

MZ-B10

SERVICE MANUAL

Ver 1.2 2003.09

US Model
AEP Model
Tourist Model



US and foreign patents licensed from Dolby Laboratories.

Model Name Using Similar Mechanism	NEW
Mechanism Type	MT-MZN710-177
Optical Pick-up Name	LCX-5R

SPECIFICATIONS

Audio playing system

MiniDisc digital audio system

Laser diode properties

Material: GaAlAs

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

Emission duration: continuous

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

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

Recording and playback time

When using MDW-80

Maximum 160 min. in monaural.

Maximum 320 min. in LP4 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/LP4

Modulation system

EFM (Eight to Fourteen Modulation)

Speakers (two units)

28 mm (1 $\frac{1}{8}$ in.) dia. per unit

Frequency response (digital/analog input)

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

Inputs

Microphone: stereo mini-jack (minimum input level 0.25 mV)

Line in¹⁾:

stereo mini-jack for analog input (minimum input level 39 mV)

optical (digital) mini-jack for optical (digital) input

Outputs

Ⓜ: stereo mini-jack (dedicated remote control jack)

Maximum output (DC)²⁾

Headphones/earphones: 5 mW + 5 mW (16 Ω)

Speakers (monaural): 140 mW (70 mW $\times 2$)

General

Power requirements

AC power adaptor DC 3V

LR6 (size AA) alkaline dry battery

Dimensions²⁾

Approx. 117.2 \times 23.0 \times 74.4 mm (w/h/d)
(4 $\frac{5}{8}$ \times 2 $\frac{9}{32}$ \times 3 in.) not incl. projecting parts and controls.

Mass

Approx. 150 g (5.3 oz) (main unit only)

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

²⁾ Measured in accordance with JEITA.

Supplied accessories

Headphones/earphones (1)

Carrying pouch (1)

Handstrap (1)

Clamp filter for the AC power adaptor (1)

Attach the clamp filter when using the optional AC power adaptor.

LR6 (size AA) alkaline dry batteries (2) (World model only)

Design and specifications are subject to change without notice.

— Continued on next page —

PORTABLE MINIDISC RECORDER

9-877-031-03

2003I16-1

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Sony Corporation

Personal Audio Company

Published by Sony Engineering Corporation

SONY®

Battery life

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

When recording¹⁾²⁾

(Unit: approx.hours)(JEITA³⁾)

Recording mode	Approx. hours
SP	24
LP2	34
LP4	48
MONO	34

¹⁾ When using a Sony LR6 (SG) "STAMINA" alkaline dry batteries (produced in Japan) and "PowerMode" is set to "NORMAL" (page 40). Setting "PowerMode" to "QUICK" result in a shorter battery life (page 40).

²⁾ When recorded with the built-in microphone.

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

When playing¹⁾

(Unit: approx.hours)(JEITA²⁾)

Recording mode	Speaker ³⁾	Headphones/earphones ⁴⁾
SP	45	90
LP2	50	100
LP4	55	110
MONO	50	100

¹⁾ When using a Sony LR6 (SG) "STAMINA" alkaline dry batteries (produced in Japan) and "PowerMode" is set to "NORMAL" (page 40).

²⁾ Measured in accordance with the JEITA (Japan Electronics and Information Technology Industries Association) standard.

³⁾ When played using the built-in speaker.

⁴⁾ When played using headphones/earphones.

Notes

Stop the recorder before replacing batteries.
An optional AC power adaptor is recommended for long recording.

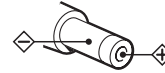
CAUTION

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

On power sources

- Use house current, LR6 (size AA) battery.
- 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



- Connect the AC power adaptor to an easily accessible AC outlet. Should you notice an abnormality in the AC power adaptor, disconnect it from the AC outlet immediately.
- The recorder is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If you are not going to use this recorder for a long time, be sure to disconnect the power supply (AC power adaptor, dry battery). To remove the AC power adaptor from the wall outlet, grasp the adaptor plug itself; never pull the cord.

Notes on chip component replacement

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

Flexible Circuit Board Repairing

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

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)



LEAD FREE MARK

Unleaded solder has the following characteristics.

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

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.

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SECTION 1 SERVICING NOTES

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

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

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

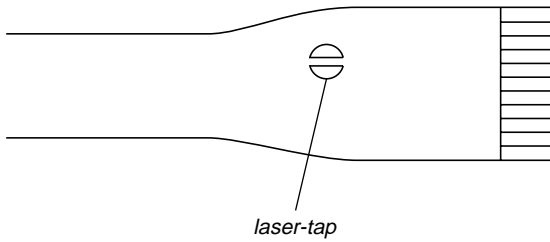
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

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

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

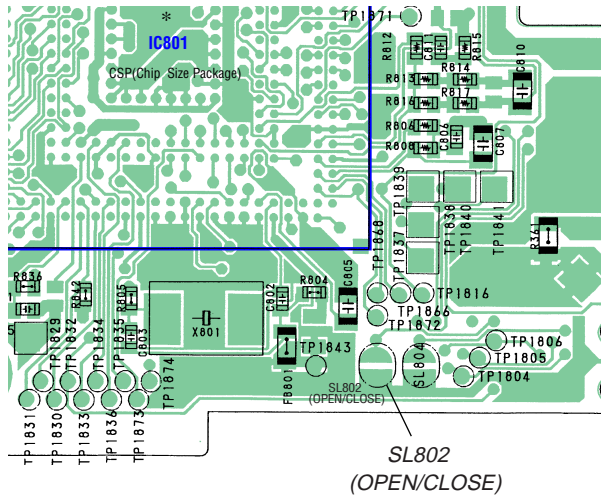
The laser diode in the optical pick-up block may suffer electrostatic break-down easily. When handling it, perform soldering bridge to the laser-tap on the flexible board. Also perform measures against electrostatic break-down sufficiently before the operation. The flexible board is easily damaged and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



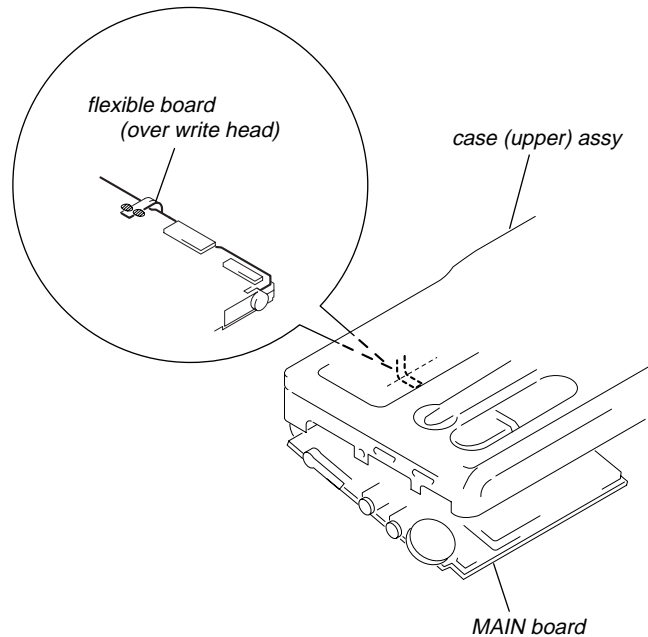
OPTICAL PICK-UP FLEXIBLE BOARD

- In performing the repair with the power supplied to the set, removing the MAIN board causes the set to be disabled. In such a case, make a solder bridge to short SL802 (OPEN CLOSE) on the MAIN board in advance.

- MAIN Board (Side B) -



- Handle the FLEXIBLE board (over write head) with care, as it has been soldered directly to the MAIN board. In repairing the component side of MAIN board, connect the FLEXIBLE board (over write head) and the MAIN board with the lead wires in advance.

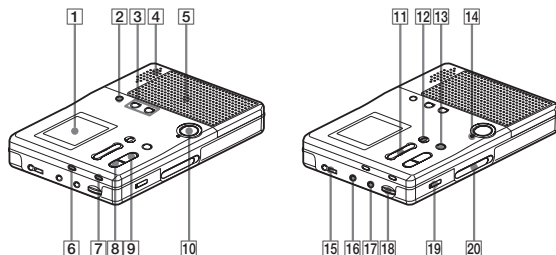


- This set requires the patch data in the nonvolatile memory (IC802) to be rewritten, when the nonvolatile memory was replaced. (See page 30)

This section is extracted from instruction manual.

Looking at the controls

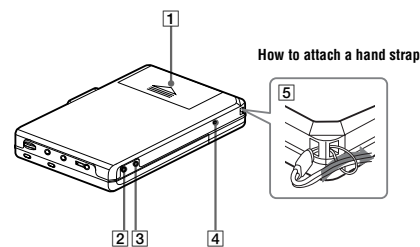
Front of the recorder



- 1 Display window
- 2 MENU/ENTER button
You can use various settings using menu items.
- 3 SPEED CONTROL +, - button
Use this button to increase or decrease the playback speed.
- 4 Built-in microphone
- 5 Speakers
- 6 REC MODE button
Use this button to select 2 times normal (LP2 or monaural) or 4 times (LP4) the normal (SP) recording time.
- 7 GROUP button
This button is used when cueing to a group or erasing a group.
- 8 ■ • STOP button
- 9 ► • PLAY (play) button
The ► • PLAY button has a tactile dot.
- 10 REC button
- 11 ◀ • REVIEW • AMS, ▶ • CUE AMS (search /AMS) buttons
- 12 TRACK MARK button
Use this button to add track marks automatically or to divide a track into separate tracks.
- 13 || • PAUSE button
- 14 REC indicator
Lights up while recording.
- 15 ◡ (headphones/earphones) jack
Connect headphones or earphones to this jack.

- 16 MIC (PLUG IN POWER) jack
Connect an optional stereo microphone to this jack to record. The MIC (PLUG IN POWER) jack has a tactile dot.
- 17 LINE IN (OPTICAL) jack
Connect an optional optical or line cable to this jack to record from a CD, etc.
- 18 VOL control
The VOL control has a tactile dot.
- 19 HOLD switch
Slide the switch in the direction of the arrow (a yellow mark appears) to disable the buttons on the recorder. To prevent the buttons from being accidentally operated when you carry the recorder, use this function.
- 20 OPEN switch

Back of the recorder

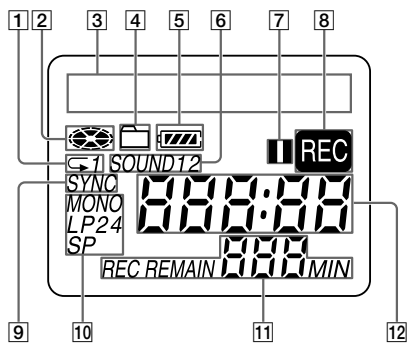


- 1 Battery compartment
Insert two alkaline dry batteries (size AA) here.
- 2 ERASE button
During playback, press this button to erase the track.
- 3 ALL ERASE button
Press ERASE while pressing this button to erase the contents of an entire disc.
- 4 DC IN 3V jack
When you connect an optional AC power adaptor, connect it to this jack.
- 5 Handstrap hole

9

10

The display window



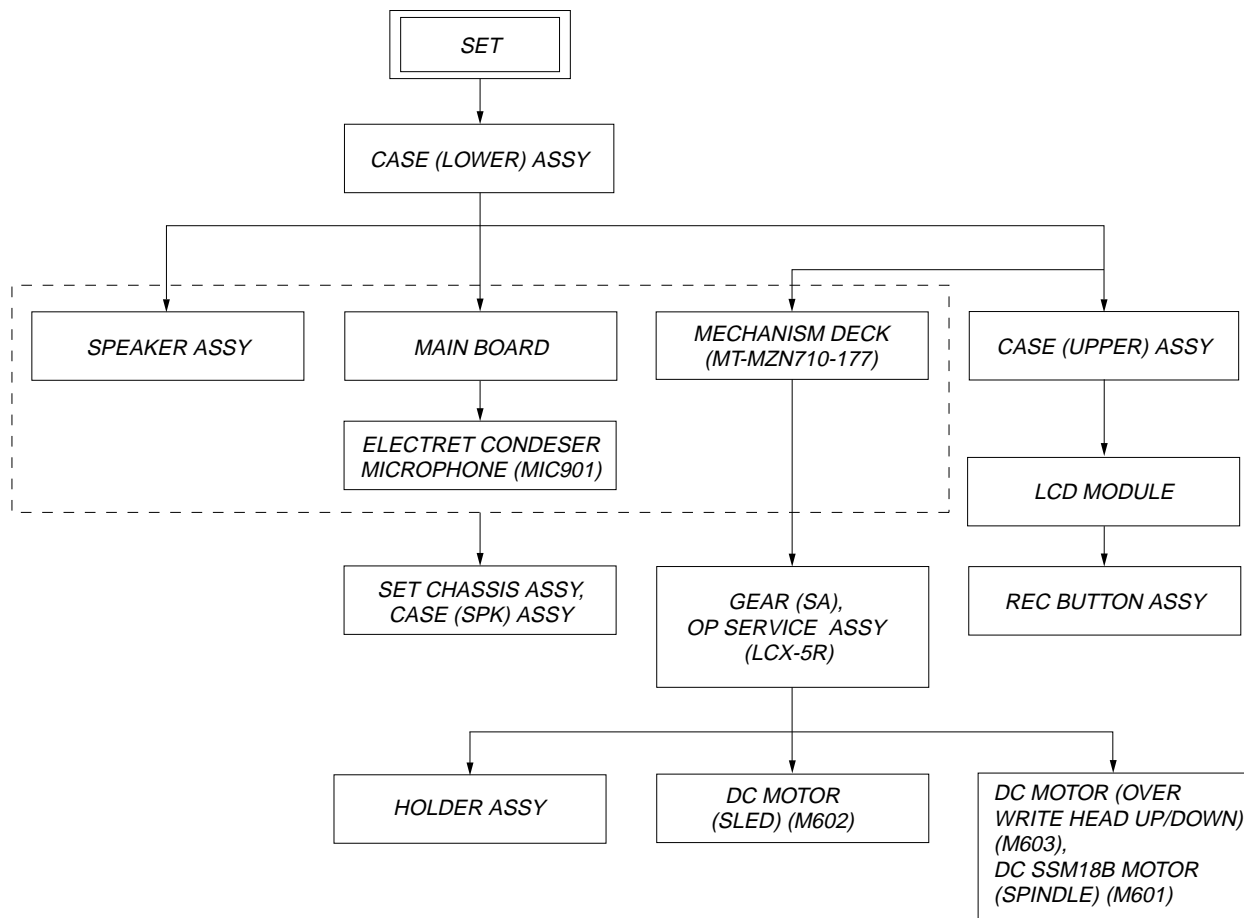
- 1 Play mode indication
Lights up when selecting specific play mode.
- 2 Disc indication
Shows that the disc is rotating for recording, playing or editing an MD.
- 3 Character information display
Displays the disc and track names, error messages, track numbers, etc.
- 4 Group indication
Lights up while in group play. Flashes while selecting a group.
- 5 Battery level indication
- 6 SOUND indication
Lights up when the sound mode (SOUND 1, SOUND 2) is selected.
- 7 Pause indication
- 8 REC indication
- 9 SYNC (synchro-recording) indication
- 10 SP, LP2, LP4, MONO indication
Shows the recording mode while recording and SP/LP mode of a track while playing.
- 11 REC REMAIN indication
Shows the remaining recordable time in a disc while recording or stopped.
- 12 Time indication
Shows the elapsed time while recording or playing.

11

SECTION 3 DISASSEMBLY

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

3-1. Disassembly Flow

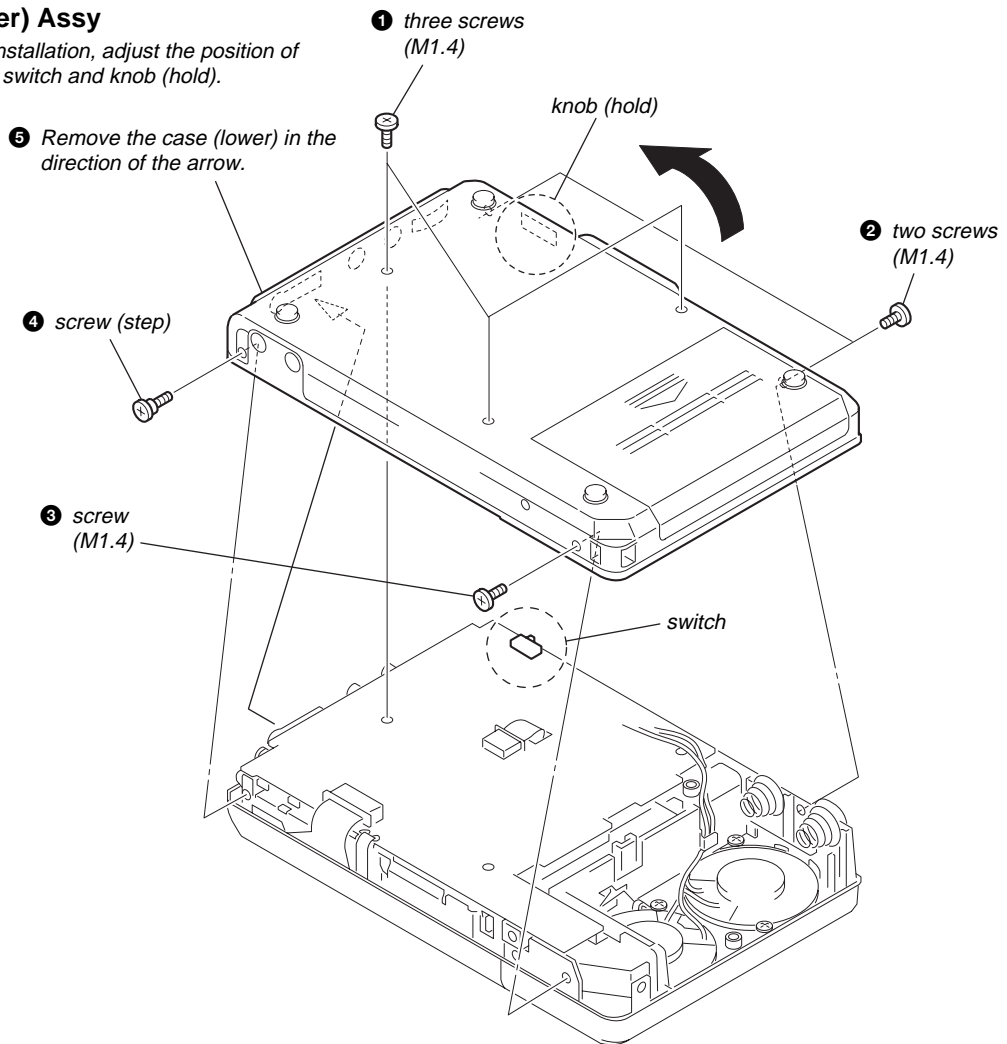


• In order to remove set chassis assy and case (spk) assy please remove MAIN board ,speaker assy , electret condenser microphone and mechanism deck.

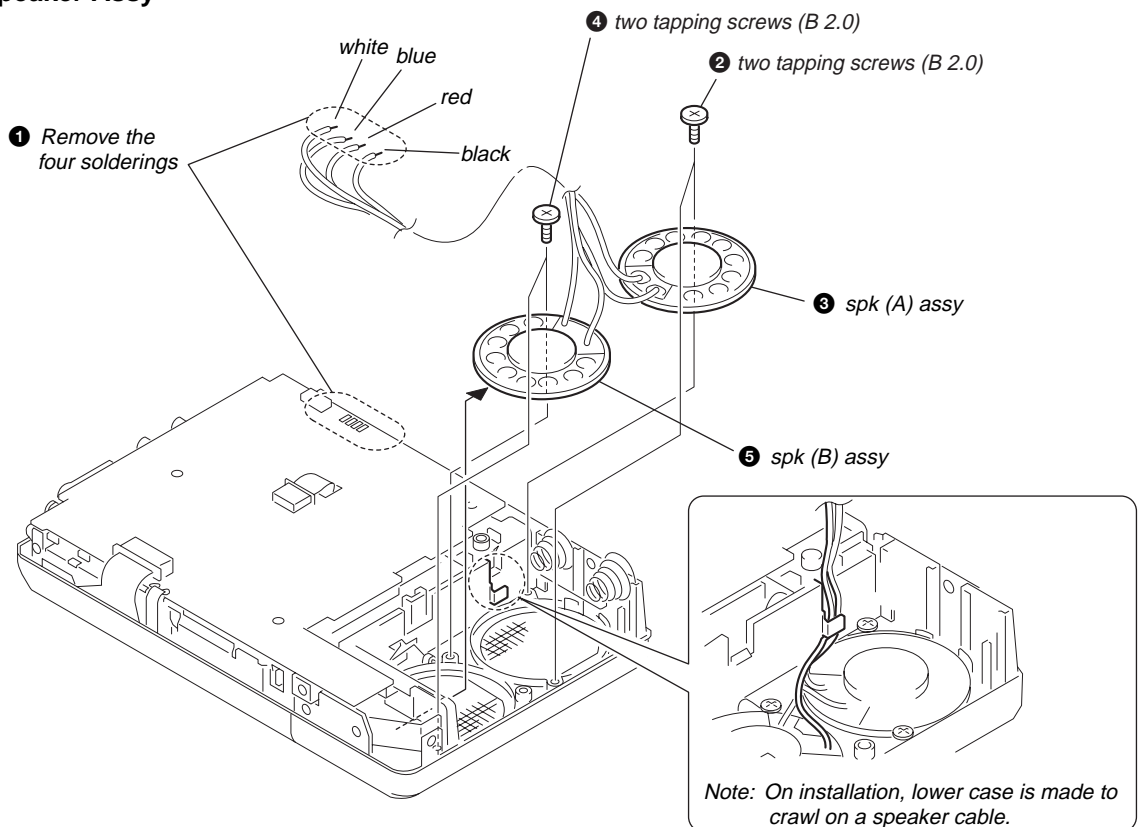
Note: Follow the disassembly procedure in the numerical order given.

3-2. Case (Lower) Assy

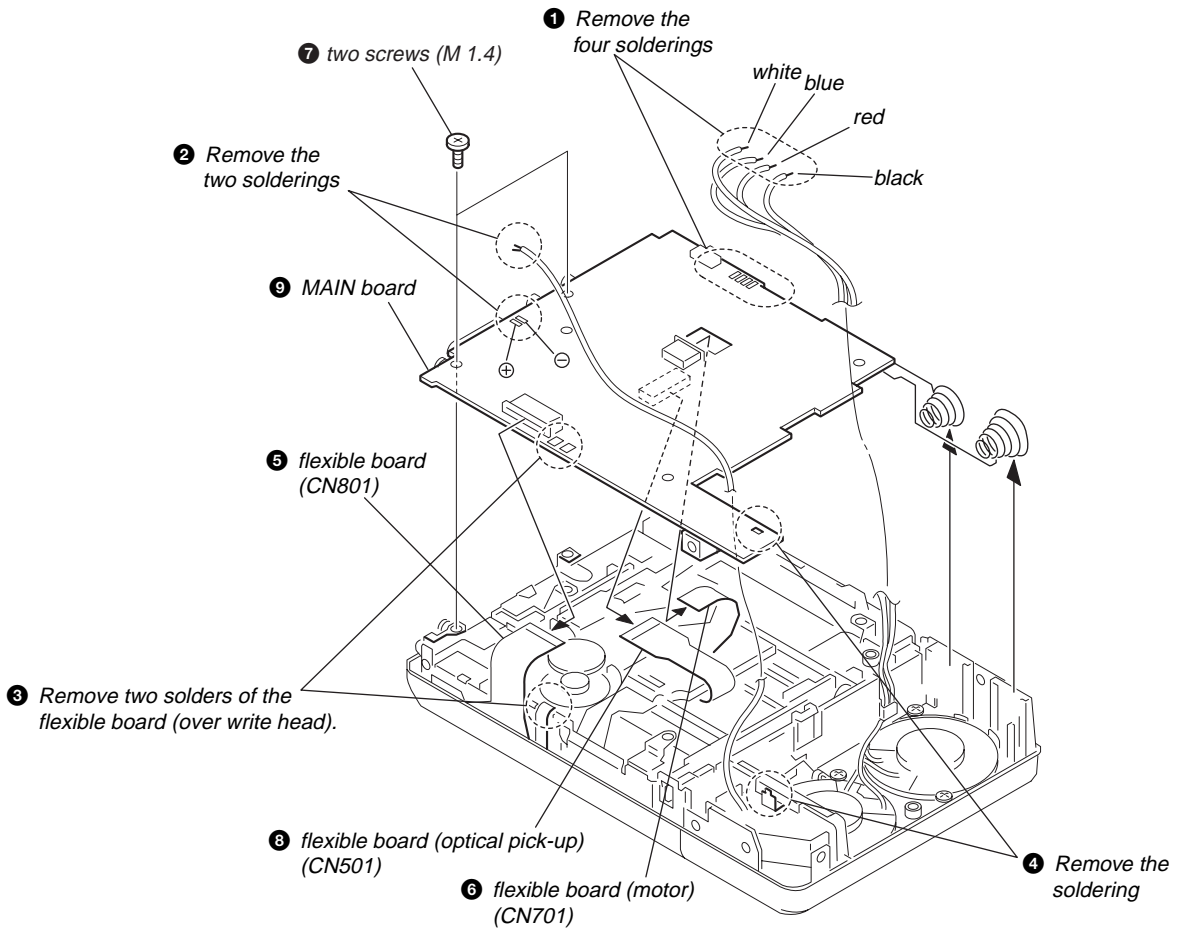
Note: On installation, adjust the position of both switch and knob (hold).



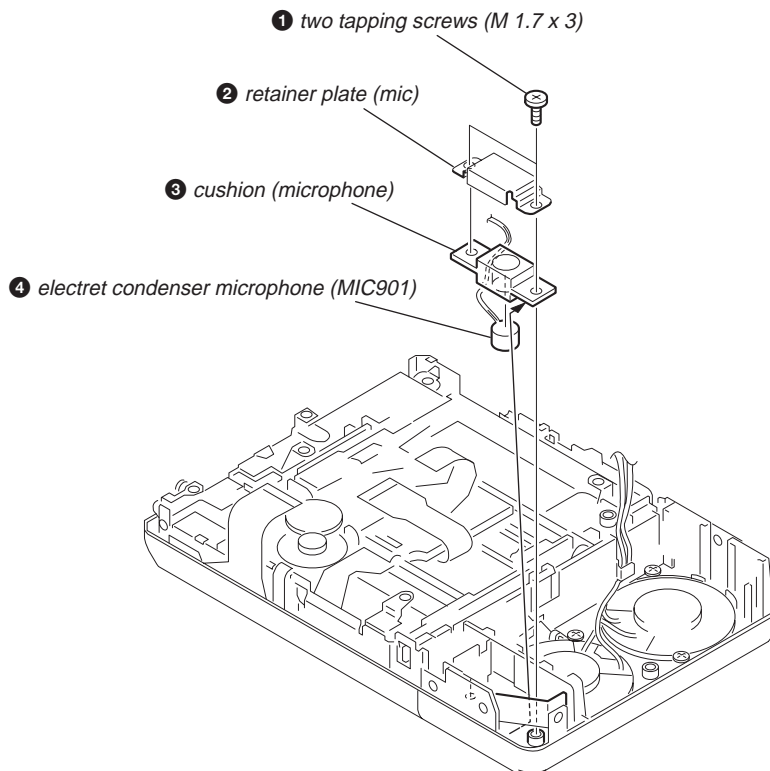
3-3. Speaker Assy



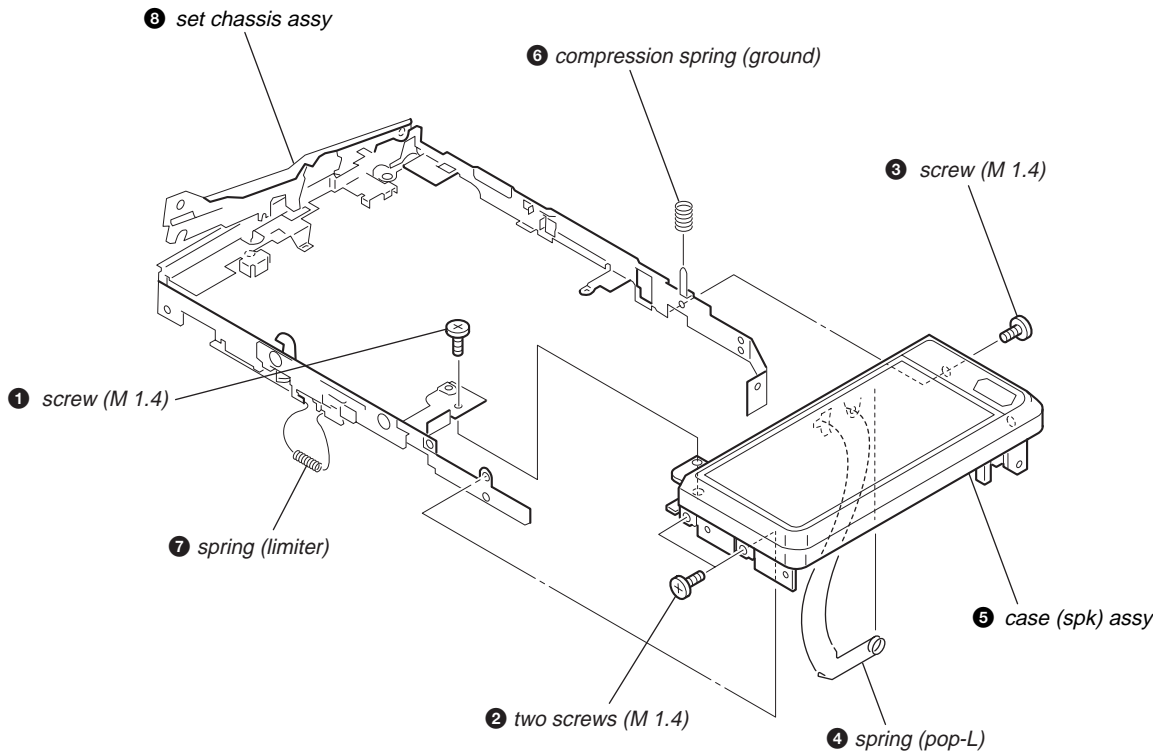
3-4. MAIN Board



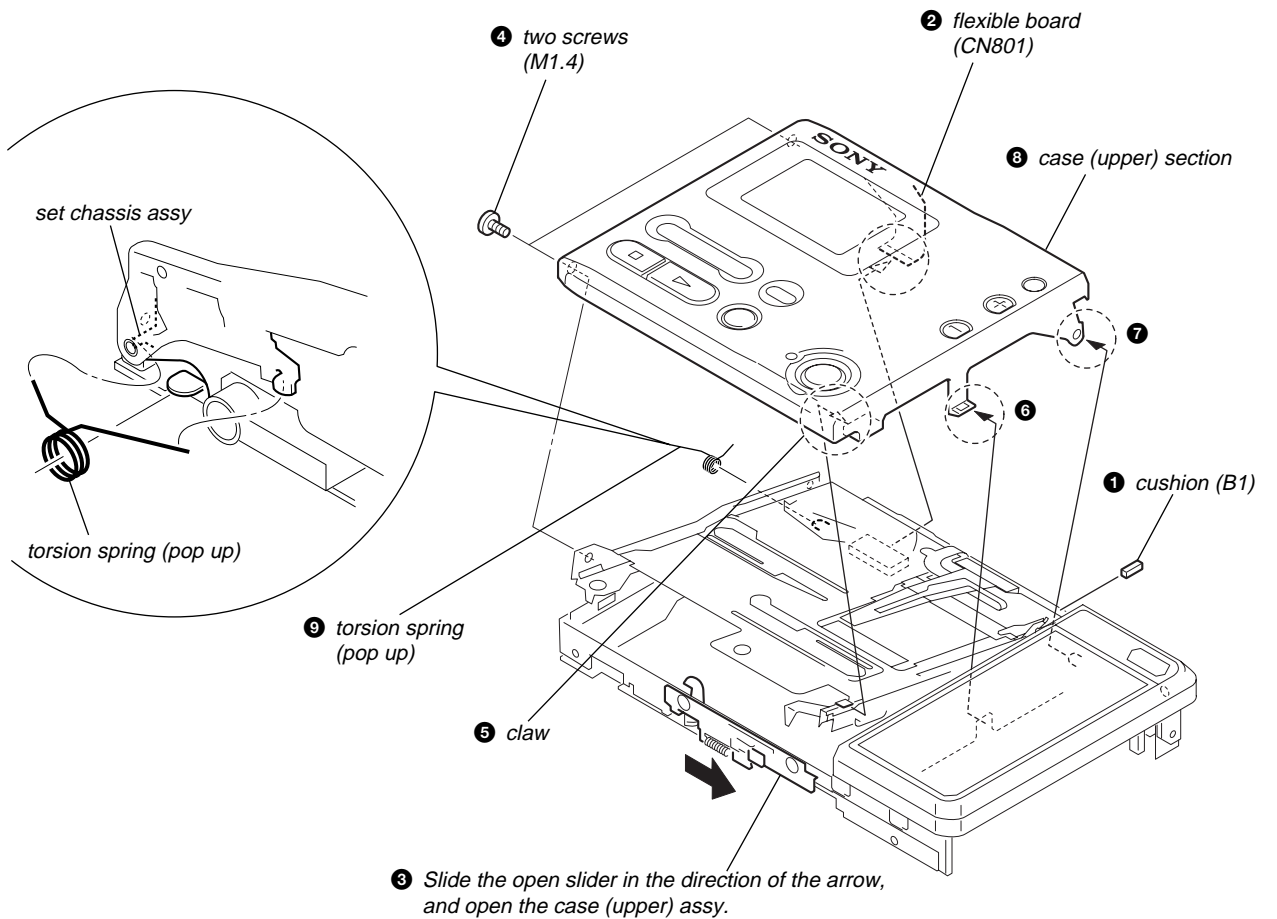
3-5. Electret Condenser Microphone (MIC901)



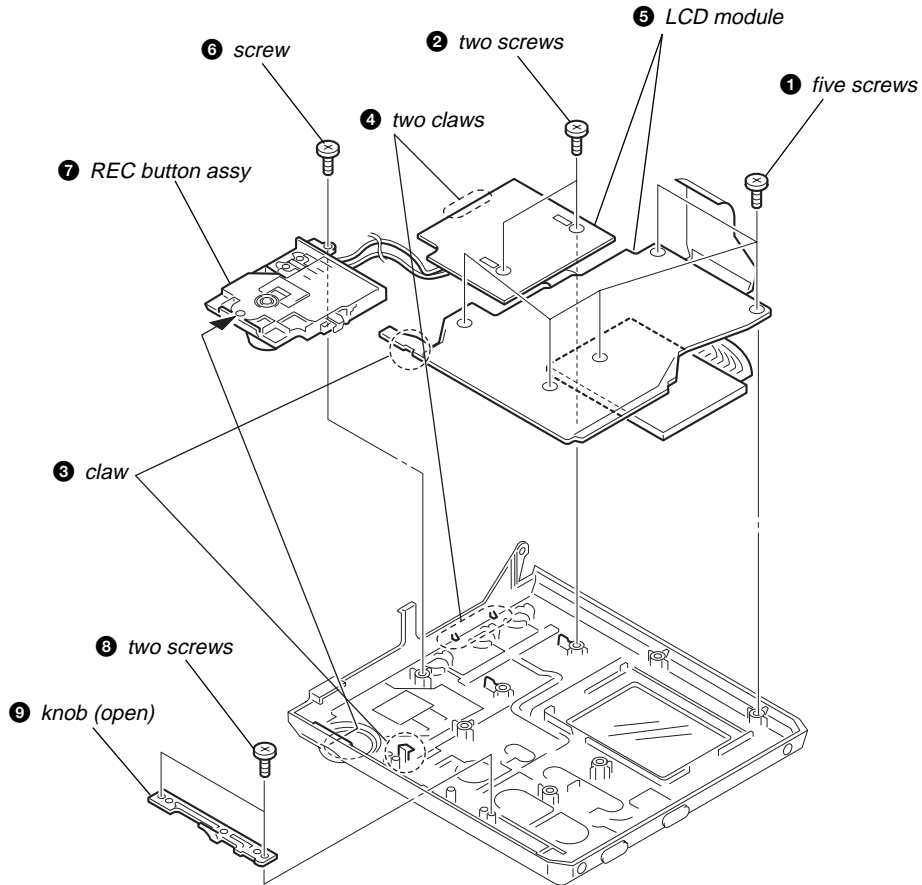
3-6. Set Chassis Assy, Case (Spk) Assy



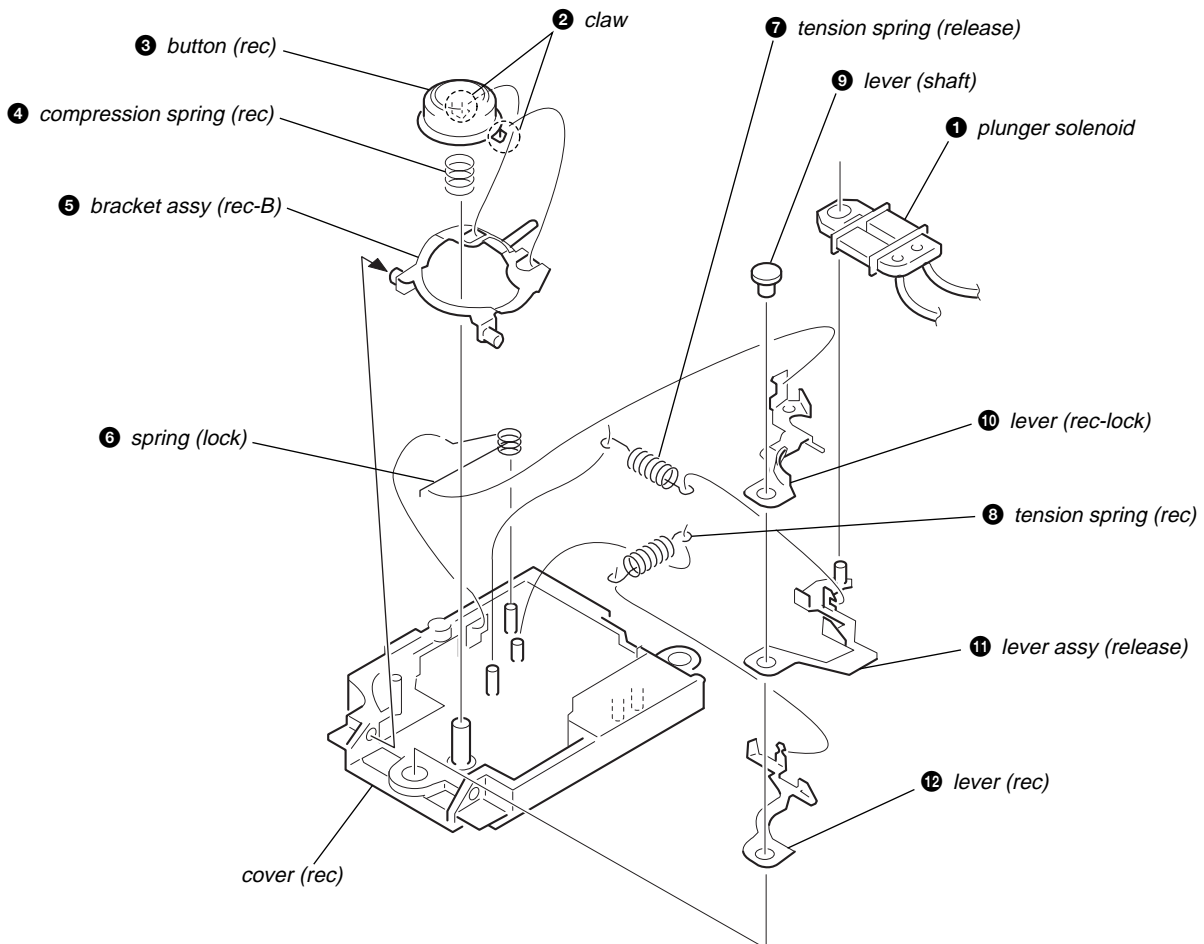
3-7. Case (Upper) Assy

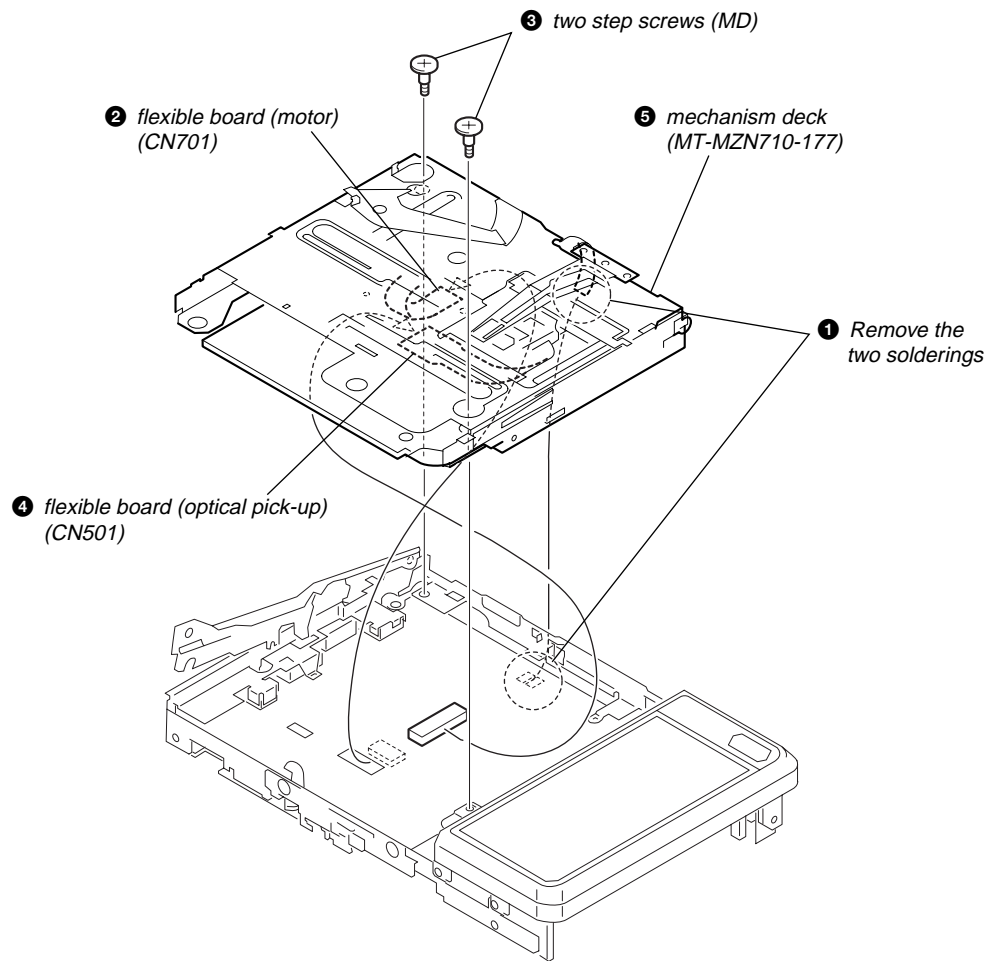


3-8. LCD Module

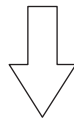
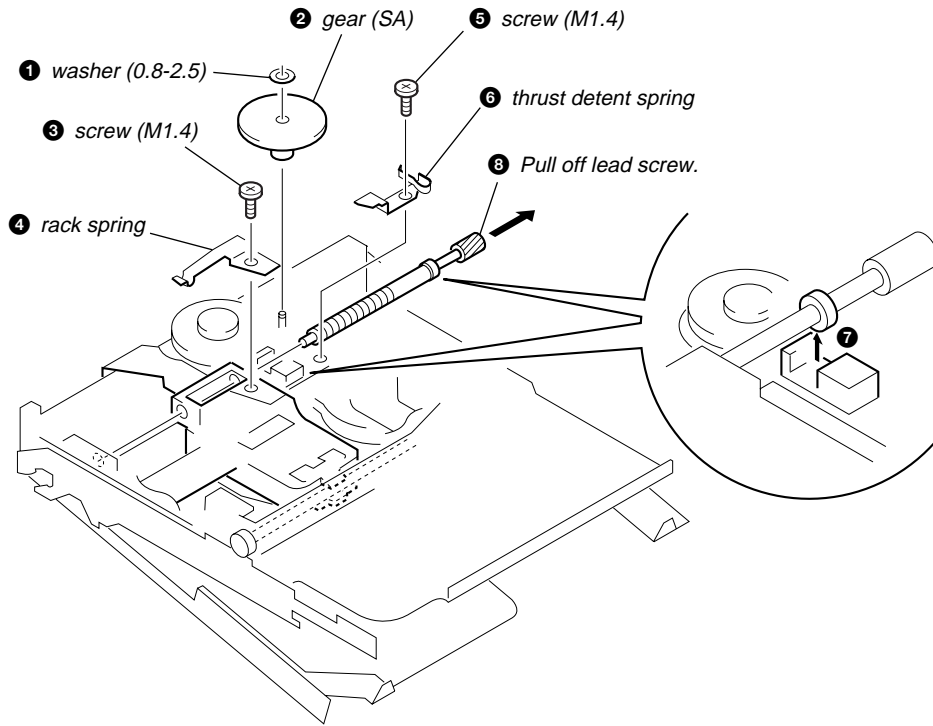


3-9. Rec Button Assy



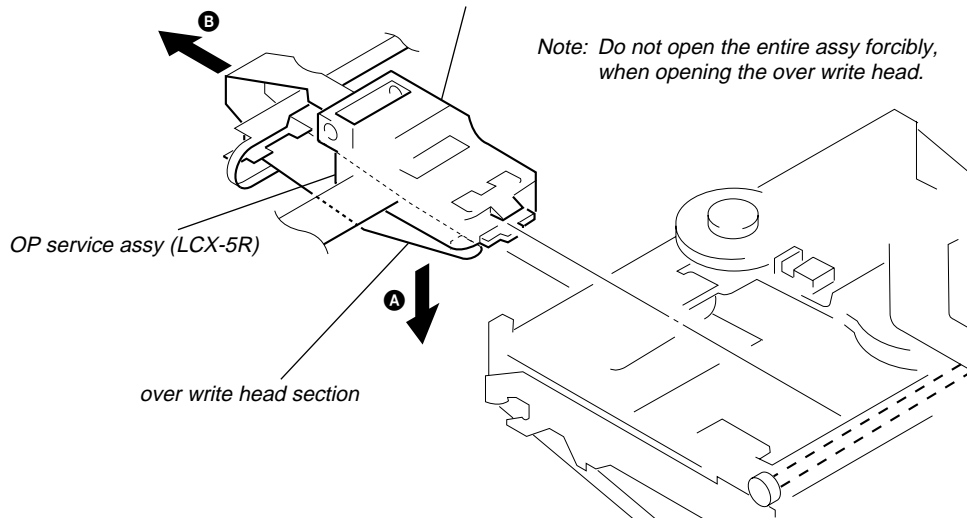
3-10. Mechanism Deck (MT-MZN710-177)

3-11. Gear (SA), OP Service Assy (LCX-5R)

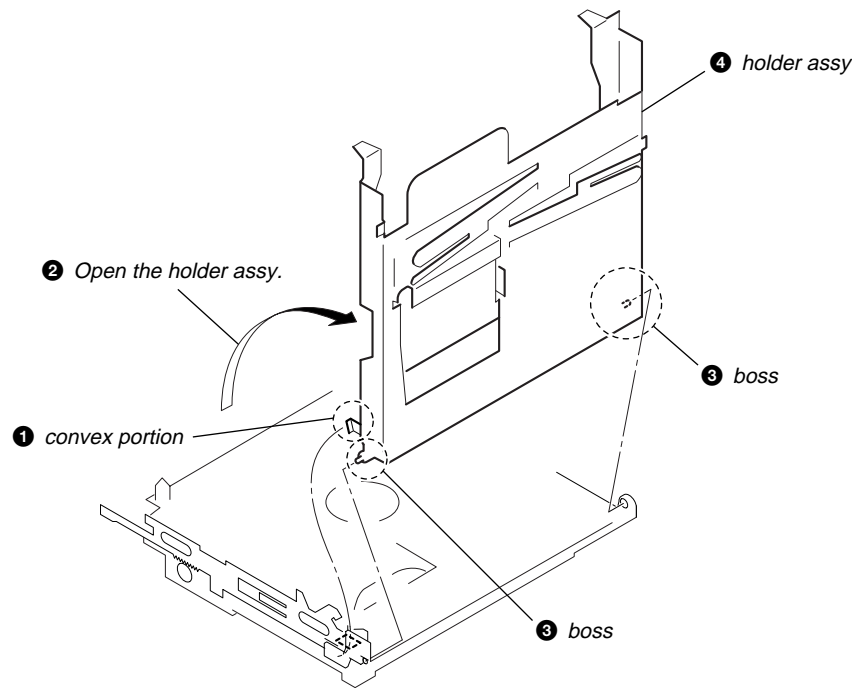


9 Opening the over write head toward the direction A, remove the OP service assy (LCX-5R) toward the direction B.

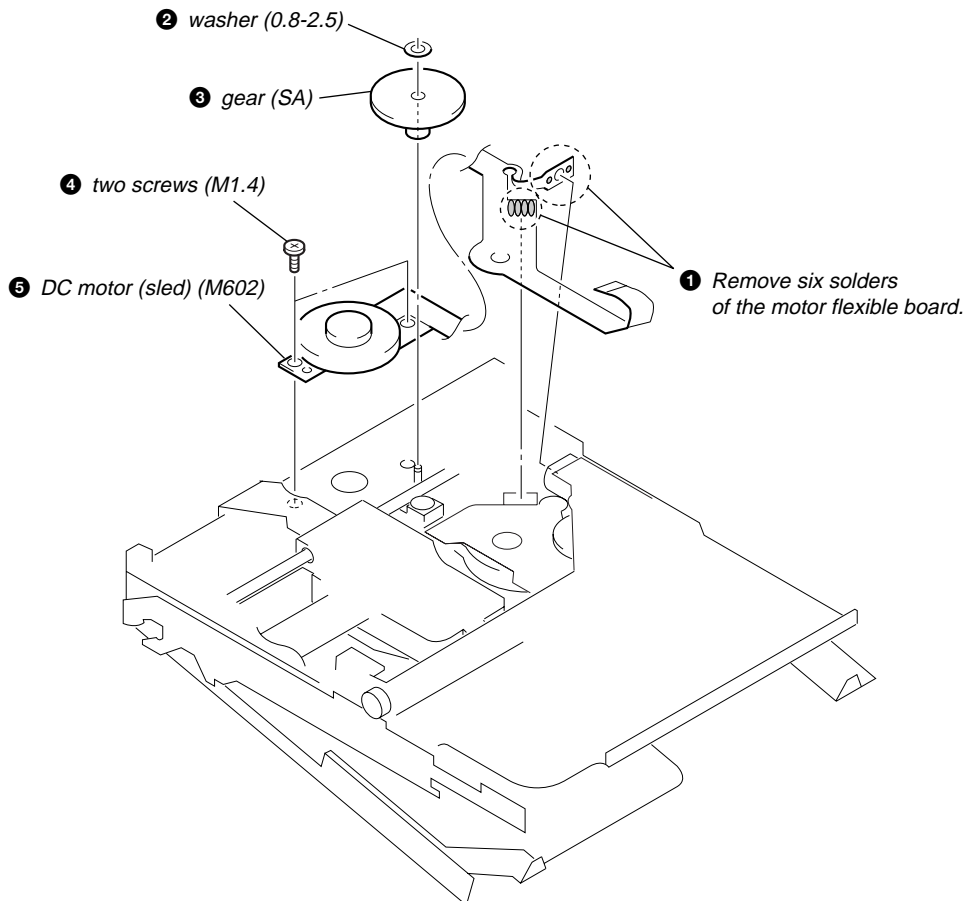
Note: Do not open the entire assy forcibly, when opening the over write head.



3-12. Holder Assy

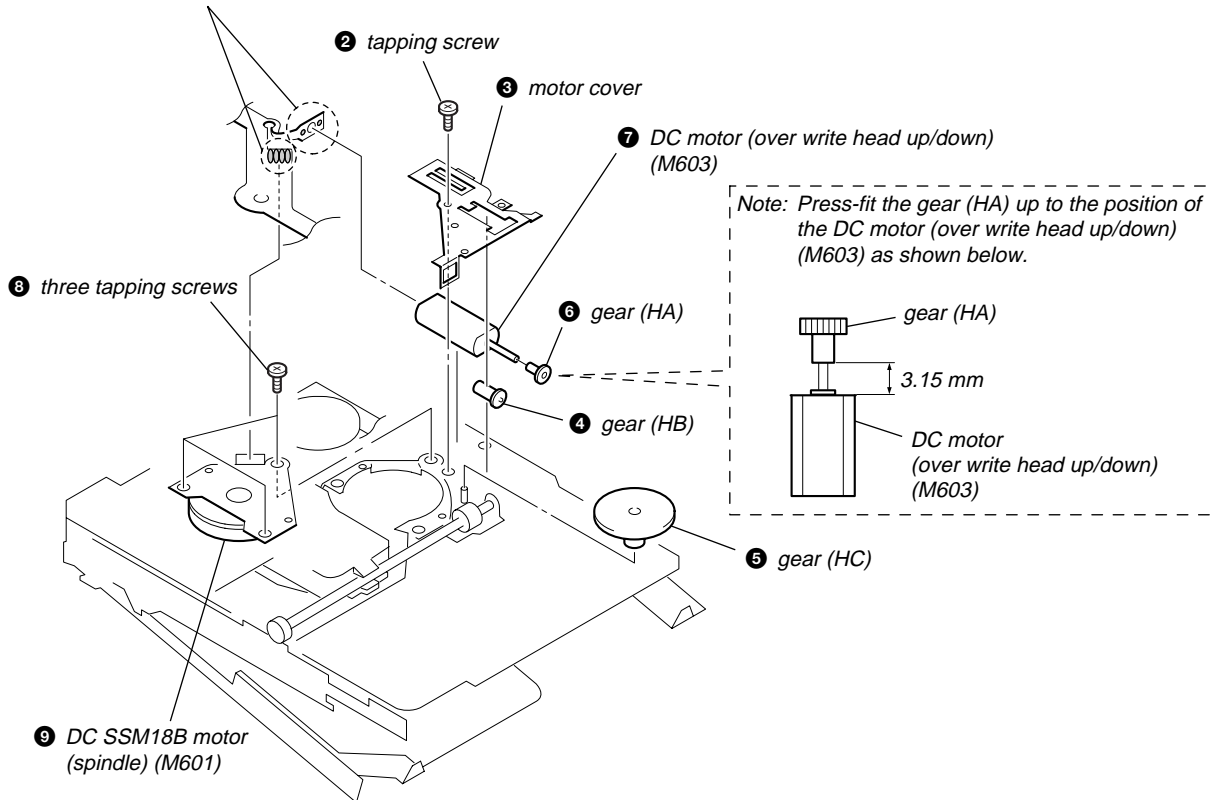


3-13. DC Motor (Sled) (M602)



3-14. DC Motor (Over Write Head Up/Down) (M603), DC SSM18B Motor (Spindle) (M601)

① Remove six solders of the motor flexible board.



SECTION 4 TEST MODE

Outline

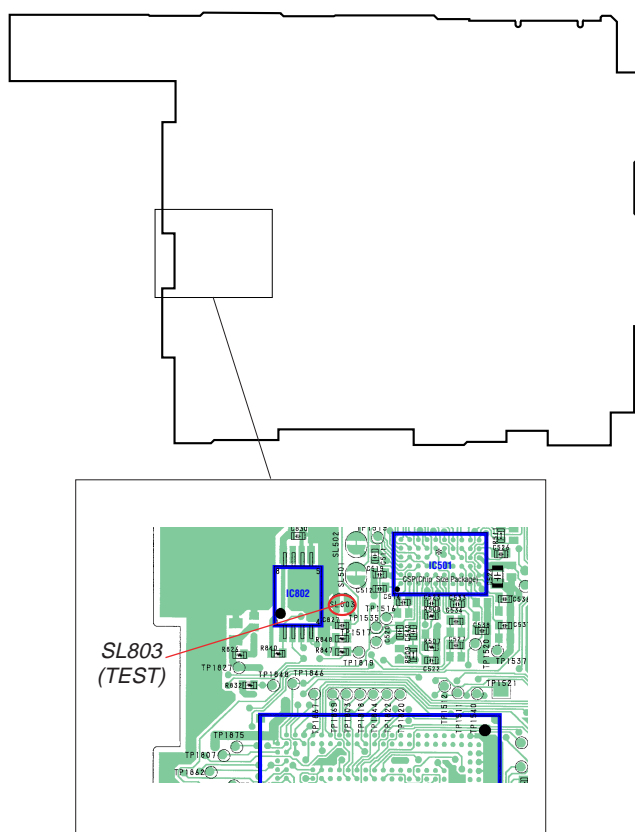
- This set provides the Overall adjustment mode that allows CD and MO discs to be automatically adjusted when in the test mode. In this overall adjustment mode, the disc is discriminated between CD and MO, and each adjustment is automatically executed in order. If a fault is found, the system displays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

Setting Method of Test Mode

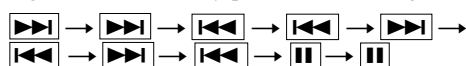
There are three different methods to set the test mode:

- Short SL803 (TEST) on the MAIN board with a solder bridge (connect pin ⑩ of IC801 to the ground). Then, turn on the power.

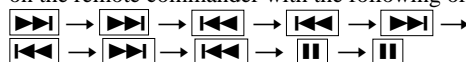
– MAIN Board (Side B) –



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



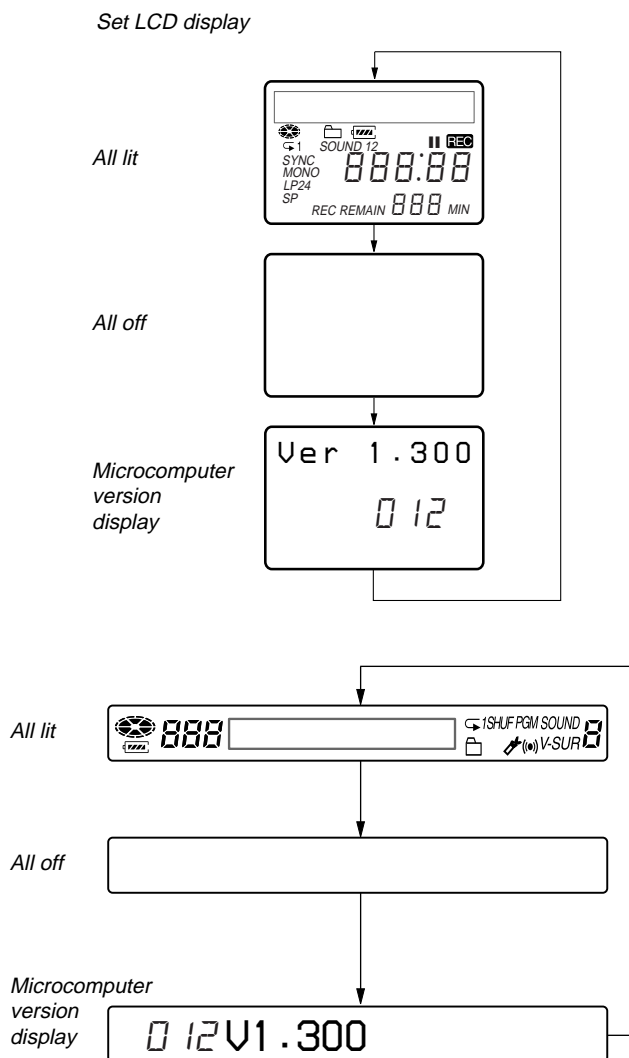
- In the normal mode, turn on the **HOLD** switch on the set. While pressing the **GROUP** key on the set, press the keys on the remote commander with the following order:



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

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.



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

Releasing the Test Mode

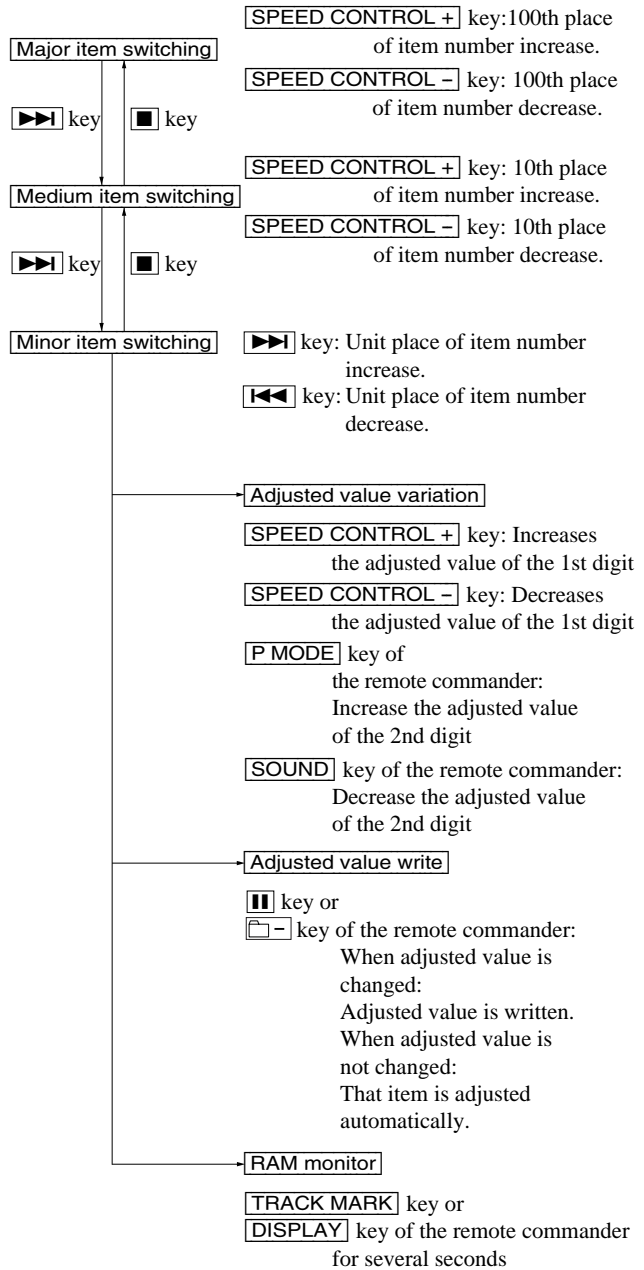
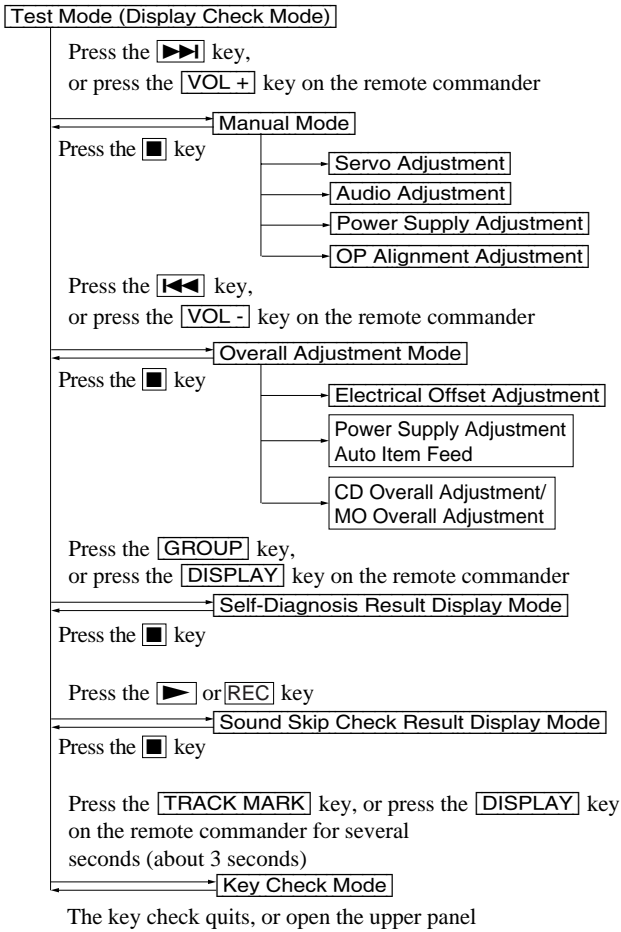
For test mode set with the method ①:

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

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

For test mode set with the method ② or ③:
Turn off the power.

Configuration of Test Mode



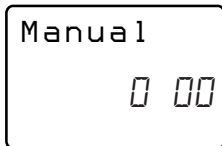
Manual Mode

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

• Transition Method in Manual Mode

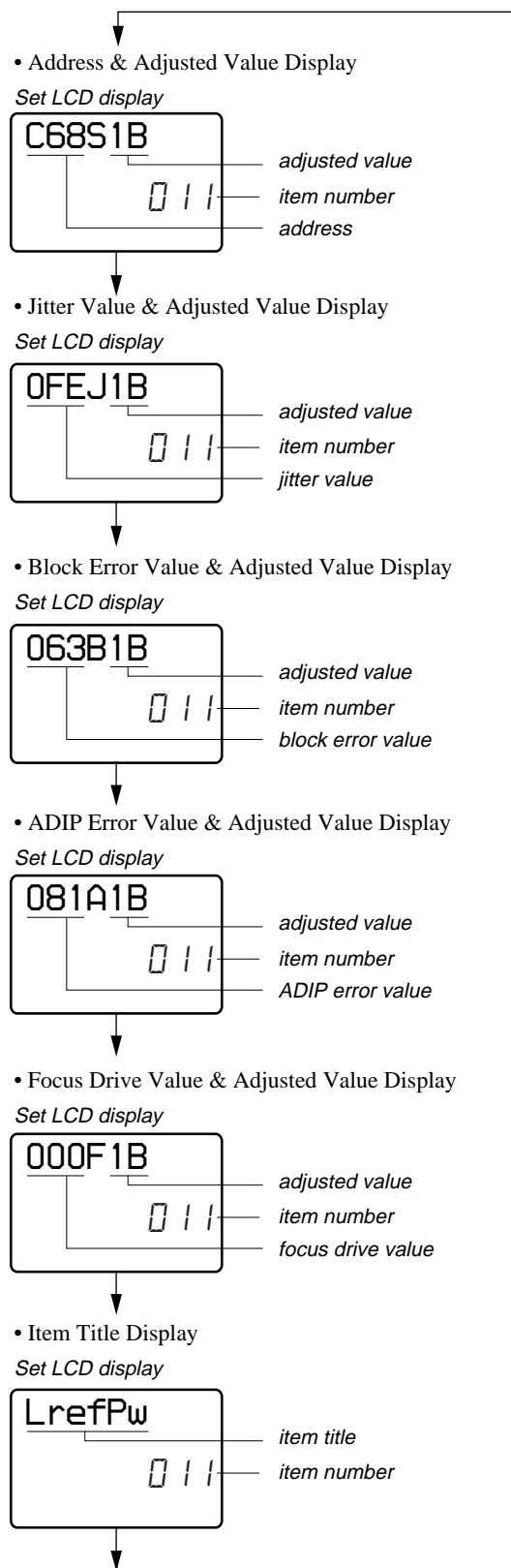
1. Set the test mode (see page 15).
2. Press the **▶▶▶** or press the **[VOL +]** key on the remote commander activates the manual mode where the LCD display as shown below.

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 non-volatile memory (for the items where adjustment was made).

5. The display changes as shown below each time the **DIS-PLAY** 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 20).

Self-Diagnosis Result Display Mode

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

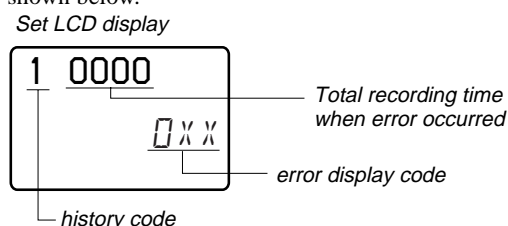
By checking this history in the test mode, you can analyze a fault and determine its location.

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

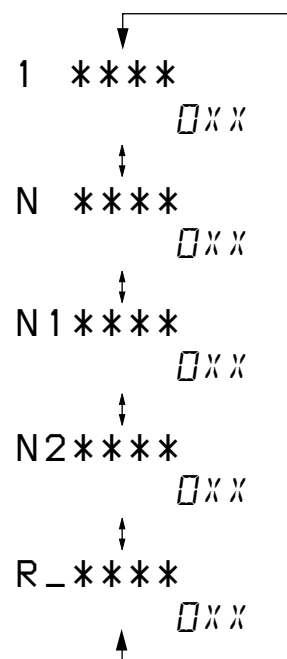
Clear both self-diagnosis history data and total recording time, if the optical pick-up was replaced.

• Self-Diagnosis Result Display Mode Setting Method

1. Set the test mode (see page 15).
2. In the display check mode, pressing the **GROUP** key or pressing the **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 **[GROUP]** key or the **[DISPLAY]** key on the remote commander is pressed with this display, the LCD switches to the simple display mode.

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

• Description of Error Indication Codes

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

• Description of Indication History

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

Reset the Error Display Code

After servicing, reset the error display code.

• Setting Method of Reset the Error Display Code

- Set the test mode (see page 15).
- Pressing the **[GROUP]** key or pressing the **[DISPLAY]** key on the remote commander activates the self-diagnosis result display mode.
- To reset the error display code, press the **[■]** key (twice) when the code is displayed (except "R_***").
(All the data on the 1, N, N1, and N2 will be reset)

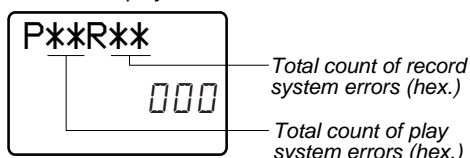
Sound Skip Check Result Display Mode

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

• Setting Method of Sound Skip Check Result Display Mode

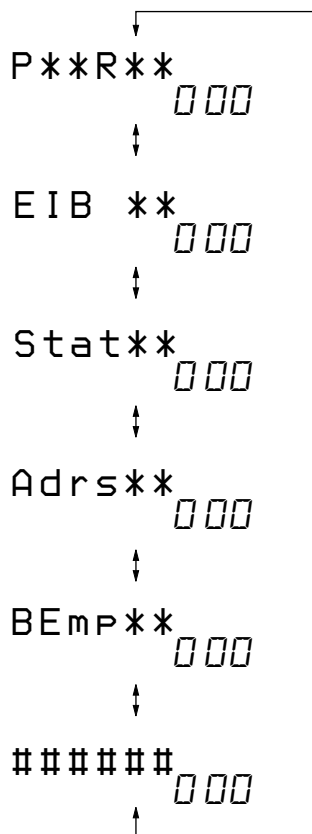
1. Set the test mode (see page 15).
2. Press the **▶** key or **REC** key, and the playing or recording sound skip result display mode becomes active respectively where the LCD displays the following.

Set LCD display

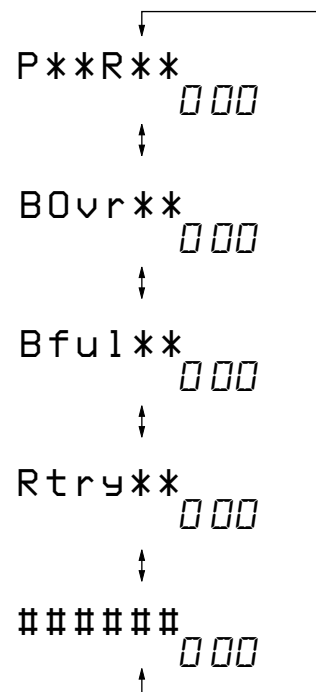


3. When the **▶** key is pressed, total error count is displayed on the LCD, and each time the **▶▶** key is pressed, the display item moves down by one as shown below. Also, if the **◀◀** key is pressed, the display item moves up by one, then if the **REC** key is pressed, the display in the record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

Playing sound skip result display



Recording sound skip result display



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

• Cause of Sound Skip Error

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

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

• Setting Method of Key Check Mode

1. Set the test mode (see page 15).
2. Pressing the **TRACK MARK** key activates the key check mode.

Set LCD display



3. When each key on the set and on remote commander is pressed, its name is displayed on the set LCD. (Operated position is displayed for 4 seconds after the slide switch is operated.)

Example: When the **▶▶** key on the set is pressed:

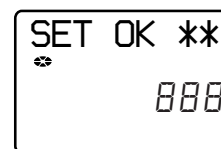
Set LCD display



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

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

Set LCD display



5. When 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. 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.

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 1.2V from the BATT IN (TP601, TP602).
4. Switch position
HOLD switch ON

Adjustment Sequence

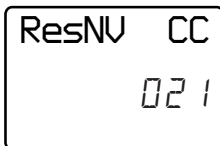
- | | | | | | | | |
|--|---|---|-------------|---|--------------|---|-------------|
| <ol style="list-style-type: none"> 1. NV Reset (item number: 021)
(EEPROM clear) <li style="text-align: center;">↓ 2. Temperature Correction (item number: 015) <li style="text-align: center;">↓ 3. Rewriting the NV values. <li style="text-align: center;">↓ 4. Power Supply Manual Adjustment <li style="text-align: center;">↓ 5. Laser Power Check <li style="text-align: center;">↓ 6. CD Overall Adjustment (item number: 031) <li style="text-align: center;">↓ 7. MO Overall Adjustment (item number: 034) <li style="text-align: center;">↓ 8. RESUME Clear (item number 043) <li style="text-align: center;">↓ 9. Rewriting the Patch Data
(at replacement of the nonvolatile memory) | <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="font-size: 3em;">}</td> <td>Manual Mode</td> </tr> <tr> <td style="font-size: 3em;">}</td> <td>Overall Mode</td> </tr> <tr> <td style="font-size: 3em;">}</td> <td>Manual Mode</td> </tr> </table> | } | Manual Mode | } | Overall Mode | } | Manual Mode |
| } | Manual Mode | | | | | | |
| } | Overall Mode | | | | | | |
| } | Manual Mode | | | | | | |

NV Reset

• Setting Method of NV Reset

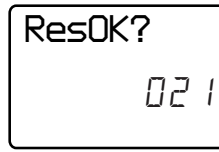
1. Select the manual mode of the test mode, and set item number 021 NV Reset (see page 16).

Set LCD display



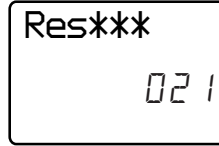
2. Press the key.

Set LCD display

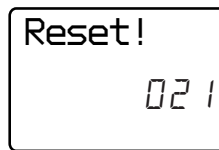


3. Press the key once more.

Set LCD display



↓ NV reset (after several seconds)



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

Temperature Correction

• Adjustment Method of Temperature Correction

1. Select the manual mode of the test mode, and set the item number 015 (see page 16).

Set LCD display



** : Adjusted value

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

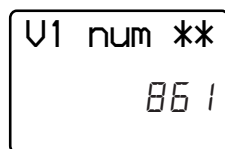
Rewriting the NV values

Note : Modify four adjusted values through the following procedure. Modifying the item number 863 and 864 is not necessary after version 1.600.

• Adjusted values modifying procedure

1. Select manual mode of the test mode, and set item number 860 (see page 16).
2. Press the key to set item number 861.

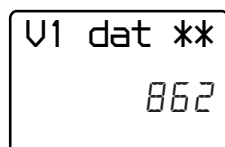
Set LCD display



** : Adjusted value

3. Adjust with the key (adjusted value up) or key (adjusted value down) so that the adjusted value becomes E3.
4. Press the key on the set or the key on the remote commander to write the adjusted value.
5. Press the key to set item number 862.

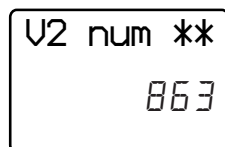
Set LCD display



** : Adjusted value

6. Adjust with the key (adjusted value up) or key (adjusted value down) so that the adjusted value becomes 55.
7. Press the key on the set or the key on the remote commander to write the adjusted value.
8. Press the key to set item number 863.

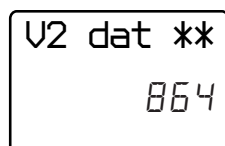
Set LCD display



** : Adjusted value

9. Adjust with the key (adjusted value up) or key (adjusted value down) so that the adjusted value becomes 89.
10. Press the key on the set or the key on the remote commander to write the adjusted value.
11. Press the key to set item number 864 .

Set LCD display



** : Adjusted value

12. Adjust with the key (adjusted value up) or key (adjusted value down) so that the adjusted value becomes 03.
13. Press the key on the set or the key on the remote commander to write the adjusted value.

Power Supply Manual Adjustment

• Adjustment sequence

Adjustment must be done with the following steps.

1. VC1_LOW (PB) adjustment (item number : 741)
2. VC1_HIGH (REC) adjustment (item number : 742)
3. VC2_LOW adjustment (item number : 743)
4. VC2_HIGH adjustment (item number : 744)
5. REG1 adjustment (item number : 745)
6. REG3_LOW1 adjustment (item number : 747)
7. REG3_LOW2 adjustment (item number : 748)
8. REG3_HIGH adjustment (item number : 749)
9. VREC_LOW (X2 speed) adjustment (item number : 751)
10. VREC_MIDDLE (X4 speed) adjustment (item number : 752)
11. VREC_HIGH (HEAD MOTOR) adjustment (item number : 753)

• Setting Method of Power Supply Manual Adjustment

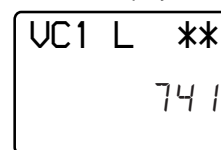
1. Make sure that the power supply voltage is 1.2V (BATT IN).
2. Select the manual mode of the test mode (see page 16).
3. Set item number.

Note1: BATT- terminal is not GND when AC adaptor is used.

Note2: Power supply adjustment auto item feed mode (page 26) is available to perform the temperature Correction and Power Supply Adjustment without entering the manual mode.

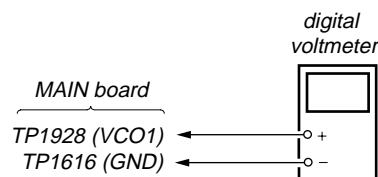
• Adjustment Method of VC1_LOW (PB) (item number: 741)

Set LCD display



** : Adjusted value

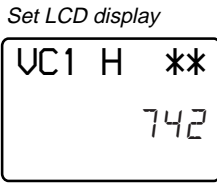
1. Connect a digital voltmeter to the TP1928 (VCO1) on the MAIN board, and adjust key (voltage up) or key (voltage down) so that the voltage becomes $2.4 \pm 0.05V$.



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

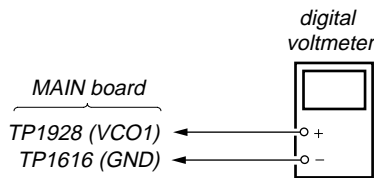
Adjustment and Connection Location: MAIN board (see page 25)

• **Adjustment Method of VC1_HIGH (REC)**
(item number: 742)



** : Adjusted value

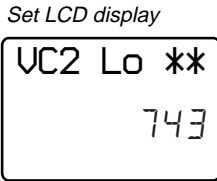
1. Connect a digital voltmeter to the TP1928 (VCO1) on the MAIN board, and adjust **[SPEED CONTROL +]** key (voltage up) or **[SPEED CONTROL -]** key (voltage down) so that the voltage becomes $2.75 \pm 0.05V$.



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

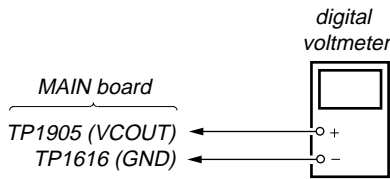
Adjustment and Connection Location: MAIN board
(see page 25)

• **Adjustment Method of VC2_LOW**
(item number: 743)



** : Adjusted value

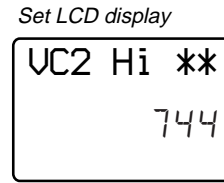
1. Connect a digital voltmeter to the TP1905 (VCOOUT) on the MAIN board, and adjust **[SPEED CONTROL +]** key (voltage up) or **[SPEED CONTROL -]** key (voltage down) so that the voltage becomes $2.30 \pm 0.01V$.



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

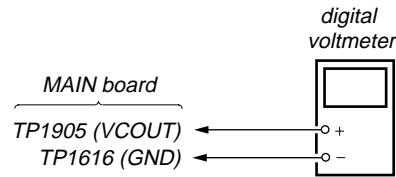
Adjustment and Connection Location: MAIN board
(see page 25)

• **Adjustment Method of VC2_HIGH**
(item number: 744)



** : Adjusted value

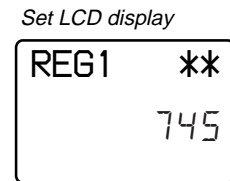
1. Connect a digital voltmeter to the TP1905 (VCOOUT) on the MAIN board, and adjust **[SPEED CONTROL +]** key (voltage up) or **[SPEED CONTROL -]** key (voltage down) so that the voltage becomes $2.30 \pm 0.01V$.



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

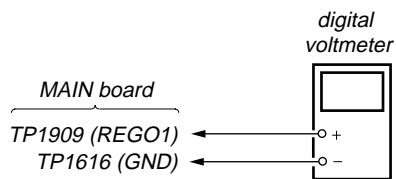
Adjustment and Connection Location: MAIN board
(see page 25)

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



** : Adjusted value

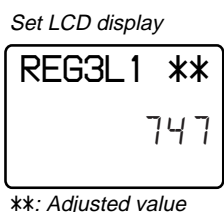
1. Connect a digital voltmeter to the TP1909 (REGO1) on the MAIN board, and adjust **[SPEED CONTROL +]** key (voltage up) or **[SPEED CONTROL -]** key (voltage down) so that the voltage becomes $2.15 \pm 0.01V$.



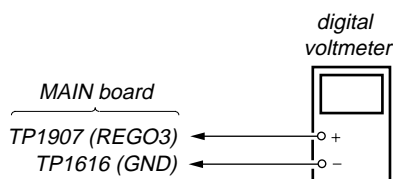
2. Press the **[M]** key on the set or the **[M]** key on the remote commander to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 25)

• **Adjustment Method of REG3_LOW1**
(item number: 747)



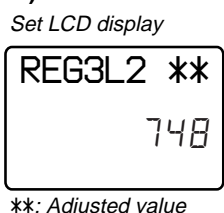
1. Connect a digital voltmeter to the TP1907 (REGO3) on the MAIN board, and adjust [SPEED CONTROL +] key (voltage up) or [SPEED CONTROL -] key (voltage down) so that the voltage becomes $1.25 \pm 0.01V$.



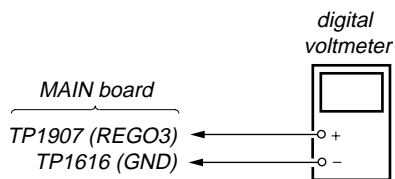
2. Press the key on the set or the key on the remote commander to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 25)

• **Adjustment Method of REG3_LOW2**
(item number: 748)



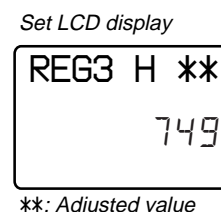
1. Connect a digital voltmeter to the TP1907 (REGO3) on the MAIN board, and adjust [SPEED CONTROL +] key (voltage up) or [SPEED CONTROL -] key (voltage down) so that the voltage becomes $1.25 \pm 0.01V$.



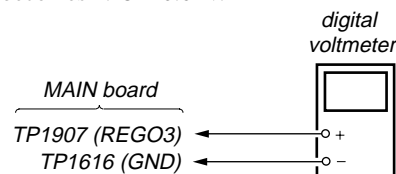
2. Press the key on the set or the key on the remote commander to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 25)

• **Adjustment Method of REG3_HIGH**
(item number: 749)



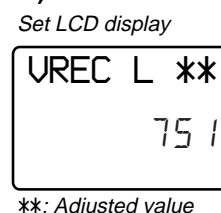
1. Connect a digital voltmeter to the TP1907 (REGO3) on the MAIN board, and adjust [SPEED CONTROL +] key (voltage up) or [SPEED CONTROL -] key (voltage down) so that the voltage becomes $1.25 \pm 0.01V$.



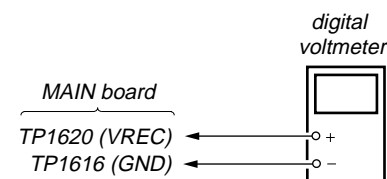
2. Press the key on the set or the key on the remote commander to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 25)

• **Adjustment Method of VREC_LOW (X2 speed)**
(item number: 751)



1. Connect a digital voltmeter to the TP1620 (VREC) on the MAIN board, and adjust [SPEED CONTROL +] key (voltage up) or [SPEED CONTROL -] key (voltage down) so that the voltage becomes $1.10 \pm 0.01V$.

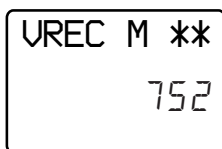


2. Press the key on the set or the key on the remote commander to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 25)

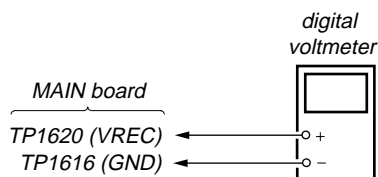
- **Adjustment Method of VREC_MIDDLE (X4 speed)**
(item number: 752)

Set LCD display



** : Adjusted value

1. Connect a digital voltmeter to the TP1620 (VREC) on the MAIN board, and adjust **[SPEED CONTROL+]** key (voltage up) or **[SPEED CONTROL-]** key (voltage down) so that the voltage becomes $1.10 \pm 0.01V$.

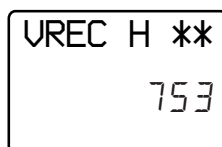


2. Press the **[M]** key on the set or the **[M]** key on the remote commander to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 25)

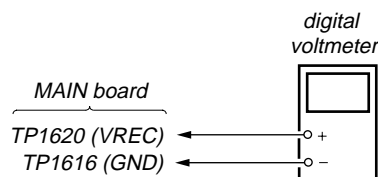
- **Adjustment Method of VREC_HIGH (HEAD MOTOR)**
(item number: 753)

Set LCD display



** : Adjusted value

1. Connect a digital voltmeter to the TP1620 (VREC) on the MAIN board, and adjust **[SPEED CONTROL+]** key (voltage up) or **[SPEED CONTROL-]** key (voltage down) so that the voltage becomes $1.65 \pm 0.01V$.

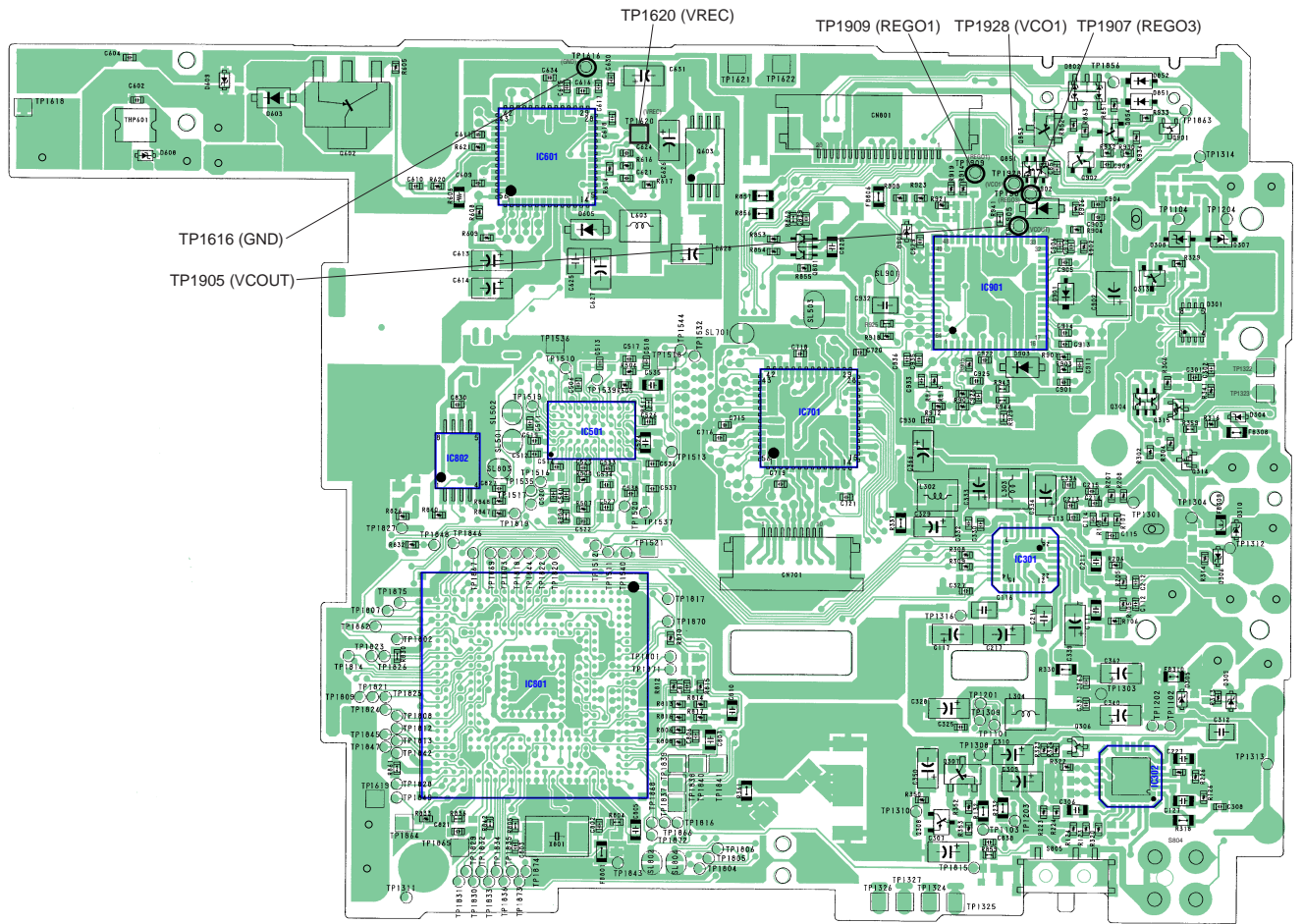


2. Press the **[M]** key on the set or the **[M]** key on the remote commander to write the adjusted value.

Adjustment and Connection Location: MAIN board
(see page 25)

Adjustment/checking and Connection Location:

MAIN BOARD (SIDE B)



Power Supply Adjustment Auto Item Feed

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

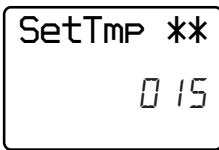
- Setting method of power supply adjustment auto item feed mode.
 - Set the test mode (see page 16)
 - Press the **◀◀** key or press the **VOL-** key on the remote commander to activate the overall adjustment mode.

Set LCD display



- Press the **SPEED CONTROL-** key or the **P MODE** key on the remote commander to set the temperature correction mode.

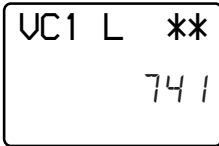
Set LCD display



** : Adjusted value

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

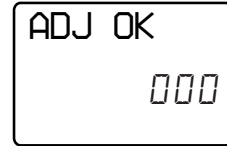
Set LCD display



** : Adjusted value

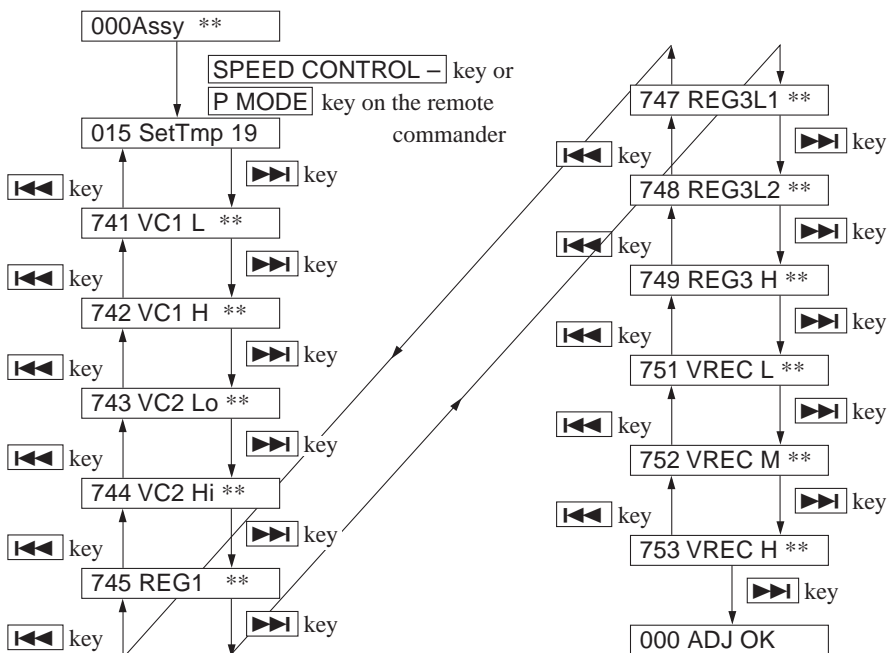
- Connect a digital voltmeter to the measuring points on the MAIN board, and adjust the voltage with the **SPEED CONTROL +** or **SPEED CONTROL -** key. (see page 21 to 24) Press the **||** key to write the adjusted value, and the item number increases automatically.
- When not writing the adjusted value, press the **▶▶** key to move to the next item. The **◀◀** key is available to back to the last item.
- The following message is displayed after all power supply adjustments finish.

Set LCD display



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

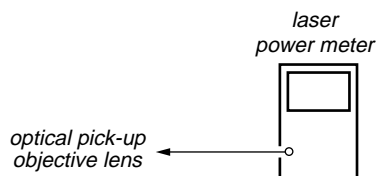
Configuration of power supply adjustment auto item feed



Laser Power Check

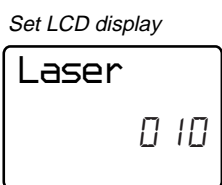
Note: If result of measurement of the laser power does not satisfy the specification, either replace the OP (optical pick-up unit) or check whether the laser circuit block is working correctly. When the result of laser power measurement does not satisfy the specification even though the laser circuit block is confirmed to be working correctly, replace the OP (optical pick-up unit).

• Connection

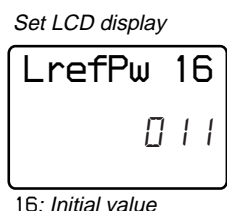


• Checking method

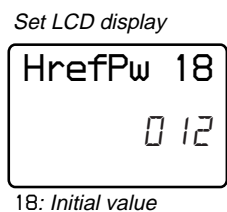
1. Select the manual mode of test mode (see page 16), and set the laser power check mode (item number 010).



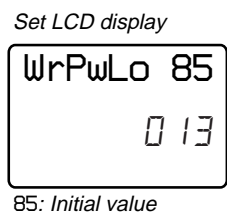
2. Press the **◀◀** key continuously until the optical pick-up moves to the most inward track.
3. Open the cover and set the laser power meter on the objective lens of the optical pick-up.
4. Press the **▶▶** key, and set the laser MO read check mode (item number 011).



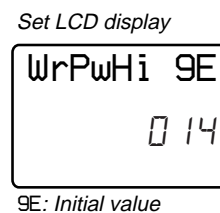
5. Check that the laser power meter reading is 0.800 ± 0.10 mW.
6. Press the **▶▶** key, and set the laser CD read adjustment mode (item number 012). Modify the adjusted value to 18 with the **[SPEED CONTROL +]** or **[SPEED CONTROL -]** key.



7. Check that the laser power meter reading is 0.910 ± 0.11 mW.
8. Press the **▶▶** key, and set the laser MO (X2 speed) write check mode (item number 013). Modify the adjusted value to 85 with the **[SPEED CONTROL +]** or **[SPEED CONTROL -]** key.



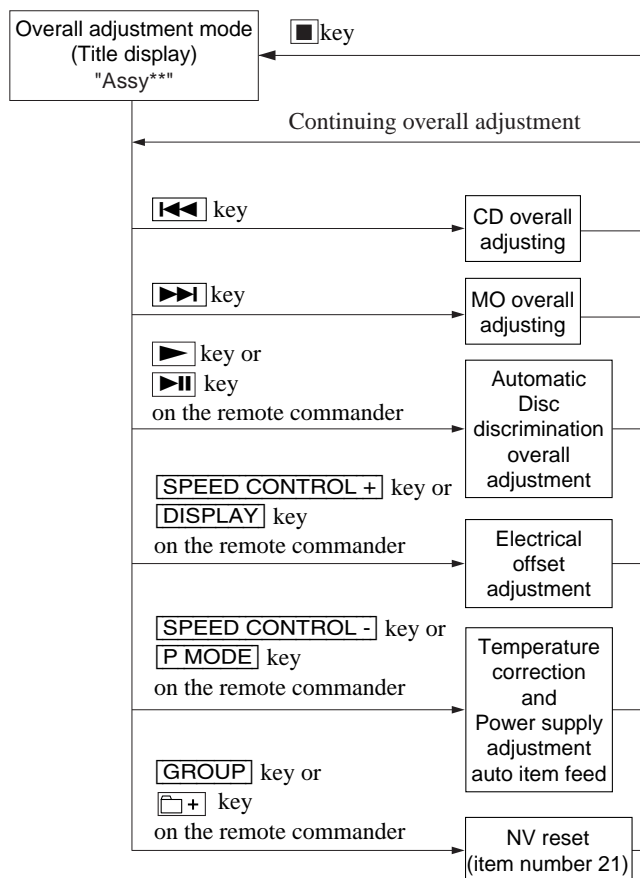
9. Check that the laser power meter reading is 4.95 ± 0.59 mW.
10. Press the **▶▶** key, and set the laser MO (X4 speed) write check mode (item number 014). Modify the adjusted value to 9E with the **[SPEED CONTROL +]** or **[SPEED CONTROL -]** key.



11. Check that the laser power meter reading is 5.93 ± 0.71 mW.
12. Press the **■** key to quit the manual mode, and activate the test mode (display check mode).

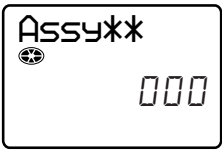
Overall Adjustment Mode

• Configuration of Overall Adjustment Mode



• Overall Adjustment Mode (Title Display)

Set LCD display



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

Note: Adjust the CD first, when performing adjustment.

• Adjustment Method of CD and MO Overall Adjustment Mode

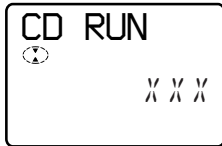
1. Set the test mode (see page 16).
2. Press the **◀◀** key or press **VOL-** on the remote commander key to activate the overall adjustment mode.

Set LCD display



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

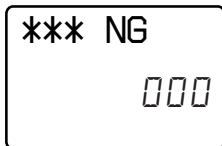
Set LCD display



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

4. In case of CD overall adjustment NG, readjust from the NV reset (see page 20), The temperature correction (see page 20) may be omitted.

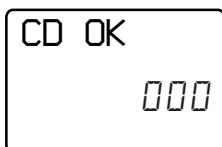
Set LCD display



*** : NG item number.

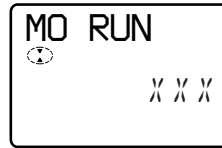
5. If OK through the CD overall adjustments, then perform MO overall adjustments.

Set LCD display



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

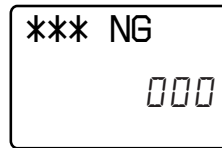
Set LCD display



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

7. In case of MO overall adjustment NG, readjust from the NV reset (see page 21). The temperature correction (see page 20) may be omitted.

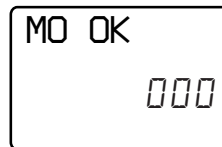
Set LCD display



*** : NG item number.

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

Set LCD display



• Overall Adjustment error message

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

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

• **CD and MO Overall Adjustment Items**

1. CD overall adjustment items

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

2. MO overall adjustment items

Item No.	Description
716	VC,VR power supply H/L selection
100	R_GRV setting . servo OFF
Low reflection electrical offset adjustment	
112	Laser ON . Focus UP vc correction
ALFA offset adjustment	
113	IJ offset adjustment
114	FE offset adjustment
118	Wpp denominator offset adjustment
LPIT adjustment	
200	LPIT setting . servo OFF
561	SLED inward movement
220	Focus servo ON
224	TE offset adjustment 1
221	TE gain adjustment
224	TE offset adjustment 1
232	TE offset adjustment 2
230	Tracking servo ON
236	ABCD gain adjustment
237	KF gain correction
238	RF gain adjustment
244	Focus gain adjustment
245	Tracking gain adjustment

Item No.	Description
READ GRV adjustment 1	
100	R_GRV setting . servo OFF
562	SLED outward movement
120	Focus servo ON
122	TON offset adjustment
121	TE gain adjustment
122	TON offset adjustment
123	TEIN offset adjustment
124	TWPP offset adjustment 1
130	Tracking servo ON
131	TWPP offset adjustment 1
136	ABCD gain adjustment
137	KF gain correction
144	Focus gain adjustment
145	Tracking gain adjustment
134	TWPP gain adjustment
131	TWPP offset adjustment 1
132	TWPP offset adjustment 2
149	TWPP OP offset adjustmen
WRITE GRV adjustment	
490	HCLV LCLV selection process
450	HEAD DOWN . GRV servo ON
460	READ → WRITE selection
461	TE gain adjustment
463	TEIN offset adjustment
470	Tracking servo ON
471	TWPP offset adjustment 1
476	ABCD gain adjustment
484	Focus gain adjustment
485	Tracking gain adjustment
451	TWPP offset adjustment 1
452	TE offset adjustment 2
460	READ → WRITE selection
470	Tracking servo ON
474	TWPP gain adjustment
471	TWPP offset adjustment 1
472	TE offset adjustment 2
489	TWPP OP offset adjustment
450	WRITE → READ selection
451	TWPP offset adjustment 1
452	TE offset adjustment 2
458	TWPP OP offset adjustment
448	30 sec continuous REC
400	GRV setting . servo OFF . HEAD UP
READ GRV adjustment 2	
120	Focus servo ON
130	Tracking servo ON
138	RF gain adjustment
141	FOCUS_BIAS
035	Stray light offset measurement
100	R_GRV setting . servo OFF

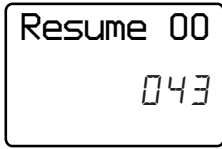
Resume Clear

Perform the Resume clear when all adjustments completed.

• **Resume Clear Setting Method**

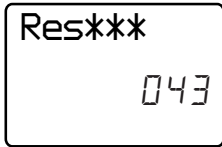
1. Select the manual mode of the test mode, and set item number 043 (see page 16).

Set LCD display

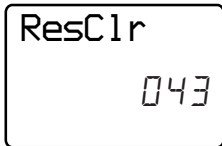


2. Press the **II** key.

Set LCD display



↓ Resume clear complete



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

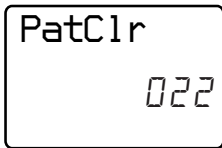
Rewriting the Patch Data at Replacement of the Nonvolatile Memory

Rewrite the program correction data at replacement of the non-volatile memory.

• **Method for rewriting the correction data (when using version 1.300)**

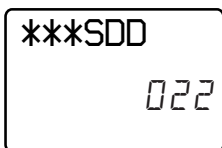
1. Select the manual mode of the test mode, and set the item number 022 (see page 16).

Set LCD display

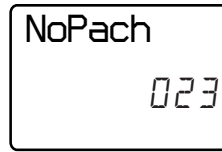


2. Press the **II** key or press the **☐-** key on the remote commander to reset the patch data. (Reset is complete if the adjusted value changes to DD.)

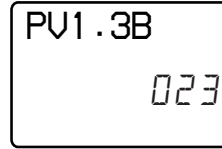
Set LCD display



3. Press the **▶▶** key to set the item number 023.
Set LCD display



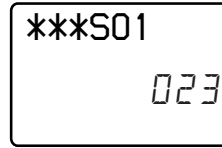
(When not patched)



(When patched, revision is displayed)

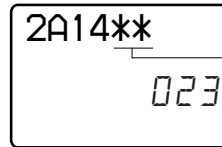
4. Press the **SPEED CONTROL +** key once to set the adjusted value to 01.

Set LCD display



5. Press the **TRACK MARK** key or press the **DISPLAY** key of the remote commander for several seconds to enter the RAM monitor.

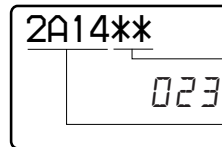
Set LCD display



blinking

6. Set the adjusted value while referring to the patch data list using the following keys.

Set LCD display



adjusted value (blinking : cursor)

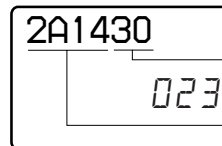
address value

• **Keys available when the cursor is on the adjusted value**

- P MODE** key on the remote commander: adjusted value + 10(h)
- SOUND** key on the remote commander: adjusted value - 10(h)
- SPEED CONTROL +** key: adjusted value + 01(h)
- SPEED CONTROL -** key: adjusted value - 01(h)
- key: moving the cursor to the address value
- II** key: writing the adjusted value

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

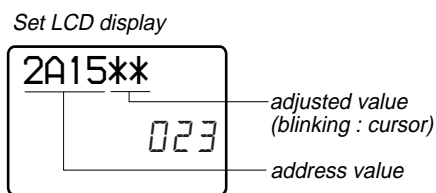
Set LCD display



adjusted value (data at address 2A14)

address value (blinking : cursor)

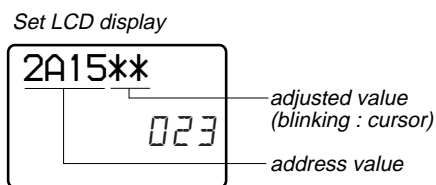
8. Press the **[SPEED CONTROL +]** key to set the address value to the next address for adjustment.



• **Keys available when the cursor is on the address value**

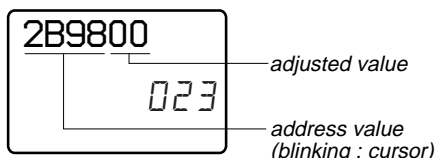
- [DISPLAY]** key on the remote commander: address value + 1000(h)
- [P MODE]** key on the remote commander: address value + 0100(h)
- [SOUND]** key on the remote commander: address value - 0100(h)
- []** key on the remote commander: address value + 0010(h)
- [SPEED CONTROL +]** key: adjusted value + 0001(h)
- [SPEED CONTROL -]** key: adjusted value - 0001(h)
- []** key: moving the cursor to the adjusted value

9. Press the **[]** key to move the cursor to the adjusted value.

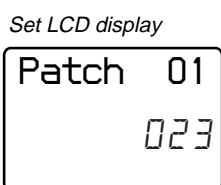


10. While referring to the patch data list repeat the data correction write procedure from step 6 to 9 until the address 2B98 is completed (until writing the last value at step 7).

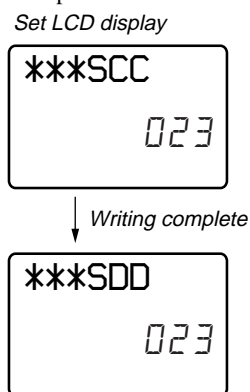
Set LCD display (writing is complete to the address 2B98)



11. Press the **[TRACK MARK]** key or press the **[DISPLAY]** key of the remote commander for several seconds to exit the RAM monitor.



12. Press the **[]** key or press the **[]** key on the remote commander to write all patch data to the nonvolatile memory.



13. Turn off the power.

• Patch data list (V.1.300)

No.	Address value	Adjusted value
0	2A14	30
1	2A15	6A
2	2A16	07
3	2A17	00
4	2A18	00
5	2A19	DE
6	2A1A	41
7	2A1B	78
8	2A1C	CC
9	2A1D	DB
10	2A1E	03
11	2A1F	00
12	2A20	B0
13	2A21	B5
14	2A22	00
15	2A23	DE
16	2A24	88
17	2A25	96
18	2A26	00
19	2A27	00
20	2A28	14
21	2A29	D1
22	2A2A	0E
23	2A2B	F0
24	2A2C	24
25	2A2D	70
26	2A2E	01
27	2A2F	00
28	2A30	00
29	2A31	DE
30	2A32	C0
31	2A33	02
32	2A34	00
33	2A35	00
34	2A36	00
35	2A37	00
36	2A38	00
37	2A39	00
38	2A3A	00
39	2A3B	00
40	2A3C	00
41	2A3D	00
42	2A3E	00
43	2A3F	00
44	2A40	00
45	2A41	00
46	2A42	00
47	2A43	00
48	2A44	00
49	2A45	00
50	2A46	00
51	2A47	00
52	2A48	00
53	2A49	00
54	2A4A	00
55	2A4B	00
56	2A4C	00

No.	Address value	Adjusted value
57	2A4D	00
58	2A4E	00
59	2A4F	00
60	2A50	00
61	2A51	00
62	2A52	00
63	2A53	00
64	2A54	13
65	2A55	42
66	2A56	00
67	2A57	00
68	2A58	1C
69	2A59	20
70	2A5A	9F
71	2A5B	E5
72	2A5C	14
73	2A5D	80
74	2A5E	9F
75	2A5F	E5
76	2A60	00
77	2A61	80
78	2A62	D8
79	2A63	E5
80	2A64	20
81	2A65	00
82	2A66	58
83	2A67	E3
84	2A68	00
85	2A69	00
86	2A6A	00
87	2A6B	1A
88	2A6C	02
89	2A6D	20
90	2A6E	92
91	2A6F	E2
92	2A70	00
93	2A71	5F
94	2A72	BD
95	2A73	E8
96	2A74	0E
97	2A75	F0
98	2A76	B0
99	2A77	E1
100	2A78	D0
101	2A79	02
102	2A7A	00
103	2A7B	02
104	2A7C	D6
105	2A7D	0E
106	2A7E	00
107	2A7F	02
108	2A80	00
109	2A81	70
110	2A82	A0
111	2A83	E3
112	2A84	00
113	2A85	20

No.	Address value	Adjusted value
114	2A86	A0
115	2A87	E3
116	2A88	34
117	2A89	10
118	2A8A	9F
119	2A8B	E5
120	2A8C	1B
121	2A8D	00
122	2A8E	D1
123	2A8F	E5
124	2A90	06
125	2A91	00
126	2A92	50
127	2A93	E3
128	2A94	05
129	2A95	00
130	2A96	00
131	2A97	0A
132	2A98	07
133	2A99	00
134	2A9A	50
135	2A9B	E3
136	2A9C	03
137	2A9D	00
138	2A9E	00
139	2A9F	0A
140	2AA0	09
141	2AA1	00
142	2AA2	50
143	2AA3	E3
144	2AA4	01
145	2AA5	00
146	2AA6	00
147	2AA7	0A
148	2AA8	08
149	2AA9	00
150	2AAA	50
151	2AAB	E3
152	2AAC	01
153	2AAD	00
154	2AAE	00
155	2AAF	1A
156	2AB0	00
157	2AB1	00
158	2AB2	A0
159	2AB3	E3
160	2AB4	1B
161	2AB5	00
162	2AB6	C1
163	2AB7	E5
164	2AB8	00
165	2AB9	5F
166	2ABA	BD
167	2ABB	E8
168	2ABC	02
169	2ABD	E0
170	2ABE	8E

No.	Address value	Adjusted value
171	2ABF	E0
172	2AC0	0E
173	2AC1	F0
174	2AC2	B0
175	2AC3	E1
176	2AC4	B8
177	2AC5	07
178	2AC6	00
179	2AC7	02
180	2AC8	00
181	2AC9	00
182	2ACA	00
183	2ACB	00
184	2ACC	00
185	2ACD	00
186	2ACE	00
187	2ACF	00
188	2AD0	1C
189	2AD1	00
190	2AD2	97
191	2AD3	E5
192	2AD4	0C
193	2AD5	80
194	2AD6	9F
195	2AD7	E5
196	2AD8	00
197	2AD9	90
198	2ADA	A0
199	2ADB	E3
200	2ADC	00
201	2ADD	90
202	2ADE	C8
203	2ADF	E5
204	2AE0	00
205	2AE1	5F
206	2AE2	BD
207	2AE3	E8
208	2AE4	0E
209	2AE5	F0
210	2AE6	B0
211	2AE7	E1
212	2AE8	F9
213	2AE9	02
214	2AEA	00
215	2AEB	02
216	2AEC	00
217	2AED	00
218	2AEE	00
219	2AEF	00
220	2AF0	00
221	2AF1	00
222	2AF2	00
223	2AF3	00
224	2AF4	00
225	2AF5	00
226	2AF6	00
227	2AF7	00
228	2AF8	00

No.	Address value	Adjusted value
229	2AF9	00
230	2AFA	00
231	2AFB	00
232	2AFC	00
233	2AFD	00
234	2AFE	00
235	2AFF	00
236	2B00	00
237	2B01	00
238	2B02	00
239	2B03	00
240	2B04	00
241	2B05	00
242	2B06	00
243	2B07	00
244	2B08	00
245	2B09	00
246	2B0A	00
247	2B0B	00
248	2B0C	00
249	2B0D	00
250	2B0E	00
251	2B0F	00
252	2B10	00
253	2B11	00
254	2B12	00
255	2B13	00
256	2B14	00
257	2B15	00
258	2B16	00
259	2B17	00
260	2B18	00
261	2B19	00
262	2B1A	00
263	2B1B	00
264	2B1C	00
265	2B1D	00
266	2B1E	00
267	2B1F	00
268	2B20	00
269	2B21	00
270	2B22	00
271	2B23	00
272	2B24	00
273	2B25	00
274	2B26	00
275	2B27	00
276	2B28	00
277	2B29	00
278	2B2A	00
279	2B2B	00
280	2B2C	00
281	2B2D	00
282	2B2E	00
283	2B2F	00
284	2B30	00
285	2B31	00
286	2B32	00

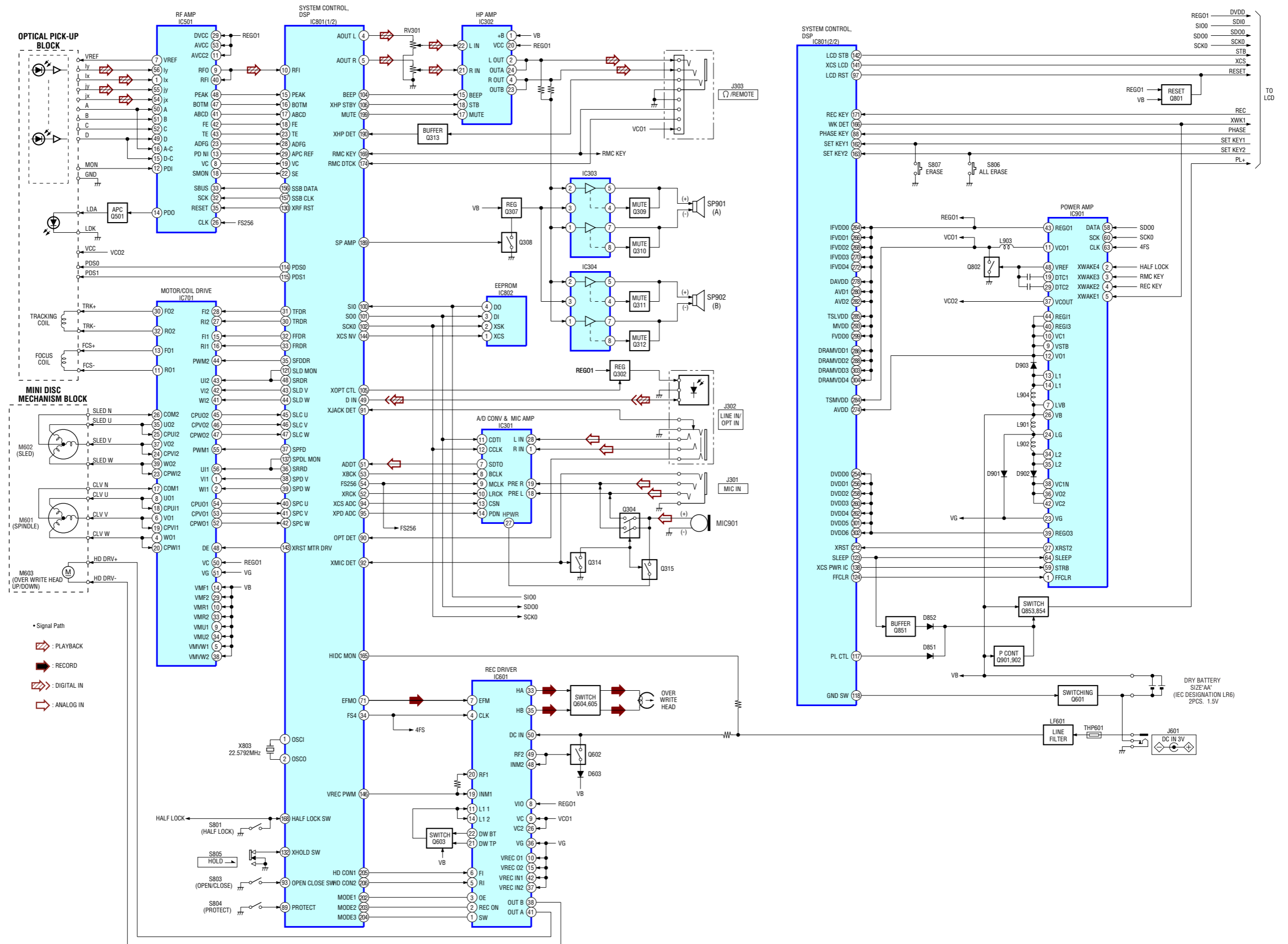
No.	Address value	Adjusted value
287	2B33	00
288	2B34	00
289	2B35	00
290	2B36	00
291	2B37	00
292	2B38	00
293	2B39	00
294	2B3A	00
295	2B3B	00
296	2B3C	00
297	2B3D	00
298	2B3E	00
299	2B3F	00
300	2B40	00
301	2B41	00
302	2B42	00
303	2B43	00
304	2B44	00
305	2B45	00
306	2B46	00
307	2B47	00
308	2B48	00
309	2B49	00
310	2B4A	00
311	2B4B	00
312	2B4C	00
313	2B4D	00
314	2B4E	00
315	2B4F	00
316	2B50	00
317	2B51	00
318	2B52	00
319	2B53	00
320	2B54	00
321	2B55	00
322	2B56	00
323	2B57	00
324	2B58	00
325	2B59	00
326	2B5A	00
327	2B5B	00
328	2B5C	00
329	2B5D	00
330	2B5E	00
331	2B5F	00
332	2B60	00
333	2B61	00
334	2B62	00
335	2B63	00
336	2B64	00
337	2B65	00
338	2B66	00
339	2B67	00
340	2B68	00
341	2B69	00
342	2B6A	00
343	2B6B	00
344	2B6C	00

MZ-B10

No.	Address value	Adjusted value
345	2B6D	00
346	2B6E	00
347	2B6F	00
348	2B70	00
349	2B71	00
350	2B72	00
351	2B73	00
352	2B74	00
353	2B75	00
354	2B76	00
355	2B77	00
356	2B78	00
357	2B79	00
358	2B7A	00
359	2B7B	00
360	2B7C	00
361	2B7D	00
362	2B7E	00
363	2B7F	00
364	2B80	00
365	2B81	00
366	2B82	00
367	2B83	00
368	2B84	00
369	2B85	00
370	2B86	00
371	2B87	00
372	2B88	00
373	2B89	00
374	2B8A	00
375	2B8B	00
376	2B8C	00
377	2B8D	00
378	2B8E	00
379	2B8F	00
380	2B90	00
381	2B91	00
382	2B92	00
383	2B93	00
384	2B94	00
385	2B95	00
386	2B96	00
387	2B97	00
388	2B98	00

SECTION 6 DIAGRAMS

6-1. Block Diagram



6-2. Note For Printed Wiring Board And Schematic Diagrams

Note on Printed Wiring Board:

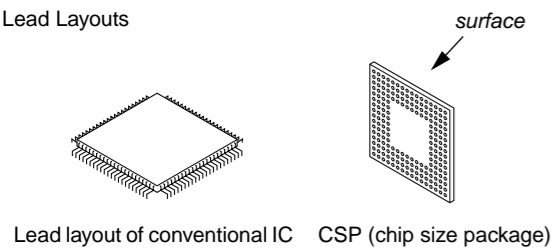
- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)

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

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

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

Lead Layouts



Note on Schematic Diagram:

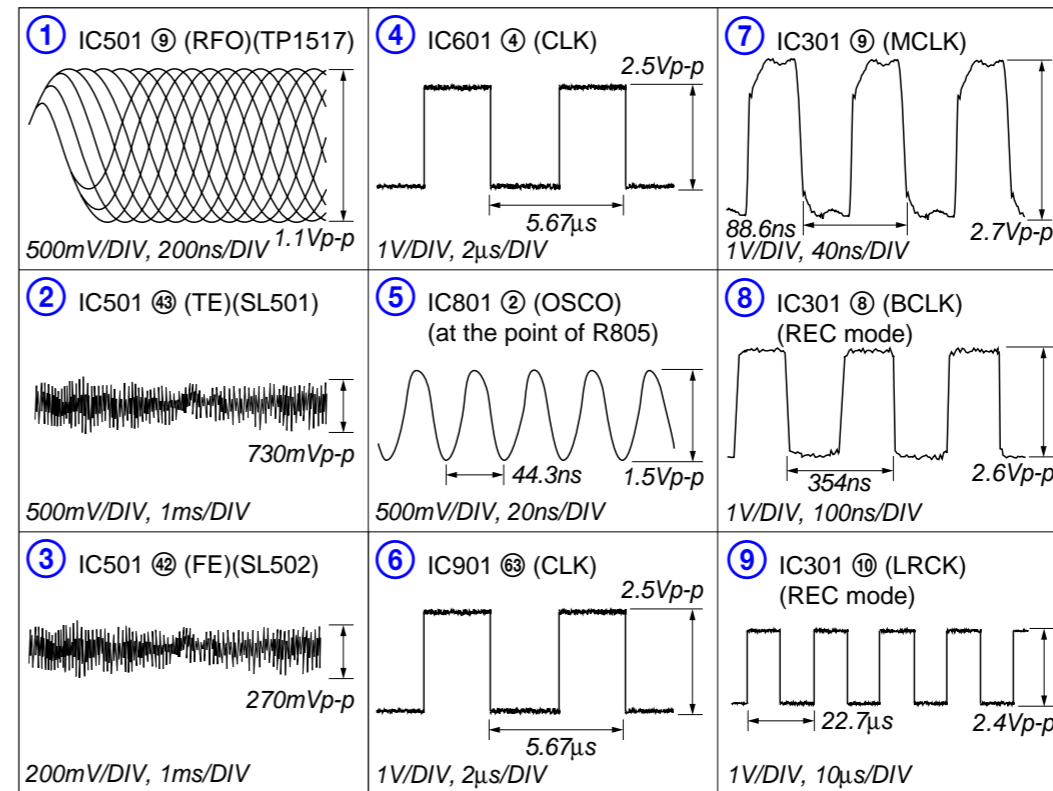
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- % : indicates tolerance.
- : panel designation.


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

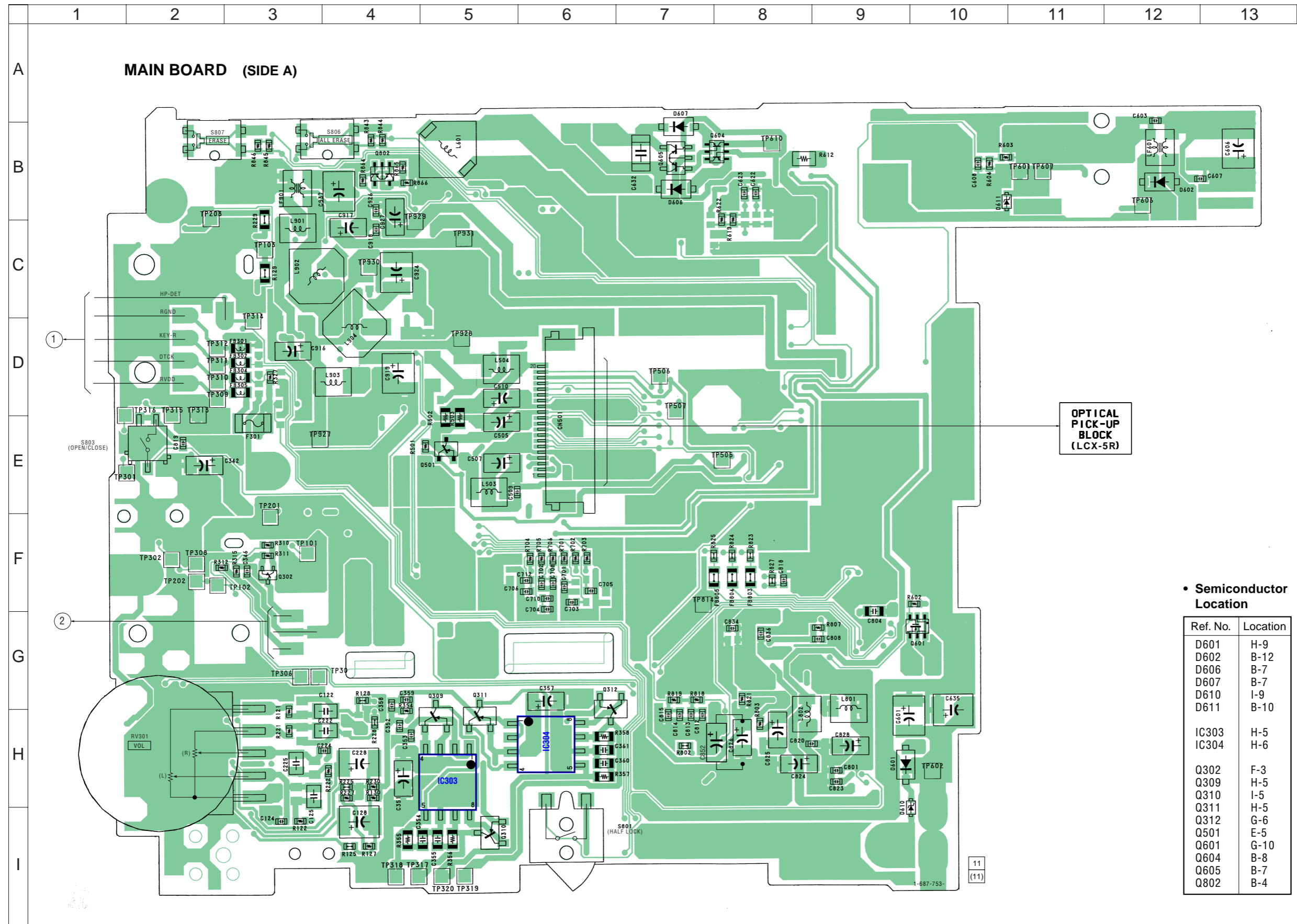
- : B+ Line.
- Total current is measured with MD installed.
- Power voltage is dc 3 V and fed with regulated dc power supply from DC IN 3 V jack (J601).
- Voltagess and waveforms are dc with respect to ground in playback mode.
- no mark : PLAYBACK
- () : REC
- * : Impossible to measure
- Voltagess are taken with a VOM (Input impedance 10 M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- ⇒ : PLAYBACK
- ⇒ : DIGITAL IN
- ⇒ : ANALOG IN
- ⇒ : RECORD
- The voltage and waveform of CSP (chip size package) cannot be measured, because its lead layout is different form that of conventional IC.

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

Waveforms



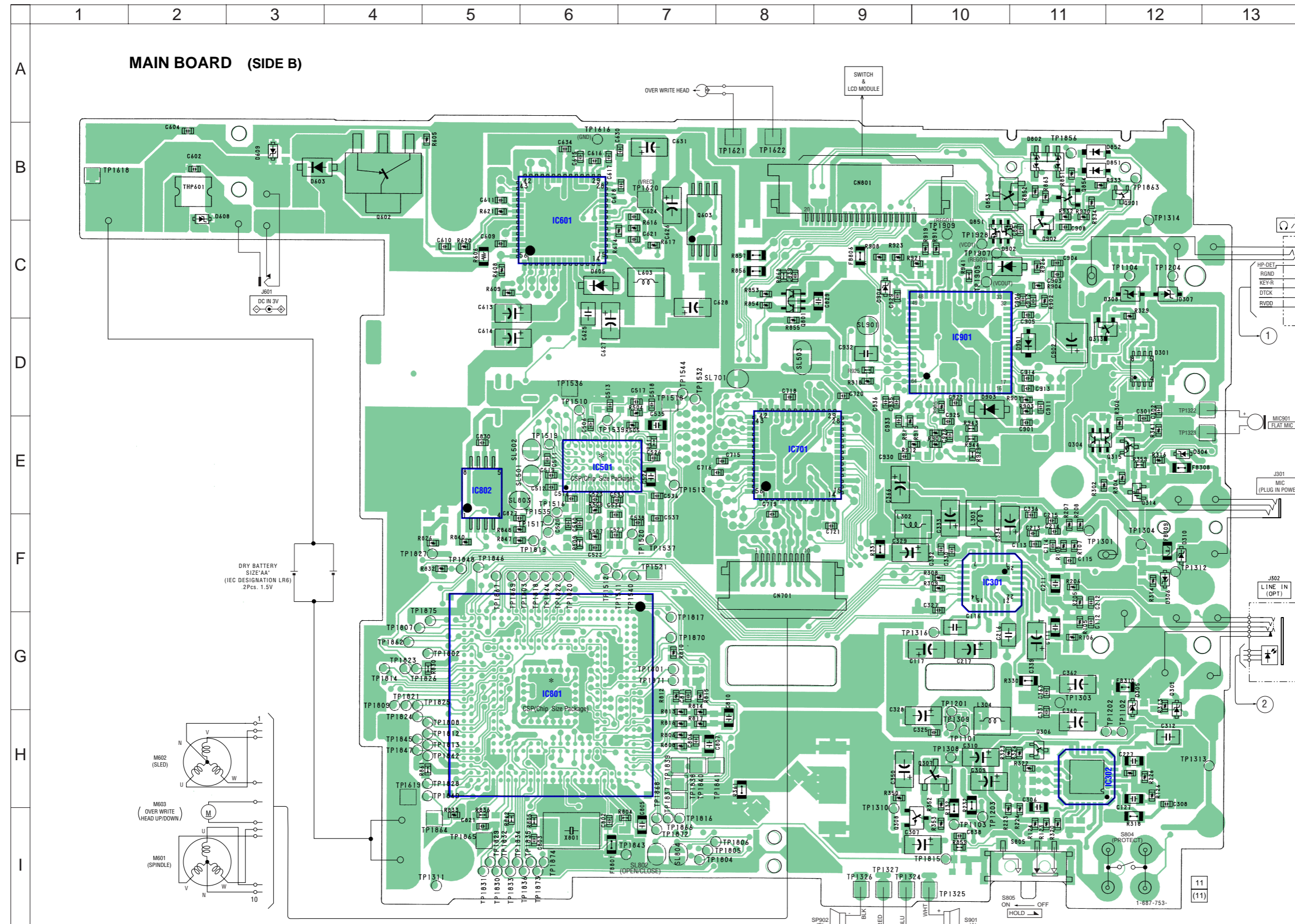
6-3. Printed Wiring Board – MAIN Board (Side A) –  :Uses unleaded solder.



• Semiconductor Location

Ref. No.	Location
D601	H-9
D602	B-12
D606	B-7
D607	B-7
D610	I-9
D611	B-10
IC303	H-5
IC304	H-6
Q302	F-3
Q309	H-5
Q310	I-5
Q311	H-5
Q312	G-6
Q501	E-5
Q601	G-10
Q604	B-8
Q605	B-7
Q802	B-4

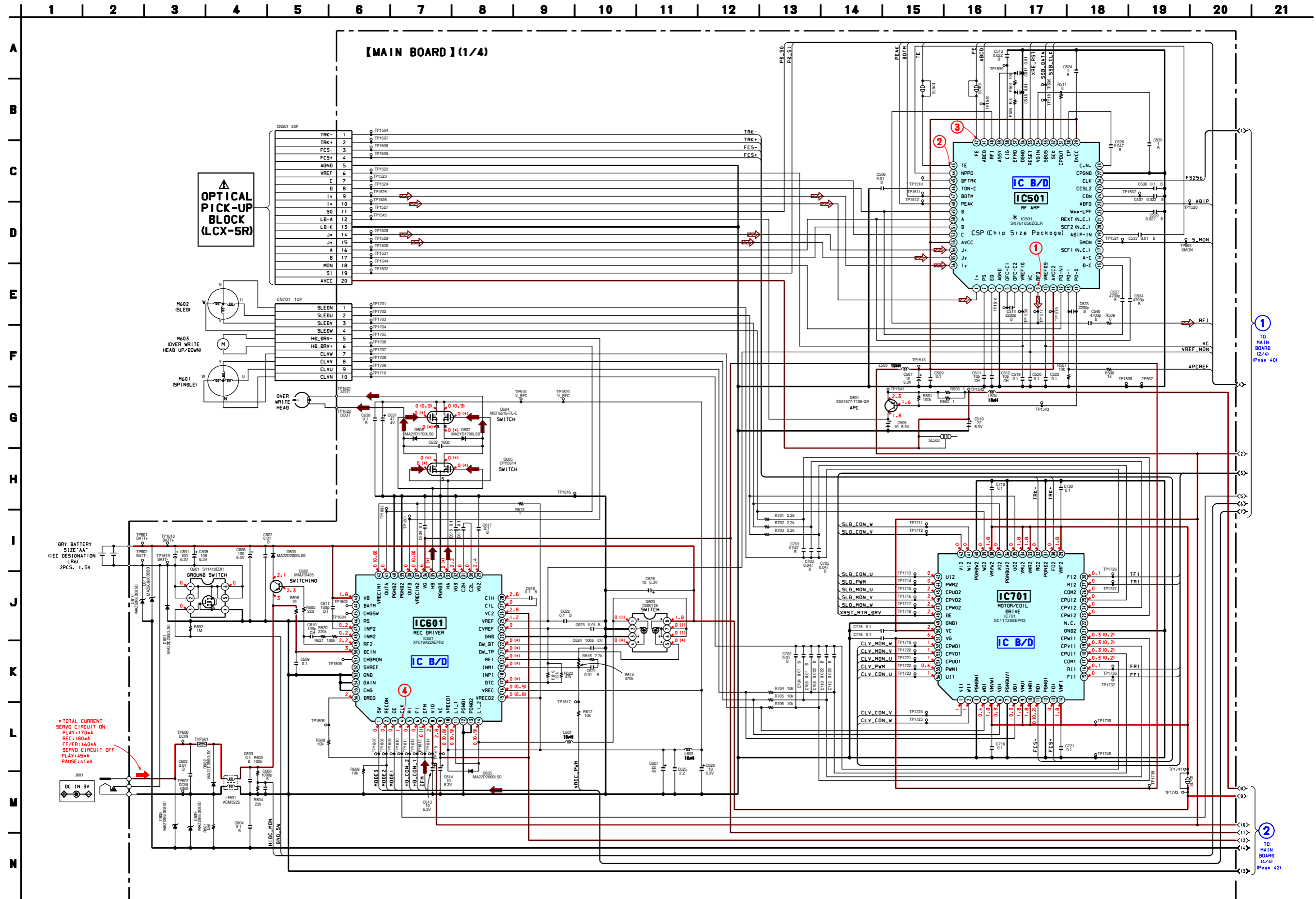
6-4. Printed Wiring Board – MAIN Board (Side B) –  :Uses unleaded solder.



• Semiconductor Location

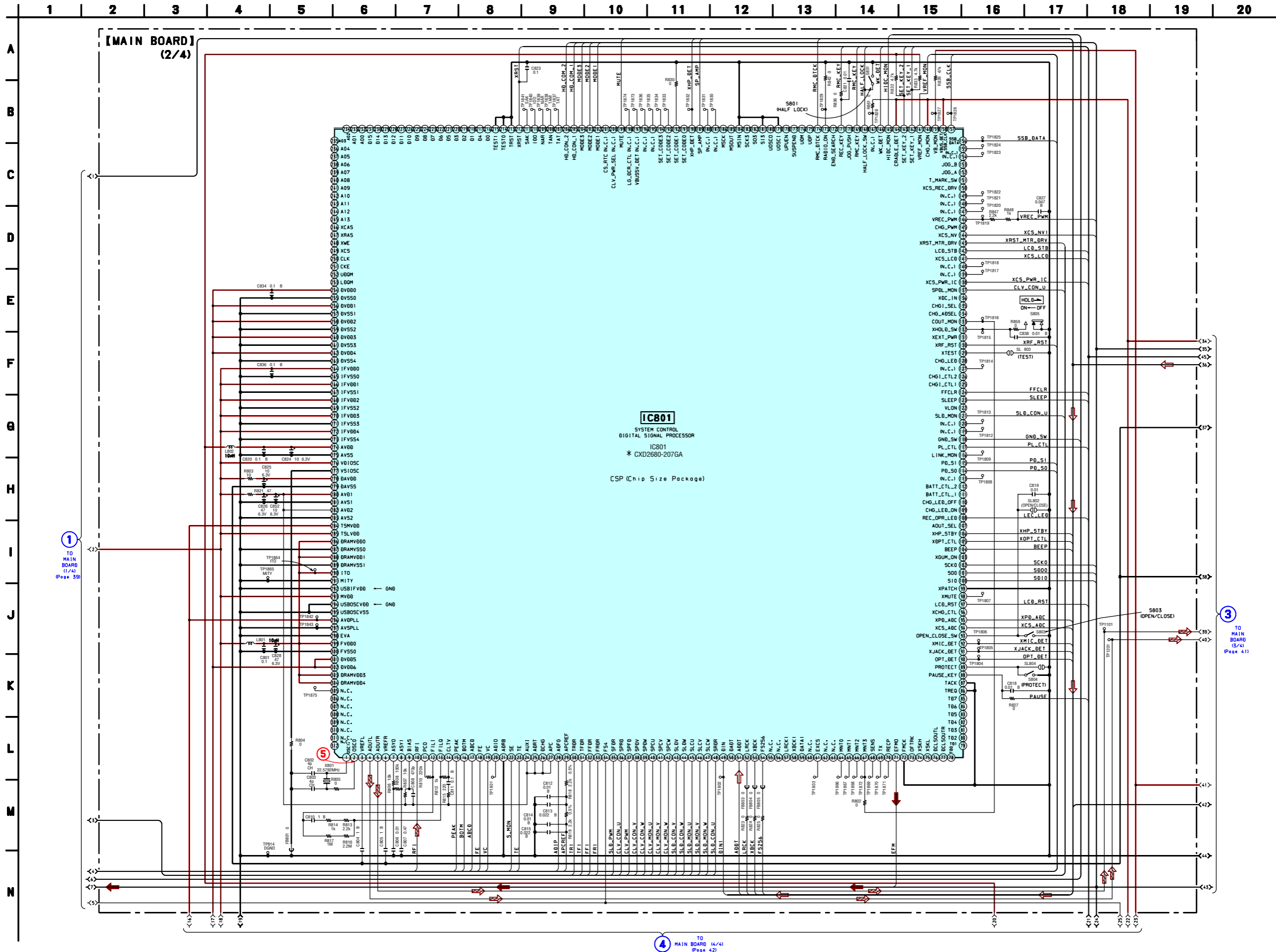
Ref. No.	Location
D301	D-12
D304	E-12
D305	G-12
D306	F-12
D307	C-12
D308	C-12
D309	G-12
D310	F-12
D603	B-3
D605	C-6
D608	B-2
D609	B-3
D802	B-11
D851	B-11
D852	B-11
D901	D-11
D902	C-10
D903	D-10
IC301	F-10
IC302	H-11
IC501	E-6
IC601	B-6
IC701	E-8
IC801	G-6
IC802	E-5
IC901	D-10
Q304	E-11
Q306	H-11
Q307	H-10
Q308	I-10
Q313	D-11
Q314	E-12
Q315	E-12
Q602	B-4
Q603	B-7
Q801	C-8
Q851	C-10
Q853	B-10
Q854	B-11
Q901	B-12
Q902	C-11

6-5. Schematic Diagram – MAIN Board (1/4) – • See page 36 for Waveforms. • See page 43,44 and 45 for IC Block Diagrams.

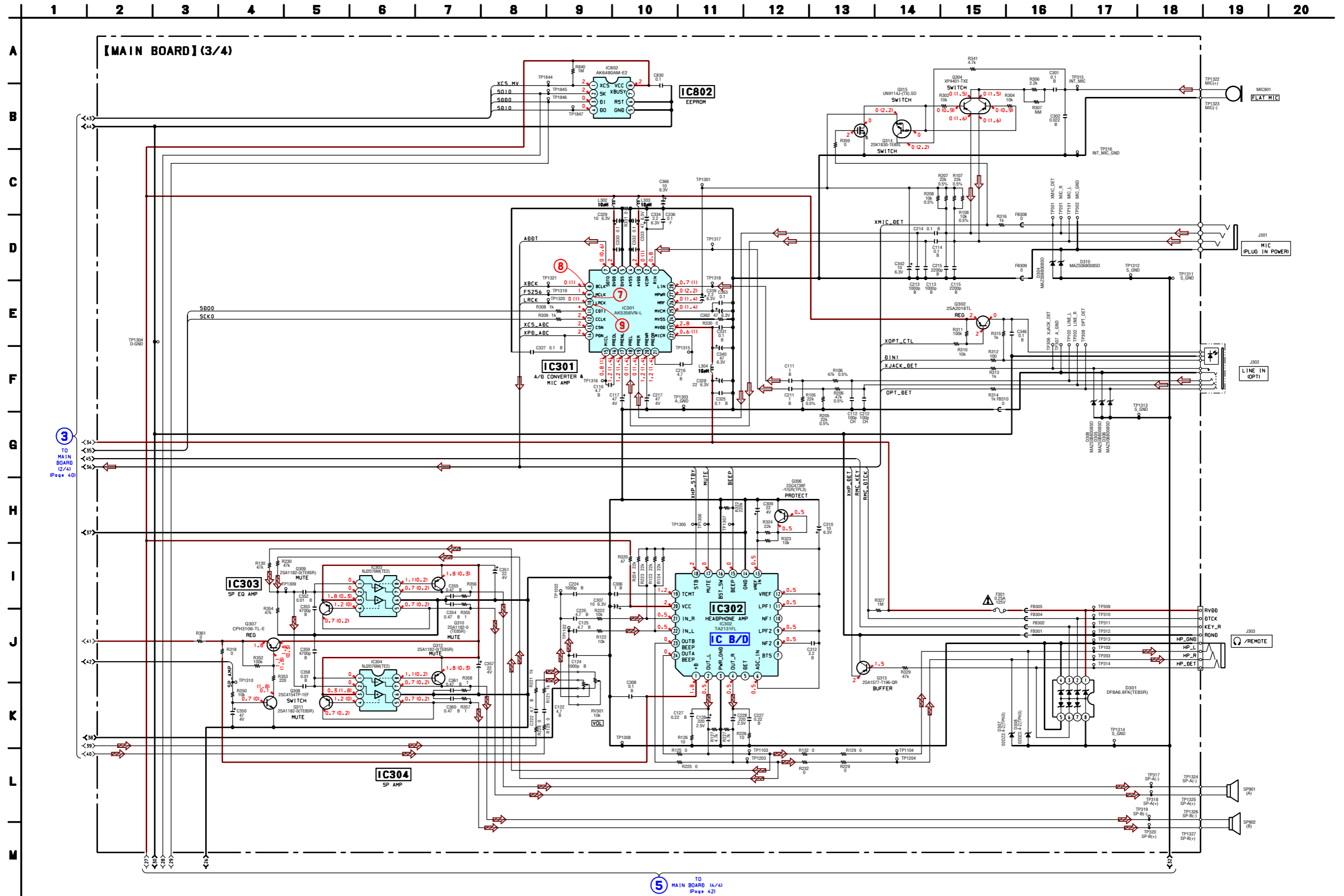


1 TO MAIN BOARD (2/4) (Page 40)

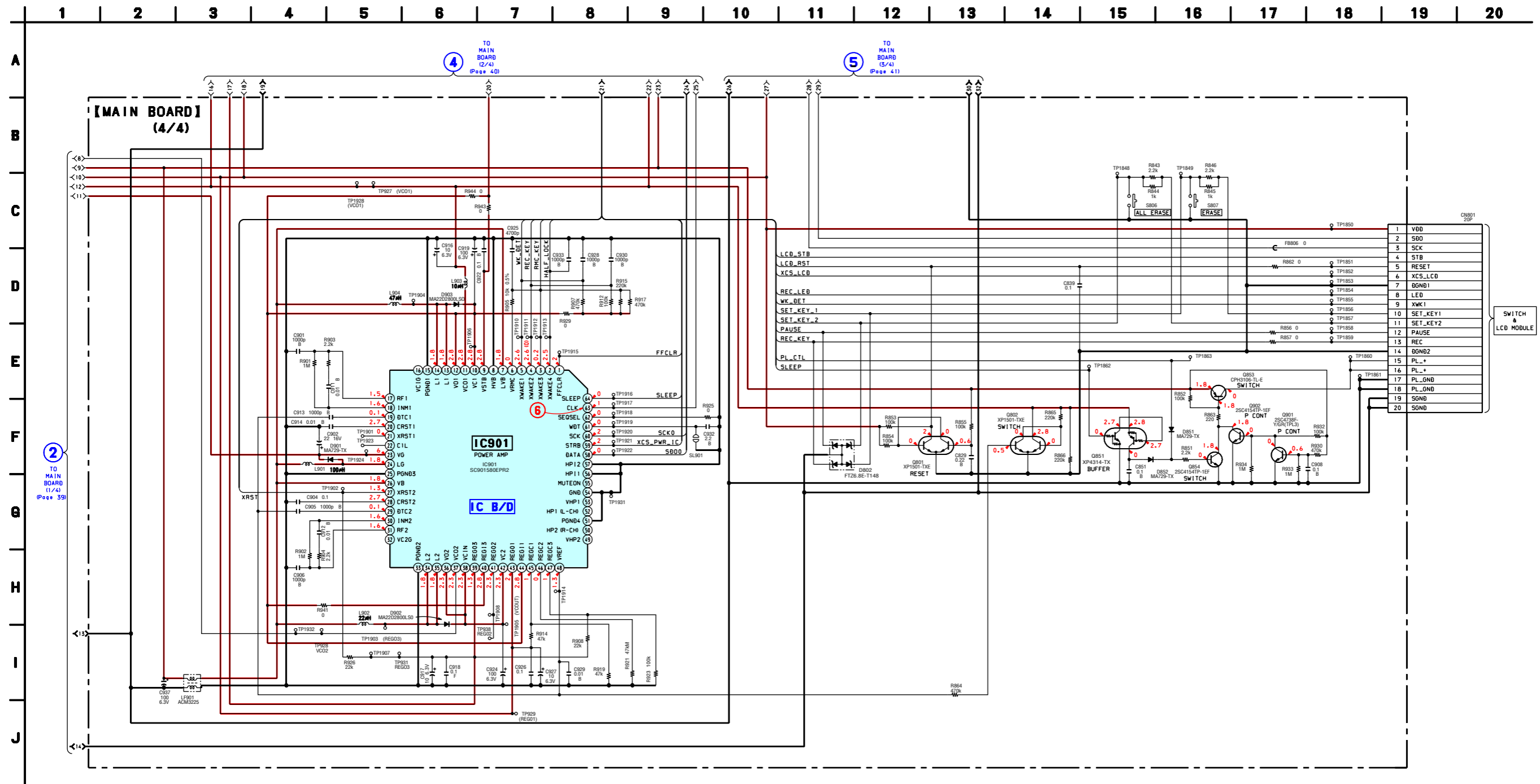
2 TO MAIN BOARD (4/4) (Page 42)



6-7. Schematic Diagram – MAIN Board (3/4) – • See page 36 for Waveforms. • See page 43 for IC Block Diagrams.

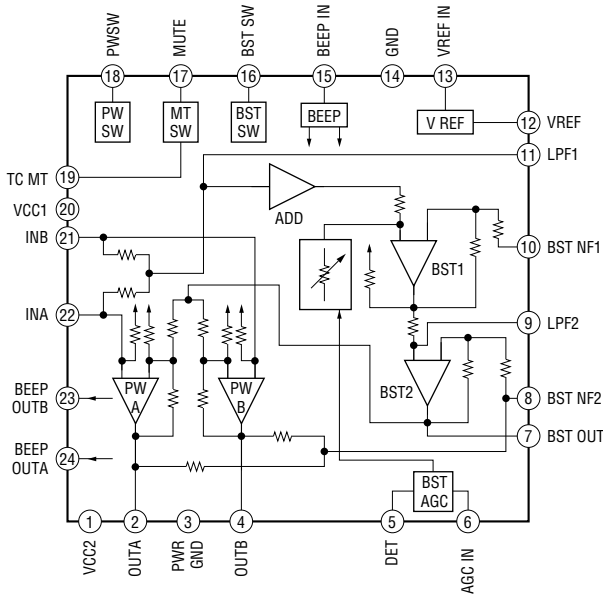


5 TO MAIN BOARD (4/4) (Page 42)

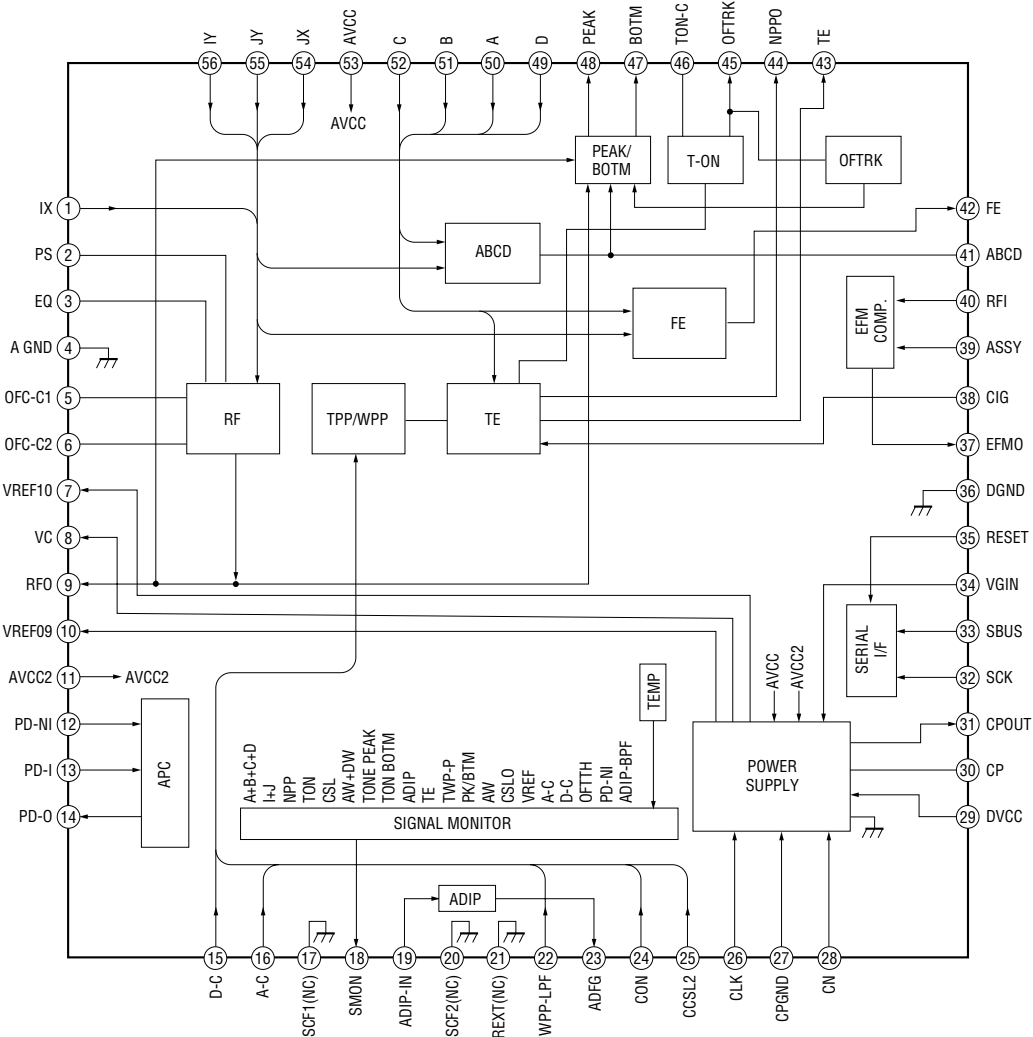


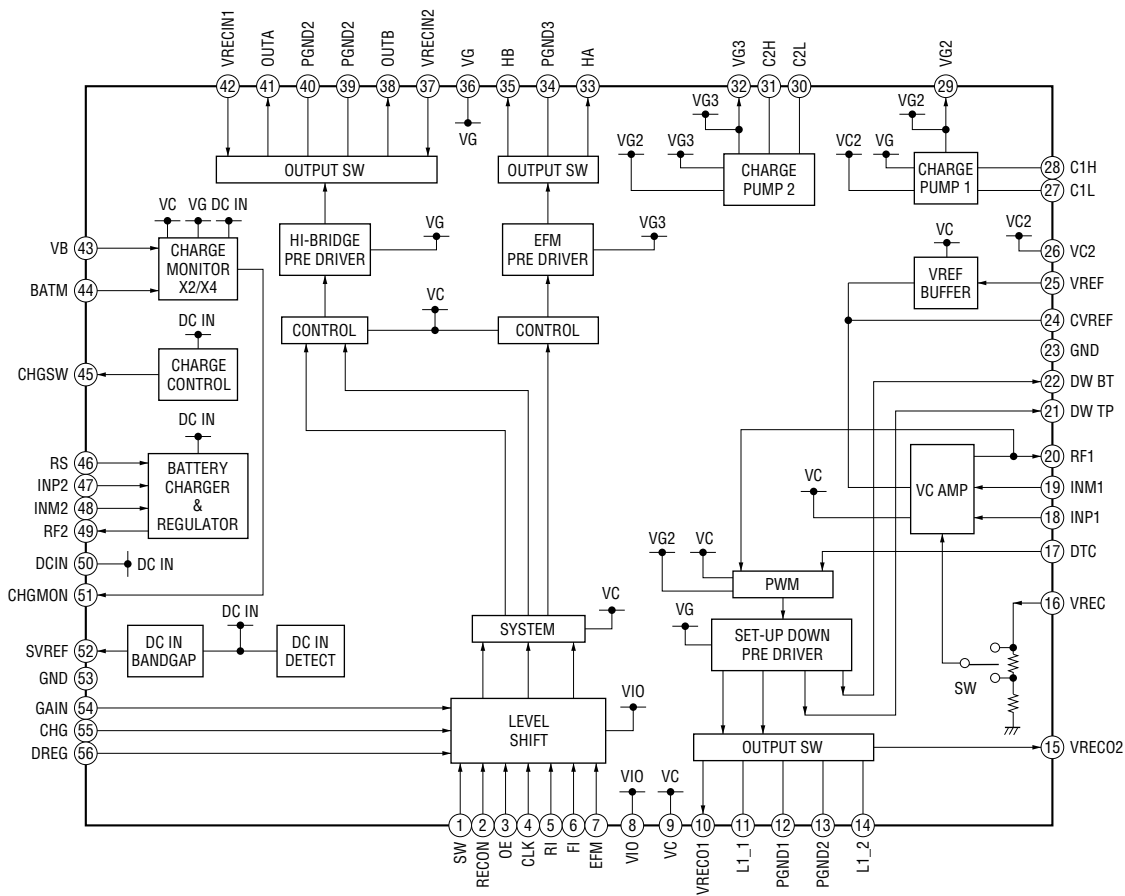
• IC Block Diagrams

IC302 TA2131FL(EL)

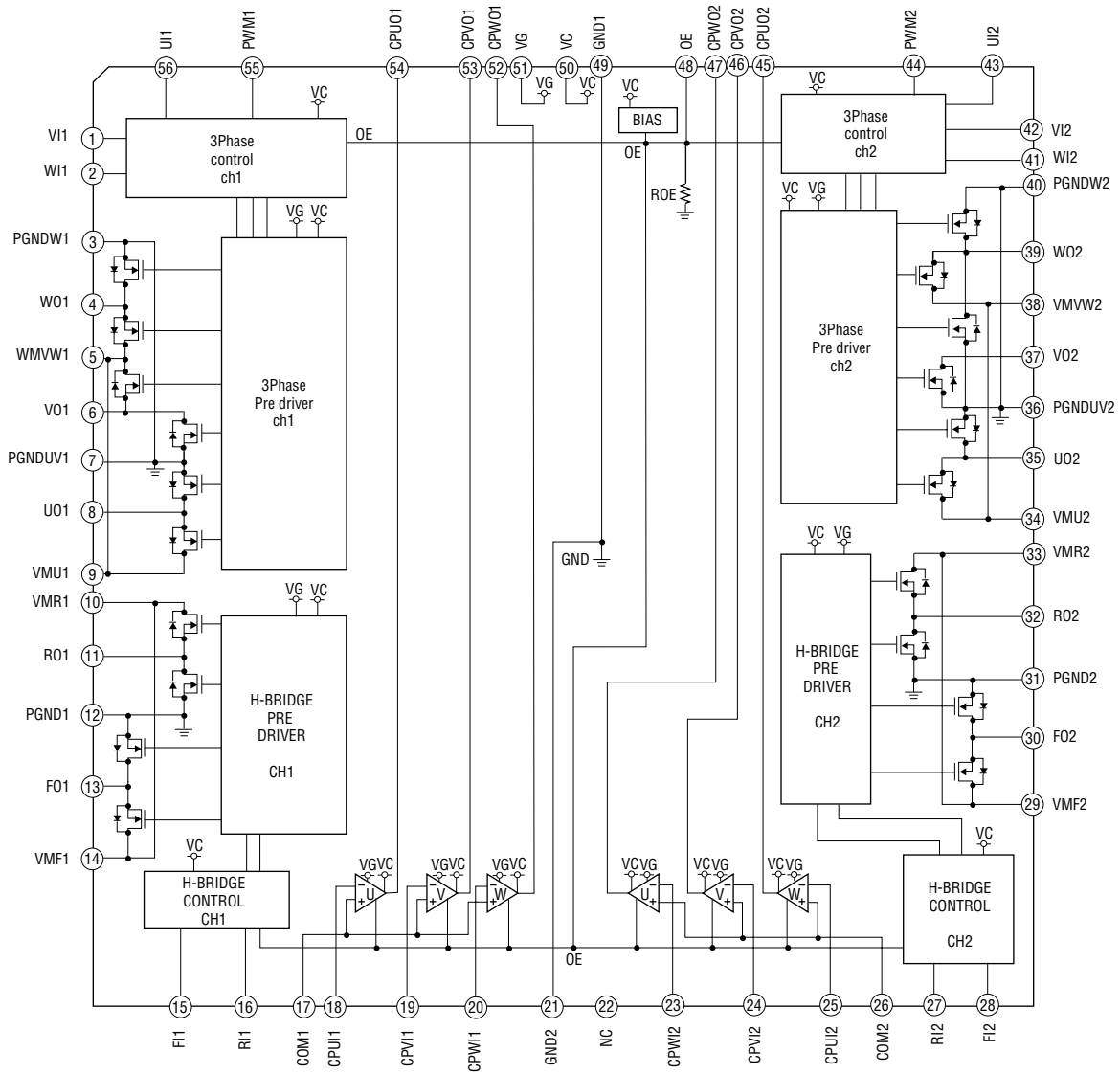


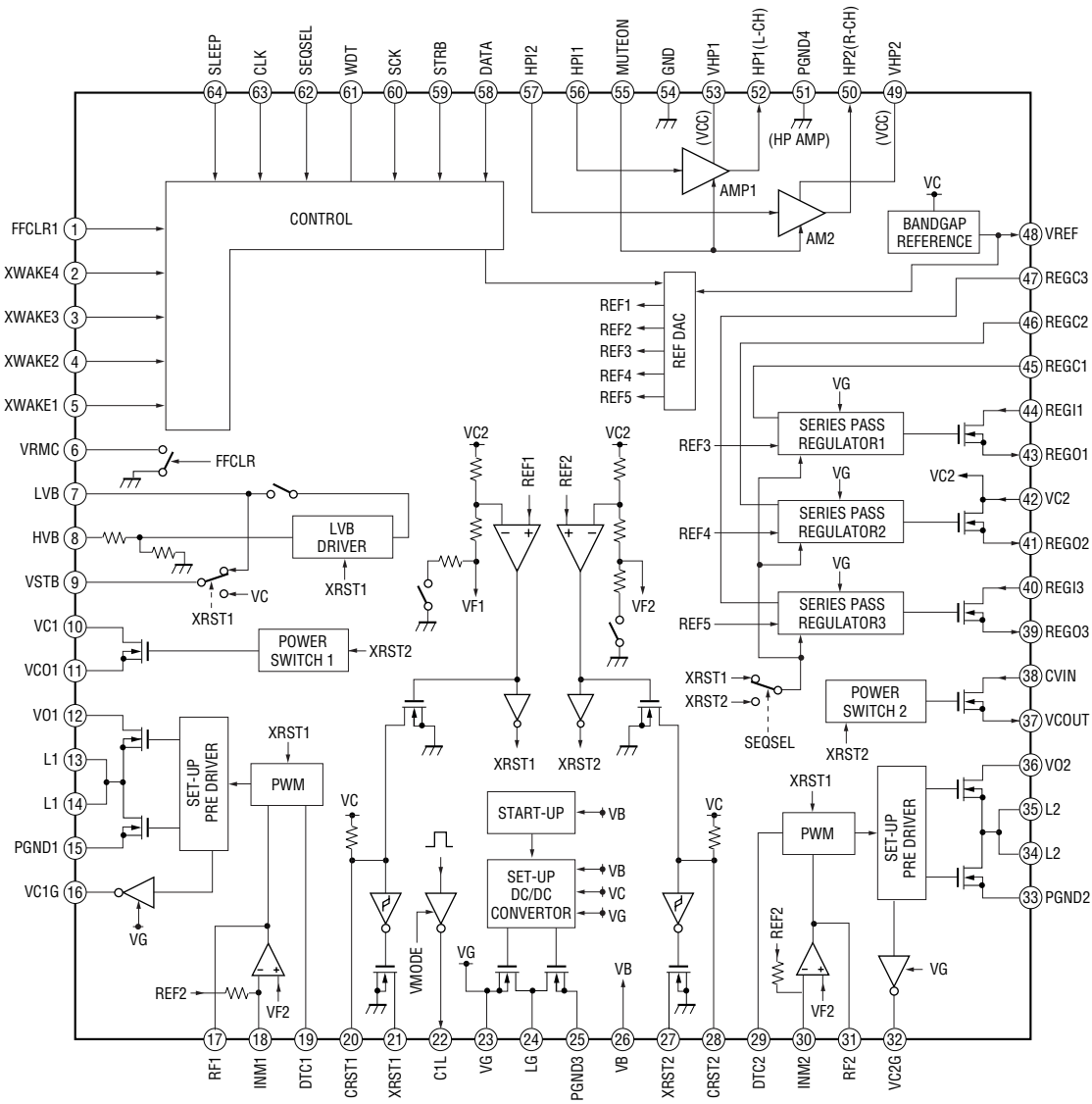
IC501 SN761058ZQLR





IC701 SC111258EPR2





6-9. IC Pin Function Description

• IC801 CXD2680-207GA (SYSTEM CONTROLLER, DIGITAL SIGNAL PROCESSOR)

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

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

Pin No.	Pin Name	I/O	Description
111	BATT_CTL_1	O	Control signal output for the voltage step up circuit in the external battery case Not used (open)
112	BATT_CTL_2	O	Not used (open)
113	NC	O	Not used (open)
114, 115	PD_S0, 1	O	PD IC mode changeover signal output to the optical pick up
116	LINK_MON	O	Linking area monitor signal output Not used (open)
117	PL_CTL	O	Plunger control signal output
118	GND_SW	O	Ground changeover switch control signal output
119, 120	NC	O	Not used (open)
121	SLD_MON	I	Sled servo monitor signal input
122	VLON	O	Not used (open)
123	SLEEP	O	System sleep control signal output to the power control
124	FFCLR	O	Input latch output for the start switching to the power control
125	CHGI_CTL1	O	Charge current limit ON/OFF control signal output at the time of adaptor use Not used (open)
126	CHGI_CTL2	O	Charge current limit value changeover control signal output at the time of adaptor use Not used (open)
127	NC	O	Not used (open)
128	CHG_LED	O	LED ON/OFF control signal output for CHG (charge display) Not used (open)
129	XTEST	I	Terminal for the test mode setting (normally open) "L": test mode
130	XRF_RST	O	Reset control signal output to the RF amplifier "L": reset
131	XEXT_PWR	I	External power supply (AC adaptor/charging stand) detection signal input Not used (open)
132	XHOLD_SW	I	HOLD switch input terminal "L": hold ON
133	COUT_MON	I	Traverse count measurement monitor input
134	CHG_ADSEL	O	A/D terminal of the battery charge control IC output selection signal output Not used (open)
135	CHGI_SEL	O	Charge/discharge changeover control signal output for the current sense amplifier Not used (open)
136	XDC_IN	I	DC plug detection signal input Not used (open)
137	SPDL_MON	I	Spindle servo monitor signal input
138	XCS_PWR_IC	O	Chip select signal output to the power control
139, 140	NC	O	Not used (open)
141	XCS_LCD	O	Chip select signal output to the liquid crystal display module
142	LCD_STB	O	Strobe signal output to the liquid crystal display module
143	XRST_MTR_DRV	O	Reset control signal output to the motor driver "L": reset
144	XCS_NV	O	Chip select signal output to the nonvolatile memory
145	CHG_PWM	O	Output voltage control signal output to the battery charge control Not used (open)
146	VREC_PWM	O	PWM signal output for the power supply voltage control to the REC driver
147	NC	O	PWM signal output for the laser power supply voltage control to the power control Not used (open)
148	NC	O	Muting control signal to the headphone amplifier (NJM type made by JRC) Not used (open)
149	NC	O	Power supply control signal output for the D class headphone amplifier Not used (open)
150	XCS_REC_DRV	O	Chip select signal output to the REC driver Not used (open)
151	T_MARK_SW	I	T MARK (track mark) switch input terminal "L": track mark detection Not used (open)
152	JOG_A	I	Jog dial pulse input from the switch & liquid crystal display module Not used (open)
153	JOG_B	I	Jog dial pulse input from the switch & liquid crystal display module Not used (open)
154, 155	NC	O	Not used (open)
156	SSB_DATA	I/O	SSB data input/output with the RF amplifier
157	SSB_CLK	O	SSB clock output to the RF amplifier
158	VBUS_DET	I	Not used (fixed at "H")
159	VB_MON	I	Voltage monitor input terminal (A/D input) of the UNREG power supply
160	CHG_MON	I	Not used (fixed at "H")
161	VREF_MON	I	Reference voltage monitor input (A/D input) from the RF amplifier
162, 163	SET_KEY_1, 2	I	Key input (A/D input) from the switch & liquid crystal display module
164	CRADLE_DET	I	Not used (fixed at "H")
165	HIDC_MON	I	HIGH DC voltage monitor input (A/D input)

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

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

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Pin No.	Pin Name	I/O	Description
299	FVDD0	—	Power supply terminal (for the built-in flash memory)
300	FVSS0	—	Ground terminal (for the built-in flash memory)
301, 302	DVDD5, 6	—	Power supply terminal
303, 304	DRAMVDD3, 4	—	Power supply terminal (for DRAM)
305 to 312	NC	—	Not used (open)

SECTION 7 EXPLODED VIEWS

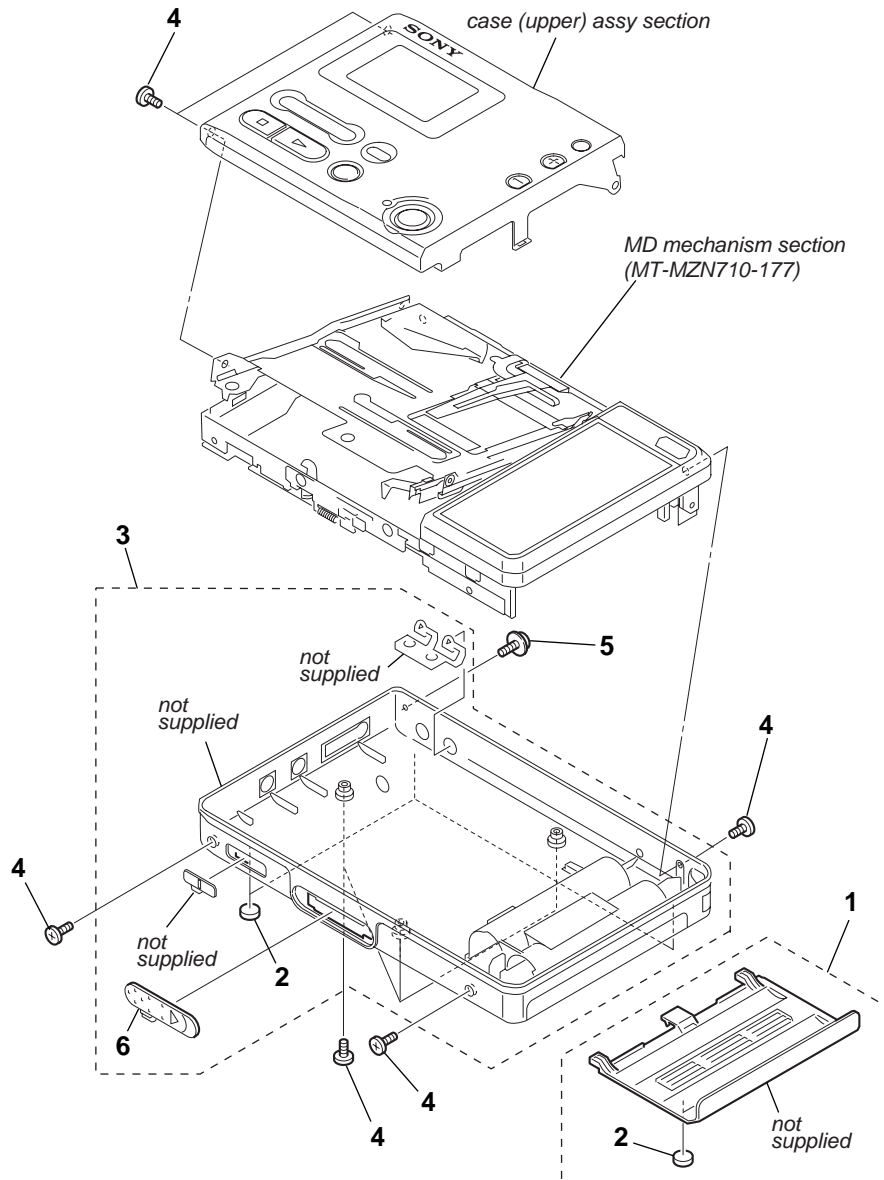
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Abbreviation
JE: Tourist model

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Accessories are given in the last of the electrical parts list.

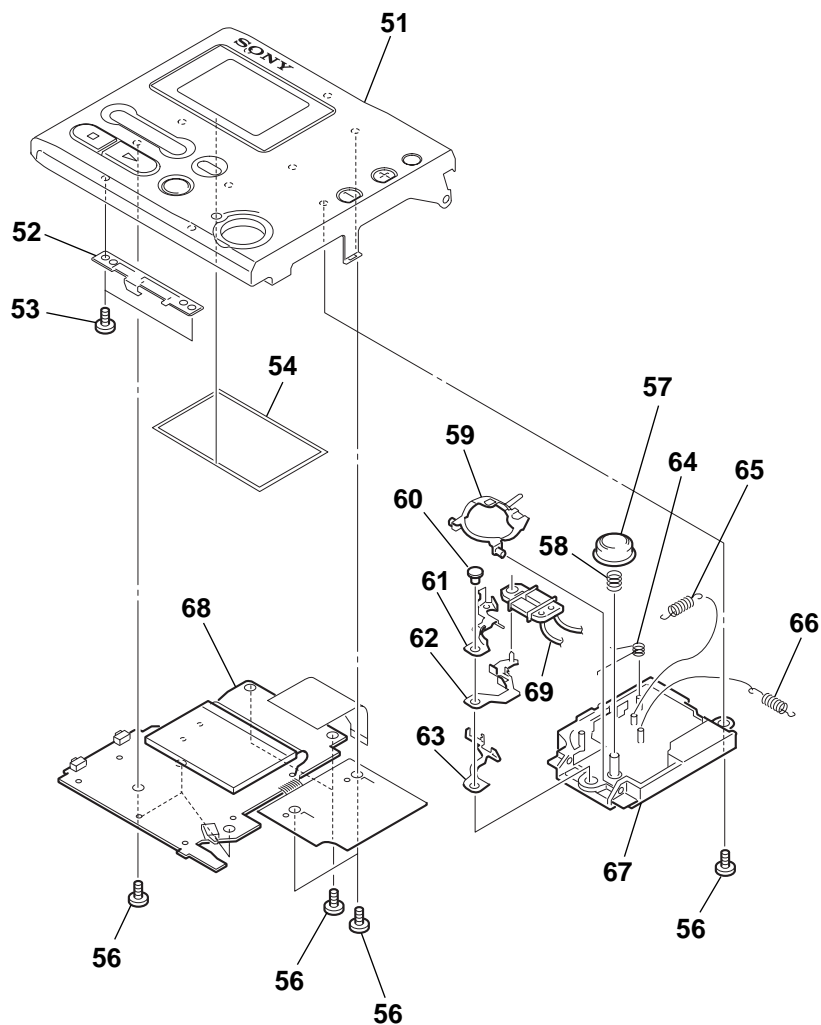
The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

7-1. Lower Case Section



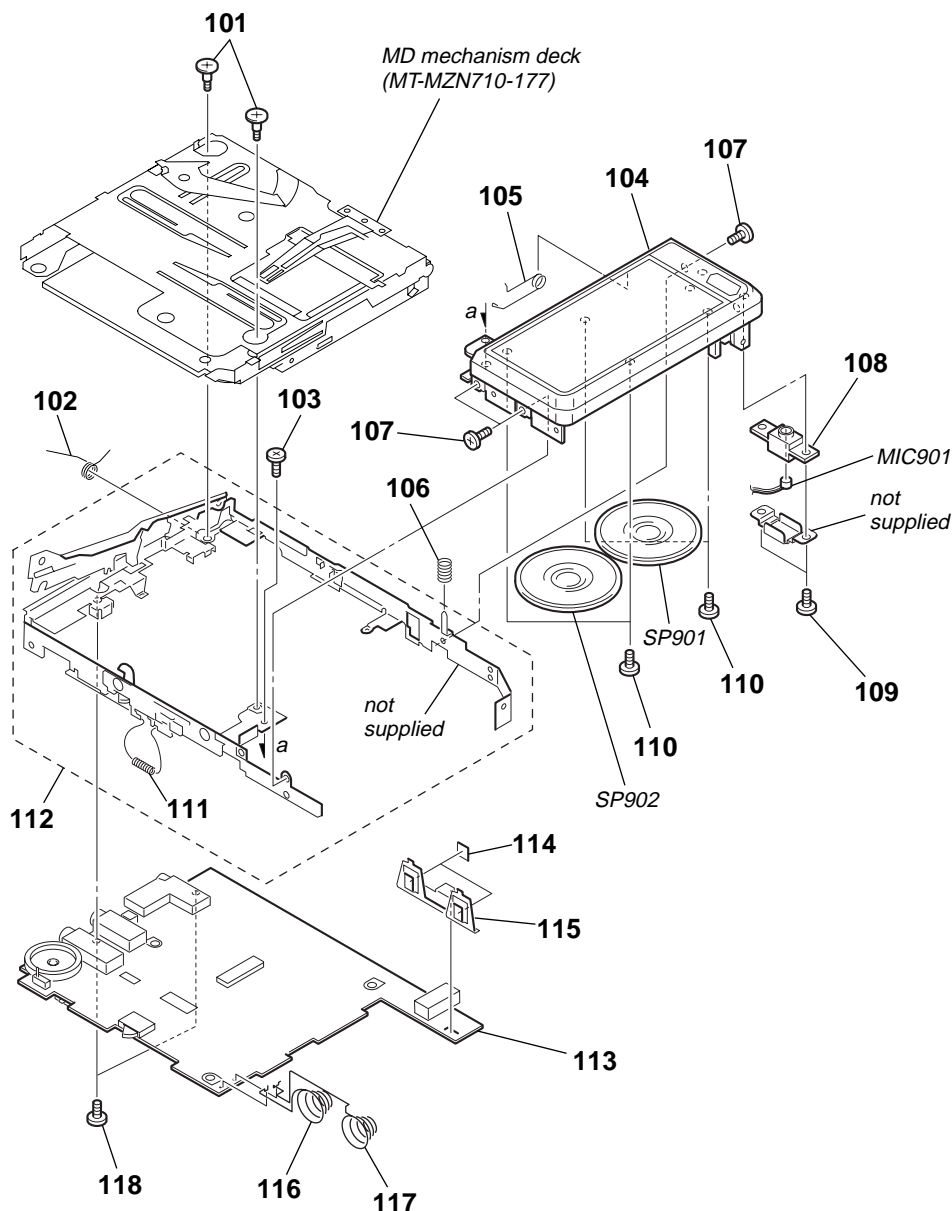
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	A-3331-719-A	LID ASSY, BATTERY CASE		4	3-234-449-31	SCREW (M1.4)	
2	3-049-923-01	FOOT		5	3-241-529-01	SCREW, STEP	
3	A-3331-722-A	CASE (LOWER) ASSY (US)		6	3-245-882-01	KNOB (OPEN)	
3	A-3331-726-A	CASE (LOWER) ASSY (JE)					
3	A-3331-724-A	CASE (LOWER) ASSY (AEP)					

7-2. Upper Chassis Section



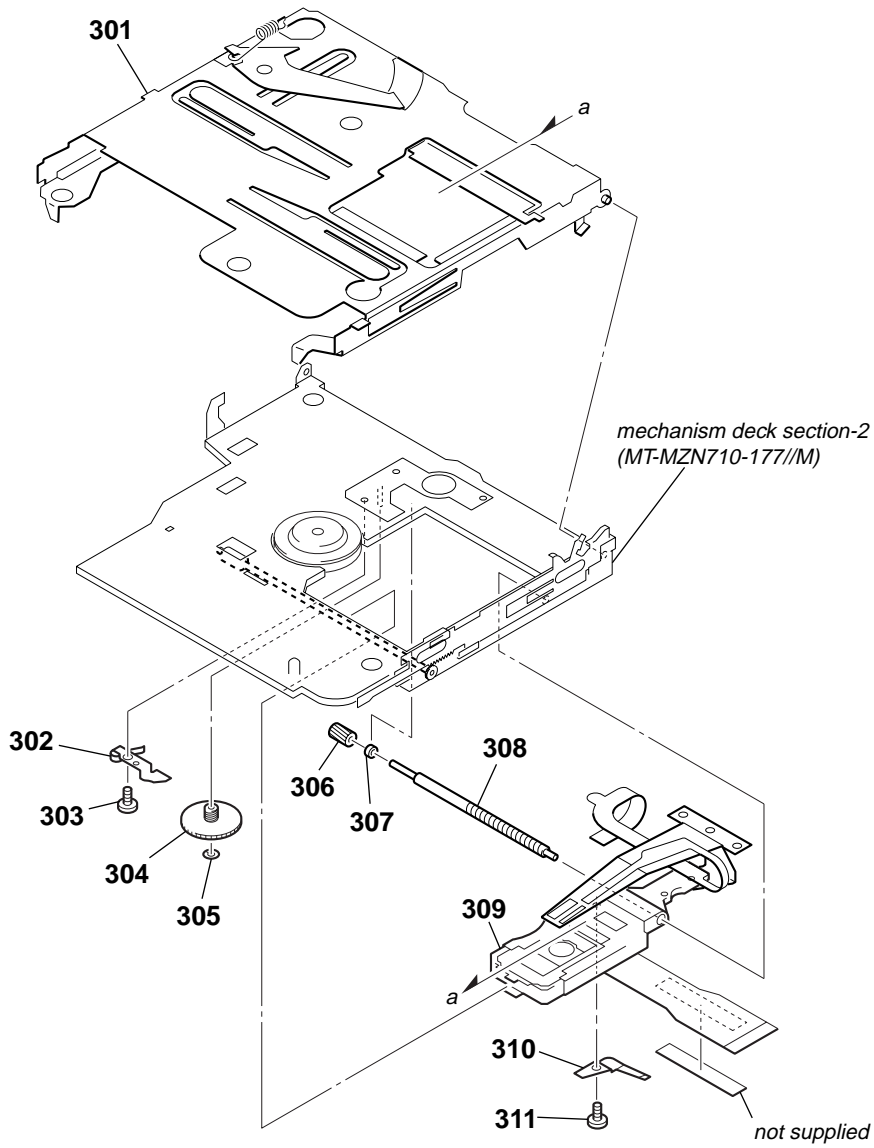
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3383-479-1	CASE (UPPER) ASSY		61	3-247-869-01	LEVER (REC-LOCK)	
52	3-237-946-01	LOCKER, OPEN		62	X-3382-767-1	LEVER (RELEASE) ASSY	
53	3-375-114-71	SCREW		63	3-247-868-01	LEVER (REC)	
54	3-252-845-01	SHEET (LCD), ADHESIVE		64	3-247-874-01	SPRING (LOCK)	
56	3-375-114-21	SCREW		65	3-247-873-01	SPRING (REC), TENSION	
57	3-247-871-01	BUTTON (REC)		66	3-247-875-01	SPRING (RELEASE), TENSION	
58	3-247-872-01	SPRING (REC), COMPRESSION		67	3-247-867-01	COVER (REC)	
59	X-3383-303-1	BRACKET (REC-B) ASSY		68	1-804-976-11	LCD MODULE	
60	3-247-870-01	SHAFT (LEVER)		69	1-454-674-81	SOLENOID, PLUNGER (PL901)	

7-3. Chassis Section



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	3-237-072-02	SCREW(MD)STEP		112	X-3382-766-1	CHASSIS ASSY, SET	
102	3-247-857-01	SPRING (POP UP), TORSION		* 113	A-3347-526-A	MAIN BOARD, COMPLETE	
103	3-375-114-71	SCREW		114	3-252-529-01	SHEET(+)	
104	A-3331-715-A	CASE (SPK) ASSY		115	3-247-854-01	BOARD (+), TERMINAL, BATTERY	
105	3-248-145-01	SPRING (POP-L)		116	3-247-856-01	TERMINAL (-) (B), BATTERY	
106	3-247-858-01	SPRING (GROUND), COMPRESSION		117	3-247-855-01	TERMINAL (-) (A), BATTERY	
107	3-234-449-31	SCREW (M1.4)		118	3-225-137-11	SCREW, PRECISION MACHINE	
108	3-235-172-01	CUSHION (MICROPHONE)		MIC901	1-542-298-11	MICROPHONE, ELECTRET CONDENSER	(FLAT MIC)
109	3-318-382-01	SCREW (1.7X3), TAPPING		SP901	1-529-276-21	SPEAKER (2.8cm) (A)	
110	3-034-792-11	SCREW, TAPPING (B2.0)		SP902	1-529-276-21	SPEAKER (2.8cm) (B)	
111	3-245-889-01	SPRING (LIMITER)					

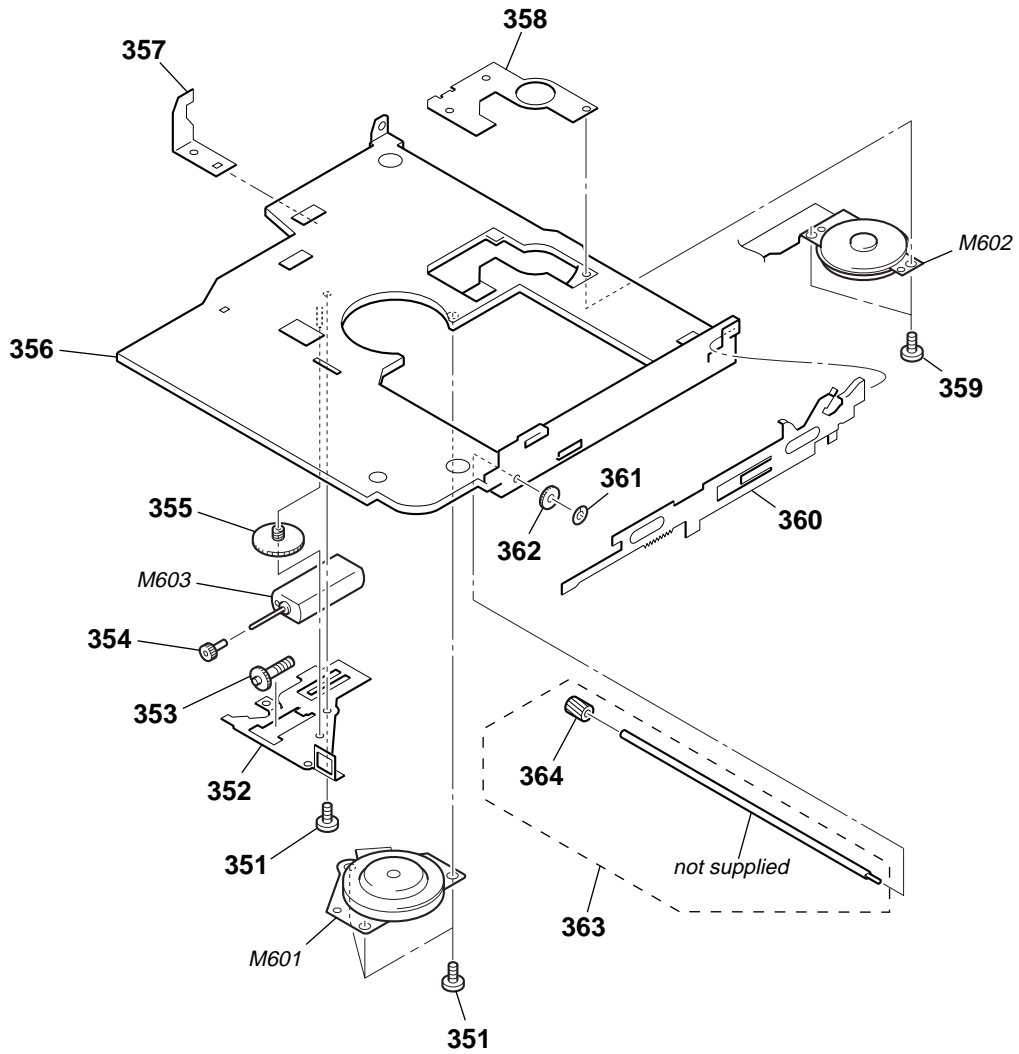
7-4. Mechanism Deck Section-1
(MT-MZN710-177//M)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	X-3381-219-3	HOLDER ASSY		307	3-043-237-02	BEARING (N)	
302	3-224-779-02	SPRING, THRUST DETENT		308	4-222-203-02	SCREW, LEAD	
303	3-225-996-01	SCREW (M1.4)(EG),PRECISION PAN		△309	X-3381-589-1	OP SERVICE ASSY	
304	4-222-216-01	GEAR (SA)		310	3-049-336-03	SPRING (S), RACK	
305	3-338-645-31	WASHER (0.8-2.5)		311	3-225-996-06	SCREW (M1.4)(EG),PRECISION PAN	
306	4-222-208-01	GEAR (SB)					

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

7-5. Mechanism Deck Section-2
(MT-MZN710-177//M)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
351	3-225-278-12	SCREW, TAPPING		360	3-235-839-02	LEVER (RACK)	
352	3-235-838-02	COVER, MOTOR		361	3-338-645-31	WASHER (0.8-2.5)	
353	3-235-836-01	GEAR (HB)		362	4-222-222-01	GEAR (RACK)	
354	3-222-544-01	GEAR (HA)		363	A-3174-089-A	SHAFT BLOCK ASSY, SUB	
355	3-235-835-01	GEAR (HC)		364	4-222-218-02	GEAR (HD)	
356	3-235-834-01	CHASSIS		M601	8-835-744-21	MOTOR, DC SSM18B/C-NP (SPINDLE)	
357	3-235-830-02	PLATE, RATCHET		M602	1-763-727-11	MOTOR, DC (SLED)	
358	X-3379-529-4	BASE ASSY, MOTOR		M603	1-763-400-21	MOTOR, DC (OVER WRITE HEAD UP/DOWN)	
359	3-225-996-07	SCREW (M1.4)(EG),PRECISION PAN					

SECTION 8 ELECTRICAL PARTS LIST

MAIN

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
JE : Tourist 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

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-3347-526-A	MAIN BOARD, COMPLETE *****		C336	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
		< CAPACITOR >		C339	1-135-099-91	TANTALUM CHIP 2.2uF 20% 6.3V	
C111	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V		C340	1-100-213-91	CAP, CHIP TANTALUM 47uF 20% 6.3V	
C112	1-164-874-11	CERAMIC CHIP 100PF 5.00% 50V		C342	1-135-259-11	TANTAL. CHIP 10uF 20.00% 6.3V	
C113	1-164-937-11	CERAMIC CHIP 0.001uF 10.00% 50V		C346	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
C114	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C350	1-131-862-91	TANTAL. CHIP 47uF 20% 4V	
C115	1-164-939-11	CERAMIC CHIP 0.0022uF 10.00% 50V		C351	1-104-847-11	TANTAL. CHIP 22uF 20.00% 4V	
C116	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V		C352	1-164-943-11	CERAMIC CHIP 0.01uF 10.00% 16V	
C117	1-131-862-91	TANTAL. CHIP 47uF 20% 4V		C353	1-164-941-11	CERAMIC CHIP 0.0047uF 10.00% 16V	
C122	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V		C354	1-125-891-11	CERAMIC CHIP 0.47uF 10.00% 10V	
C124	1-164-937-11	CERAMIC CHIP 0.001uF 10.00% 50V		C355	1-125-891-11	CERAMIC CHIP 0.47uF 10.00% 10V	
C125	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V		C357	1-104-847-11	TANTAL. CHIP 22uF 20.00% 4V	
C127	1-127-715-91	CERAMIC CHIP 0.22uF 10% 16V		C358	1-164-943-11	CERAMIC CHIP 0.01uF 10.00% 16V	
C128	1-135-868-91	TANTAL. CHIP 220uF 20% 2.5V		C359	1-164-941-11	CERAMIC CHIP 0.0047uF 10.00% 16V	
C211	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V		C360	1-125-891-11	CERAMIC CHIP 0.47uF 10.00% 10V	
C212	1-164-874-11	CERAMIC CHIP 100PF 5.00% 50V		C361	1-125-891-11	CERAMIC CHIP 0.47uF 10.00% 10V	
C213	1-164-937-11	CERAMIC CHIP 0.001uF 10.00% 50V		C362	1-100-213-91	CAP, CHIP TANTALUM 47uF 20% 6.3V	
C214	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C363	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
C215	1-164-939-11	CERAMIC CHIP 0.0022uF 10.00% 50V		C366	1-165-851-91	TANTAL. CHIP 10uF 20% 6.3V	
C216	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V		C505	1-165-851-91	TANTAL. CHIP 10uF 20% 6.3V	
C217	1-131-862-91	TANTAL. CHIP 47uF 20% 4V		C506	1-164-943-11	CERAMIC CHIP 0.01uF 10.00% 16V	
C222	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V		C507	1-135-259-11	TANTAL. CHIP 10uF 20.00% 6.3V	
C224	1-164-937-11	CERAMIC CHIP 0.001uF 10.00% 50V		C509	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
C225	1-127-760-11	CERAMIC CHIP 4.7uF 10% 6.3V		C510	1-119-750-11	TANTAL. CHIP 22uF 20.00% 6.3V	
C227	1-127-715-91	CERAMIC CHIP 0.22uF 10% 16V		C511	1-164-850-11	CERAMIC CHIP 10PF 0.50PF 50V	
C228	1-135-868-91	TANTAL. CHIP 220uF 20% 2.5V		C512	1-164-850-11	CERAMIC CHIP 10PF 0.50PF 50V	
C301	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C513	1-107-819-11	CERAMIC CHIP 0.022uF 10.00% 16V	
C302	1-107-819-11	CERAMIC CHIP 0.022uF 10.00% 16V		C514	1-164-939-11	CERAMIC CHIP 0.0022uF 10.00% 50V	
C306	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V		C517	1-164-943-11	CERAMIC CHIP 0.01uF 10.00% 16V	
C307	1-135-259-11	TANTAL. CHIP 10uF 20.00% 6.3V		C518	1-164-943-11	CERAMIC CHIP 0.01uF 10.00% 16V	
C308	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C519	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
C309	1-104-847-11	TANTAL. CHIP 22uF 20.00% 4V		C520	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
C310	1-135-259-11	TANTAL. CHIP 10uF 20.00% 6.3V		C522	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
C312	1-125-889-91	CERAMIC CHIP 2.2uF 10% 10V		C523	1-164-939-11	CERAMIC CHIP 0.0022uF 10.00% 50V	
C325	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C524	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	
C327	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C526	1-119-923-81	CERAMIC CHIP 0.047uF 10.00% 10V	
C328	1-119-750-11	TANTAL. CHIP 22uF 20.00% 6.3V		C527	1-164-941-11	CERAMIC CHIP 0.0047uF 10.00% 16V	
C329	1-135-259-11	TANTAL. CHIP 10uF 20.00% 6.3V		C533	1-164-943-11	CERAMIC CHIP 0.01uF 10.00% 16V	
C330	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C534	1-164-941-11	CERAMIC CHIP 0.0047uF 10.00% 16V	
C331	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C535	1-125-837-91	CERAMIC CHIP 1uF 10% 6.3V	
C332	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V		C536	1-125-777-11	CERAMIC CHIP 0.1uF 10.00% 10V	
C333	1-100-213-91	CAP, CHIP TANTALUM 47uF 20% 6.3V		C537	1-107-819-11	CERAMIC CHIP 0.022uF 10.00% 16V	
C334	1-135-099-91	TANTALUM CHIP 2.2uF 20% 6.3V		C538	1-107-819-11	CERAMIC CHIP 0.022uF 10.00% 16V	
				C540	1-164-941-11	CERAMIC CHIP 0.0047uF 10.00% 16V	
				C601	1-128-964-91	TANTAL. CHIP 100uF 20% 6.3V	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C602	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	C820	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C603	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C821	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V
C604	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C823	1-125-777-81	CERAMIC CHIP	0.1uF 10.00% 50V
C606	1-128-964-91	TANTAL. CHIP	100uF 20% 6.3V	C824	1-135-259-11	TANTAL. CHIP	10uF 20.00% 6.3V
C607	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	C825	1-165-851-91	TANTAL. CHIP	10uF 20% 6.3V
C608	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V	C826	1-100-213-91	CAP, CHIP TANTALUM	47uF 20% 6.3V
C609	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C827	1-119-923-81	CERAMIC CHIP	0.047uF 10.00% 10V
C610	1-164-874-11	CERAMIC CHIP	100PF 5.00% 50V	C828	1-100-213-91	CAP, CHIP TANTALUM	47uF 20% 6.3V
C611	1-164-874-11	CERAMIC CHIP	100PF 5.00% 50V	C829	1-127-715-91	CERAMIC CHIP	0.22uF 10% 16V
C613	1-135-259-11	TANTAL. CHIP	10uF 20.00% 6.3V	C830	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C614	1-135-259-11	TANTAL. CHIP	10uF 20.00% 6.3V	C834	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C615	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C836	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C616	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C838	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V
C617	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C839	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C618	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C851	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C621	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	C852	1-165-851-91	TANTAL. CHIP	10uF 20% 6.3V
C622	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C901	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V
C623	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	C902	1-119-751-11	TANTAL. CHIP	22uF 20.00% 16V
C624	1-164-874-11	CERAMIC CHIP	100PF 5.00% 50V	C904	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C625	1-125-889-91	CERAMIC CHIP	2.2uF 10% 10V	C905	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V
C626	1-135-259-11	TANTAL. CHIP	10uF 20.00% 6.3V	C906	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V
C627	1-104-847-11	TANTAL. CHIP	22uF 20.00% 4V	C908	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C628	1-135-259-11	TANTAL. CHIP	10uF 20.00% 6.3V	C911	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V
C630	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C912	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V
C631	1-131-862-91	TANTAL. CHIP	47uF 20% 4V	C913	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V
C632	1-137-760-91	CAP-CHIP	100PF 5% 100V	C914	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V
C634	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C916	1-165-851-91	TANTAL. CHIP	10uF 20% 6.3V
C635	1-128-964-91	TANTAL. CHIP	100uF 20% 6.3V	C917	1-135-259-11	TANTAL. CHIP	10uF 20.00% 6.3V
C701	1-119-923-81	CERAMIC CHIP	0.047uF 10.00% 10V	C918	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C702	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	C919	1-128-964-91	TANTAL. CHIP	100uF 20% 6.3V
C703	1-119-923-81	CERAMIC CHIP	0.047uF 10.00% 10V	C922	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C704	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	C924	1-128-964-91	TANTAL. CHIP	100uF 20% 6.3V
C705	1-119-923-81	CERAMIC CHIP	0.047uF 10.00% 10V	C925	1-164-941-11	CERAMIC CHIP	0.0047uF 10.00% 16V
C706	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	C926	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V
C708	1-107-819-11	CERAMIC CHIP	0.022uF 10.00% 16V	C927	1-135-259-11	TANTAL. CHIP	10uF 20.00% 6.3V
C710	1-107-819-11	CERAMIC CHIP	0.022uF 10.00% 16V	C928	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V
C712	1-107-819-11	CERAMIC CHIP	0.022uF 10.00% 16V	C929	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V
C715	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C930	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V
C716	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C932	1-125-889-91	CERAMIC CHIP	2.2uF 10% 10V
C718	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C933	1-164-937-11	CERAMIC CHIP	0.001uF 10.00% 50V
C719	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	C937	1-128-964-91	TANTAL. CHIP	100uF 20% 6.3V
C720	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V			< CONNECTOR >	
C721	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	CN501	1-573-360-21	CONNECTOR, FFC/FPC 20P	
C801	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	CN701	1-573-350-11	CONNECTOR, FFC/FPC 10P	
C802	1-164-844-11	CERAMIC CHIP	4PF 0.25PF 50V	CN801	1-573-360-21	CONNECTOR, FFC/FPC 20P	
C803	1-164-844-11	CERAMIC CHIP	4PF 0.25PF 50V			< DIODE >	
C804	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	D301	8-719-081-71	DIODE DF8A6.8FK(TE85R)	
C805	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	D304	8-719-056-54	DIODE MAZS068008SO	
C806	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	D305	8-719-056-54	DIODE MAZS068008SO	
C807	1-125-891-11	CERAMIC CHIP	0.47uF 10.00% 10V	D306	8-719-056-54	DIODE MAZS068008SO	
C808	1-164-935-11	CERAMIC CHIP	470PF 10.00% 50V	D307	8-719-056-72	DIODE 02DZ2.4-Z(TPH3)	
C810	1-125-837-91	CERAMIC CHIP	1uF 10% 6.3V	D308	8-719-056-72	DIODE 02DZ2.4-Z(TPH3)	
C811	1-125-777-11	CERAMIC CHIP	0.1uF 10.00% 10V	D309	8-719-056-54	DIODE MAZS068008SO	
C812	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	D310	8-719-056-54	DIODE MAZS068008SO	
C813	1-107-819-11	CERAMIC CHIP	0.022uF 10.00% 16V	D601	6-500-483-01	DIODE MA22D2800LSO	
C814	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V	D602	6-500-483-01	DIODE MA22D2800LSO	
C815	1-107-819-11	CERAMIC CHIP	0.022uF 10.00% 16V				
C818	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V				
C819	1-164-943-11	CERAMIC CHIP	0.01uF 10.00% 16V				

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
D603	6-500-483-01	DIODE MA22D2800LSO		L601	1-428-912-21	INDUCTOR 10uH	
D605	6-500-483-01	DIODE MA22D2800LSO		L603	1-414-398-11	INDUCTOR 10uH	
D606	8-719-081-35	DIODE MA2YD1700LSO		L801	1-414-398-11	INDUCTOR 10uH	
D607	8-719-081-35	DIODE MA2YD1700LSO		L802	1-414-398-11	INDUCTOR 10uH	
D608	8-719-056-54	DIODE MAZS068008SO		L901	1-469-426-21	INDUCTOR 100uH	
D609	8-719-056-54	DIODE MAZS068008SO		L902	1-419-949-21	INDUCTOR 22uH	
D610	8-719-056-54	DIODE MAZS068008SO		L903	1-469-367-21	INDUCTOR 10uH	
D611	8-719-056-54	DIODE MAZS068008SO		L904	1-419-951-21	INDUCTOR 47uH	
D802	8-719-066-17	DIODE FTZ6.8E-T148				< LINE FILTER >	
D851	8-719-420-51	DIODE MA729-TX					
D852	8-719-420-51	DIODE MA729-TX		LF601	1-416-405-21	FERRITE 0uH	
D901	8-719-420-51	DIODE MA729-TX		LF901	1-416-405-21	FERRITE 0uH	
D902	6-500-483-01	DIODE MA22D2800LSO				< TRANSISTOR >	
D903	6-500-483-01	DIODE MA22D2800LSO					
		< FUSE >					
△ F301	1-576-439-21	FUSE (SMD) (0.25A/125V)		Q302	8-729-051-23	TRANSISTOR 2SA2018TL	
		< FERRITE BEAD/CONDUCTOR >		Q304	8-729-427-70	TRANSISTOR XP4401-TXE	
				Q306	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
				Q307	8-729-043-94	TRANSISTOR CPH3106-TL-E	
				Q308	8-729-602-21	TRANSISTOR 2SC4154TP-1EF	
FB301	1-500-329-21	FERRITE 0uH		Q309	8-729-030-31	TRANSISTOR 2SA1182-0(TE85R)	
FB302	1-500-329-21	FERRITE 0uH		Q310	8-729-030-31	TRANSISTOR 2SA1182-0(TE85R)	
FB304	1-500-329-21	FERRITE 0uH		Q311	8-729-030-31	TRANSISTOR 2SA1182-0(TE85R)	
FB305	1-500-329-21	FERRITE 0uH		Q312	8-729-030-31	TRANSISTOR 2SA1182-0(TE85R)	
FB308	1-216-864-11	METAL CHIP 0 5% 1/10W		Q313	8-729-922-10	TRANSISTOR 2SA1577-T106-QR	
FB309	1-500-329-21	FERRITE 0uH		Q314	8-729-047-68	TRANSISTOR 2SK1830-TE85L	
FB310	1-216-864-11	METAL CHIP 0 5% 1/10W		Q315	8-729-037-62	TRANSISTOR UN9114J-(TX).SO	
FB801	1-216-864-11	METAL CHIP 0 5% 1/10W		Q501	8-729-922-10	TRANSISTOR 2SA1577-T106-QR	
FB803	1-216-864-11	METAL CHIP 0 5% 1/10W		Q601	6-550-353-01	TRANSISTOR SI1410EDH-T1	
FB804	1-216-864-11	METAL CHIP 0 5% 1/10W		Q602	6-550-510-01	TRANSISTOR MMJT9435	
FB805	1-216-864-11	METAL CHIP 0 5% 1/10W		Q603	8-729-053-71	TRANSISTOR TS8K1TB	
FB806	1-216-864-11	METAL CHIP 0 5% 1/10W		Q604	6-550-356-01	TRANSISTOR MCH6616-TL-E	
		< IC >		Q605	6-550-357-01	TRANSISTOR CPH5614-TL-E	
IC301	6-702-894-01	IC AK5356VN-L		Q801	8-729-429-44	TRANSISTOR XP1501-TXE	
IC302	8-759-598-15	IC TA2131FL(EL)		Q802	8-729-429-44	TRANSISTOR XP1501-TXE	
IC303	8-759-289-74	IC NJM2076M(TE2)		Q851	8-729-030-46	TRANSISTOR XP4314-TX	
IC304	8-759-289-74	IC NJM2076M(TE2)		Q853	8-729-043-94	TRANSISTOR CPH3106-TL-E	
@ IC501	6-703-946-01	IC SN761058AZQLR		Q854	8-729-602-21	TRANSISTOR 2SC4154TP-1EF	
IC601	6-702-782-01	IC XPC18A22AEPR2		Q901	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
IC701	6-702-786-01	IC SC111258EPR2		Q902	8-729-602-21	TRANSISTOR 2SC4154TP-1EF	
@ IC801	8-753-001-00	IC CXD2680-207GA				< RESISTOR >	
IC802	8-759-445-94	IC AK6480AM-E2		R105	1-208-715-11	METAL CHIP 22K 0.5% 1/16W	
IC901	6-702-865-01	IC SC901580EPR2		R106	1-208-927-11	METAL CHIP 47K 0.5% 1/16W	
		< JACK >		R107	1-208-715-11	METAL CHIP 22K 0.5% 1/16W	
J301	1-794-084-12	JACK (MIC (PLUG IN POWER))		R108	1-208-707-11	METAL CHIP 10K 0.5% 1/16W	
J302	1-815-950-12	JACK (LINE IN (OPT))		R121	1-208-683-11	METAL CHIP 1K 0.5% 1/16W	
J303	1-794-154-31	JACK (Ⓞ /REMOTE)		R122	1-208-707-11	METAL CHIP 10K 0.5% 1/16W	
J601	1-785-383-11	JACK,DC(POLARITY UNIFIED TYPE)(DC IN 3V)		R123	1-208-715-11	METAL CHIP 22K 0.5% 1/16W	
		< COIL >		R124	1-208-715-11	METAL CHIP 22K 0.5% 1/16W	
L302	1-414-398-11	INDUCTOR 10uH		R125	1-218-990-11	SHORT CHIP 0	
L303	1-414-398-11	INDUCTOR 10uH		R126	1-208-635-11	RES-CHIP 10 5% 1/16W	
L304	1-414-398-11	INDUCTOR 10uH		R127	1-218-961-11	RES-CHIP 4.7K 5% 1/16W	
L503	1-414-398-11	INDUCTOR 10uH		R128	1-218-990-11	SHORT CHIP 0	
L504	1-414-398-11	INDUCTOR 10uH		R129	1-216-864-11	METAL CHIP 0 5% 1/10W	
				R130	1-208-927-11	METAL CHIP 47K 0.5% 1/16W	
				R132	1-216-864-11	METAL CHIP 0 5% 1/10W	

@ Replacement of IC501 and 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.

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
R205	1-208-715-11	METAL CHIP	22K	0.5%	1/16W	R606	1-216-797-11	METAL CHIP	10	5%	1/10W
R206	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R608	1-218-965-11	RES-CHIP	10K	5%	1/16W
R207	1-208-715-11	METAL CHIP	22K	0.5%	1/16W	R609	1-218-965-11	RES-CHIP	10K	5%	1/16W
R208	1-208-707-11	METAL CHIP	10K	0.5%	1/16W	R612	1-219-724-11	METAL CHIP	1	1%	1/4W
R221	1-208-683-11	METAL CHIP	1K	0.5%	1/16W	R614	1-218-985-11	RES-CHIP	470K	5%	1/16W
R222	1-208-707-11	METAL CHIP	10K	0.5%	1/16W	R616	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R223	1-208-715-11	METAL CHIP	22K	0.5%	1/16W	R617	1-218-965-11	RES-CHIP	10K	5%	1/16W
R224	1-208-715-11	METAL CHIP	22K	0.5%	1/16W	R619	1-218-969-11	RES-CHIP	22K	5%	1/16W
R225	1-218-990-11	SHORT CHIP	0			R620	1-218-981-11	RES-CHIP	220K	5%	1/16W
R226	1-208-635-11	RES-CHIP	10	5%	1/16W	R621	1-218-977-11	RES-CHIP	100K	5%	1/16W
R227	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R622	1-218-973-11	RES-CHIP	47K	5%	1/16W
R228	1-218-990-11	SHORT CHIP	0			R701	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R229	1-216-864-11	METAL CHIP	0	5%	1/10W	R702	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R230	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R703	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R232	1-216-864-11	METAL CHIP	0	5%	1/10W	R704	1-218-965-11	RES-CHIP	10K	5%	1/16W
R302	1-218-965-11	RES-CHIP	10K	5%	1/16W	R705	1-218-965-11	RES-CHIP	10K	5%	1/16W
R304	1-218-965-11	RES-CHIP	10K	5%	1/16W	R706	1-218-965-11	RES-CHIP	10K	5%	1/16W
R306	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W	R802	1-218-990-11	SHORT CHIP	0		
R308	1-218-953-11	RES-CHIP	1K	5%	1/16W	R803	1-208-635-11	RES-CHIP	10	5%	1/16W
R309	1-218-953-11	RES-CHIP	1K	5%	1/16W	R804	1-218-990-11	SHORT CHIP	0		
R310	1-218-965-11	RES-CHIP	10K	5%	1/16W	R805	1-218-990-11	SHORT CHIP	0		
R311	1-218-977-11	RES-CHIP	100K	5%	1/16W	R806	1-218-965-11	RES-CHIP	10K	5%	1/16W
R312	1-218-941-81	RES-CHIP	100	5%	1/16W	R807	1-218-965-11	RES-CHIP	10K	5%	1/16W
R313	1-218-953-11	RES-CHIP	1K	5%	1/16W	R808	1-218-977-11	RES-CHIP	100K	5%	1/16W
R314	1-218-953-11	RES-CHIP	1K	5%	1/16W	R810	1-218-981-11	RES-CHIP	220K	5%	1/16W
R315	1-218-953-11	RES-CHIP	1K	5%	1/16W	R812	1-218-953-11	RES-CHIP	1K	5%	1/16W
R316	1-218-953-11	RES-CHIP	1K	5%	1/16W	R813	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R318	1-216-864-11	METAL CHIP	0	5%	1/10W	R814	1-218-953-11	RES-CHIP	1K	5%	1/16W
R320	1-218-937-11	RES-CHIP	47	5%	1/16W	R815	1-218-945-11	RES-CHIP	220	5%	1/16W
R322	1-218-981-11	RES-CHIP	220K	5%	1/16W	R816	1-220-804-11	RES-CHIP	2.2M	5%	1/16W
R323	1-218-965-11	RES-CHIP	10K	5%	1/16W	R817	1-218-989-11	RES-CHIP	1M	5%	1/16W
R324	1-218-969-11	RES-CHIP	22K	5%	1/16W	R818	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R327	1-218-989-11	RES-CHIP	1M	5%	1/16W	R819	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R329	1-218-973-11	RES-CHIP	47K	5%	1/16W	R821	1-218-937-11	RES-CHIP	47	5%	1/16W
R330	1-216-864-11	METAL CHIP	0	5%	1/10W	R823	1-218-990-11	SHORT CHIP	0		
R331	1-216-864-11	METAL CHIP	0	5%	1/10W	R824	1-218-990-11	SHORT CHIP	0		
R341	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R825	1-218-990-11	SHORT CHIP	0		
R350	1-218-965-11	RES-CHIP	10K	5%	1/16W	R826	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R352	1-218-977-11	RES-CHIP	100K	5%	1/16W	R827	1-218-990-11	SHORT CHIP	0		
R353	1-218-945-11	RES-CHIP	220	5%	1/16W	R830	1-218-990-11	SHORT CHIP	0		
R354	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R832	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R355	1-218-446-11	METAL CHIP	1	5%	1/10W	R833	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R356	1-218-446-11	METAL CHIP	1	5%	1/10W	R836	1-218-990-11	SHORT CHIP	0		
R357	1-218-446-11	METAL CHIP	1	5%	1/10W	R840	1-218-989-11	RES-CHIP	1M	5%	1/16W
R358	1-218-446-11	METAL CHIP	1	5%	1/10W	R842	1-218-990-11	SHORT CHIP	0		
R359	1-218-990-11	SHORT CHIP	0			R843	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R361	1-216-864-11	METAL CHIP	0	5%	1/10W	R844	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R501	1-218-977-11	RES-CHIP	100K	5%	1/16W	R845	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R502	1-218-446-11	METAL CHIP	1	5%	1/10W	R846	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R503	1-218-446-11	METAL CHIP	1	5%	1/10W	R847	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R504	1-218-965-11	RES-CHIP	10K	5%	1/16W	R848	1-218-953-11	RES-CHIP	1K	5%	1/16W
R505	1-218-965-11	RES-CHIP	10K	5%	1/16W	R851	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R507	1-208-707-11	METAL CHIP	10K	0.5%	1/16W	R852	1-218-977-11	RES-CHIP	100K	5%	1/16W
R508	1-208-683-11	METAL CHIP	1K	0.5%	1/16W	R853	1-218-977-11	RES-CHIP	100K	5%	1/16W
R509	1-218-990-11	SHORT CHIP	0			R854	1-218-977-11	RES-CHIP	100K	5%	1/16W
R511	1-218-990-11	SHORT CHIP	0			R855	1-218-977-11	RES-CHIP	100K	5%	1/16W
R602	1-218-989-11	RES-CHIP	1M	5%	1/16W	R856	1-216-864-11	METAL CHIP	0	5%	1/10W
R603	1-208-935-11	METAL CHIP	100K	0.5%	1/16W	R857	1-216-864-11	METAL CHIP	0	5%	1/10W
R604	1-208-715-11	METAL CHIP	22K	0.5%	1/16W	R859	1-218-990-11	SHORT CHIP	0		
R605	1-218-945-11	RES-CHIP	220	5%	1/16W	R861	1-218-990-11	SHORT CHIP	0		

MAIN

Ref. No.	Part No.	Description	Remark
R862	1-218-990-11	SHORT CHIP	0
R863	1-218-945-11	RES-CHIP	220 5% 1/16W
R864	1-218-985-11	RES-CHIP	470K 5% 1/16W
R865	1-218-981-11	RES-CHIP	220K 5% 1/16W
R866	1-218-981-11	RES-CHIP	220K 5% 1/16W
R901	1-218-989-11	RES-CHIP	1M 5% 1/16W
R902	1-218-989-11	RES-CHIP	1M 5% 1/16W
R903	1-218-957-11	RES-CHIP	2.2K 5% 1/16W
R904	1-218-957-11	RES-CHIP	2.2K 5% 1/16W
R905	1-208-707-11	METAL CHIP	10K 0.5% 1/16W
R907	1-218-985-11	RES-CHIP	470K 5% 1/16W
R908	1-218-969-11	RES-CHIP	22K 5% 1/16W
R912	1-218-977-11	RES-CHIP	100K 5% 1/16W
R914	1-218-973-11	RES-CHIP	47K 5% 1/16W
R915	1-218-981-11	RES-CHIP	220K 5% 1/16W
R917	1-218-985-11	RES-CHIP	470K 5% 1/16W
R919	1-218-973-11	RES-CHIP	47K 5% 1/16W
R921	1-218-973-11	RES-CHIP	47K 5% 1/16W
R923	1-218-977-11	RES-CHIP	100K 5% 1/16W
R925	1-218-990-11	SHORT CHIP	0
R926	1-218-969-11	RES-CHIP	22K 5% 1/16W
R929	1-218-990-11	SHORT CHIP	0
R930	1-218-985-11	RES-CHIP	470K 5% 1/16W
R932	1-218-977-11	RES-CHIP	100K 5% 1/16W
R933	1-218-989-11	RES-CHIP	1M 5% 1/16W
R934	1-218-989-11	RES-CHIP	1M 5% 1/16W
R941	1-218-990-11	SHORT CHIP	0
R943	1-218-990-11	SHORT CHIP	0
R944	1-218-990-11	SHORT CHIP	0
		< VARIABLE RESISTOR >	
RV301	1-227-509-11	RES, VAR, CARBON 10K/10K (VOL)	
		< SWITCH >	
* S801	1-786-470-21	SWITCH, PUSH (1 KEY) (HALF LOCK)	
S803	1-762-805-21	SWITCH, PUSH (1 KEY) (OPEN/CLOSE)	
S804	1-771-867-11	SWITCH, PUSH (1 KEY) (PROTECT)	
S805	1-572-922-11	SWITCH, SLIDE (HOLD)	
S806	1-786-020-21	SWITCH, TACTILE (EVQ PU TYPE)	(ALL ERASE)
S807	1-786-020-21	SWITCH, TACTILE (EVQ PU TYPE) (ERASE)	
		< THERMISTOR(POSITIVE) >	
THP601	1-804-616-21	THERMISTOR, POSITIVE	
		< VIBRATOR >	
X801	1-795-728-21	VIBRATOR, CRYSTAL (22.5792MHz)	

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	

68	1-804-976-11	LCD MODULE	
69	1-454-674-81	SOLENOID, PLUNGER (PL901)	
* 113	A-3347-526-A	MAIN BOARD, COMPLETE	
△ 309	X-3381-589-1	OP SERVICE ASSY	
M601	8-835-744-21	MOTOR, DC SSM18B/C-NP (SPINDLE)	
M602	1-763-727-11	MOTOR, DC (SLED)	
M603	1-763-400-21	MOTOR, DC (OVER WRITE HEAD UP/DOWN)	
SP901	1-529-276-21	SPEAKER (2.8cm) (A)	
SP902	1-529-276-21	SPEAKER (2.8cm) (B)	
MIC901	1-542-298-11	MICROPHONE, ELECTRET CONDENSER	(FLAT MIC)

		ACCESSORIES	

	1-543-798-11	FILTER, CLAMP (FERRITE CORE)	
	3-220-749-01	CASE, CARRYING	
	3-247-850-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-247-850-21	MANUAL, INSTRUCTION (FRENCH) (US,AEP)	
	3-247-850-31	MANUAL, INSTRUCTION (GERMAN) (AEP)	
	3-247-850-41	MANUAL, INSTRUCTION (SPANISH) (AEP)	
	3-247-850-51	MANUAL, INSTRUCTION (DUTCH) (AEP)	
	3-247-850-61	MANUAL, INSTRUCTION (SWEDISH) (AEP)	
	3-247-850-71	MANUAL, INSTRUCTION (ITALIAN))(AEP)	
	3-247-850-81	MANUAL, INSTRUCTION (PORTUGUESE)	(AEP)
	3-247-850-91	MANUAL, INSTRUCTION (FINNISH) (AEP)	
	3-247-851-01	MANUAL, INSTRUCTION (JAPANESE) (JE)	
	3-247-851-11	MANUAL, INSTRUCTION	(TRADITIONAL CHINESE) (JE)
	3-247-851-21	MANUAL, INSTRUCTION	(SIMPLIFIED CHINESE) (JE)
	3-247-851-31	MANUAL, INSTRUCTION (KOREAN) (JE)	
	3-928-815-01	STRAP, HAND	
	8-954-008-92	RECEIVER, EAR MDR-E808LP/C SET	

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

MEMO

