

MZ-R501/R501PC

SERVICE MANUAL

Ver 1.1 2002.03



Photo: Silver

US Model
Canadian Model
AEP Model
UK Model
Chinese Model
MZ-R501

E Model
East European Model
MZ-R501/R501PC

US and foreign patents licensed from Dolby Laboratories.

Model Name Using Similar Mechanism	MZ-R500
Mechanism Type	MT-MZR500-172
Optical Pick-up Name	LCX-4R

SPECIFICATIONS

System

Audio playing system
MiniDisc digital audio system
Laser diode properties
Material: GaAlAs
Wavelength: $\lambda = 790 \text{ nm}$
Emission duration: continuous
Laser output: less than $44.6 \mu\text{W}$
(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block with 7 mm aperture.)
Recording and playback time
When using MDW-80
Maximum 160 min. in monaural
Maximum 320 min. in stereo
Revolutions
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 $\pm 3 \text{ dB}$
Wow and Flutter
Below measurable limit
Inputs
Line in: stereo mini-jack, minimum input level 49 mV
Optical (Digital) in: optical (digital) mini-jack
Outputs
 ϕ : stereo mini-jack, maximum output level 5 mW + 5 mW, load impedance 16 ohm

General

Power requirements
Sony AC Power adaptor connected at the DC IN 3 V jack
120 V AC, 60 Hz (US, Canadian model)
230 V AC, 50/60 Hz (AEP model)
230 – 240 V AC, 50 Hz (UK model)
100 – 240 V AC, 50/60 Hz (E model)
220 V AC, 50 Hz (Chinese, Argentina model)
One LR6 (size AA) alkaline dry battery (not supplied)

– Continued on next page –

PORTABLE MINIDISC RECORDER

9-873-408-02
2002C0400-1
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Sony Corporation
Personal Audio Company
Published by Sony Engineering Corporation

SONY®

MZ-R501/R501PC

Ver 1.1

Battery operation time

Battery life¹⁾ (Unit: approx.hours) (JEITA²⁾)

LR6 (SG) alkaline dry battery ³⁾	Normal	LP2	LP4
Recording ⁴⁾	7.5	10	13.5
Playback	36	42	48

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

²⁾ Measured value by the standard of JEITA (Japan Electronics and Information Technology Industries Association).

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

⁴⁾ To prevent interrupted recording due to drained battery, use new battery for recording operations.

Dimensions

Approx. 83.0 × 27.8 × 75.8 mm (w/h/d)
(3 3/8 × 1 1/8 × 3 in.) without projections.

Mass

Approx. 113 g (4.0 oz) the recorder only

Supplied accessories

AC power adaptor (except R501: US, Canadian, E model) (1)

Headphones/earphones (1)

Optical cable (except R501: US, E model) (1)

Design and specifications are subject to change without notice.

Flexible Circuit Board Repairing

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

Notes on chip component replacement

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

CAUTION

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

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

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

TABLE OF CONTENTS

1. SERVICING NOTE	4	5. ELECTRICAL ADJUSTMENTS	
2. GENERAL		5-1. Outline	17
Looking at the Controls	5	5-2. Precautions for Adjustment	17
3. DISASSEMBLY		5-3. Adjustment Sequence	17
3-1. Case (Lower) Assy	6	5-4. NV Reset	17
3-2. Case (Upper) Assy	6	5-5. Power Supply Manual Adjustment	18
3-3. LCD Module	7	5-6. Temperature Correction	19
3-4. Main Board	7	5-7. Laser Power Check	19
3-5. MD Mechanism Deck	8	5-8. Overall Adjustment Mode	20
3-6. Service Assy, OP	8	5-9. Mode Settings	22
3-7. Holder Assy	9	5-10. Resume Clear	23
3-8. Motor Flexible Board	9	6. DIAGRAMS	
3-9. DC Motor (M602)	10	6-1. IC Pin Function Description	24
3-10. DC Motor (M601), DC Motor (M603)	10	6-2. Block Diagram – Servo Section –	30
4. TEST MODE		6-3. Block Diagram – Audio Section –	31
4-1. Outline	11	6-4. Block Diagram – System Control/Power Section –	32
4-2. Setting Method of Test Mode	11	6-5. Printed Wiring Board – Main Section –	34
4-3. Operation in Setting the Test Mode	11	6-6. Schematic Diagram – Main Section (1/3) –	36
4-4. Releasing the Test Mode	11	6-7. Schematic Diagram – Main Section (2/3) –	37
4-5. Configuration of Test Mode	12	6-8. Schematic Diagram – Main Section (3/3) –	38
4-6. Manual Mode	12	7. EXPLODED VIEWS	
4-7. Overall Adjustment Mode	13	7-1. Panel Section	43
4-8. Self-Diagnosis Result Display Mode	13	7-2. Chassis Section	44
4-9. Reset the Error Display Code	14	7-3. MD Mechanism Deck Section	45
4-10. Sound Skip Check Result Display Mode	15	8. ELECTRICAL PARTS LIST	46
4-11. Key Check Mode	15		

SECTION 1 SERVICING NOTE

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.

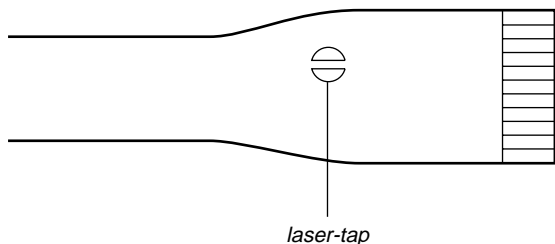
The flexible board is easily damaged and should be handled with care.

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.

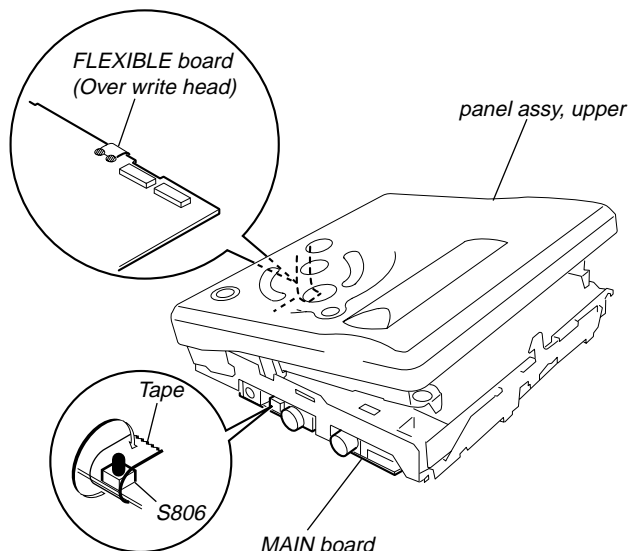
NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (LCX-4R)

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

- 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 CDX2671-204GA (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)

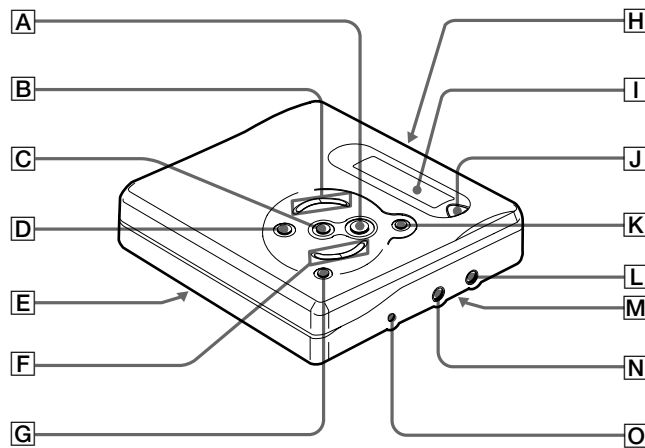
SECTION 2 GENERAL

This section is extracted from instruction manual.

Looking at the controls

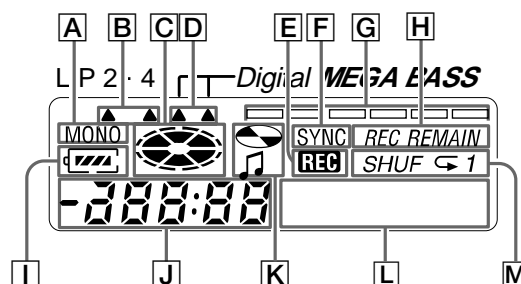
See pages in () for more details.

The recorder



- A** ► button (11) (13) (17) (25)
- B** VOL +/- buttons (13) (26)
- C** ■ button (11) (13) (27)
- D** ■■ button (11) (13) (20) (26) (29)
- E** HOLD switch (at the rear) (9) (25)
- F** SELECT ►►/◄◄ buttons (16) (23) (26)
- ◄◄/►► (search /AMS) buttons (11) (13) (26) (29)
- G** MENU/ENTER button (16) (23) (26)
- H** OPEN switch (9)
- I** Display window (18) (23)
- J** END SEARCH button (11) (26)
- K** T MARK button (28)
- REC (record) button (11) (17)
- L** ◯ (headphones) jack (9) (25)
- M** Battery compartment (at the rear) (8)
- N** LINE IN (OPTICAL) jack (10) (16)
- O** DC IN 3V jack (10) (31)

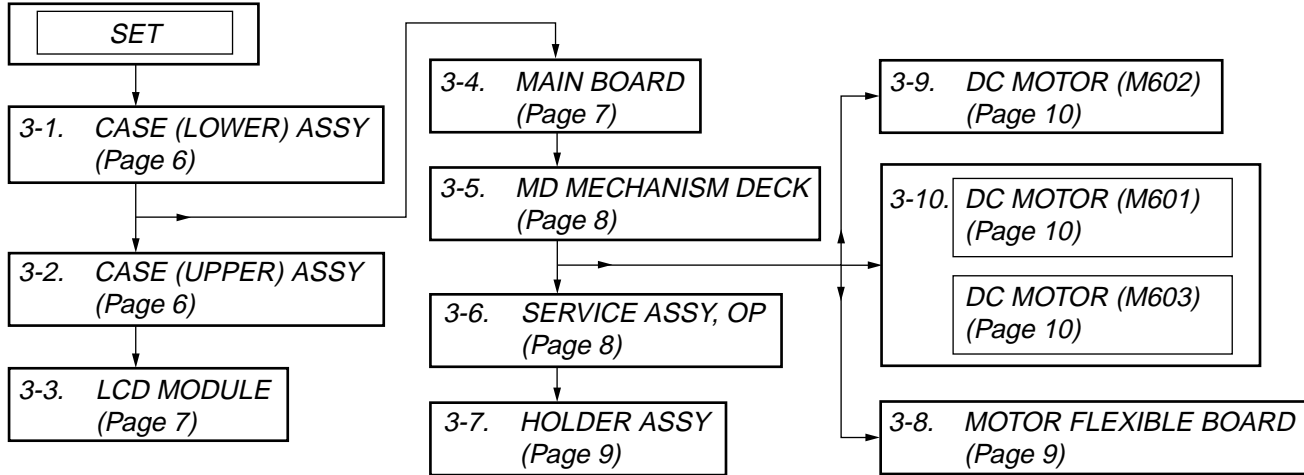
The display window



- A** MONO (monaural) indication
- B** LP mode indication (17)
- C** Disc indication
Shows that the disc is rotating for recording, playing or editing an MD
- D** Mega bass indication (24).
- E** REC indication
Lights up while recording. When flashing, the recorder is in record standby mode.
- F** SYNC (synchro-recording) indication (18)
- G** Level meter (21)
Shows the volume of the MD being played or recorded.
- H** REC REMAIN/REMAIN (remaining time/tracks) indication (21) (24)
Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.
- I** Battery indication (9)
Shows approximate battery condition.
- J** Time display
- K** Disc name/track name indication
Lights up when labeling a disc or a track.
- L** Character information display (21) (25)
Displays the disc and track names, error messages, track numbers, etc.
- M** Play mode indication (23)
Shows the play mode of the MD.

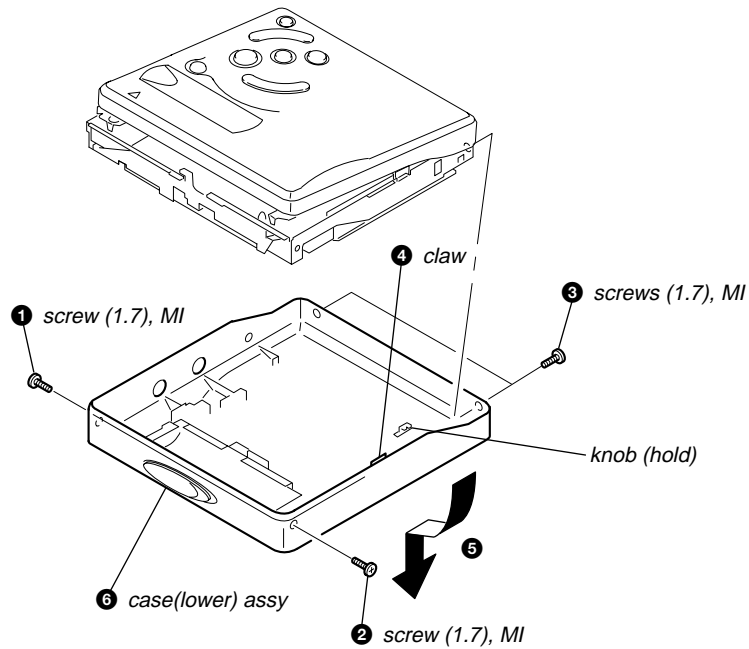
SECTION 3 DISASSEMBLY

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

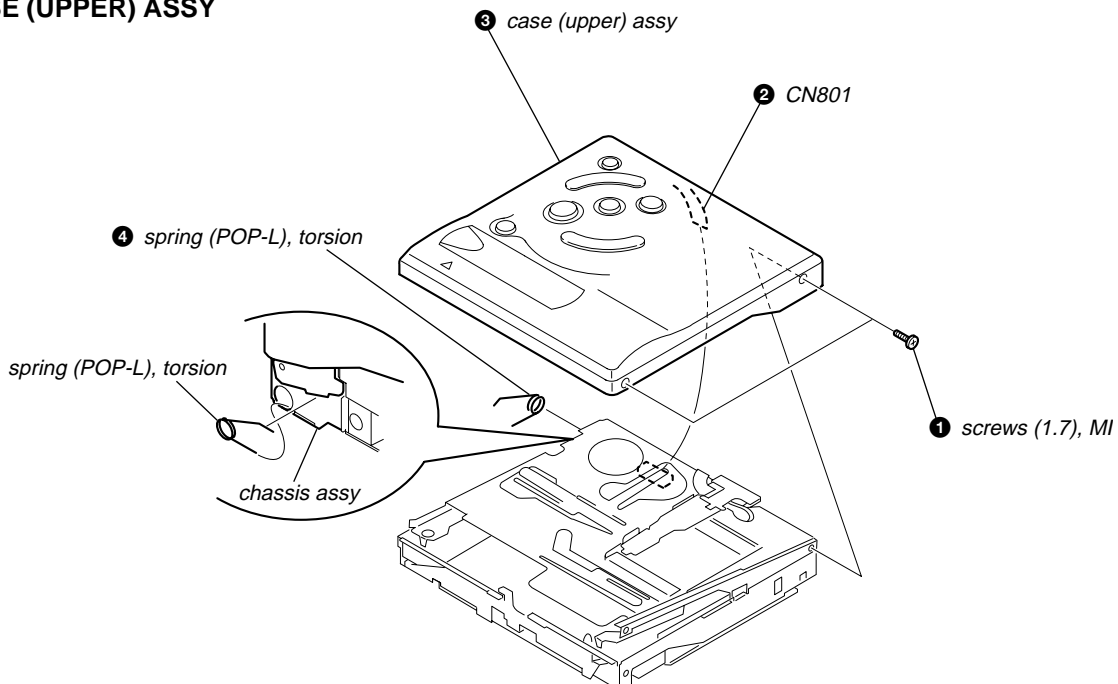


Note : Follow the disassembly procedure in the numerical order given.

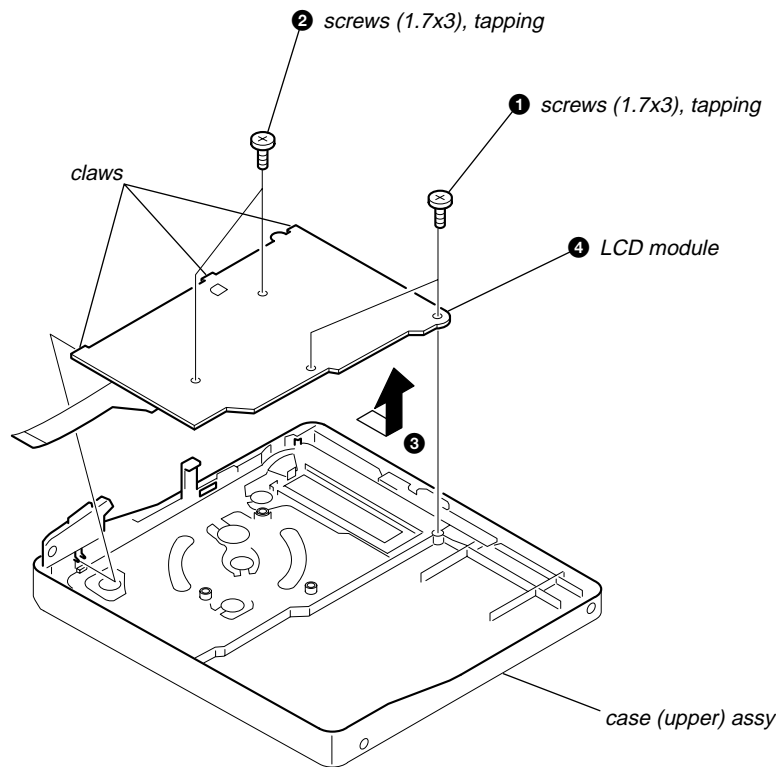
3-1. CASE (LOWER) ASSY



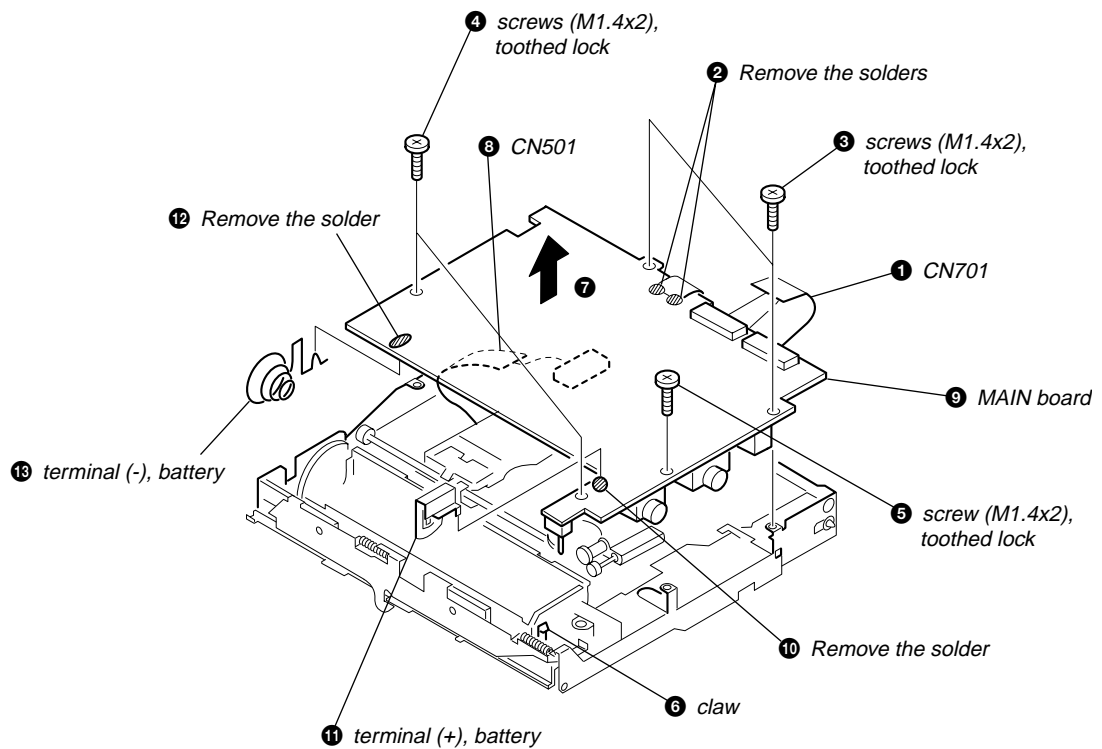
3-2. CASE (UPPER) ASSY



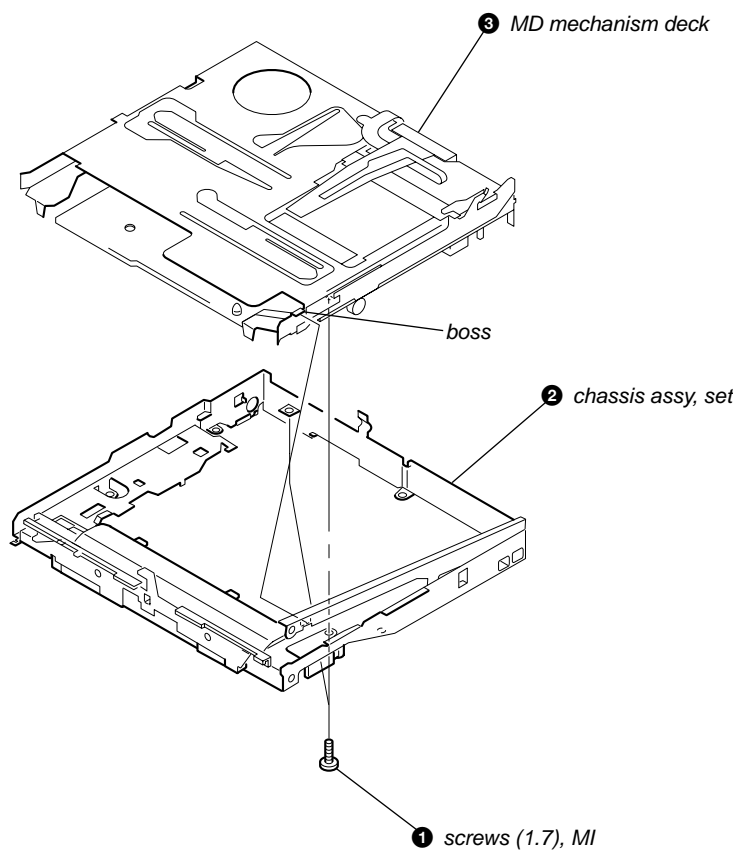
3-3. LCD MODULE



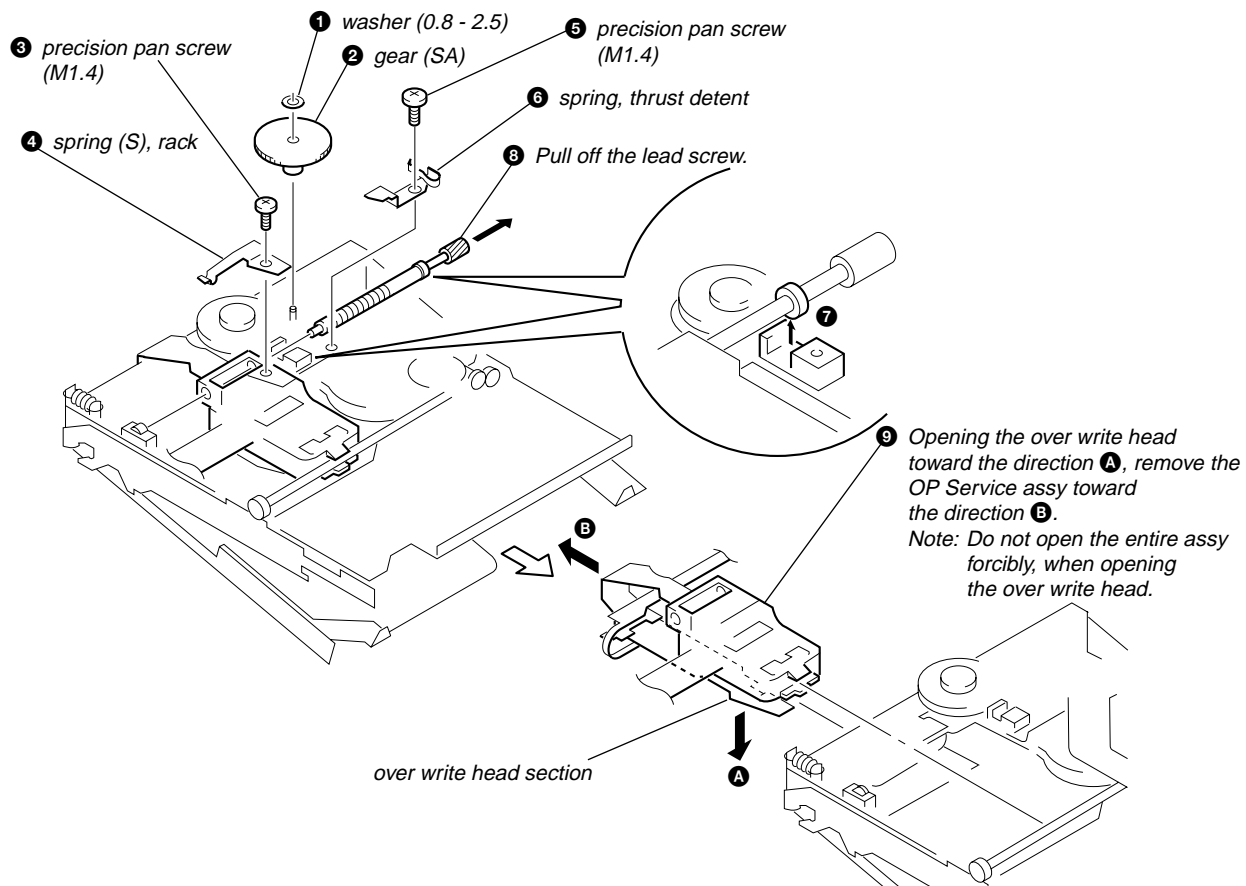
3-4. MAIN BOARD



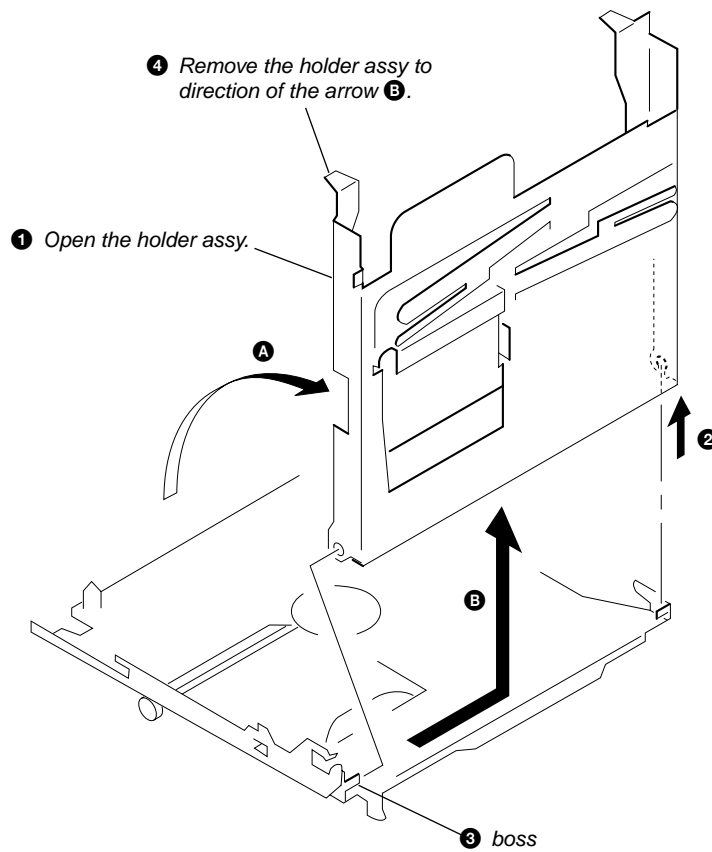
3-5. MD MECHANISM DECK



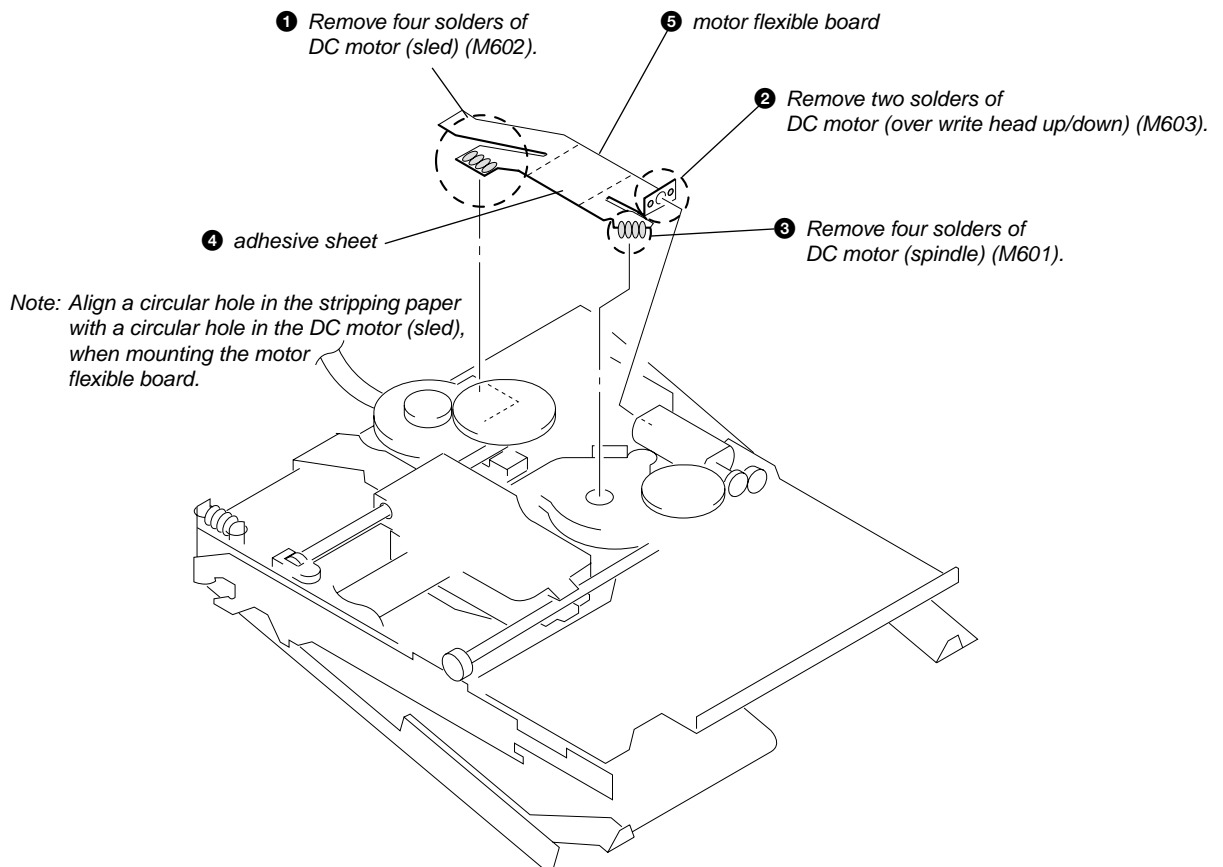
3-6. SERVICE ASSY, OP



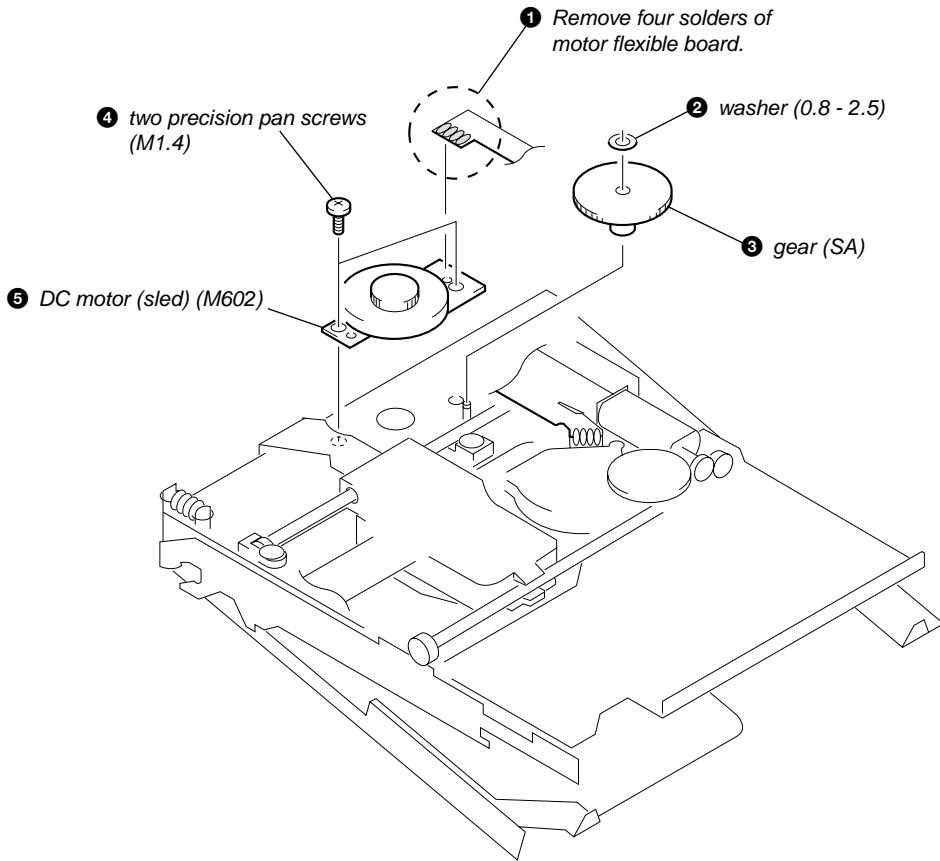
3-7. HOLDER ASSY



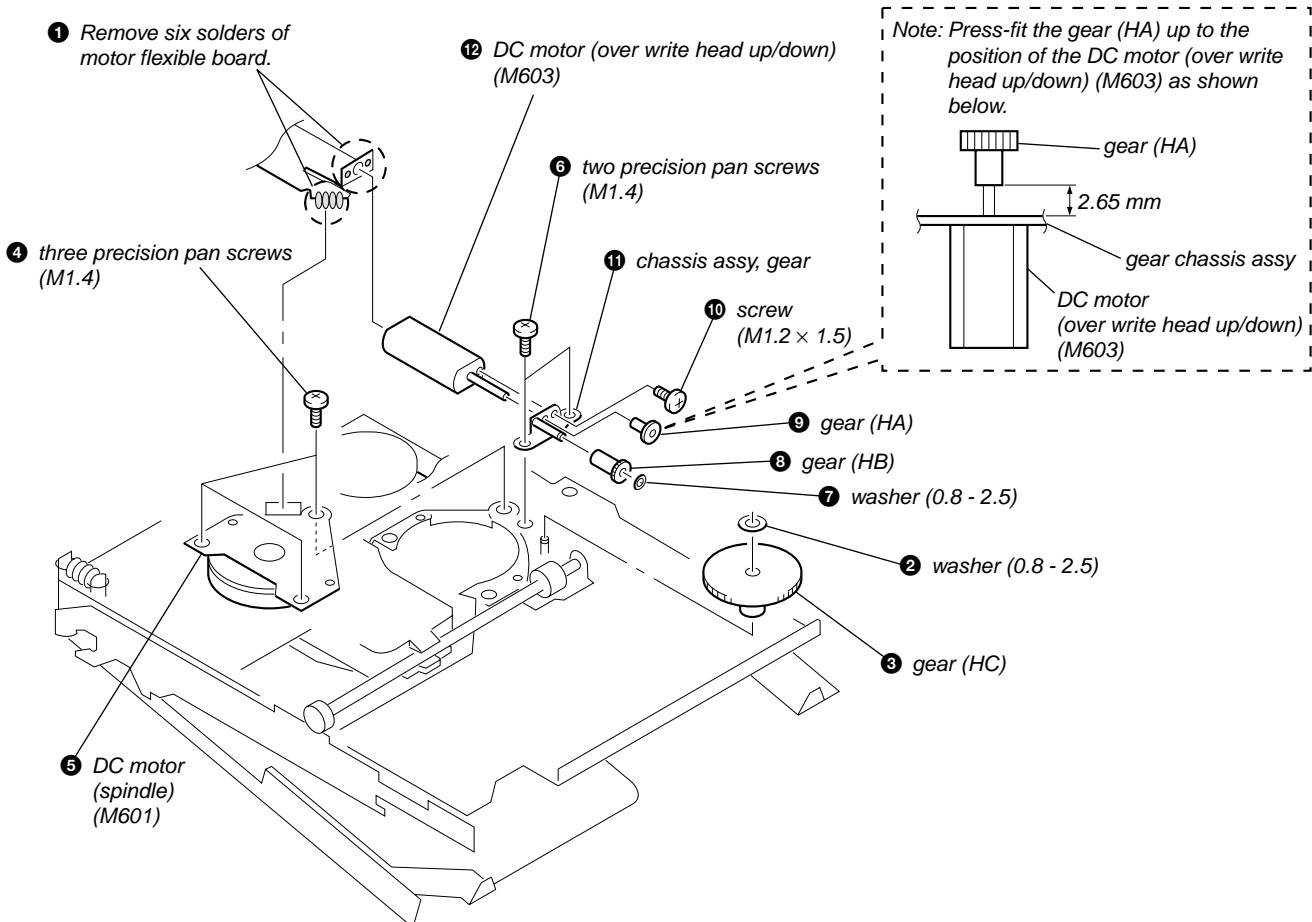
3-8. MOTOR FLEXIBLE BOARD



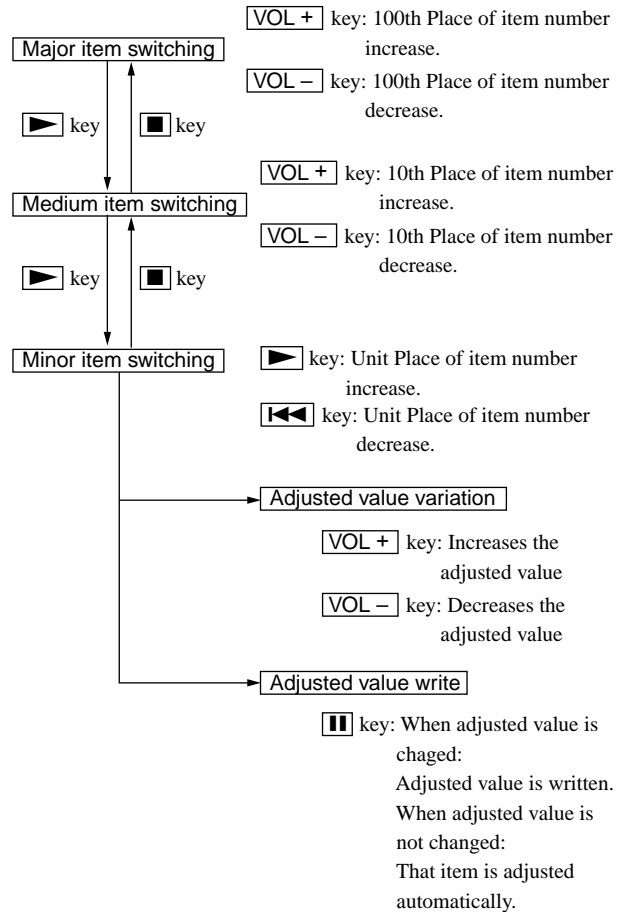
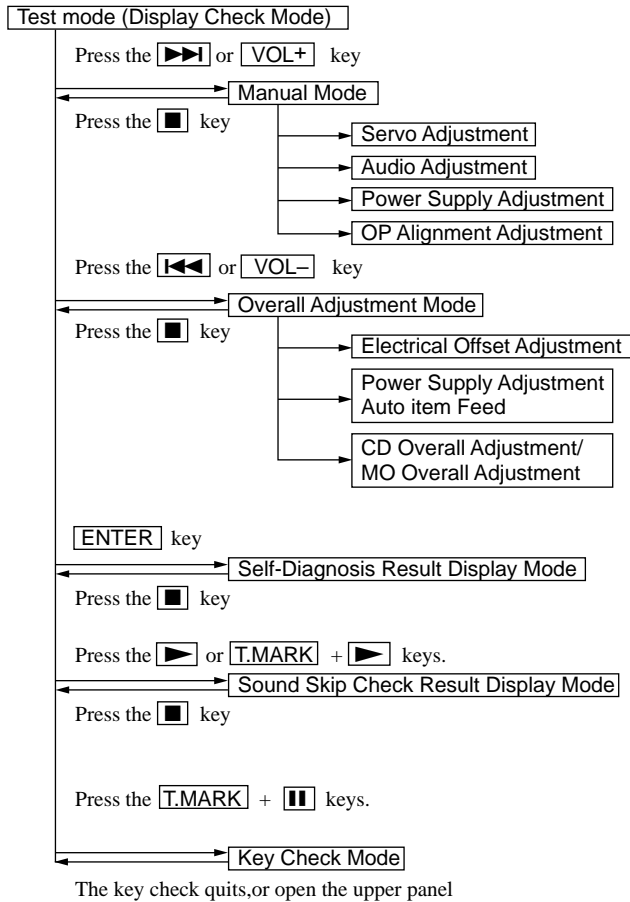
3-9. DC MOTOR (M602)



3-10. DC MOTOR (M601), DC MOTOR (M603)



4-5. Configuration of Test Mode



4-6. 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

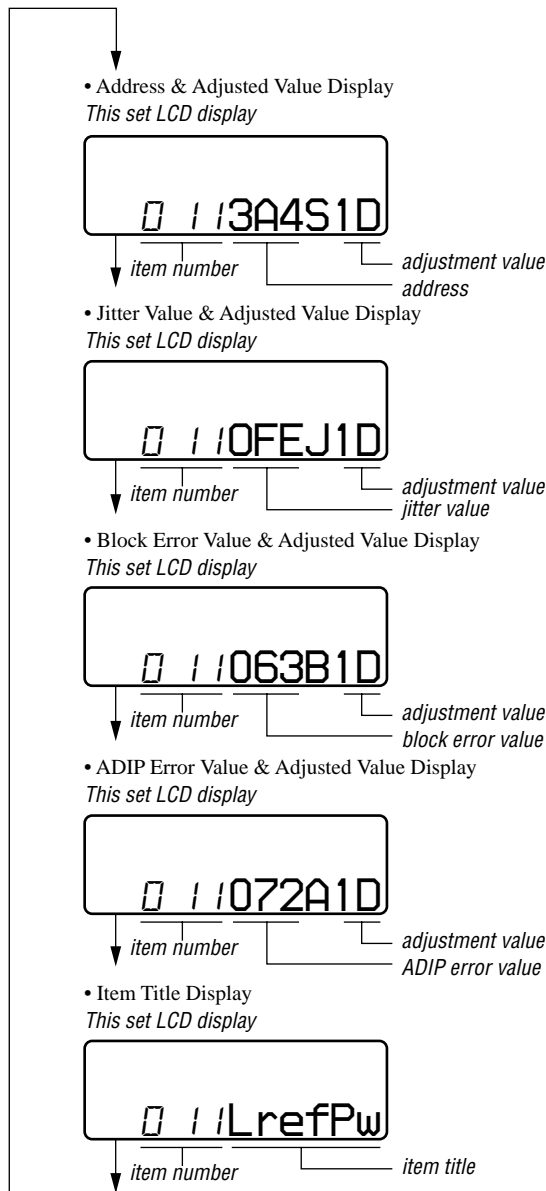
1. Setting the test mode (see page 11).
2. Press the [▶▶] or [VOL+] key activates the manual mode where the LCD display as shown below.

This set 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 as shown below each time the **ENTER** key on the set 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).

4-7. 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).

4-8. 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.

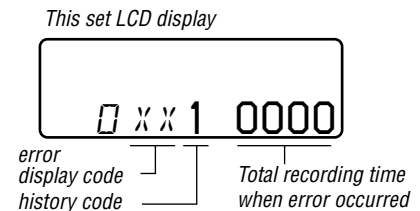
By checking this history in the test mode, you can analyze a fault and determine its location.

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.

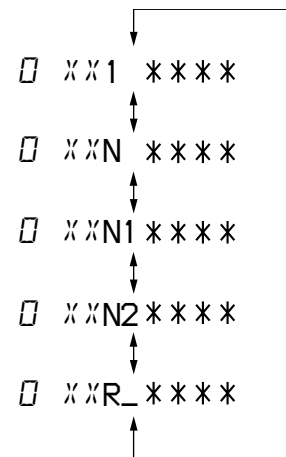
Clear both self-diagnosis history data and total recording time, if the optical pickup was replaced.

• Self-Diagnosis Result Display Mode Setting Method

1. Setting the test mode (see page 11).
2. In the display check mode, press the **ENTER** key 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

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

4-9. 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 11).
2. Press **[ENTER]** key activates the self-diagnosis result display mode.
3. To reset the error display code, press the **[II]** key (2 times) when the code is displayed (except "R_***").
(All the data on the 1, N, N1, and N2 will be reset)

4-10. Sound Skip Check Result Display Mode

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

• Setting method of sound skip check result display mode

1. Set the test mode (see page 11).
2. Press the key or **T.MARK** + keys, and the playing or recording sound skip result display mode becomes active respectively where the LCD displays the following.

This set LCD display



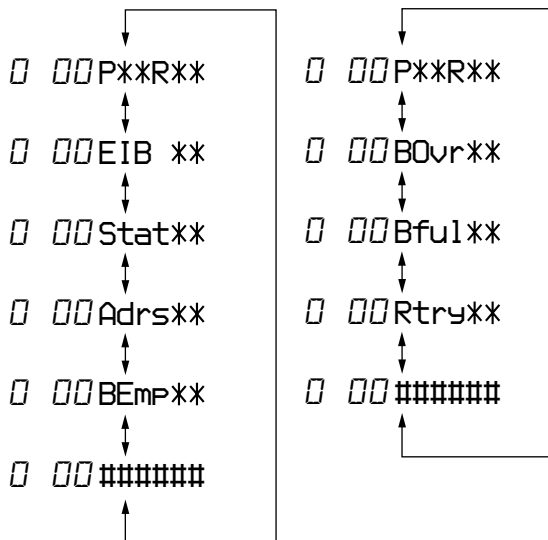
000P**R**
 Total count of play system errors(hex.) Total count record system errors(hex.)

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 **T.MARK** + keys is pressed, the display in the record mode appears.

When the **T.MARK** + keys 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.

4-11. Key Check Mode

This set can check if the set function normally.

• Setting Method of Key Check Mode

1. Setting the test mode (see page 11).
2. Press the **T.MARK** + keys activates the key check mode. (At the last two digits, AD value of remote commander key line is displayed in hexadecimal)

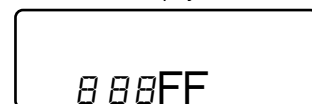
This set LCD display



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

Example1: When key on the set is pressed:

This set LCD display



MZ-R501/R501PC

- 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:

This set LCD display



- 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

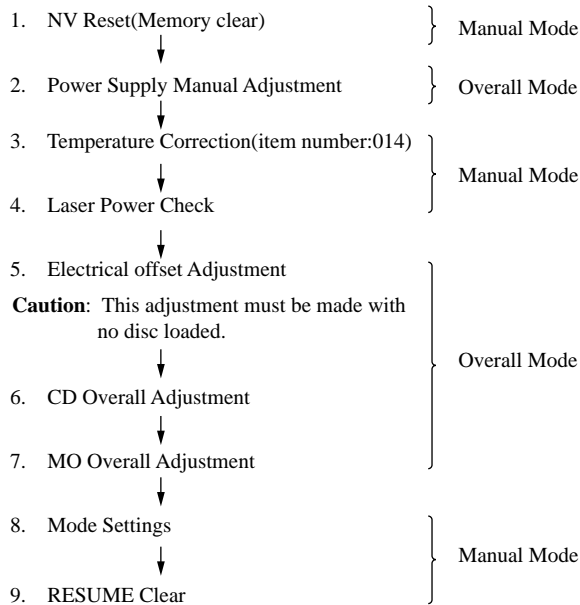
5-1. Outline

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode (see page 11). 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 display on the set is shown.

5-2. Precautions for Adjustment

1. Adjustment must be done in the test mode only. After adjusting, release the test mode.
2. Use the following tools and measuring instruments.
 - Test CD disc TDYS-1
(Part No. : 4-963-646-01)
 - SONY MO disc available on the market
 - Digital voltmeter
 - Laser power meter LPM-8001
(Part No. : J-2501-046-A)
 - Thermometer (using the Temperature Correction)
3. Unless specified otherwise, supply DC 3V from the DC IN 3V jack (J601).
4. Switch position
HOLD switch OFF

5-3. Adjustment Sequence



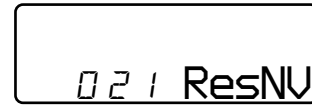
5-4. NV Reset

Caution: In this set, certain adjustment values are set in the manual mode at the factory. NV Reset will cause these data to be cleared. So, the adjustment values should be set again just after NV Reset is made.

• Setting method of NV reset

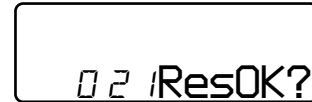
1. Select the manual mode of the test mode, and set item number 021NV Reset (see page 12).

This set LCD display



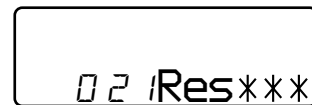
2. Press the **[]** key.

This set LCD display

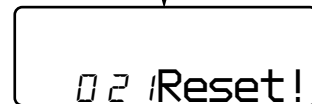


3. Press the **[]** key once more.

This set LCD display



NV reset(after several seconds)



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

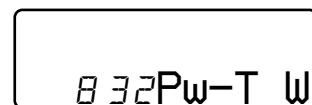
• Change of Adjusted Values

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

2. Adjusted values modifying procedure

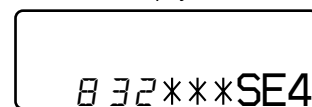
- 1) Select the manual mode of the test mode, and set item number 832 (see page 12).

This set LCD display



- 2) Adjust with the **[VOL+]** key (adjusted value up) or **[VOL-]** key (adjusted value down) so that the adjusted value becomes E4.

This set LCD display



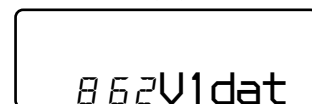
*****: Address**

E4: Adjusted value

- 3) Press the **[]** key to write the adjusted value.

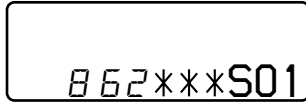
- 4) Select the manual mode of the test mode, and set item number 862 (see page 12).

This set LCD display



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

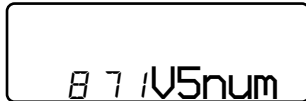
This set LCD display



***: Address
01: Adjusted value

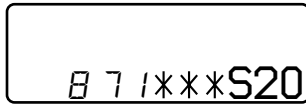
- 6) Press the **[II]** key to write the adjusted value.
7) Select the manual mode of the test mode, and set item number 871 (see page 12).

This set LCD display



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

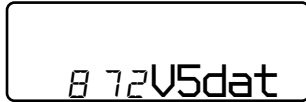
This set LCD display



***: Address
20: Adjusted value

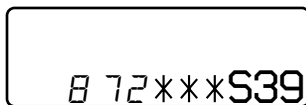
- 9) Press the **[II]** key to write the adjusted value.
10) Select the manual mode of the test mode, and set item number 872 (see page 12).

This set LCD display



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

This set LCD display



***: Address
39: Adjusted value

- 12) Press the **[II]** key to write the adjusted value.

5-5. 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 11).
3. Press the **[◀◀]** or **[VOL-]** key to activate the overall adjustment mode.

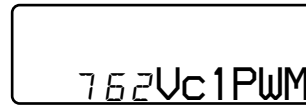
This set LCD display



4. Press the **[END SEARCH]** key. (the **[END SEARCH]** key causes the item number to be switched to 762.)

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

This set LCD display



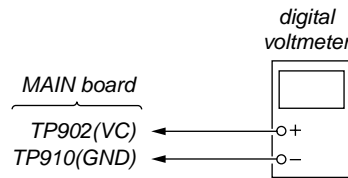
1. Press the **[ENTER]** key and set the address & adjusted value display (see page 13).

This set LCD display



** : Adjusted value

2. Connect a digital voltmeter to the TP902 (VC) on the MAIN board, and adjust **[VOL+]** key (voltage up) or **[VOL-]** key (voltage down) so that the voltage becomes 2.40 ± 0.01 V.

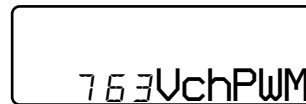


3. Press the **[II]** key to write the adjusted value. (The item number changes to 763 when **[II]** key is pressed)

Adjustment and Connection Location: MAIN board (see page 20)

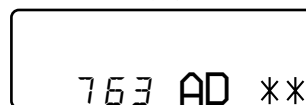
• Adjustment method of Vc PWM Duty (H) (item number: 763)

This set LCD display



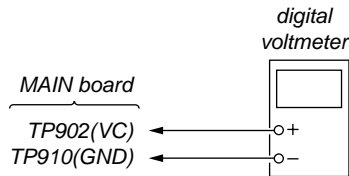
1. Press the **[ENTER]** key and change the LCD display.

This set LCD display



** : Adjusted value

2. Connect a digital voltmeter to the TP902 (VC) on the MAIN board, and adjust **[VOL +]** key (voltage up) or **[VOL -]** key (voltage down) so that the voltage becomes 2.75 ± 0.01 V.



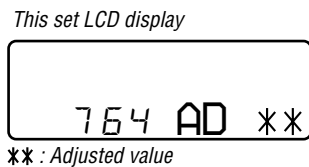
3. Press the **[F4]** key to write the adjusted value.
(The item number changes to 764 when **[F4]** key is pressed)

Adjustment and Connection Location: MAIN board
(see page 20)

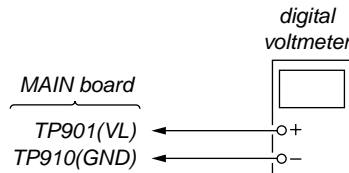
• **Adjustment method of VI PWM Duty (item number: 764)**



1. Press the **[ENTER]** key and change the LCD display.



2. Connect a digital voltmeter to the TP901 (VL) on the MAIN board, and adjust **[VOL +]** key (voltage up) or **[VOL -]** key (voltage down) so that the voltage becomes 2.30 ± 0.01 V.



3. When press the **[F4]** key to write the adjusted value, LCD displays as follows and power supply manual adjustment has completed.



Adjustment and Connection Location: MAIN board

5-6. Temperature Correction

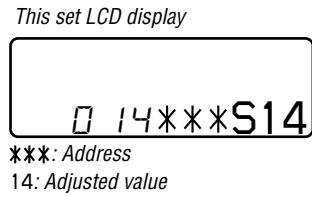
• **Adjustment Method of temperature correction**

1. Select the manual mode of test mode, and set the mode number 014 (see page 12).



2. Measure the ambient temperature.

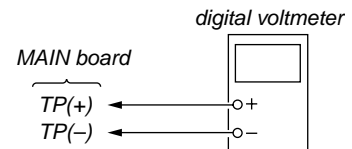
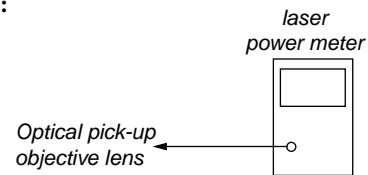
3. Adjust with **[VOL +]**, **[VOL -]** key so that the adjusted value (hexadecimal value) becomes the ambient temperature.
(Initial value: 14h = 20 °C, Adjusting range: 80h to 7fh (-128 °C to +127 °C))



4. Press the **[F4]** key to write the adjusted value.

5-7. Laser Power Check

Connection :



Checking Method :

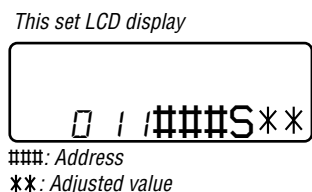
1. Select the manual mode of test mode (see page 12), and set the laser power adjusting mode (item number 010).



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



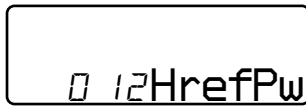
5. Press the **[ENTER]** key and set the address & adjusted value display (See page 13).



6. Check that the laser power meter reading is 0.81 ± 0.08 mW.
7. Check that the voltage both ends (TP (+) and TP (-)) of resistor R501 at this time is below 44 mV.

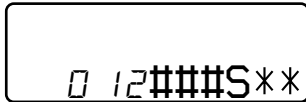
8. Press the key, and set the laser CD read adjustment mode (item number 012).

This set LCD display



9. Press the key and set the address & adjusted value display (see page 13).

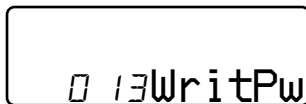
This set LCD display



###: Address
** : Adjusted value

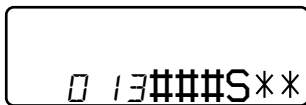
10. Check that the laser power meter reading is 0.97 ± 0.10 mW.
11. Check that the voltage both ends (TP (+) and TP (-)) of resistor R501 at this time is below 44 mV.
12. Press the key, and set the laser MO write adjustment mode (item number 013).

This set LCD display



13. Press the key and set the address & adjusted value display (See page 13).

This set LCD display

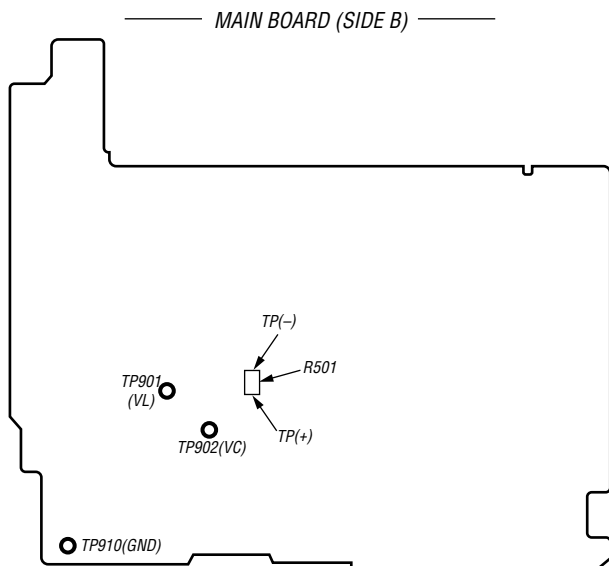


###: Address
** : Adjusted value

14. Check that the laser power meter reading is 4.95 ± 0.50 mW.
15. Check that the voltage both ends (TP (+) and TP (-)) of resistor R501 at this time is below 80 mV.
16. Press the key to quit the manual mode, and activate the test mode (display check mode).

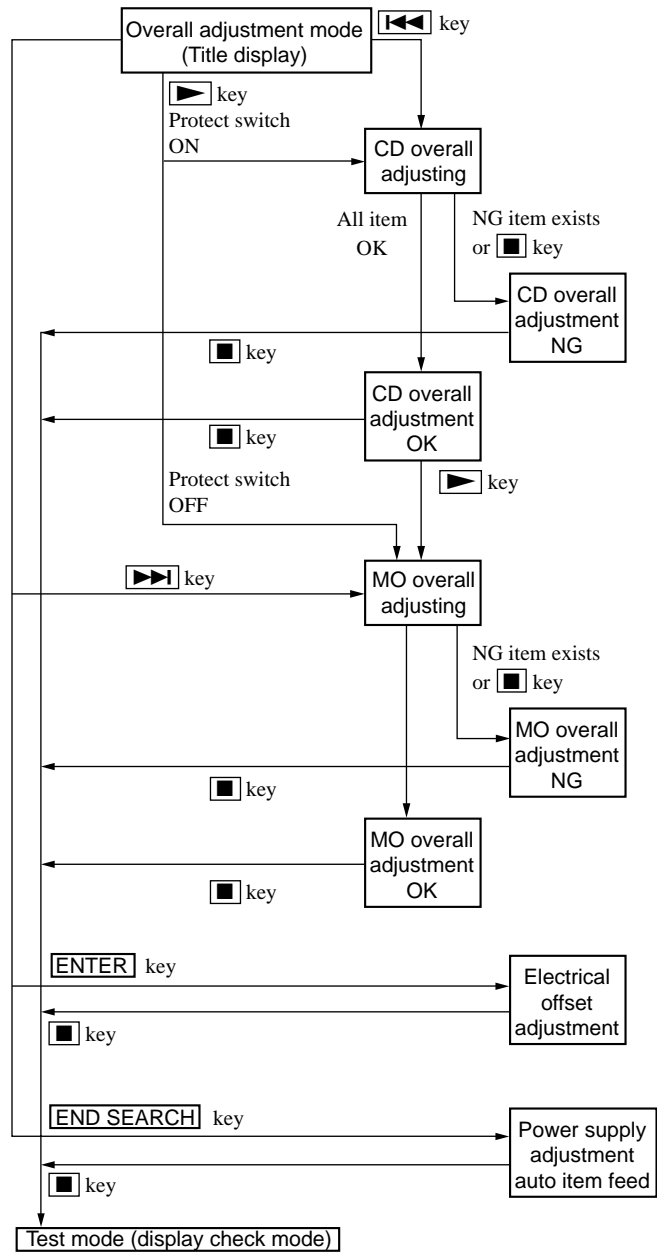
Checking and Connection Location: MAIN board

Adjustment/checking and Connection Location:



5-8. Overall Adjustment Mode

• Configuration of overall adjustment



Note: Adjust the CD first, when performing adjustment.

• Overall Adjustment Mode (Title Display)

This set LCD display



- ☼: (Disc mark) At end 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 set 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 3V.
2. Set the test mode (see page 11).
3. Press the [◀◀] or [VOL-] key to activate the overall adjustment mode.

This set LCD display



4. Press the [ENTER] key.

This set LCD display



** : Adjusted value

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

This set LCD display



• Adjustment Method of Overall CD and MO Adjustment Mode

1. Setting the test mode (see page 11).
2. Press the [◀◀] or [VOL -] key activates the overall adjustment mode.

This set LCD display



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

This set LCD display



X X X : Item number for which on 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).

This set LCD display



*** : NG item number

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

This set LCD display



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

This set LCD display



X X X : Item number for which on 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).

This set 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.

This set 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
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

5-9. Mode Settings

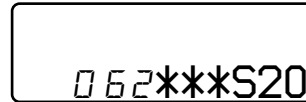
After CD overall and MO overall adjustments are made, the following two modes should be set in the manual mode:

• Setting the auto time stamp mode

This mode is provided so that the auto time stamp (function that delimits tracks at given intervals) can be turned on/off in the menu mode.

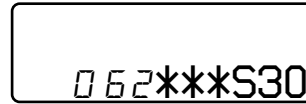
1. Select the manual mode of the test mode, and set item number 062 (see page 12).

This set LCD display



2. Adjust with the [VOL+] key (adjusted value up) or [VOL-] key (adjusted value down) so that the adjusted value becomes S30.

This set LCD display



3. Press the [II] key.

• Check method of auto time stamp mode

1. Turn the power off and then on.
2. Insert a disc and press the [II] key and [REC] key at the same time. Verify that "REC" is flashing on the LCD display and then push the [MENU/ENTER] key.

This set LCD display



3. Press the [▶▶] key five times.

This set LCD display



4. Press the [MENU/ENTER] key.
5. Verify that each time the [▶▶] key is pressed, the LCD display changes as follows:
5min → 10min → 15min → off.
6. Verify that "OFF" is flashing on the LCD display and then press the [MENU/ENTER] key.
7. Push the [■] key and remove the disc.

• Setting the ATRAC mode

This mode is provided to set the mode of ATRAC to TYPE-R (high tone quality mode).

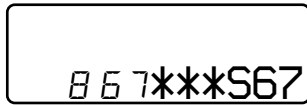
1. Select the manual mode of the test mode, and set item number 867 (see page 12).

This set LCD display



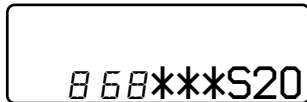
- Adjust with the **VOL+** key (adjusted value up) or **VOL-** key (adjusted value down) so that the adjusted value becomes S67.

This set LCD display



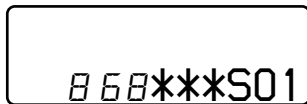
- Press the **II** key.
- Set item number 868 (see page 12).

This set LCD display



- Adjust with the **VOL+** key (adjusted value up) or **VOL-** key (adjusted value down) so that the adjusted value becomes S01.

This set LCD display



- Press the **II** key.

5-10. Resume Clear

Perform the Resume clear when all adjustments completed.

- Resume Clear Setting Method**

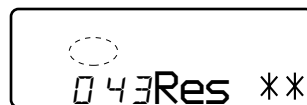
- Select the manual mode of the test mode, and set item number 043 (see page 12).

This set LCD display



- Press the **II** key.

This set LCD display



↓ *Resume clear complete*



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

SECTION 6 DIAGRAMS

6-1. 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	VREF	O	Reference voltage output terminal (+1 V)
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-I	I	Light amount monitor input terminal (invert input)
19	PD-NI	I	Light amount monitor input terminal (non-invert input)
20	PD-O	O	Light amount monitor output terminal
21	ADIP	O	ADIP duplex FM signal (22.05 kHz \pm 1 kHz) output to the system controller (IC801)
22	DVDD	—	Power supply terminal (+2.3 V) (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	XRST	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 (IC801)
29	PEAK	O	Peak hold signal output of the light amount signal (RF/ABCD) to the system controller (IC801)
30	VREF075	—	Connect terminal to the external capacitor for the internal reference voltage
31	VC	O	Middle point voltage (+1.2 V) generation output terminal
32	CSSL2	—	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 to 37	EQ, LP, PS	—	Connect terminal to the external capacitor for the RF equalizer
38	AVCC	—	Power supply terminal (analog system) (+2.3 V)
39, 40	OFC-2, 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 (22.05 kHz \pm 1 kHz) input terminal

• IC801 CXD2671-204GA (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 “H”: HIGH, “L”: LOW, normally: “H” Not used (open)
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) (+1.5 V)
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) Not used (open)
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) (+2.8 V)
22	AVSS	—	Ground terminal (for the analog circuit block)
23	VDIOSC	—	Power supply terminal (for OSC cell) (+2.4 V)
24	OSCI	I	System clock (45.1584 MHz) input terminal
25	OSCO	O	System clock (45.1584 MHz) output terminal
26	VSIOSC	—	Ground terminal (for OSC cell)
27	DAVDD	—	Power supply terminal (for the built-in D/A converter) (+2.4 V)
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
30	AOUTR	O	Built-in D/A converter (R-CH) output terminal
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) (+2.4 V)
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)
47	FE	I	Focus error signal input from RF amp (IC501)
48	AUX1	I	Support signal (I3 signal/temperature signal) input terminal (A/D input)
49	VC	I	Middle point voltage (+1.2 V) 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)

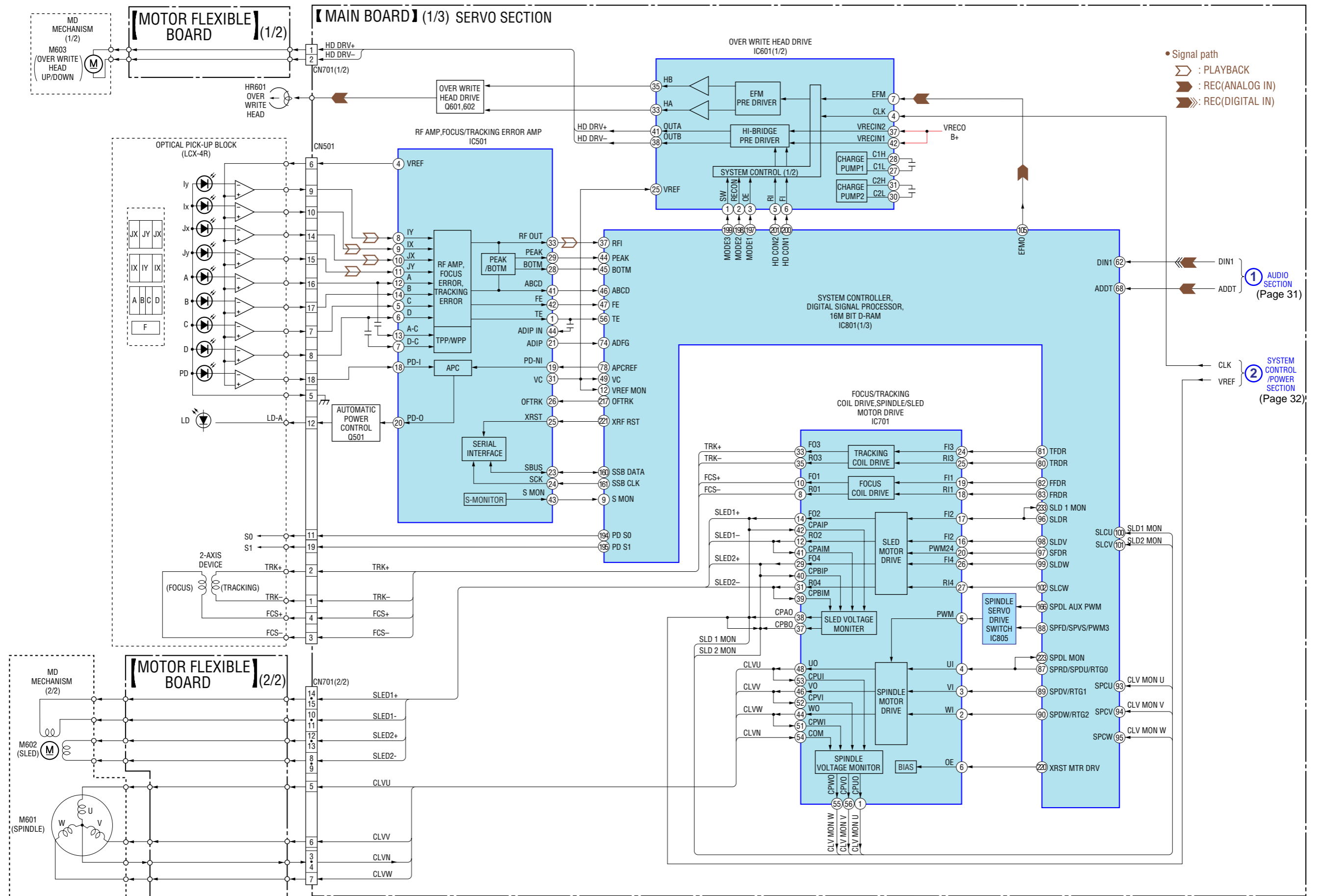
Pin No.	Pin Name	I/O	Description
52	AVD2	—	Power supply terminal (for the analog) (+2.4 V)
53	AVS2	—	Ground terminal (for the analog)
54	ADRB	I	A/D converter the lower limit voltage input (fixed at “L” in this set)
55	SE	I	Sled error signal input terminal Not used (fixed at “L”)
56	TE	I	Tracking error 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) (+1.5 V)
60	DSPVSS0	—	Ground terminal (for DSP block)
61	XTSL	I	Input terminal for the frequency set up of the system clock “L”: 45.1584 MHz, “H”: 22.5792 MHz (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	(DAPWMP)	O	D/A converter PWM output (R-CH right phase) Not used (open)
67	DADT	O	Audio data output Not used (open)
68	ADDT	I	Data signal input from the external A/D converter (IC301)
69	LRCK	O	L/R sampling block signal (44.1 kHz) output to the external A/D converter (IC301)
70	XBCK	O	Bit clock signal (2.8224 MHz) output to the external A/D converter (IC301)
71	FS256	O	11.2896 MHz clock signal output to the external A/D 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) (+1.5 V)
74	ADFG	I	ADIP duplex FM signal (20.05 ± 1 kHz) input from RF amp (IC501)
75	(FOCNT)	O	Filter cut off control signal output Not used (open)
76	DIFVDD0	—	Power supply terminal (for DSP I/F) (+2.3 V)
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 (IC701)
81	TFDR	O	Tracking servo drive PWM signal output (+) to the motor driver (IC701)
82	FFDR	O	Focus servo drive PWM signal output (+) to the motor driver (IC701)
83	FRDR	O	Focus servo drive PWM signal output (–) to the motor driver (IC701)
84	MCUVDD1	—	Power supply terminal (for the microcomputer block) (+1.5 V)
85	(FGIN)	I	FG signal input terminal for the spindle servo Not used (open)
86	FS4	O	176.4 MHz 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 (IC701)
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 (IC701)
90	SPDW/RTG2	O	Spindle motor drive control signal output (W)/RTG output 2 to the motor driver (IC701)
91	DSPVDD2	—	Power supply terminal (for DSP block) (+1.5 V)
92	DSPVSS1	—	Ground terminal (for DSP block)
93	SPCU	I	Spindle motor drive comparison signal input (U) from the motor driver (IC701)
94	SPCV	I	Spindle motor drive comparison signal input (V) from the motor driver (IC701)
95	SPCW	I	Spindle motor drive comparison signal input (W) from the motor driver (IC701)
96	SRDR	O	Sled servo drive PWM signal output (–) to the motor driver (IC701)
97	SFDR	O	Sled servo drive PWM signal output (+) to the motor driver (IC701)
98	SLDV	O	Sled motor drive signal output (V) to the motor driver (IC701)/drive control signal output (1–)

Pin No.	Pin Name	I/O	Description
99	SLDW	O	Sled motor drive signal output (W) to the motor driver (IC701)/drive control signal output (2+)
100	SLCU	I	Spindle motor drive comparison signal input (U) from the motor driver (IC701)
101	SLCV	I	Spindle motor drive comparison signal input (V) from the motor driver (IC701)
102	SLCW	I	Spindle motor drive comparison signal input (W) from the motor driver (IC701)
103	DIFVDD1	—	Power supply terminal (for DSP I/F) (+2.3 V)
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	DAPVDD3	—	Power supply terminal (for DSP block) (+1.5 V)
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) (+2.4 V)
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) (+2.4 V)
140	DRAMVSS1	—	Ground terminal (for the external D-RAM)
141	TSB MST VDD	—	Power supply terminal (for TSB master communication) (+2.8 V)
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) (+2.3 V)
144	(TSB SLVI)	I	TSB slave signal input from the remote commander attached headphone (fixed at "L")
145	(TSB SLVO)	O	TSB slave signal output from the remote commander attached headphone Not used (open)
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) (+2.4 V)
152	JTAGVSS	—	Ground terminal (for JTAG)
153	MCUVDD2	—	Power supply terminal (for the microcomputer block) (+1.5 V)
154	MIFVDD0	—	Power supply terminal (for the microcomputer I/F block) (+2.3 V)
155	MIFVSS0	—	Ground terminal (for the microcomputer I/F block)
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	OPR LED	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	O	PWM for the laser automatic power supply voltage control signal output to the power control (IC901)
165	VC PWM	O	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 (IC701)
167	XPD ADAAUX	O	Not used (open)
168	NC	O	Not used (open)

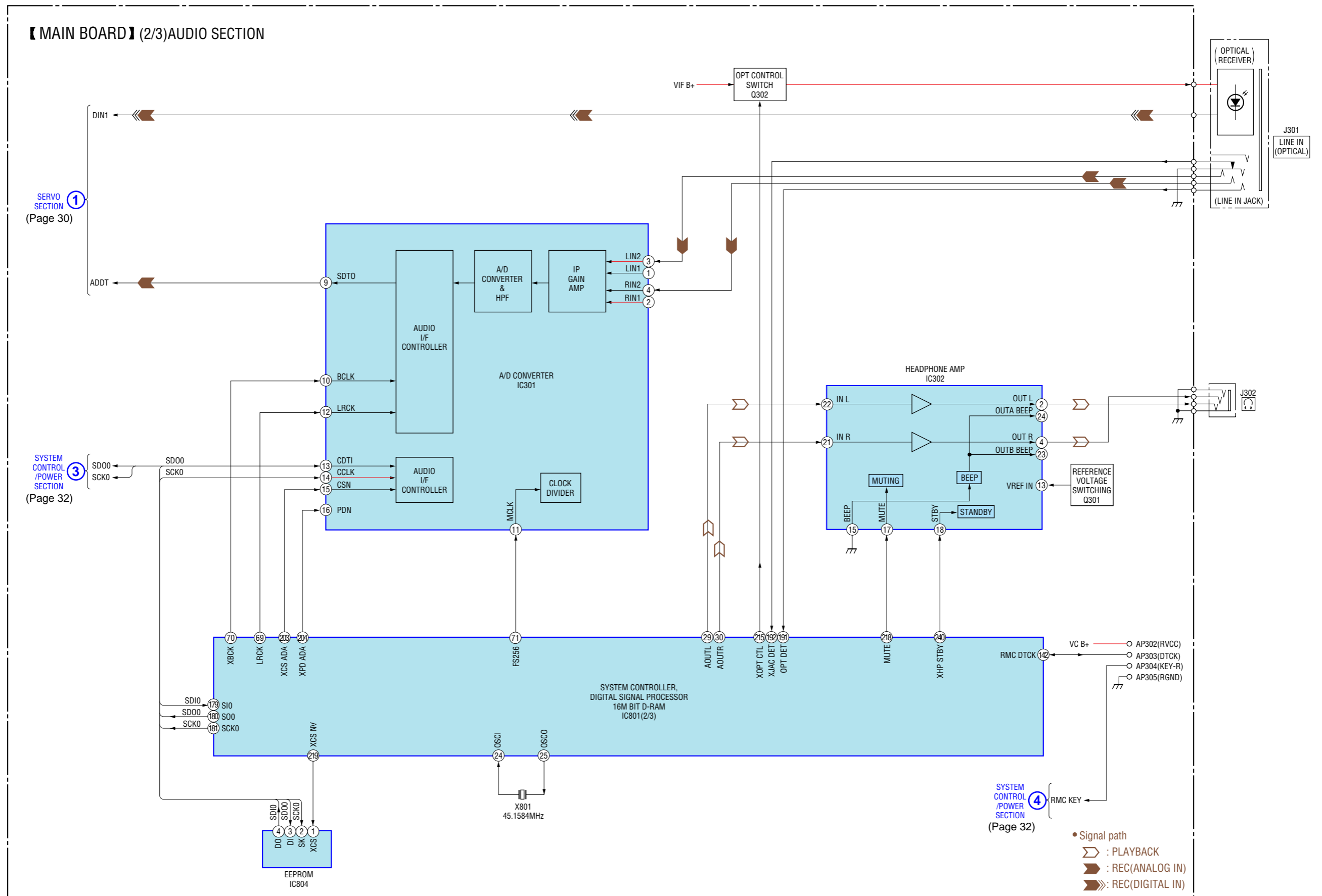
Pin No.	Pin Name	I/O	Description
169	CLK SEL	O	System clock select signal output to the power control (IC901)
170	OPEN CLOSE SW	I	Open/close detection switch (S806) of the upper panel input terminal (A/D input) “L”: when upper panel close
171	GND SW	O	Control signal output to the ground (GND) changeover switch
172	SET CODE0	O	Input terminal for the set (fixed at “L” in this set)
173, 174	SET CODE1, 2	O	Input terminal for the set (open in this set)
175	SET CODE3	O	Input terminal for the set (fixed at “L” in this set)
176	MIFVDD1	—	Power supply terminal (for the microcomputer I/F block) (+2.3 V)
177	MIFVSS1	—	Ground terminal (for the microcomputer I/F block)
178	(AOUT SEL)	O	HP/LINE changeover signal output Not used (open)
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 converter (IC301) and liquid crystal display element module
181	SCK0	O	Serial clock signal output to the nonvolatile memory (IC804), A/D converter (IC301) and liquid crystal display element module
182	(XGUM ON)	I	Battery pack detection switch input terminal for the charge “L”: there is battery pack for the charge Not used (open)
183	BEEP	O	Beep sound control signal output Not used (open)
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 “L”: muting ON Not used (open)
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 Fixed at “L” in this set
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 Not used (open)
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) (+2.3 V)
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 converter (IC301)
204	XPD ADA	O	Power supply control signal output for the drive to A/D 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 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 Not used (open)
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	(K-TAI-MON), (K-TAI-SW)	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 Not used (open)
217	OFTRK	I	Off track signal input from RF amp (IC501)
218	MUTE	O	Analog muting control signal output “H”: muting ON
219	XCS NV	O	Chip select signal output to EEPROM (IC804)
220	XRST MTR DRV	O	Reset control signal output to the motor driver (IC701)
221	XRF RST	O	Reset control signal output to RF amp (IC501)
222	MCUVDD3	—	Power supply terminal (for the microcomputer block) (+1.5 V)

Pin No.	Pin Name	I/O	Description
223	SPDL MON	I	Spindle servo monitor signal input
224 to 226	(XAVLS), (SOUND 1, 2)	I	Not used (open)
227	XHOLD SW	I	HOLD switch (SW801) input terminal "L": hold ON, "H": hold OFF
228	(SYCN REC)	I	SYNCHRO REC switch input terminal "L": OFF, "H": ON Not used (open)
229	(SYNC LEVEL)	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) (+2.4 V)
232	FLASHVSS	—	Ground terminal (for the internal FLASH ROM)
233	SLD 1 MON	I	Sled servo monitor signal input
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 Not used (open)
238	(CHG)	O	Charge ON/OFF control signal output "H": charge ON Not used (open)
239	(TUN REG ON)	O	Not used (open)
240	XHP STBY	O	Headphone standby signal output to the headphone amp (IC302)
241	MIFVDD3	—	Power supply terminal (for the microcomputer I/F block) (+2.3 V)
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)

6-2. BLOCK DIAGRAM — SERVO SECTION —



6-3. BLOCK DIAGRAM — AUDIO SECTION —



Common note on Printed Wiring Board:

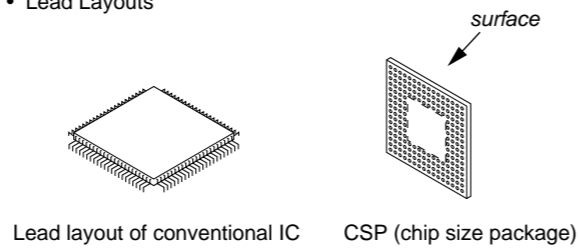
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing. (The other layer's patterns are not indicated.)

Caution:
 Pattern face side: Parts on the pattern face side seen from the (Side B) pattern face are indicated.
 Parts face side: Parts on the parts face side seen from the (Side A) 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 on main board requires a special tool.

- Lead Layouts



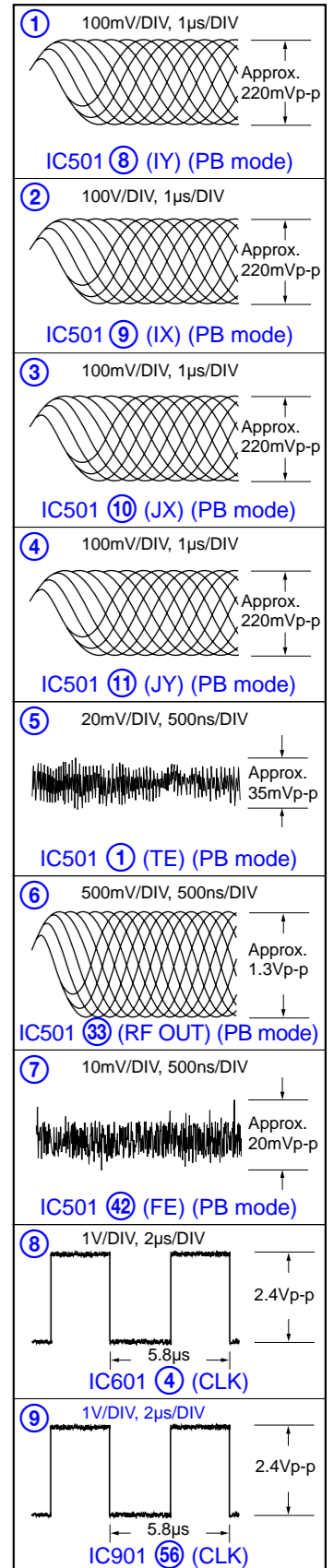
Common note on Schematic Diagram:

- 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 $1/4\text{ W}$ or less unless otherwise specified.
- % : indicates tolerance.
- : panel designation.

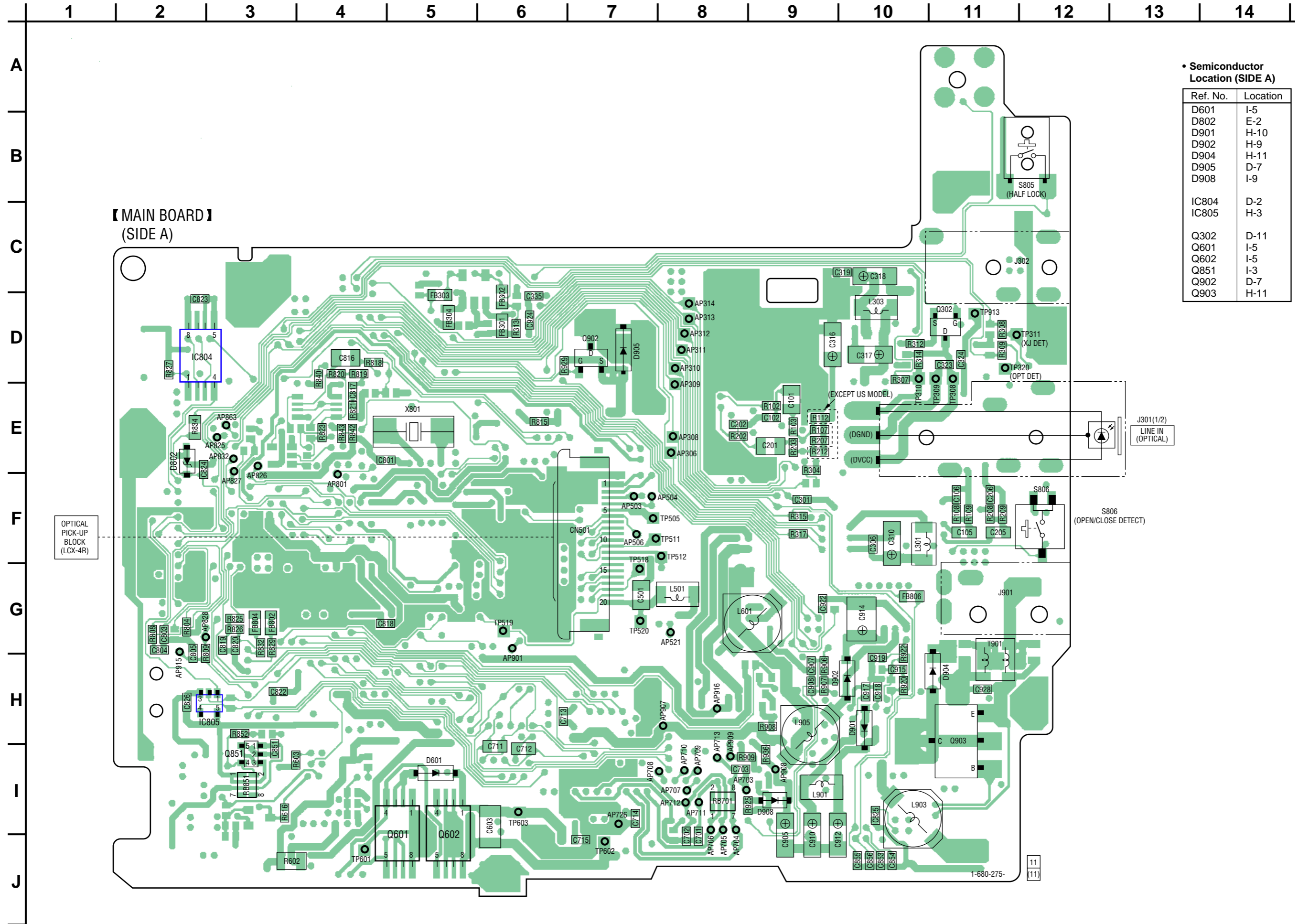
Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.	Note: Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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- : B+ Line.
- Total current is measured with Minidisc installed.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark : PB
- () : 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.
- ∩ : PB
- : REC (ANALOG)
- : REC (DIGITAL)
- Abbreviation
- CND : Canadian model

Waveforms



6-5. PRINTED WIRING BOARD — MAIN SECTION — • Refer to page 33 for Note.



• Semiconductor Location (SIDE A)

Ref. No.	Location
D601	I-5
D802	E-2
D901	H-10
D902	H-9
D904	H-11
D905	D-7
D908	I-9
IC804	D-2
IC805	H-3
Q302	D-11
Q601	I-5
Q602	I-5
Q851	I-3
Q902	D-7
Q903	H-11

OPTICAL PICK-UP BLOCK (LCX-4R)

J301 (1/2)
LINE IN (OPTICAL)

S806
(OPEN/CLOSE DETECT)

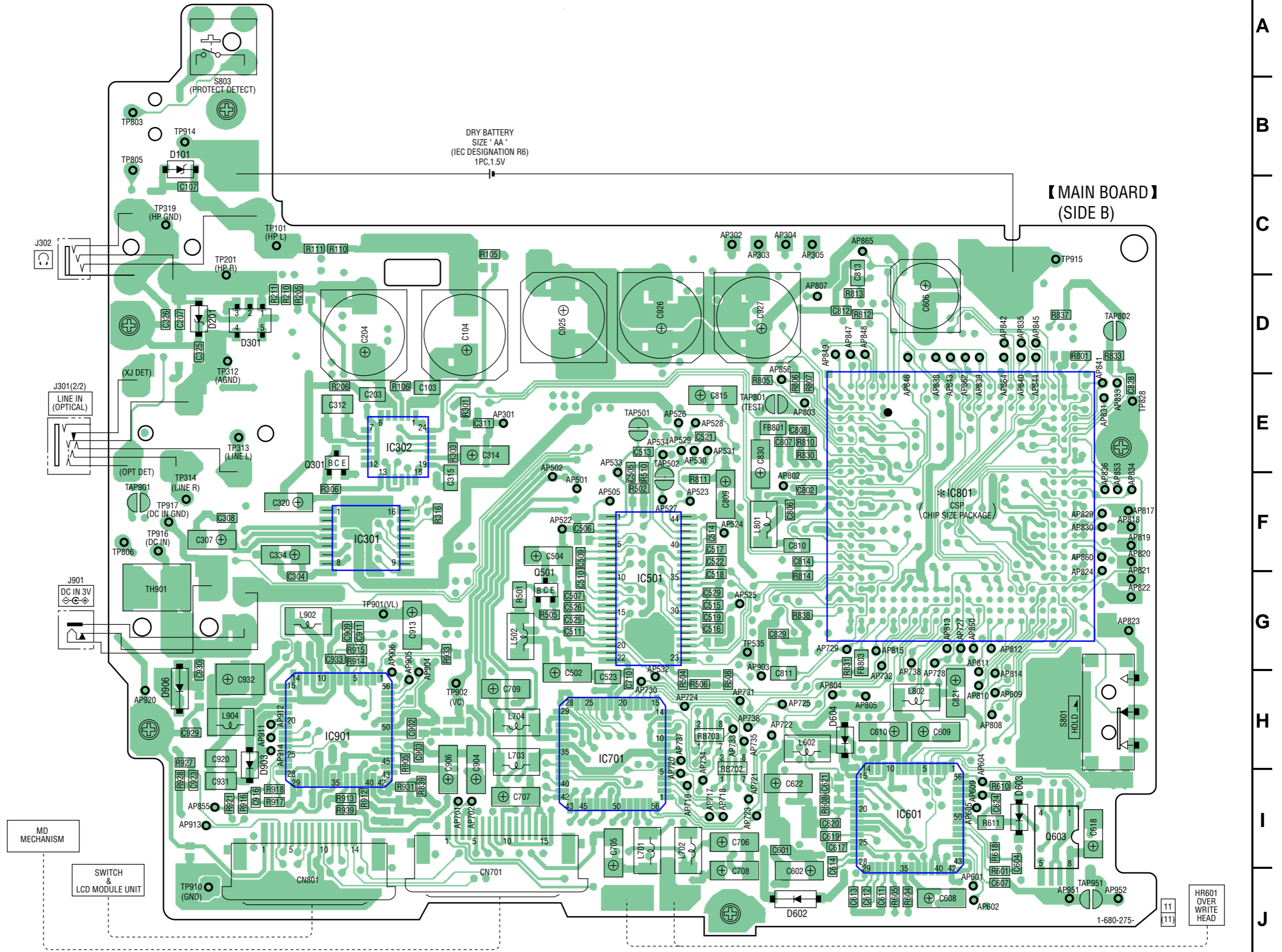
1-680-275-

(11)

14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1

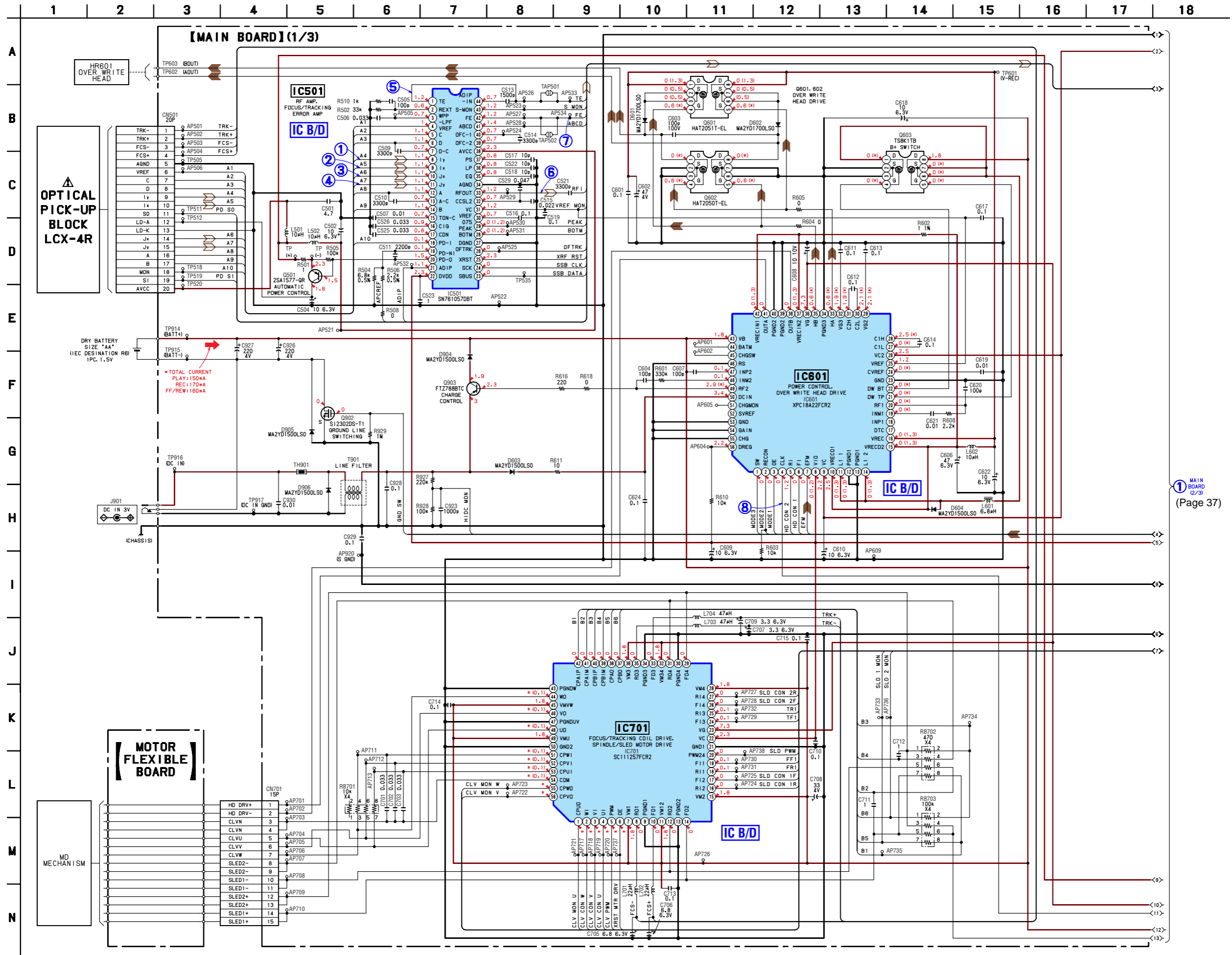
• Semiconductor Location (SIDE B)

Ref. No.	Location
D101	B-11
D201	D-11
D301	D-11
D602	J-5
D603	I-3
D604	H-5
D903	H-11
D906	H-11
IC301	F-9
IC302	E-9
IC501	G-7
IC601	I-4
IC701	H-7
IC801	F-3
IC901	H-10
Q301	E-10
Q501	G-8
Q603	I-3



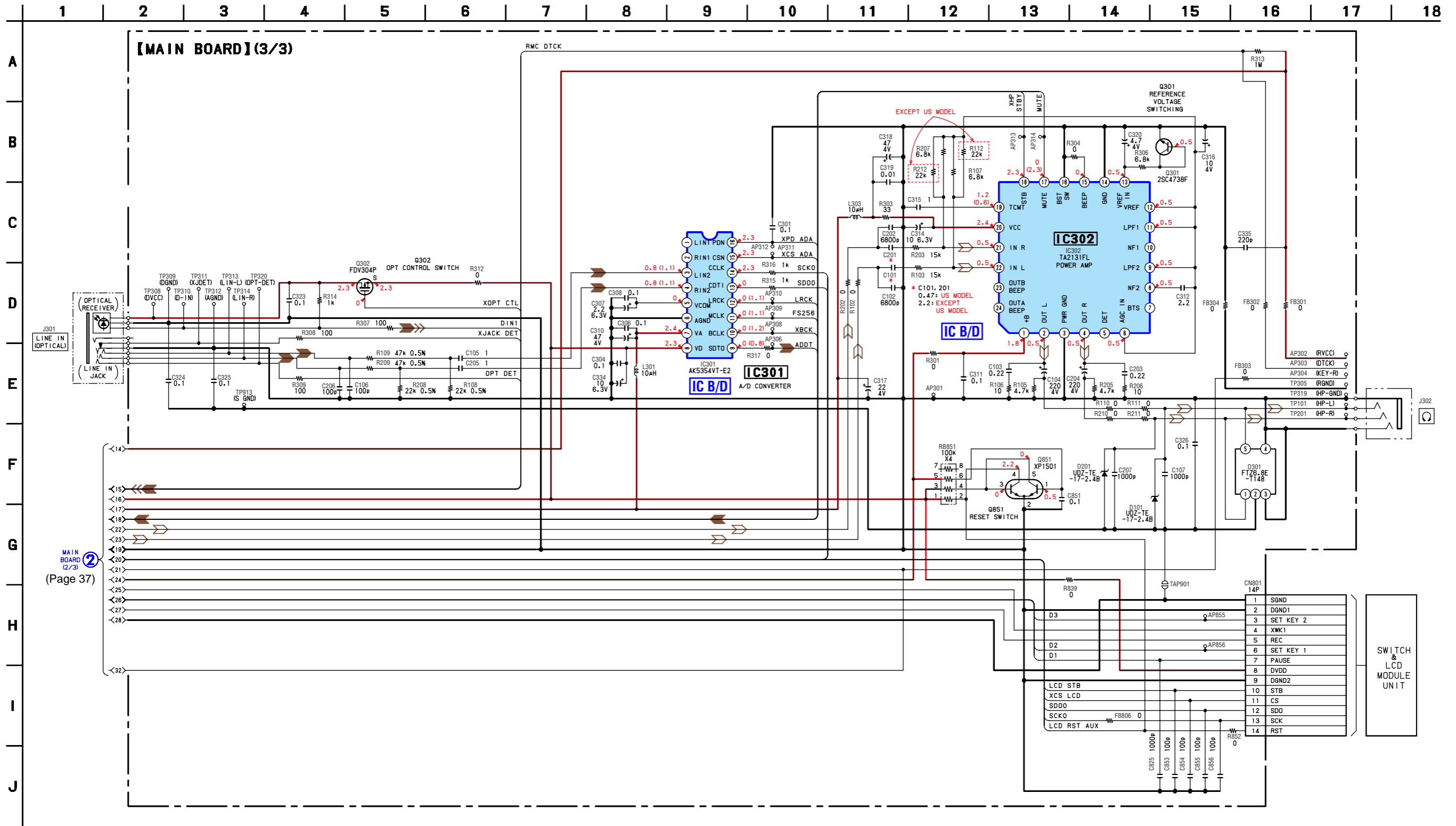
A
B
C
D
E
F
G
H
I
J

6-6. SCHEMATIC DIAGRAM — MAIN SECTION (1/3) — • Refer to page 33 for Waveforms. Refer to page 39 for IC Block Diagrams. Refer to page 33 for Note.



1 MAIN BOARD (1/3) (Page 37)

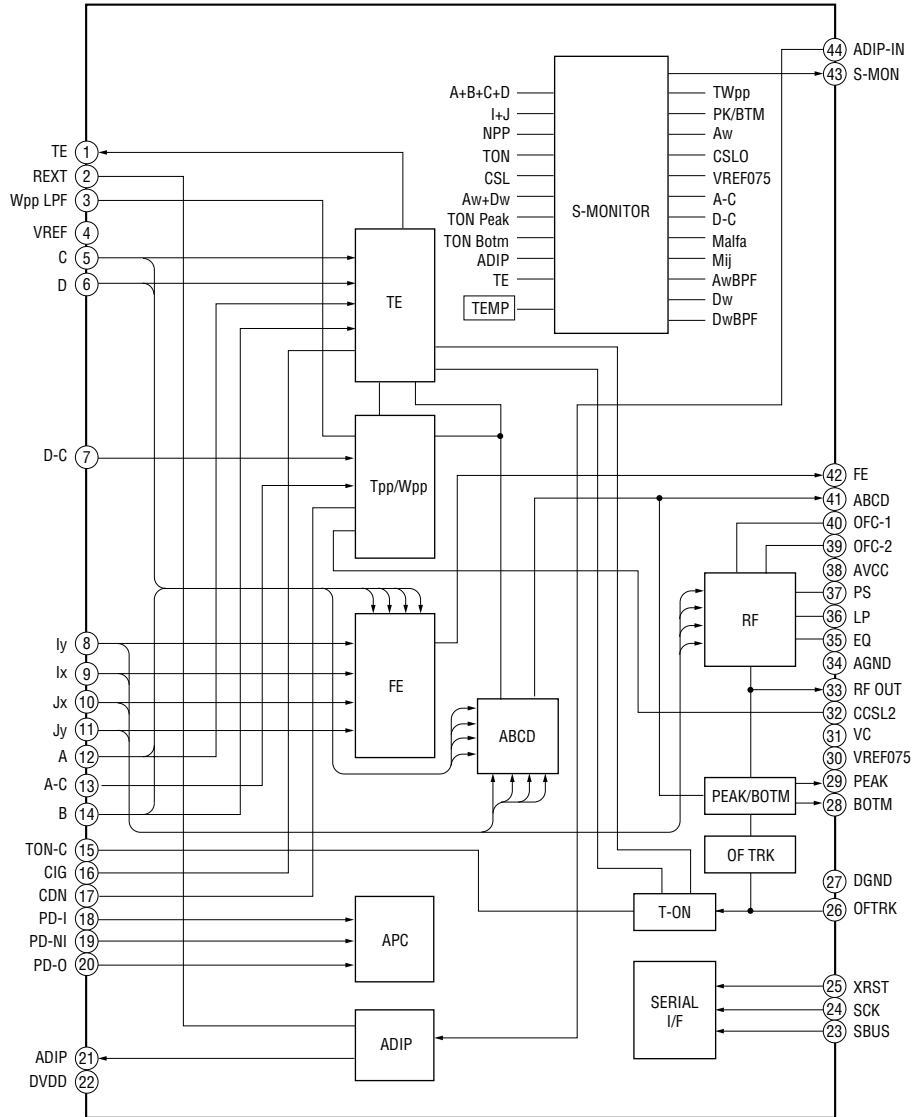
6-8. SCHEMATIC DIAGRAM — MAIN SECTION (3/3) — • Refer to page 42 for IC Block Diagrams. Refer to page 33 for Note.



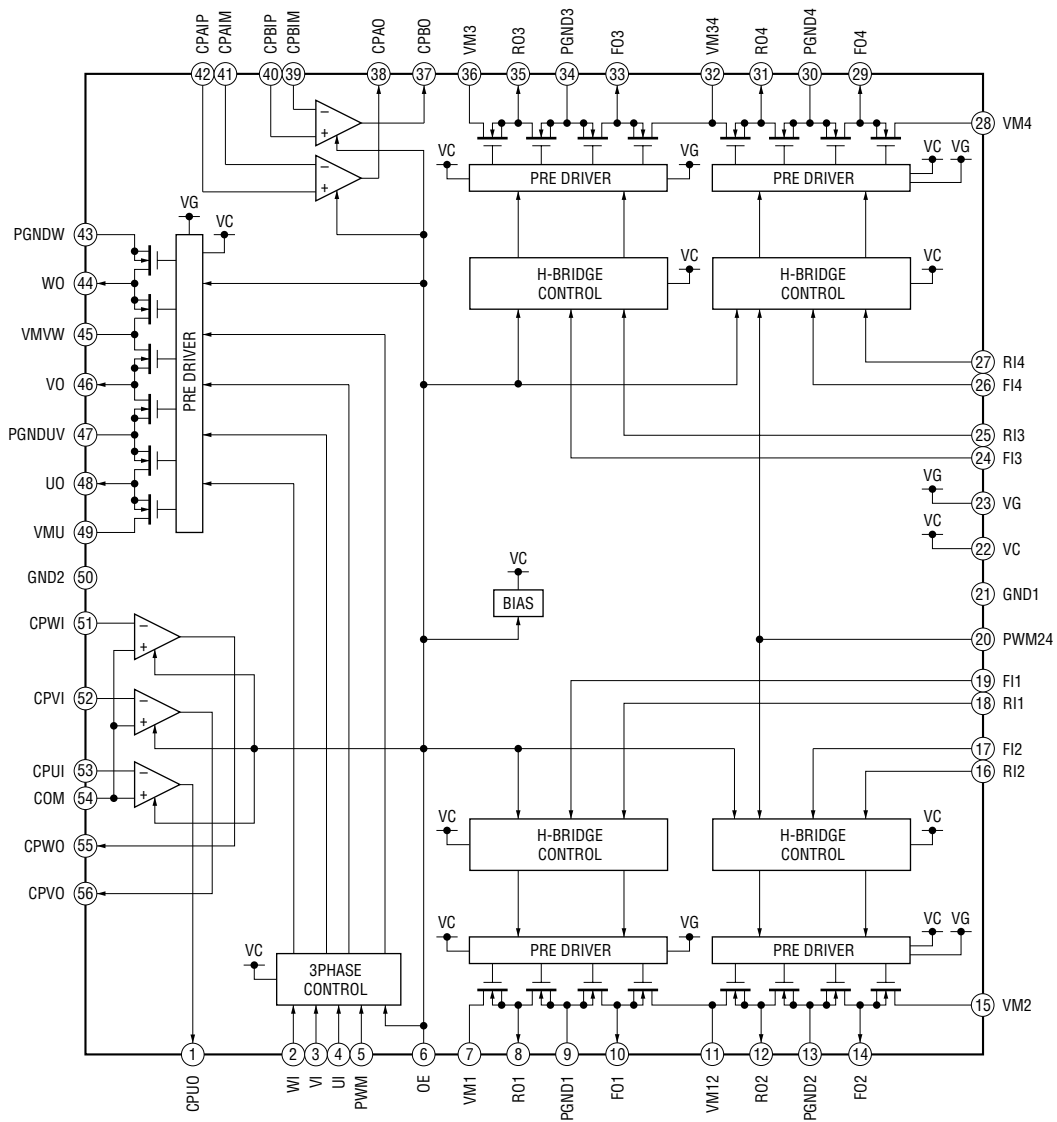
MAIN BOARD (2/3)
(Page 37)

• IC BLOCK DIAGRAMS

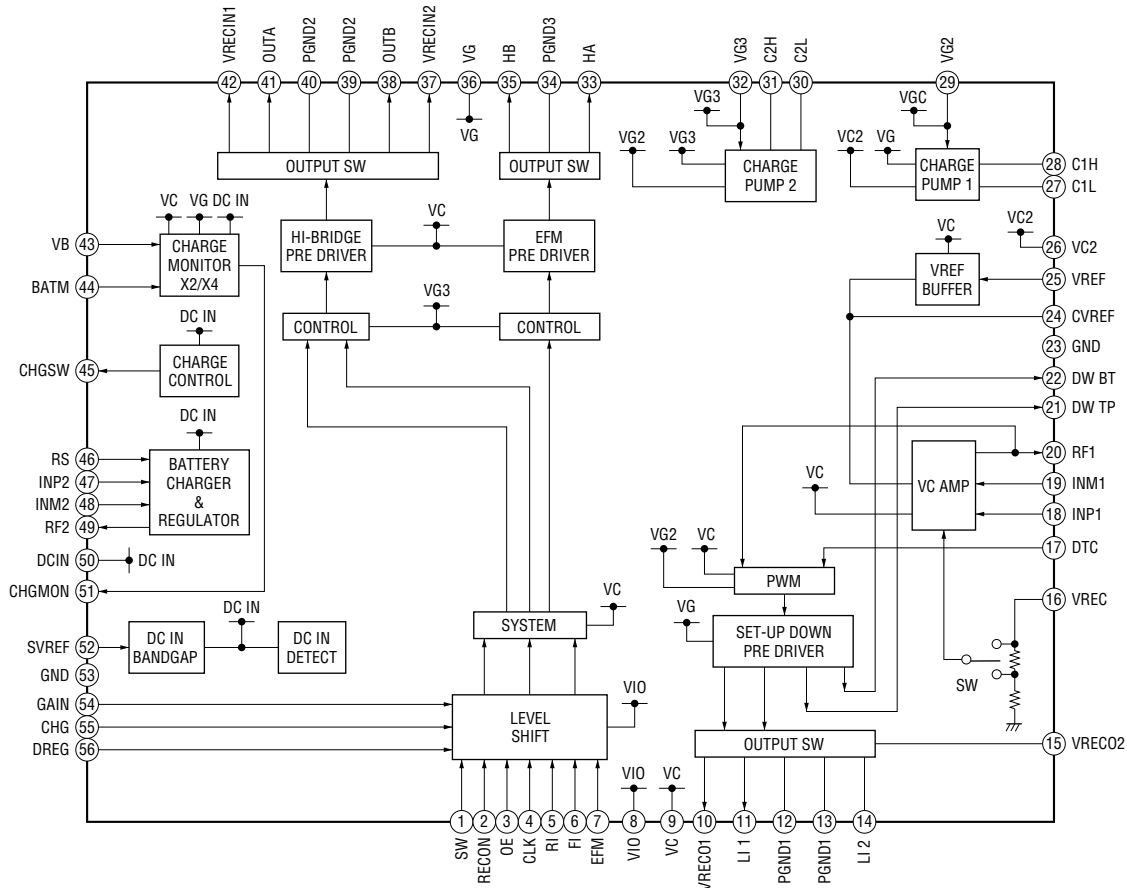
IC501 SN761057DBT



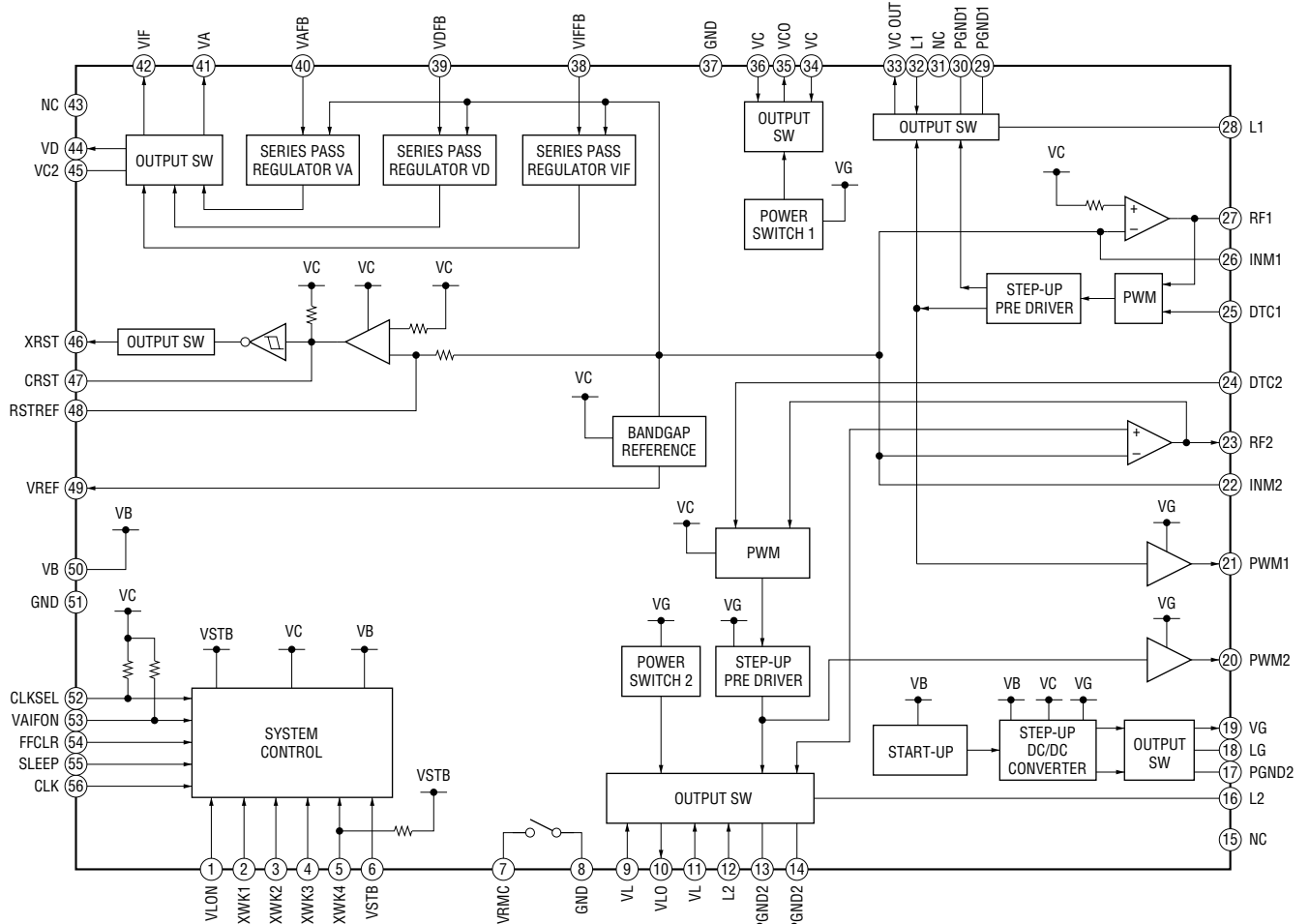
IC701 SC111257FCR2



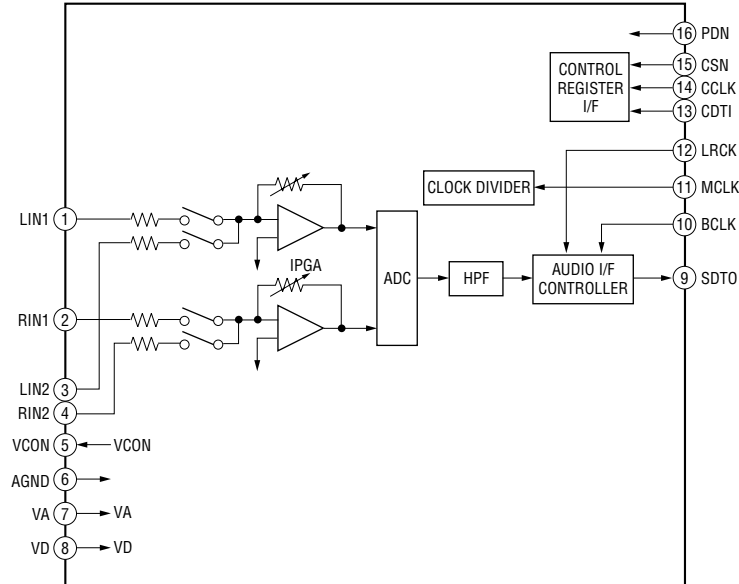
IC601 XPC18A22FCR2



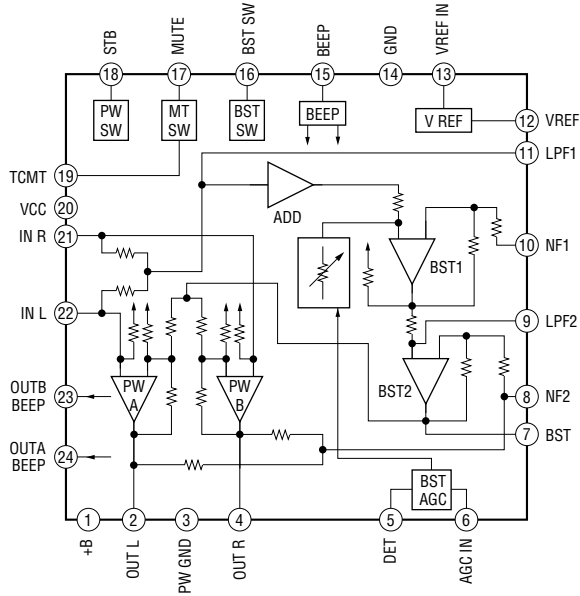
IC901 XPC18A32FCR2



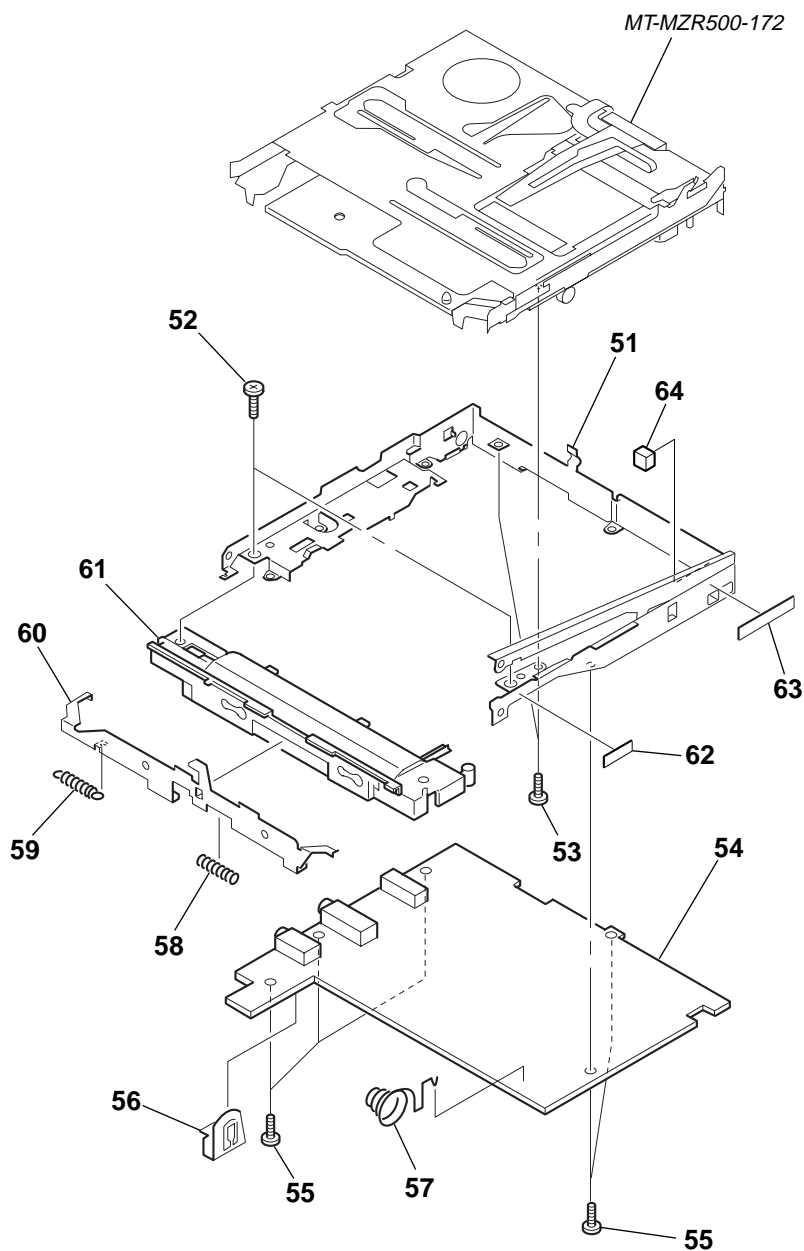
IC301 AK5354VT



IC302 TA2131FL

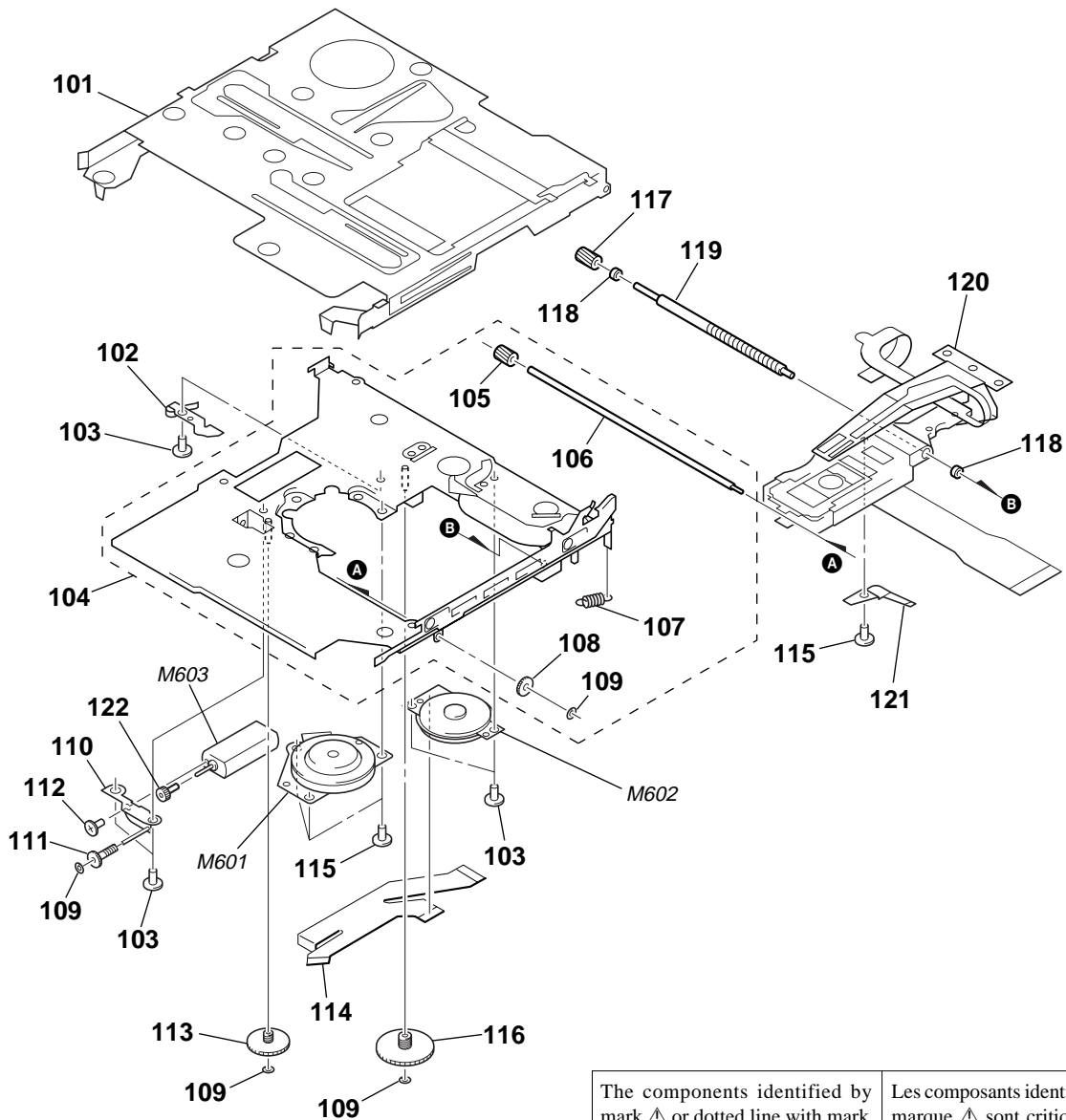


7-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3379-969-1	CHASSIS ASSY		57	3-225-631-01	TERMINAL (-), BATTERY	
52	3-318-382-01	SCREW (1.7X3), TAPPING		58	3-225-632-01	SPRING (LIMITER), COMPRESSION	
53	4-218-233-11	SCREW (1.7), MI		59	3-225-633-01	SPRING (OPEN), TENSION	
* 54	A-3021-481-A	MAIN BOARD, COMPLETE (US)		60	3-225-627-01	SLIDER, OPEN	
* 54	A-3021-482-A	MAIN BOARD, COMPLETE (CND)		61	3-225-626-01	CASE, BATTERY	
* 54	A-3323-653-A	MAIN BOARD, COMPLETE (EXCEPT US,CND)		62	3-228-493-01	SPACER (SIDE A)	
55	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK		63	3-228-494-01	SPACER (SIDE B)	
56	3-225-630-01	TERMINAL (+), BATTERY		64	3-228-495-01	SPACER (REAR)	

7-3. MD MECHANISM DECK SECTION
(MT-MZR500-172)



<p>The components identified by mark Δ or dotted line with mark \triangle 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-3379-515-2	HOLDER ASSY		114	1-679-762-11	MOTOR FLEXIBLE BOARD	
102	3-224-779-02	SPRING, THRUST DETENT		115	4-963-883-31	SCREW (M1.4), PRECISION PAN	
103	4-963-883-42	SCREW (M1.4), PRECISION PAN		116	4-222-216-01	GEAR (SA)	
104	X-3379-514-1	CHASSIS ASSY		117	4-222-208-01	GEAR (SB)	
105	4-222-218-02	GEAR (HD)		118	3-043-237-02	BEARING (N)	
106	4-222-223-01	SHAFT, SUB		119	4-222-203-02	SCREW, LEAD	
107	4-222-226-01	SPRING (EJECT), TENSION		Δ 120	X-3379-508-1	SERVICE ASSY, OP (LCX-4R)	
108	4-222-222-01	GEAR (RACK)		121	3-049-336-03	SPRING (S), RACK	
109	3-338-645-31	WASHER (0.8-2.5)		122	3-222-544-01	GEAR (HA)	
110	X-3380-408-1	CHASSIS ASSY, GEAR		M601	8-835-706-01	MOTOR, DC SSM18A/C-SP (SPINDLE) (with TURNTABLE)	
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)					

**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
- CAPACITORS
uF : μ F
- COILS
uH : μ H

- 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..
- Abbreviation
CND : Canadian model
CH : Chinese model
EE : East European model
TW : Taiwan model
FR : French model
AR : Argentina model

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

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-3021-481-A	MAIN BOARD, COMPLETE (US)		C501	1-127-760-11	CERAMIC CHIP 4.7uF 10%	6.3V
*	A-3021-482-A	MAIN BOARD, COMPLETE (CND)		C502	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
*	A-3323-653-A	MAIN BOARD, COMPLETE (EXCEPT US,CND)		C504	1-115-169-11	TANTALUM 10uF 20%	6.3V
*****				C505	1-164-874-11	CERAMIC CHIP 100PF 5%	50V
< CAPACITOR >				C506	1-127-772-11	CERAMIC CHIP 0.033uF 10%	10V
C101	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V (US)	C507	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V
C101	1-125-889-11	CERAMIC CHIP 2.2uF 10%	10V (EXCEPT US)	C509	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C102	1-164-942-11	CERAMIC CHIP 0.0068uF 10%	16V	C510	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C103	1-115-467-11	CERAMIC CHIP 0.22uF 10%	10V	C511	1-164-939-11	CERAMIC CHIP 0.0022uF 10%	50V
C104	1-126-246-11	ELECT CHIP 220uF 20%	4V	C513	1-164-938-11	CERAMIC CHIP 0.0015uF 10%	50V
C105	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C514	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C106	1-164-874-11	CERAMIC CHIP 100PF 5%	50V	C515	1-107-819-11	CERAMIC CHIP 0.022uF 10%	16V
C107	1-164-937-11	CERAMIC CHIP 0.001uF 10%	50V	C516	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C201	1-107-823-11	CERAMIC CHIP 0.47uF 10%	16V (US)	C517	1-164-850-11	CERAMIC CHIP 10PF 0.5PF	50V
C201	1-125-889-11	CERAMIC CHIP 2.2uF 10%	10V (EXCEPT US)	C518	1-164-850-11	CERAMIC CHIP 10PF 0.5PF	50V
C202	1-164-942-11	CERAMIC CHIP 0.0068uF 10%	16V	C519	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C203	1-115-467-11	CERAMIC CHIP 0.22uF 10%	10V	C521	1-164-940-11	CERAMIC CHIP 0.0033uF 10%	16V
C204	1-126-246-11	ELECT CHIP 220uF 20%	4V	C522	1-164-850-11	CERAMIC CHIP 10PF 0.5PF	50V
C205	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C523	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V
C206	1-164-874-11	CERAMIC CHIP 100PF 5%	50V	C525	1-127-772-11	CERAMIC CHIP 0.033uF 10%	10V
C207	1-164-937-11	CERAMIC CHIP 0.001uF 10%	50V	C526	1-127-772-11	CERAMIC CHIP 0.033uF 10%	10V
C301	1-107-820-11	CERAMIC CHIP 0.1uF 10%	16V	C529	1-119-923-11	CERAMIC CHIP 0.047uF 10%	10V
C304	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C601	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C306	1-107-820-11	CERAMIC CHIP 0.1uF 10%	16V	C602	1-131-862-11	TANTAL. CHIP 47uF 20%	4V
C307	1-135-149-21	TANTAL. CHIP 2.2uF 20%	10V	C603	1-137-760-11	MICA CHIP 100PF 5%	100V
C308	1-107-820-11	CERAMIC CHIP 0.1uF 10%	16V	C604	1-164-874-11	CERAMIC CHIP 100PF 5%	50V
C310	1-131-862-11	TANTAL. CHIP 47uF 20%	4V	C606	1-126-205-11	ELECT CHIP 47uF 20%	6.3V
C311	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C607	1-164-874-11	CERAMIC CHIP 100PF 5%	50V
C312	1-125-889-11	CERAMIC CHIP 2.2uF 10%	10V	C608	1-104-851-11	TANTAL. CHIP 10uF 20%	10V
C314	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V	C609	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C315	1-125-837-11	CERAMIC CHIP 1uF 10%	6.3V	C610	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C316	1-135-201-11	TANTAL. CHIP 10uF 20%	4V	C611	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C317	1-104-847-11	TANTAL. CHIP 22uF 20%	4V	C612	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C318	1-131-862-11	TANTAL. CHIP 47uF 20%	4V	C613	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C319	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V	C614	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C320	1-135-151-21	TANTAL. CHIP 4.7uF 20%	4V	C617	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
C323	1-107-820-11	CERAMIC CHIP 0.1uF 10%	16V	C618	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V
C324	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C619	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V
C325	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C620	1-164-874-11	CERAMIC CHIP 100PF 5%	50V
C326	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V	C621	1-164-943-11	CERAMIC CHIP 0.01uF 10%	16V
C334	1-135-259-11	TANTAL. CHIP 10uF 20%	6.3V	C622	1-115-169-11	TANTALUM 10uF 20%	6.3V
C335	1-164-933-11	CERAMIC CHIP 220PF 10%	50V	C624	1-125-777-11	CERAMIC CHIP 0.1uF 10%	10V
				C701	1-127-772-11	CERAMIC CHIP 0.033uF 10%	10V
				C702	1-127-772-11	CERAMIC CHIP 0.033uF 10%	10V
				C703	1-127-772-11	CERAMIC CHIP 0.033uF 10%	10V

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
C705	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V	C910	1-115-169-11	TANTALUM	10uF	20%	6.3V
C706	1-135-211-11	TANTAL. CHIP	6.8uF	20%	6.3V	C911	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C707	1-104-912-11	TANTAL. CHIP	3.3uF	20%	6.3V	C912	1-115-169-11	TANTALUM	10uF	20%	6.3V
C708	1-119-749-11	TANTAL. CHIP	33uF	20%	4V	C913	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C709	1-104-912-11	TANTAL. CHIP	3.3uF	20%	6.3V	C914	1-128-964-11	TANTAL. CHIP	100uF	20%	6.3V
C710	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C915	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C711	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V	C916	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C712	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V	C917	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C713	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C918	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C714	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C919	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C715	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C920	1-125-889-11	CERAMIC CHIP	2.2uF	10%	10V
C801	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C922	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C802	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C923	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C803	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C924	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C804	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V	C925	1-126-246-11	ELECT CHIP	220uF	20%	4V
C805	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V	C926	1-126-246-11	ELECT CHIP	220uF	20%	4V
C806	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C927	1-126-246-11	ELECT CHIP	220uF	20%	4V
C807	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	50V	C928	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C808	1-164-849-11	CERAMIC CHIP	9PF	0.5PF	50V	C929	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C809	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C930	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C810	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V	C931	1-125-889-11	CERAMIC CHIP	2.2uF	10%	10V
C811	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V	C932	1-128-964-11	TANTAL. CHIP	100uF	20%	6.3V
C812	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C933	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C813	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V			< CONNECTOR >			
C814	1-164-935-11	CERAMIC CHIP	470PF	10%	50V						
C815	1-131-862-11	TANTAL. CHIP	47uF	20%	4V	CN501	1-573-360-21	CONNECTOR, FFC/FPC 20P			
C816	1-125-889-11	CERAMIC CHIP	2.2uF	10%	10V	CN701	1-573-355-11	CONNECTOR, FFC/FPC 15P			
C817	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	CN801	1-573-354-11	CONNECTOR, FFC/FPC 14P			
C818	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V			< DIODE >			
C819	1-127-772-11	CERAMIC CHIP	0.033uF	10%	10V						
C820	1-127-772-11	CERAMIC CHIP	0.033uF	10%	10V	D101	8-719-056-72	DIODE UDZ-TE-17-2.4B			
C821	1-131-862-11	TANTAL. CHIP	47uF	20%	4V	D201	8-719-056-72	DIODE UDZ-TE-17-2.4B			
C822	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	D301	8-719-066-17	DIODE FTZ6.8E-T148			
C823	1-107-820-11	CERAMIC CHIP	0.1uF	10%	16V	D601	8-719-081-35	DIODE MA2YD1700LS0			
C824	1-164-874-11	CERAMIC CHIP	100PF	5%	50V	D602	8-719-081-35	DIODE MA2YD1700LS0			
C825	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V	D603	8-719-081-33	DIODE MA2YD1500LS0			
C826	1-107-820-11	CERAMIC CHIP	0.1uF	10%	16V	D604	8-719-081-33	DIODE MA2YD1500LS0			
C828	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	D802	8-719-017-58	DIODE MA8068			
C829	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	D901	8-719-081-33	DIODE MA2YD1500LS0			
C830	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	D902	8-719-081-33	DIODE MA2YD1500LS0			
C851	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	D903	8-719-420-51	DIODE MA729			
C853	1-164-874-11	CERAMIC CHIP	100PF	5%	50V	D904	8-719-081-33	DIODE MA2YD1500LS0			
C854	1-164-874-11	CERAMIC CHIP	100PF	5%	50V	D905	8-719-081-33	DIODE MA2YD1500LS0			
C855	1-164-874-11	CERAMIC CHIP	100PF	5%	50V	D906	8-719-081-33	DIODE MA2YD1500LS0			
C856	1-164-874-11	CERAMIC CHIP	100PF	5%	50V	D908	8-719-404-50	DIODE MA111-TX			
C902	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V			< JUMPER RESISTOR >			
C903	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V						
C904	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	FB301	1-216-864-11	METAL CHIP	0	5%	1/16W
C905	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	FB302	1-216-864-11	METAL CHIP	0	5%	1/16W
C906	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	FB303	1-216-864-11	METAL CHIP	0	5%	1/16W
C907	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V	FB304	1-216-864-11	METAL CHIP	0	5%	1/16W
C908	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V	FB801	1-216-864-11	METAL CHIP	0	5%	1/16W
C909	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V						(EXCEPT US,CND)

MZ-R501/R501PC

Ver 1.1

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
FB801	1-414-226-21	INDUCTOR, FERRITE BEAD (US,CND)				< RESISTOR >	
FB802	1-216-864-11	METAL CHIP	0 5% 1/16W	R102	1-218-990-11	SHORT	0
FB803	1-216-864-11	METAL CHIP	0 5% 1/16W	R103	1-218-967-11	RES-CHIP	15K 5% 1/16W
FB804	1-216-864-11	METAL CHIP	0 5% 1/16W	R105	1-218-961-11	RES-CHIP	4.7K 5% 1/16W
FB806	1-216-864-11	METAL CHIP	0 5% 1/16W	R106	1-208-635-11	RES-CHIP	10 5% 1/16W
		< IC >		R107	1-218-963-11	RES-CHIP	6.8K 5% 1/16W
IC301	8-759-694-88	IC AK5354VT-E2		R108	1-208-715-11	METAL CHIP	22K 0.5% 1/16W
IC302	8-759-598-15	IC TA2131FL(EL)		R109	1-208-927-11	METAL CHIP	47K 0.5% 1/16W
IC501	8-759-689-67	IC SN761057DBT		R110	1-218-990-11	SHORT	0
IC601	8-759-698-60	IC XPC18A22FCR2		R111	1-218-990-11	SHORT	0
IC701	8-759-698-62	IC SC111257FCR2		R112	1-218-969-11	RES-CHIP	22K 5% 1/16W (EXCEPT US)
@ IC801	8-752-410-50	IC CXD2671-204GA		R202	1-218-990-11	SHORT	0
IC804	8-759-445-94	IC AK6480AM-E2		R203	1-218-967-11	RES-CHIP	15K 5% 1/16W
IC805	8-759-196-97	IC TC7SH32FU-TE85R		R205	1-218-961-11	RES-CHIP	4.7K 5% 1/16W
IC901	8-759-698-61	IC XPC18A32FCR2		R206	1-208-635-11	RES-CHIP	10 5% 1/16W
		< JACK >		R207	1-218-963-11	RES-CHIP	6.8K 5% 1/16W
J301	1-793-619-21	JACK (LINE IN (OPTICAL))		R208	1-208-715-11	METAL CHIP	22K 0.5% 1/16W
J302	1-794-084-31	JACK (⌀)		R209	1-208-927-11	METAL CHIP	47K 0.5% 1/16W
J901	1-785-383-11	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 3V)	R210	1-218-990-11	SHORT	0
		< COIL >		R211	1-218-990-11	SHORT	0
L301	1-414-398-11	INDUCTOR	10uH	R212	1-218-969-11	RES-CHIP	22K 5% 1/16W (EXCEPT US)
L303	1-414-398-11	INDUCTOR	10uH	R301	1-218-990-11	SHORT	0
L501	1-414-398-11	INDUCTOR	10uH	R303	1-218-935-11	RES-CHIP	33 5% 1/16W
L502	1-414-398-11	INDUCTOR	10uH	R304	1-218-990-11	SHORT	0
L601	1-419-959-21	COIL, CHOKE	6.8uH	R306	1-218-963-11	RES-CHIP	6.8K 5% 1/16W
L602	1-414-398-11	INDUCTOR	10uH	R307	1-218-941-11	RES-CHIP	100 5% 1/16W
L701	1-414-400-41	INDUCTOR	22uH	R308	1-218-941-11	RES-CHIP	100 5% 1/16W
L702	1-414-400-41	INDUCTOR	22uH	R309	1-218-941-11	RES-CHIP	100 5% 1/16W
L703	1-410-389-31	INDUCTOR CHIP	47uH	R312	1-218-990-11	SHORT	0
L704	1-410-389-31	INDUCTOR CHIP	47uH	R313	1-218-989-11	RES-CHIP	1M 5% 1/16W
L801	1-414-398-11	INDUCTOR	10uH	R314	1-218-953-11	RES-CHIP	1K 5% 1/16W
L802	1-414-398-11	INDUCTOR	10uH	R315	1-218-953-11	RES-CHIP	1K 5% 1/16W
L901	1-469-367-21	INDUCTOR	10uH	R316	1-218-953-11	RES-CHIP	1K 5% 1/16W
L902	1-414-398-11	INDUCTOR	10uH	R317	1-218-990-11	SHORT	0
L903	1-419-952-21	COIL, CHOKE	68uH	R501	1-218-446-11	METAL CHIP	1 5% 1/16W
L904	1-469-426-21	INDUCTOR	100uH	R502	1-218-971-11	RES-CHIP	33K 5% 1/16W
L905	1-419-949-21	COIL, CHOKE	22uH	R504	1-208-703-11	METAL CHIP	6.8K 0.5% 1/16W
		< TRANSISTOR >		R505	1-218-977-11	RES-CHIP	100K 5% 1/16W
Q301	8-729-037-52	TRANSISTOR 2SD2216J-QR(TX)		R506	1-208-691-11	METAL CHIP	2.2K 0.5% 1/16W
Q302	8-729-046-49	FET FDV304P		R508	1-218-990-11	SHORT	0
Q501	8-729-922-10	TRANSISTOR 2SA1577-QR		R510	1-218-953-11	RES-CHIP	1K 5% 1/16W
Q601	8-729-046-43	FET HAT2051T-EL		R601	1-218-983-11	RES-CHIP	330K 5% 1/16W
Q602	8-729-046-42	FET HAT2050T-EL		R602	1-219-724-11	METAL CHIP	1 1% 1/4W
Q603	8-729-053-71	FET TS8K1TB		R603	1-218-965-11	RES-CHIP	10K 5% 1/16W
Q851	8-729-429-44	TRANSISTOR XP1501		R604	1-218-990-11	SHORT	0
Q902	8-729-046-45	FET SI2302DS-T1		R605	1-218-990-11	SHORT	0
Q903	8-729-042-81	FET FZT788BTC		R608	1-218-957-11	RES-CHIP	2.2K 5% 1/16W
				R610	1-218-965-11	RES-CHIP	10K 5% 1/16W
				R611	1-216-797-11	METAL CHIP	10 5% 1/16W
				R616	1-218-945-11	RES-CHIP	220 5% 1/16W
				R618	1-218-990-11	SHORT	0

@ Replacement of CXD2671-204GA (IC801) used in this set requires a special tool. Therefore, it cannot be replaced.

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R801	1-218-990-11	SHORT	0			R931	1-218-990-11	SHORT	0		
R804	1-218-990-11	SHORT	0			R933	1-218-990-11	SHORT	0		
R805	1-218-981-11	RES-CHIP	220K	5%	1/16W	R936	1-218-990-11	SHORT	0		
R806	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R939	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R807	1-208-927-11	METAL CHIP	47K	0.5%	1/16W			< NETWORK RESISTOR >			
R808	1-218-959-11	RES-CHIP	3.3K	5%	1/16W	RB701	1-233-967-11	RES, NETWORK (CHIP TYPE) 10K			
R809	1-218-959-11	RES-CHIP	3.3K	5%	1/16W	RB702	1-233-959-21	RES, NETWORK (CHIP TYPE) 470			
R810	1-218-949-11	RES-CHIP	470	5%	1/16W	RB703	1-233-973-11	RES, NETWORK (CHIP TYPE) 100K			
R811	1-208-635-11	RES-CHIP	10	5%	1/16W	RB851	1-233-973-11	RES, NETWORK (CHIP TYPE) 100K			
R812	1-218-965-11	RES-CHIP	10K	5%	1/16W			< SWITCH >			
R813	1-218-977-11	RES-CHIP	100K	5%	1/16W	S801	1-762-078-11	SWITCH, SLIDE (HOLD)			
R814	1-218-977-11	RES-CHIP	100K	5%	1/16W	S803	1-771-867-11	SWITCH, PUSH (1 KEY) (PROTECT DETECT)			
R815	1-208-635-11	RES-CHIP	10	5%	1/16W	S805	1-786-079-21	SWITCH, PUSH (1 KEY) (HALF LOCK)			
R818	1-218-981-11	RES-CHIP	220K	5%	1/16W	S806	1-762-805-21	SWITCH, PUSH (1 KEY) (OPEN/CLOSE DETECT)			
R819	1-218-953-11	RES-CHIP	1K	5%	1/16W			< FILTER >			
R820	1-218-959-11	RES-CHIP	3.3K	5%	1/16W	T901	1-416-405-21	FILTER, CHIP EMI (COMMON MODE)			
R821	1-218-945-11	RES-CHIP	220	5%	1/16W			< THERMISTOR >			
R823	1-202-974-11	RES-CHIP	3.3M	5%	1/16W	TH901	1-533-817-21	THERMISTOR			
R825	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W			< VIBRATOR >			
R826	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W	X801	1-795-024-21	VIBRATOR, CRYSTAL (45.1584MHz)			
R827	1-218-989-11	RES-CHIP	1M	5%	1/16W			*****			
R829	1-218-990-11	SHORT	0					MISCELLANEOUS			
R830	1-218-957-11	RES-CHIP	2.2K	5%	1/16W			*****			
R831	1-218-990-11	SHORT	0			6	1-804-218-12	LCD MODULE			
R832	1-218-990-11	SHORT	0			114	1-679-762-11	MOTOR FLEXIBLE BOARD			
R833	1-218-990-11	SHORT	0			△ 120	X-3379-508-1	SERVICE ASSY, OP (LCX-4R)			
R834	1-216-809-11	METAL CHIP	100	5%	1/16W	M601	8-835-706-01	MOTOR, DC SSM18A/C-SP (SPINDLE)			
R837	1-218-983-11	RES-CHIP	330K	5%	1/16W			(with TURNTABLE)			
R838	1-218-990-11	SHORT	0			M602	1-763-399-11	MOTOR, DC (SLED) (with GEAR)			
R839	1-218-990-11	SHORT	0			M603	1-763-400-21	MOTOR, DC (OVER WRITE HEAD UP/DOWN)			
R840	1-218-990-11	SHORT	0					*****			
R842	1-208-715-11	METAL CHIP	22K	0.5%	1/16W						
R843	1-208-939-11	METAL CHIP	150K	0.5%	1/16W						
R852	1-218-990-11	SHORT	0								
R905	1-218-949-11	RES-CHIP	470	5%	1/16W						
R906	1-218-985-11	RES-CHIP	470K	5%	1/16W						
R907	1-218-977-11	RES-CHIP	100K	5%	1/16W						
R908	1-208-715-11	METAL CHIP	22K	0.5%	1/16W						
R909	1-208-695-11	METAL CHIP	3.3K	0.5%	1/16W						
R912	1-208-939-11	METAL CHIP	150K	0.5%	1/16W						
R913	1-208-715-11	METAL CHIP	22K	0.5%	1/16W						
R914	1-218-979-11	RES-CHIP	150K	5%	1/16W						
R915	1-208-707-11	METAL CHIP	10K	0.5%	1/16W						
R916	1-218-969-11	RES-CHIP	22K	5%	1/16W						
R917	1-218-957-11	RES-CHIP	2.2K	5%	1/16W						
R918	1-218-985-11	RES-CHIP	470K	5%	1/16W						
R920	1-218-957-11	RES-CHIP	2.2K	5%	1/16W						
R921	1-218-965-11	RES-CHIP	10K	5%	1/16W						
R922	1-218-965-11	RES-CHIP	10K	5%	1/16W						
R925	1-218-941-11	RES-CHIP	100	5%	1/16W						
R927	1-218-981-11	RES-CHIP	220K	5%	1/16W						
R928	1-218-977-11	RES-CHIP	100K	5%	1/16W						
R929	1-218-989-11	RES-CHIP	1M	5%	1/16W						

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

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

MZ-R501/R501PC

Ver 1.1

Ref. No.	Part No.	Description	Remark
		ACCESSORIES *****	
△	1-418-784-11	ADAPTOR, AC (AC-MZR55) (CH)	
△	1-476-857-11	ADAPTOR, AC (AC-ES305) (AEP,FR,EE)	
△	1-476-858-11	ADAPTOR, AC (AC-ES305) (UK)	
△	1-476-861-11	ADAPTOR, AC (AC-ES305) (AR)	
	1-779-504-11	CONNECTOR, OPTICAL (EXCEPT R501:US,E)	
	1-796-016-21	MD-PORT, AN-1 (R501PC)	
	3-232-310-12	MANUAL, INSTRUCTION (for PC link kit) (ENGLISH,FRENCH,SPANISH, PORTUGUESE) (R501PC:E)	
	3-232-310-31	MANUAL, INSTRUCTION (for PC link kit) (ENGLISH,RUSSIAN,HUNGARIAN, POLISH,CZECH,SLOVAKIAN) (R501PC:EE)	
	3-232-310-41	MANUAL, INSTRUCTION (for PC link kit) (TRADITIONAL CHINESE,KOREAN) (R501PC:E)	
	3-234-036-12	MANUAL, INSTRUCTION (ENGLISH) (US,CND,AEP,UK,CH,EE)	
	3-234-036-22	MANUAL, INSTRUCTION (FRENCH) (CND,AEP,FR)	
	3-234-036-32	MANUAL, INSTRUCTION (GERMAN,DUTCH, ITALIAN) (AEP)	
	3-234-036-42	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE,FINNISH) (AEP,E,AR)	
	3-234-036-52	MANUAL, INSTRUCTION (SWEDISH,FINNISH) (AEP)	
	3-234-036-61	MANUAL, INSTRUCTION (RUSSIAN, HUNGARIAN,POLISH,CZECH,SLOVAKIAN) (EE)	
	3-234-036-71	MANUAL, INSTRUCTION (ENGLISH, TRADITIONAL CHINESE,KOREAN) (E,TW)	
	3-234-036-81	MANUAL, INSTRUCTION (SIMPLIFIED CHINESE)	
	8-954-007-93	RECEIVER, EAR MDR-027LP/1 (US)	
	8-954-008-92	RECEIVER, EAR MDR-E808LP (EXCEPT US)	

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