	SPACER (FULCRUM PLATE R2)	
57	3-220-464-03	STRIP, ORNAMENTAL (SILVER)...(SILVER)		70	3-226-168-01	SPACER (REAR) (2)	
57	3-220-464-13	STRIP, ORNAMENTAL (DARK SILVER)...(BLUE, RED, WHITE)		71	3-225-171-01	SHEET (CLV) (2)	
58	X-3379-321-4	CASE ASSY, BATTERY		72	3-220-472-01	SPRING (OPEN), TENSION	
* 59	A-3323-597-A	MAIN BOARD, COMPLETE (JEW)		73	3-225-899-01	SPRING (LOCK), COMPRESSION	
* 59	A-3323-598-A	MAIN BOARD, COMPLETE (EXCEPT US, CND, JEW)		74	3-229-882-01	SPACER (MINUS)	

7-3. MD MECHANISM DECK SECTION
(MT-MZR900-171)



<p>The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	X-3379-498-1	HOLDER ASSY		115	4-963-883-31	SCREW (M1.4), PRECISION PAN	
102	3-224-779-01	SPRING, THRUST DETENT		116	4-222-216-01	GEAR (SA)	
103	4-218-233-01	SCREW (1.4), MI		117	4-222-208-01	GEAR (SB)	
104	X-3379-497-1	CHASSIS ASSY		118	4-222-204-01	BEARING (N)	
105	4-222-218-01	GEAR (HD)		119	4-222-203-01	SCREW, LEAD	
106	4-222-223-01	SHAFT, SUB		120	3-349-825-21	SCREW	
107	4-222-226-01	SPRING (EJECT), TENSION		Δ 121	X-3379-508-1	SERVICE ASSY, OP (LCX-4R)	
108	4-222-222-01	GEAR (RACK)		122	3-049-336-01	SPRING (S), RACK	
109	3-338-645-31	WASHER (0.8-2.5)		123	3-222-544-01	GEAR (HA)	
110	X-3380-408-1	CHASSIS ASSY, GEAR		M601	8-835-706-01	MOTOR, DC SSM18A/C-NP (SPINDLE) (WITH TURN TABLE)	
111	3-222-545-01	GEAR (HB)		M602	1-763-399-11	MOTOR, DC (SLED) (WITH GEAR)	
112	4-224-885-01	SCREW (M1.2X1.5)		M603	1-763-400-21	MOTOR, DC (OVER WRITE HEAD UP/DOWN)	
113	4-222-215-01	GEAR (HC)					
114	1-679-372-11	MOTOR FLEXIBLE BOARD					

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Abbreviation
AUS : Australian model E13 : 220 V-230 V AC area model
CND : Canadian model E33 : 100 V-240 V AC area model
CH : Chinese model EE : East European model

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- CAPACITORS
uF: μ F
- COILS
uH: μ H
- FR : French model KR : Korean model
HK : Hong Kong model
JEW : Tourist model

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

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-3323-597-A	MAIN BOARD, COMPLETE (JEW)		C311	1-128-964-11	TANTALUM CHIP 100uF 20%	6.3V
*	A-3323-598-A	MAIN BOARD, COMPLETE (EXCEPT US, CND, JEW)		C312	1-127-895-11	TANTALUM CHIP 22uF 20%	4V
*	A-3323-704-A	MAIN BOARD, COMPLETE (US, CND) *****		C313	1-127-895-11	TANTALUM CHIP 22uF 20%	4V
	3-226-169-01	SPACER (PRO)		C314	1-119-923-11	CERAMIC CHIP 0.047uF 10%	10V
	3-229-882-01	SPACER (MINUS)		C315	1-127-578-11	TANTALUM CHIP 3.3uF 20%	6.3V
	4-223-110-01	TERMINAL (3)		C316	1-131-734-11	TANTALUM CHIP 4.7uF 20%	6.3V
		< CAPACITOR >		C318	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V (US, CND)
C101	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C318	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V (EXCEPT US, CND)
C103	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C320	1-117-919-11	TANTALUM CHIP 10uF 20%	6.3V
C104	1-135-868-11	TANTALUM CHIP 220uF 20%	2.5V	C321	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C105	1-113-600-11	TANTALUM CHIP 2.2uF 20%	6.3V	C322	1-131-862-11	TANTALUM CHIP 47uF 20%	4V
C106	1-164-939-11	CERAMIC CHIP 0.0022uF 10%	16V	C323	1-117-919-11	TANTALUM CHIP 10uF 20%	6.3V
C110	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C239	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V (US, CND)
C111	1-164-874-11	CERAMIC CHIP 100PF 5%	16V	C329	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V (EXCEPT US, CND)
C112	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C330	1-107-820-11	CERAMIC CHIP 0.1uF 16V	
C113	1-131-862-11	TANTALUM CHIP 47uF 20%	4V	C332	1-117-919-11	TANTALUM CHIP 10uF 20%	6.3V
C116	1-164-937-11	CERAMIC CHIP 0.001uF 10%	16V	C334	1-117-919-11	TANTALUM CHIP 10uF 20%	6.3V
C117	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C335	1-164-933-11	CERAMIC CHIP 220PF 10%	16V
C118	1-164-939-11	CERAMIC CHIP 0.0022uF 10%	16V	C336	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V
C201	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C337	1-117-863-11	CERAMIC CHIP 0.47uF 10%	6.3V
C203	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C338	1-164-874-11	CERAMIC CHIP 100PF 5%	16V
C204	1-135-868-11	TANTALUM CHIP 220uF 20%	2.5V	C340	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C205	1-113-600-11	TANTALUM CHIP 2.2uF 20%	6.3V	C344	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V
C206	1-164-939-11	CERAMIC CHIP 0.0022uF 10%	16V	C501	1-164-874-11	CERAMIC CHIP 100PF 5%	16V
C210	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C502	1-127-772-11	CERAMIC CHIP 33000PF 10%	10V
C211	1-164-874-11	CERAMIC CHIP 100PF 5%	16V	C503	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C212	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C504	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C213	1-131-862-11	TANTALUM CHIP 47uF 20%	4V	C505	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V
C216	1-164-937-11	CERAMIC CHIP 0.001uF 10%	16V	C506	1-127-772-11	CERAMIC CHIP 33000PF 10%	10V
C217	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C507	1-127-772-11	CERAMIC CHIP 33000PF 10%	10V
C218	1-164-939-11	CERAMIC CHIP 0.0022uF 10%	16V	C508	1-164-938-11	CERAMIC CHIP 0.0015uF 10%	16V
C301	1-125-839-11	TANTALUM CHIP 47uF 20%	6.3V	C509	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C302	1-107-820-11	CERAMIC CHIP 0.1uF 16V		C510	1-164-850-11	CERAMIC CHIP 10PF 0.5PF	16V
C303	1-117-919-11	TANTALUM CHIP 10uF 20%	6.3V	C511	1-164-850-11	CERAMIC CHIP 10PF 0.5PF	16V
C304	1-107-820-11	CERAMIC CHIP 0.1uF 16V		C512	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C305	1-113-600-11	TANTALUM CHIP 2.2uF 20%	6.3V	C513	1-164-850-11	CERAMIC CHIP 10PF 0.5PF	16V
C306	1-107-820-11	CERAMIC CHIP 0.1uF 16V		C514	1-107-819-11	CERAMIC CHIP 0.022uF 10%	16V
C307	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C515	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C308	1-107-820-11	CERAMIC CHIP 0.1uF 16V		C516	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C309	1-127-895-11	TANTALUM CHIP 22uF 20%	4V	C518	1-131-734-11	TANTALUM CHIP 4.7uF 20%	6.3V
C310	1-125-899-11	TANTALUM CHIP 220uF 20%	4V				

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C519	1-164-940-11	CERAMIC CHIP	0.0033uF 10%	16V	C812	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C521	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C813	1-125-891-11	CERAMIC CHIP 0.47uF 10% 10V
C522	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C814	1-164-935-11	CERAMIC CHIP 470PF 10% 16V
C523	1-125-837-11	CERAMIC CHIP	1uF 10%	6.3V	C815	1-125-839-11	TANTALUM CHIP 47uF 20% 6.3V
C524	1-117-919-11	TANTALUM CHIP	10uF 20%	6.3V	C816	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C526	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C817	1-125-837-11	CERAMIC CHIP 1uF 10% 6.3V
C529	1-125-840-11	TANTALUM	10uF 20%	6.3V	C818	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C530	1-164-939-11	CERAMIC CHIP	0.0022uF 10%	16V	C819	1-127-772-11	CERAMIC CHIP 33000PF 10% 10V
C532	1-119-923-11	CERAMIC CHIP	0.047uF 10%	10V	C820	1-127-772-11	CERAMIC CHIP 33000PF 10% 10V
C551	1-125-837-11	CERAMIC CHIP	1uF 10%	6.3V	C821	1-127-895-11	TANTALUM CHIP 22uF 20% 4V
C552	1-125-837-11	CERAMIC CHIP	1uF 10%	6.3V	C822	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C553	1-127-578-11	TANTALUM CHIP	3.3uF 20%	6.3V	C823	1-107-820-11	CERAMIC CHIP 0.1uF 16V
C554	1-127-578-11	TANTALUM CHIP	3.3uF 20%	6.3V	C825	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C555	1-131-621-11	TANTALUM CHIP	6.8uF 20%	6.3V	C826	1-127-715-11	CERAMIC CHIP 0.22uF 10% 16V
C556	1-131-621-11	TANTALUM CHIP	6.8uF 20%	6.3V	C827	1-164-850-11	CERAMIC CHIP 10PF 0.5PF 16V
C557	1-127-772-11	CERAMIC CHIP	33000PF 10%	10V	C828	1-125-837-11	CERAMIC CHIP 1uF 10% 6.3V
C558	1-127-772-11	CERAMIC CHIP	33000PF 10%	10V	C829	1-127-715-11	CERAMIC CHIP 0.22uF 10% 16V
C559	1-127-772-11	CERAMIC CHIP	33000PF 10%	10V	C830	1-117-919-11	TANTALUM CHIP 10uF 20% 6.3V
C561	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C831	1-128-964-11	TANTALUM CHIP 100uF 20% 6.3V
C601	1-164-943-11	CERAMIC CHIP	0.01uF 10%	16V	C832	1-107-820-11	CERAMIC CHIP 0.1uF 16V
C602	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C833	1-164-874-11	CERAMIC CHIP 100PF 5% 16V
C603	1-125-839-11	TANTALUM CHIP	47uF 20%	6.3V	C834	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C604	1-164-943-11	CERAMIC CHIP	0.01uF 10%	16V	C835	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C605	1-164-937-11	CERAMIC CHIP	0.001uF 10%	16V	C836	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C606	1-164-874-11	CERAMIC CHIP	100PF 5%	16V	C837	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C607	1-164-874-11	CERAMIC CHIP	100PF 5%	16V	C901	1-125-840-11	TANTALUM CHIP 10uF 20% 6.3V
C608	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C902	1-137-762-11	TANTALUM CHIP 10uF 20% 4V
C609	1-137-762-11	TANTALUM CHIP	10uF 20%	4V	C903	1-128-964-11	TANTALUM CHIP 100uF 20% 6.3V
C610	1-104-851-11	TANTALUM CHIP	10uF 20%	10V	C904	1-137-762-11	TANTALUM CHIP 10uF 20% 4V
C611	1-117-919-11	TANTALUM CHIP	10uF 20%	6.3V	C905	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C612	1-117-919-11	TANTALUM CHIP	10uF 20%	6.3V	C906	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C613	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C907	1-125-889-11	CERAMIC CHIP 2.2uF 10% 10V
C614	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C908	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C615	1-137-760-11	CAP-CHIP	100PF 5%	100V	C911	1-117-919-11	TANTALUM CHIP 10uF 20% 6.3V
C616	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C913	1-164-941-11	CERAMIC CHIP 0.0047uF 10% 16V
C618	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C914	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C619	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C915	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C621	1-164-943-11	CERAMIC CHIP	0.01uF 10%	16V	C917	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C623	1-127-895-11	TANTALUM CHIP	22uF 20%	4V	C919	1-117-919-11	TANTALUM CHIP 10uF 20% 6.3V
C624	1-127-895-11	TANTALUM CHIP	22uF 20%	4V	C920	1-117-919-11	TANTALUM CHIP 10uF 20% 6.3V
C625	1-131-862-11	TANTALUM CHIP	47uF 20%	4V	C921	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C626	1-125-839-11	TANTALUM CHIP	47uF 20%	6.3V	C922	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V
C629	1-164-943-11	CERAMIC CHIP	0.01uF 10%	16V	C923	1-125-891-11	CERAMIC CHIP 0.47uF 10% 10V
C630	1-164-874-11	CERAMIC CHIP	100PF 5%	16V	C924	1-125-891-11	CERAMIC CHIP 0.47uF 10% 10V
C631	1-117-919-11	TANTALUM CHIP	10uF 20%	6.3V	C925	1-125-891-11	CERAMIC CHIP 0.47uF 10% 10V
C633	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C926	1-164-937-11	CERAMIC CHIP 0.001uF 10% 16V
C801	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	C932	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C802	1-164-943-11	CERAMIC CHIP	0.01uF 10%	16V			< CONNECTOR >
C803	1-164-943-11	CERAMIC CHIP	0.01uF 10%	16V	* CN501	1-778-168-11	CONNECTOR, FFC/FPC (ZIF) 20P
C804	1-125-777-11	CERAMIC CHIP	0.1uF 10%	10V	* CN502	1-794-756-21	CONNECTOR, FPC (ZIF) 15P
C805	1-119-923-11	CERAMIC CHIP	0.047uF 10%	10V	* CN801	1-794-755-21	CONNECTOR, FPC (ZIF) 18P
C806	1-119-923-11	CERAMIC CHIP	0.047uF 10%	10V			< DIODE >
C807	1-164-850-11	CERAMIC CHIP	10PF 0.5PF	16V	D301	8-719-081-71	DIODE DF8A6.8FK (TE85R)
C808	1-164-850-11	CERAMIC CHIP	10PF 0.5PF	16V	D302	8-719-081-73	DIODE DF3A6.8FE (TPL3)
C809	1-117-919-11	TANTALUM CHIP	10uF 20%	6.3V	D303	8-719-046-91	DIODE MA2S111
C810	1-125-837-11	CERAMIC CHIP	1uF 10%	6.3V	D601	8-719-081-33	DIODE MA2YD1500LS0
C811	1-125-837-11	CERAMIC CHIP	1uF 10%	6.3V			

MAIN

Ref. No.	Part No.	Description	Remark
D602	8-719-081-33	DIODE MA2YD1500LSO	
D603	8-719-081-34	DIODE RB160M-30TR	
D605	8-719-081-34	DIODE RB160M-30TR	
D606	8-719-081-35	DIODE MA2YD1700LSO	
D607	8-719-081-33	DIODE MA2YD1500LSO	
D608	8-719-081-35	DIODE MA2YD1700LSO	
D801	8-719-056-54	DIODE MAZS068008SO	
D901	8-719-081-33	DIODE MA2YD1500LSO	
D902	8-719-081-33	DIODE MA2YD1500LSO	
D903	8-719-420-51	DIODE MA729	
D904	8-719-073-01	DIODE MA111- (K8).SO	
< FUSE >			
△F801	1-576-439-21	FUSE (SMD) (0.25A/125V)	
< FERRITE BEAD >			
FB301	1-216-864-11	SHORT	0
FB302	1-216-864-11	SHORT	0
FB303	1-216-809-11	METAL CHIP	100 5% 1/16W
FB304	1-216-809-11	METAL CHIP	100 5% 1/16W
FB305	1-216-864-11	SHORT	0
FB306	1-216-864-11	SHORT	0
FB801	1-216-864-11	SHORT	0
FB802	1-216-864-11	SHORT	0
FB803	1-216-864-11	SHORT	0
FB804	1-216-864-11	SHORT	0
< IC >			
IC301	8-759-829-44	IC AK4562VNS-L	
IC302	8-759-829-77	IC AN7536FHNABV	
IC303	8-759-699-54	IC NJM2173APC1 (TE2)	
IC501	8-759-689-67	IC SN761057DBT	
IC551	8-759-698-62	IC SC111257FCR2	
IC601	8-759-698-60	IC XPC18A22FCR2	
@ IC801	8-752-410-49	IC CXD2671-203GA	
IC804	8-759-680-85	IC AK6417AL-L	
IC805	8-759-196-97	IC TC7SH32FU-TE85R	
IC901	8-759-698-61	IC XPC18A32FCR2	
< JACK >			
J301	1-793-619-21	JACK (LINE IN (OPT))	
J302	1-793-509-11	JACK (○/LINE OUT)	
J303	1-793-620-21	JACK (MIC (PLUG POWER))	
J601	1-785-383-11	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 3V)
< COIL >			
L301	1-469-535-21	INDUCTOR	10uH
L302	1-469-535-21	INDUCTOR	10uH
L303	1-469-535-21	INDUCTOR	10uH
L501	1-469-535-21	INDUCTOR	10uH
L502	1-469-535-21	INDUCTOR	10uH
L551	1-410-389-31	INDUCTOR CHIP	47uH
L552	1-410-389-31	INDUCTOR CHIP	47uH
L553	1-469-422-21	INDUCTOR	22uH
L554	1-469-422-21	INDUCTOR	22uH
L601	1-419-959-21	INDUCTOR	6.8uH
L602	1-469-535-21	INDUCTOR	10uH

Ref. No.	Part No.	Description	Remark
L603	1-469-535-21	INDUCTOR	10uH
L801	1-469-535-21	INDUCTOR	10uH
L802	1-469-535-21	INDUCTOR	10uH
L901	1-419-952-21	INDUCTOR	68uH
L902	1-419-949-21	INDUCTOR	22uH
L903	1-469-367-21	INDUCTOR	10uH
L904	1-414-398-11	INDUCTOR	10uH
L905	1-469-426-21	INDUCTOR	100uH
< TRANSISTOR >			
Q302	8-729-046-49	FET	FDV304P
Q501	8-729-922-10	TRANSISTOR	2SA1577-QR
Q601	8-729-046-45	FET	SI2302DS-T1
Q602	8-729-046-44	TRANSISTOR	ZDT6718TA
Q603	8-729-053-71	FET	TS8K1TB
Q604	8-729-046-43	FET	HAT2051T-EL
Q605	8-729-046-42	FET	HAT2050T-EL
Q801	8-729-429-44	TRANSISTOR	XP1501
Q803	8-729-029-14	TRANSISTOR	DTC144EUA-T106
< RESISTOR >			
R101	1-208-703-11	METAL CHIP	6.8K 0.5% 1/16W
R103	1-218-965-11	RES-CHIP	10K 5% 1/16W
R104	1-218-990-11	SHORT	0
R111	1-208-715-11	METAL CHIP	22K 0.5% 1/16W
R112	1-208-927-11	METAL CHIP	47K 0.5% 1/16W
R118	1-208-703-11	METAL CHIP	6.8K 0.5% 1/16W
R201	1-208-703-11	METAL CHIP	6.8K 0.5% 1/16W
R203	1-218-965-11	RES-CHIP	10K 5% 1/16W
R204	1-218-990-11	SHORT	0
R211	1-208-715-11	METAL CHIP	22K 0.5% 1/16W
R212	1-208-927-11	METAL CHIP	47K 0.5% 1/16W
R218	1-208-703-11	METAL CHIP	6.8K 0.5% 1/16W
R301	1-208-707-11	METAL CHIP	10K 0.5% 1/16W
R302	1-218-953-11	RES-CHIP	1K 5% 1/16W
R303	1-218-983-11	RES-CHIP	330K 5% 1/16W
R304	1-218-953-11	RES-CHIP	1K 5% 1/16W
R305	1-218-953-11	RES-CHIP	1K 5% 1/16W
R306	1-218-985-11	RES-CHIP	470K 5% 1/16W
R307	1-218-941-11	RES-CHIP	100 5% 1/16W
R308	1-218-989-11	RES-CHIP	1M 5% 1/16W
R309	1-208-943-11	METAL CHIP	220K 0.5% 1/16W
R310	1-218-957-11	RES-CHIP	2.2K 5% 1/16W
R312	1-218-990-11	SHORT	0
R317	1-218-941-11	RES-CHIP	100 5% 1/16W
R318	1-218-941-11	RES-CHIP	100 5% 1/16W
R319	1-218-941-11	RES-CHIP	100 5% 1/16W
R501	1-218-971-11	RES-CHIP	33K 5% 1/16W
R505	1-208-703-11	METAL CHIP	6.8K 0.5% 1/16W
R507	1-218-953-11	RES-CHIP	1K 5% 1/16W
R517	1-208-691-11	METAL CHIP	2.2K 0.5% 1/16W
R519	1-218-977-11	RES-CHIP	100K 5% 1/16W
R521	1-218-446-11	METAL CHIP	1 5% 1/16W
R601	1-218-989-11	RES-CHIP	1M 5% 1/16W
R602	1-218-981-11	RES-CHIP	220K 5% 1/16W
R603	1-218-977-11	RES-CHIP	100K 5% 1/16W
R604	1-219-724-11	METAL CHIP	1 1% 1/4W
R605	1-242-996-91	METAL CHIP	0.68 1% 1/4W

@ Replacement of CXD2671-203GA (IC801) used in this set requires a special tool.

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

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R606	1-218-949-11	RES-CHIP	470 5% 1/16W	R909	1-218-965-11	RES-CHIP	10K 5% 1/16W
R607	1-218-945-11	RES-CHIP	220 5% 1/16W	R910	1-218-965-11	RES-CHIP	10K 5% 1/16W
R608	1-218-983-11	RES-CHIP	330K 5% 1/16W	R911	1-218-949-11	RES-CHIP	470 5% 1/16W
R609	1-219-724-11	METAL CHIP	1 1% 1/4W	R912	1-218-987-11	RES-CHIP	680K 5% 1/16W
R610	1-218-990-11	SHORT	0	R915	1-218-941-11	RES-CHIP	100 5% 1/16W
R611	1-218-990-11	SHORT	0	R917	1-218-990-11	SHORT	0
R613	1-218-957-11	RES-CHIP	2.2K 5% 1/16W	R920	1-208-707-11	METAL CHIP	10K 0.5% 1/16W
R619	1-218-990-11	SHORT	0	R921	1-218-979-11	RES-CHIP	150K 5% 1/16W
R620	1-218-965-11	RES-CHIP	10K 5% 1/16W	R936	1-218-977-11	RES-CHIP	100K 5% 1/16W
R621	1-218-965-11	RES-CHIP	10K 5% 1/16W	R941	1-218-971-11	RES-CHIP	33K 5% 1/16W
R622	1-216-797-11	METAL CHIP	10 5% 1/16W	R946	1-208-715-11	METAL CHIP	22K 0.5% 1/16W
R801	1-218-981-11	RES-CHIP	220K 5% 1/16W	R947	1-218-985-11	RES-CHIP	470K 5% 1/16W
R802	1-208-927-11	METAL CHIP	47K 0.5% 1/16W	R948	1-208-939-11	METAL CHIP	150K 0.5% 1/16W
R803	1-208-927-11	METAL CHIP	47K 0.5% 1/16W	R949	1-218-989-11	RES-CHIP	1M 5% 1/16W
R804	1-218-959-11	RES-CHIP	3.3K 5% 1/16W	< COMPOSITION CIRCUIT BLOCK >			
R805	1-218-959-11	RES-CHIP	3.3K 5% 1/16W	RB551	1-233-959-21	RES, NETWORK (CHIP TYPE) 470	
R806	1-218-949-11	RES-CHIP	470 5% 1/16W	RB552	1-233-973-11	RES, NETWORK (CHIP TYPE) 100K	
R806	1-218-951-11	RES-CHIP	680 5% 1/16W (EXCEPT US, CND)	RB553	1-233-967-11	RES, NETWORK (CHIP TYPE) 10K	
R807	1-218-929-11	RES-CHIP	10 5% 1/16W	RB801	1-233-973-11	RES, NETWORK (CHIP TYPE) 100K	
R808	1-218-965-11	RES-CHIP	10K 5% 1/16W	< SWITCH >			
R809	1-218-977-11	RES-CHIP	100K 5% 1/16W	S801	1-786-030-21	SWITCH, SLIDE (HOLD)	
R810	1-208-715-11	METAL CHIP	22K 0.5% 1/16W	S802	1-786-030-21	SWITCH, SLIDE (SYNCHRO REC)	
R811	1-218-983-11	RES-CHIP	330K 5% 1/16W	S803	1-771-860-21	SWITCH, PUSH (1 KEY) (PROTECT DETECT)	
R812	1-208-939-11	METAL CHIP	150K 0.5% 1/16W	S804	1-771-806-61	SWITCH, PUSH (1 KEY) (BATTERY IN DETECT)	
R813	1-218-989-11	RES-CHIP	1M 5% 1/16W	S805	1-762-947-12	SWITCH, PUSH (1 KEY) (OPEN)	
R814	1-218-929-11	RES-CHIP	10 5% 1/16W	S806	1-762-805-21	SWITCH, PUSH (1 KEY) (OPEN/CLOSE DETECT)	
R815	1-218-971-11	RES-CHIP	33K 5% 1/16W	< TRANSFORMER >			
R816	1-218-953-11	RES-CHIP	1K 5% 1/16W	T601	1-416-405-21	FILTER, CHIP EMI (COMMON MODE)	
R817	1-218-977-11	RES-CHIP	100K 5% 1/16W	< THERMISTOR >			
R821	1-218-981-11	RES-CHIP	220K 5% 1/16W	TH601	1-533-817-21	THERMISTOR	
R822	1-218-953-11	RES-CHIP	1K 5% 1/16W	< VIBRATOR >			
R823	1-218-945-11	RES-CHIP	220 5% 1/16W	X801	1-795-000-21	VIBRATOR, CRYSTAL (45.1584MHz)	
R824	1-218-959-11	RES-CHIP	3.3K 5% 1/16W	*****			
R825	1-202-974-11	RES-CHIP	3.3M 5% 1/16W	MISCELLANEOUS			
R828	1-208-691-11	METAL CHIP	2.2K 0.5% 1/16W	*****			
R829	1-208-691-11	METAL CHIP	2.2K 0.5% 1/16W	5	1-804-171-11	LCD MODULE (for BLUE, RED, WHITE)	
R830	1-218-989-11	RES-CHIP	1M 5% 1/16W	5	1-804-171-21	LCD MODULE (for SILVER)	
R831	1-218-990-11	SHORT	0 (EXCEPT US, CND)	114	1-679-372-11	MOTOR FLEXIBLE BOARD	
R831	1-469-580-21	INDUCTOR, FERRITE BEAD (US, CND)		△121	X-3379-508-1	SERVICE ASSY, OP (LCX-4R)	
R832	1-218-990-11	SHORT	0	M601	8-835-706-01	MOTOR, DC SSM18A/C-NP (SPINDLE) (WITH TURN TABLE)	
R833	1-218-990-11	SHORT	0	M602	1-763-399-11	MOTOR, DC (SLED) (WITH GEAR)	
R835	1-218-990-11	SHORT	0 (EXCEPT US, CND)	M603	1-763-400-21	MOTOR, DC (OVER WRITE HEAD UP/DOWN)	
R837	1-218-990-11	SHORT	0	*****			
R838	1-218-990-11	SHORT	0	ACCESSORIES & PACKING MATERIALS			
R839	1-218-990-11	SHORT	0	*****			
R840	1-218-990-11	SHORT	0	1-251-895-11	BATTERY CASE		
R841	1-216-809-11	METAL CHIP	100 5% 1/16W	△	1-418-028-12	ADAPTOR, AC (AC-MZR55) (E33, JEW)	
R844	1-216-864-11	SHORT	0	△	1-418-784-11	ADAPTOR, AC (AC-MZR55) (CH)	
R845	1-218-990-11	SHORT	0				
R846	1-218-941-11	RES-CHIP	100 5% 1/16W				
R902	1-218-985-11	RES-CHIP	470K 5% 1/16W				
R903	1-218-957-11	RES-CHIP	2.2K 5% 1/16W				
R905	1-218-957-11	RES-CHIP	2.2K 5% 1/16W				
R906	1-218-990-11	SHORT	0				
R907	1-218-985-11	RES-CHIP	470K 5% 1/16W				
R908	1-218-977-11	RES-CHIP	100K 5% 1/16W				

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MZ-R900

Ref. No.	Part No.	Description	Remark
	1-476-395-11	REMOTE CONTROL UNIT (RM-MC11EL)	
△	1-476-275-11	ADAPTOR, AC (AC-MZR55) (AEP, E13, FR, EE)	
△	1-476-277-11	ADAPTOR, AC (AC-MZR55) (UK, HK)	
△	1-476-278-11	ADAPTOR, AC (AC-MZR55) (AUS)	
△	1-476-279-11	ADAPTOR, AC (AC-MZR55) (US, CND)	
△	1-569-007-11	ADAPTOR, CONVERSION 2P (E33, JEW)	
	1-756-120-21	BATTERY, NICKEL HYDROGEN	
	1-794-451-11	CONNECTOR, LIGHT (US, CND, AEP, UK, E33, FR, EE, AUS)	
	1-794-451-51	CONNECTOR, LIGHT (E13, HK, KR, CH, JEW)	
	3-008-521-01	CASE, BATTERY CHARGE (EXCEPT JEW)	
	3-043-060-01	CASE, CHARGE (C/D) (JEW)	
	3-220-298-13	MANUAL, INSTRUCTION (ENGLISH, SPANISH, PORTUGUESE) (AEP, E33, JEW)	
	3-220-298-23	MANUAL, INSTRUCTION (ENGLISH) (US, UK, E13, EE, HK, KR, AUS, CH)	
	3-220-298-31	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, DUTCH, ITALIAN) (CND, AEP, FR)	
	3-220-298-43	MANUAL, INSTRUCTION (JAPANESE, TRADITIONAL CHINESE, KOREAN) (E13, E33, HK, KR, JEW)	
	3-220-298-51	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (CH)	
	3-220-298-61	MANUAL, INSTRUCTION (SWEDISH, FINNISH) (AEP)	
	3-220-298-71	MANUAL, INSTRUCTION (RUSSIAN, CZECH, HUNGARIAN, POLISH, SLOVAKIAN) (EE)	
	3-220-749-01	CASE, CARRYING (E13, E33, HK, KR, AUS, CH, JEW)	
	3-228-300-01	CASE, BELT CLIP CARRYING (CND, AEP, UK, FR, EE)	
	8-953-278-90	HEADPHONE MDR-A34SP (US)	
	8-953-304-90	RECEIVER MDR-E805SP (EXCEPT US)	

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MEMO

