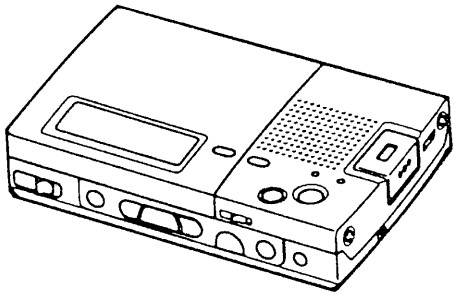
MZ-B3

SERVICE MANUAL

US Model
AEP Model



Model Name Using Similar Mechanism	MZ-R2
MD Mechanism Type	MT-MZB3-109
Optical Pick-up Type	KMS-194B/J-N

SPECIFICATIONS

System

Audio playing system
MiniDisc digital audio system

Laser diode properties
Material: GaAlAs
Wavelength: l = 780 nm
Emission duration: continuous
Laser output: less than 44.6 µW
(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block.)

Recording and playback time
Maximum 148 minutes (MDW-74, monaural recording)
Maximum 74 minutes (MDW-74, stereo recording)

Revolutions
400 rpm to 900 rpm (CLV)

Error correction
Advanced Cross Interleave Reed Solomon Code (ACIRC)

Sampling frequency
44.1 kHz

Coding
Adaptive TRansform Acoustic Coding (ATRAC)

Modulation system
EFM (Eight to Fourteen Modulation)

Number of channels
2 stereo channels
1 monaural channel

Frequency response
20 to 20,000 Hz ± 3 dB

Wow and Flutter
Below measurable limit

Inputs
Microphone: stereo mini-jack, minimum input level 0.44 mV
Remote controller: mini mini-jack

Outputs
Headphones: stereo mini-jack, maximum output level 5 mW + 5 mW, load impedance 16 ohm

Power output
DC operation
Speaker 220 mW (at 10% harmonic distortion)

General

Power requirements
Three size AA (LR6) alkaline batteries (not supplied)
Sony AC Power Adaptor AC-E45HG (not supplied) connected at the DC IN 4.5 V jack
120 V AC, 60 Hz
Lithium ion rechargeable battery LIP-12 (not supplied)

Battery operation time
See "Using on a lithium ion rechargeable batteries" (page 28).

Dimensions
Approx. 135.3 × 30 × 80.5 mm (w/h/d)
($5\,^3/_8 \times 1\,^3/_{16} \times 3\,^1/_4$ in.)

Mass
Approx. 305 g (10.8 oz) the recorder only
Approx. 405 g (14.3 oz) incl. a recordable MD, remote controller, and three size AA (LR6) batteries

Supplied accessories
Remote controller (1)
Battery case (1, for LIP-12 Lithium ion Battery)
Recordable MD (1)
Carrying case (1)

— Continued on next page —

MICROFILM

PORTABLE MINIDISC RECORDER

SONY®

Optional accessories

AC-E45HG AC power adaptor
LIP-12 Lithium ion rechargeable battery
ACP-MZ60A* AC Power adaptor/ Battery charger
ECM-909A, ECM-727P, ECM-717 Stereo microphones
ECM-T140, ECM-T110 Monaural microphones
MDR-E747, MDR-E535 Stereo dynamic earphones
MDR-D55, MDR-D33 Stereo headphones
RK-G134, RK-G128 Line cables
MDW-74/74A, MDW-74L/74R/74Y, MDW-60/60A Recordable MDs
CK-MD4 MiniDisc carrying case
CK-MD10 MiniDisc filing box

* ACP-MZ60A can only be used as a battery charger. It cannot be used as an AC power adaptor with this recorder.

Your dealer may not handle some of the above listed accessories. Please ask the dealer for detailed information about the accessories in your country.

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Design and specifications are subject to change without notice.

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.

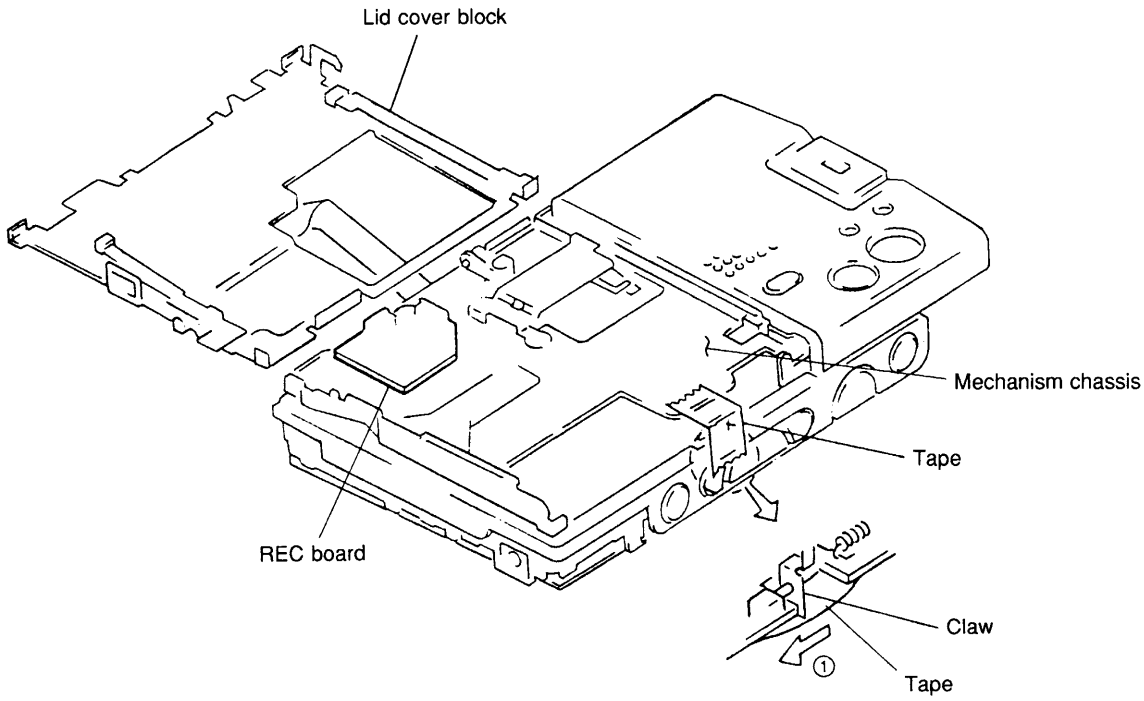
TABLE OF CONTENTS

SECTION 1
SERVICING NOTE

Open the upper panel assembly and lid cover block when measuring the REC board, etc. This will prevent the unit from operating.

① Secure the open/close detection switch claw with tape in the direction of the arrow.

② Secure the mechanism chassis with tape so that it does not move.



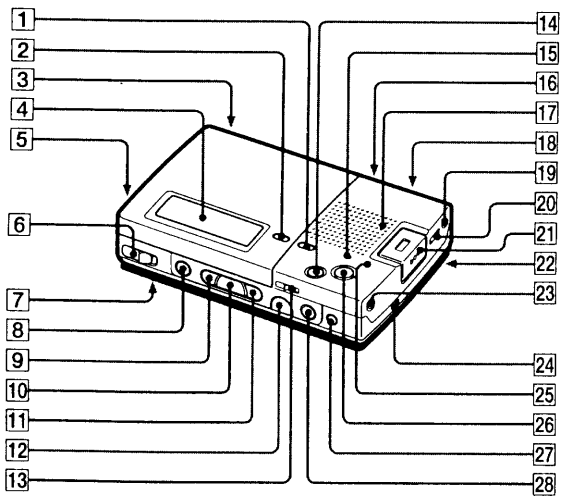
SAFETY-RELATED COMPONENT WARNING !!

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

Looking at the controls

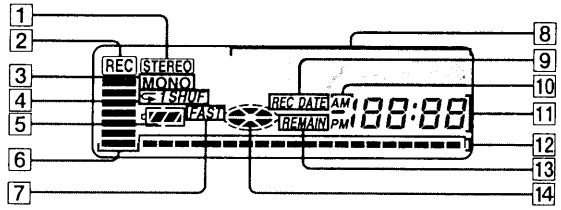
See pages in ( ) for more details.

The recorder

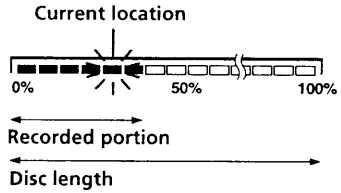


[1] END SEARCH button (7)
[2] DISPLAY button (16, 20)
[3] TRACK MARK (REC)/PAUSE (for the remote controller) jack (13)
[4] Display window (7, 9, 16, 21)
[5] DC IN 4.5 V jack (27)
[6] OPEN button (6)
[7] CLOCK SET button (on the bottom) (17)
[8] FAST PLAY button (19)
[9] ⏮ (search/AMS) button (7, 9)
[10] ▶ (play) button (9)
[11] ⏭ (search /AMS) button (7, 9)
[12] ■ (stop) button (7, 9)
[13] HOLD switch (21)
[14] TRACK MARK button (13, 24)
[15] Record indicator (15)
[16] ERASE button (25, 26)
[17] Speaker (9)
[18] PLAY MODE button (19)
[19] ∩ (headphones) jack (9, 22)
[20] VOL (volume) control (9)
[21] Microphone (7)
[22] Battery compartment (on the bottom) (6, 8)
[23] MIC PLUG IN POWER jack (11, 12)
[24] MONO (monaural)/STEREO switch (11, 12)
[25] VOR indicator (10)
[26] ● REC (record) button (7)
[27] VOR (Voice Operated Recording) ON/OFF button (10)
[28] ❚❚ (pause) button (7, 9)

The display window



[1] STEREO indication (11, 12)
[2] REC indication (7)
Lights up while recording. When flashing, the recorder is in record standby mode.
[3] MONO (monaural) indication (7)
[4] Play mode indication (20)
Shows the play mode of the MD.
[5] Battery indication (28)
Shows battery condition.
[6] Level meter
Shows the volume of the MD being played or recorded.
[7] FAST playback indication (19)
Lights up while playing at a fast speed.
[8] Character information display
Displays the disc and track names, date, error messages, track numbers, etc.
[9] REC DATE (recorded/current date) indication (16, 17, 21)
Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.
[10] AM/PM indication (17)
Lights up along with the time indication in the 12-hour system.
[11] Time display (16, 17, 21)
Shows the recorded time, current time, elapsed time of the track or MD being recorded or played.
[12] Position indicator (7, 9)
Shows the current location on the MD. The point under recording or playing flashes. The recorded portion lights up.



[13] REMAIN (remaining time/tracks) indication (16, 21)
Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.
[14] Disc indication
Shows that the disc is rotating for recording, playing or editing.

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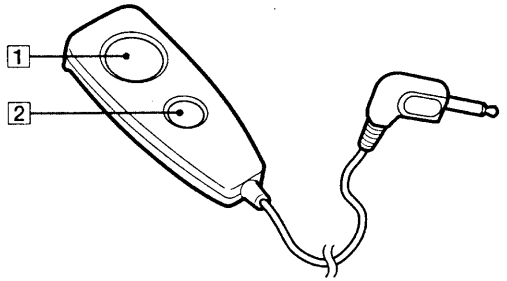
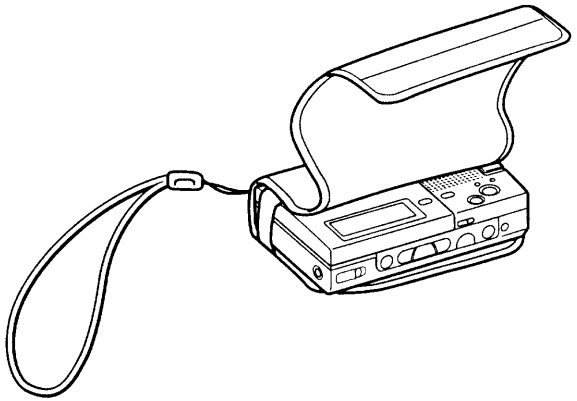
Remote controller



1 TRACK MARK button (13, 14)
Used to add track marks while recording. Adds a regular track mark when pressed once. Adds a special track mark when pressed twice.

2 ⏸ (pause) button (7, 9)

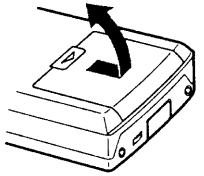
Carrying case



Recording an MD right away!

Record an MD through the built-in microphone. The recorded sound is monaural, and you can record for up to 148 minutes on a 74-minute MD or up to 120 minutes on a 60-minute MD.

1 Install three alkaline batteries.



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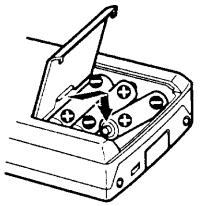
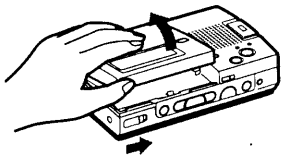
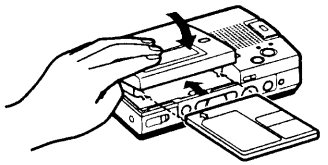


Three size AA (LR6) alkaline batteries

2 Insert a recordable MD.



① Slide OPEN and open the lid.



② Insert a recordable MD with the label side facing up, and press the lid down to close.

3 Record an MD.

Press ●REC.
"REC" and "MONO" appear in the display, and recording starts from the beginning of the disc. The level of the recorded sound is adjusted automatically.

To stop recording, press ■ (stop).
"Toc Edit" flashes to store data of the recording (the track's start and end points, etc.). Do not move or jog the recorder or disconnect the power source while the indication is flashing in the display. When the recorder completes storing the data, the ● REC button will be released.

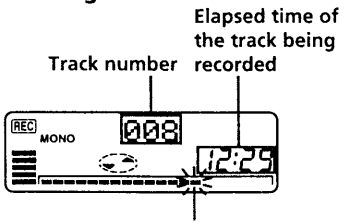
To	Press
Pause	❚❚* Press ❚❚ again to resume recording.
Record from the end of the previous recording	END SEARCH, then press ●REC.
Record over partway through the previous recording	►, ►►I or I◄◄ to find point to start recording, and press ■ to stop. Then press ●REC.
Remove the MD	■ and open the lid.*

* Once you open the lid, the point to start recording will change to the beginning of the first track. When recording on a recorded MD, check the point to start recording on the display.

If the recording does not start
- Make sure the recorder is not locked (page 21).
- Make sure the MD is not record-protected (page 15).

The alkaline batteries' life
You can record an MD with new alkaline batteries for 3 hours.

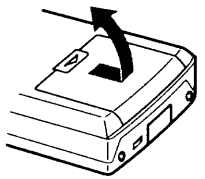
Display window while recording



Playing an MD right away!

Play an MD you recorded on or a premastered MD. You can hear the playback sound in monaural through the built-in speaker. For stereo sound, play an MD recorded in stereo, and use stereo headphones (not supplied).

1 Install three alkaline batteries.



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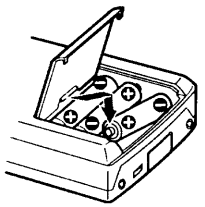
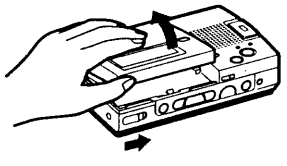
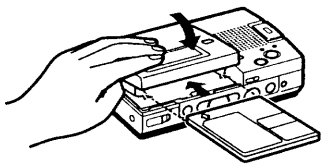


Three size AA (LR6) alkaline batteries

2 Insert an MD.

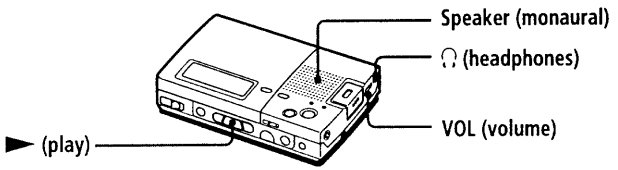


① Slide OPEN and open the lid.



② Insert an MD with the label side facing up, and press the lid down to close.

3 Play an MD.



① **Press ►.**
The recorder starts to play the first track.
The recorder automatically switches to play in stereo or monaural according to the recorded sound.

② **Turn VOL to adjust the volume.**

To stop play, press ■(stop).

To	Press
Pause	❚❚ Press ❚❚ again to resume play.
Find the beginning of the current track	I◄◄ once
Find the beginning of the next track	►►I once
Go backwards while playing*	keep pressing I◄◄
Go forward while playing*	keep pressing ►►I
Remove the MD	■ and open the lid**

* To go backward or forward quickly without listening, press ❚❚ and keep pressing I◄◄ or ►►I.

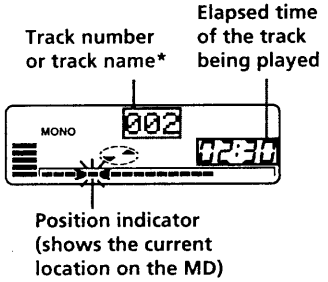
** Once you open the lid, the point to start play will change to the beginning of the first track.

To listen in stereo sound
Connect stereo headphones (not supplied) to the 🎧 jack.

If the play does not start
Make sure the recorder is not locked (page 21).

The alkaline batteries' life
You can play an MD with new alkaline batteries for 6 hours.

Display window while playing back

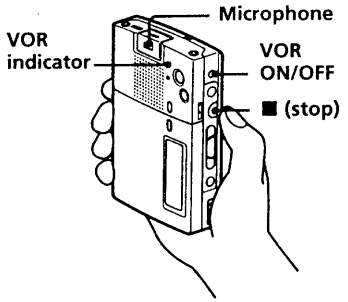


* Appears only with MDs that have been electronically labeled.

►*Various ways of recording*

Dictating (Digital VOR function)

You can dictate easily using the digital VOR (Voice Operated Recording) function. You do not have to press any buttons to suspend recording while dictating.



1 Insert a recordable MD and start recording.
To record, see "Recording an MD right away!" (page 6).

2 Press VOR ON/OFF.
The VOR indicator lights up.

3 Speak into the microphone.
Hold the recorder and keep it close to your mouth – around 4 inches (10 cm) from your mouth.
The VOR indicator lights up while your voice is recorded, and flashes while nothing is recorded.

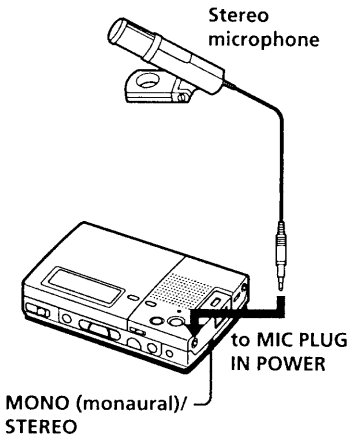
To release the digital VOR function
Press VOR ON/OFF.
The VOR indicator goes off, and the recorder switches to normal recording.

To stop dictating
Press ■.
The recorder will switch back to normal recording when you record next time.

Notes
- You cannot record with the built-in microphone while an external microphone is connected to the MIC PLUG IN POWER jack.
- This recorder's VOR function is designed for dictation, not for recording interviews or conferences.
- As long as VOR is on, the batteries are used even while nothing is being recorded (the VOR indicator flashes).

Recording in stereo with an external microphone

You can record in stereo sound using ECM-909A, ECM-727P, etc. (not supplied).
You can record for up to 74 minutes on 74-minute MD or 60 minutes on 60-minute MD.



1 Connect the microphone to the MIC PLUG IN POWER jack.

2 Set MONO/STEREO to STEREO.

3 Insert a recordable MD and start recording.
To record, see "Recording an MD right away!" (page 6).
While recording, "STEREO" appears in the display.

To stop recording
Press ■.

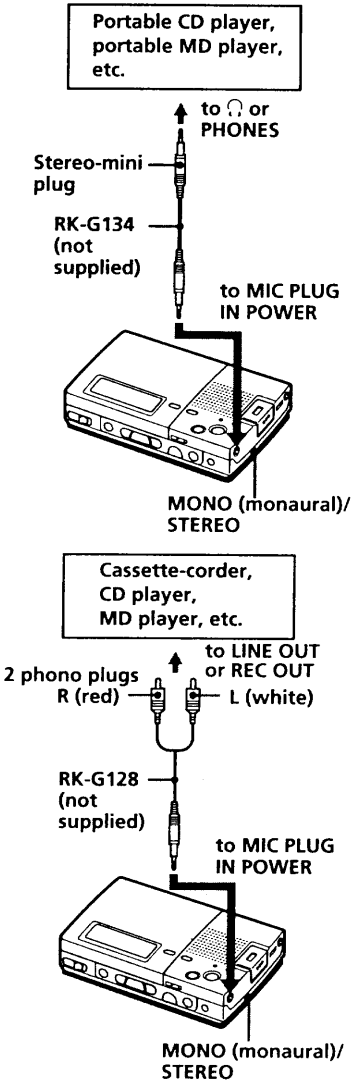
To record in monaural for double the normal recording time of an MD
Set MONO/STEREO to MONO. The recording time will be double the normal.

To record with an external monaural microphone
Use a monaural microphone ECM-T140, ECM-T110, etc. (not supplied), and set MONO/STEREO to MONO.

Notes
- The MONO/STEREO switch functions only when an external microphone is connected to the MIC PLUG IN POWER jack.
- If you connect a stereo microphone and set MONO/STEREO to MONO, the mixed sound from both the right and left channels will be recorded.
- If you connect a monaural microphone and set MONO/STEREO to STEREO, only the left channel sound of the source will be recorded.
- The MDs recorded in monaural sound can be played back only with an MD player/recorder that has the monaural playing function.

Recording from other equipment

Use a line cable (RK-G134 or RK-G128, not supplied) to connect the recorder to the source equipment.



1 Connect the MIC PLUG IN POWER jack of the recorder to the source equipment with a line cable.

2 Set MONO/STEREO to STEREO.

3 Insert a recordable MD and start recording.
To record, see "Recording an MD right away!" (page 6).
While recording, "STEREO" appears in the display.

4 Play the sound source.

To stop recording
Press ■.

To record in monaural for double the normal recording time of an MD
Set MONO/STEREO to MONO. The recording time will be double the normal.

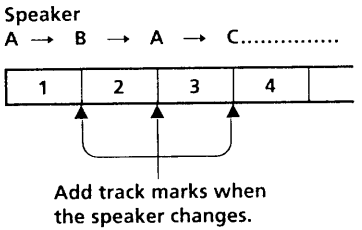
To record from a monaural player
Connect the RK-G135, RK-G64, etc. (not supplied) to the earphone jack of the source equipment, and set MONO/STEREO to MONO.

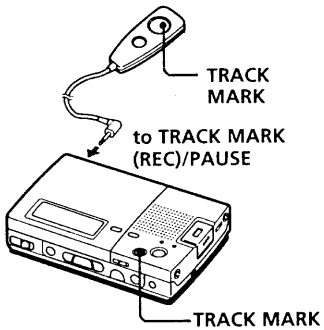
Notes
- If you connect a monaural equipment and set MONO/STEREO to STEREO, only the left channel sound of the source will be recorded.
- The MDs recorded in monaural sound can be played back only with an MD player/recorder that has the monaural playing function.

Track marking while recording

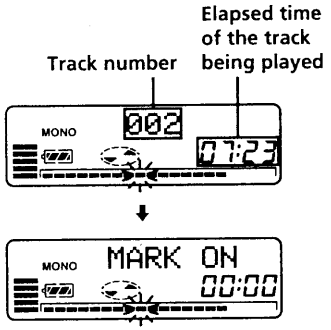
Track marking to divide a recording

Track marking essentially adds tracks while recording and enables you to quickly find and play from the marked position. The track marking feature is useful particularly when recording a discussion, an interview, etc.
You can add track marks with the recorder or the remote controller. To use the remote controller, connect it to the TRACK MARK (REC)/PAUSE jack.





While recording, press TRACK MARK on the recorder or the remote controller.
A track mark is added and the track number will increase by one. The record indicator flashes and "MARK ON" appears in the display.



To add track marks after recording
See "Track marking a recording" (page 23).

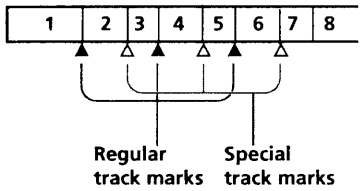
To erase track marks
See "Erasing a track mark" (page 24).

To find track marks
While playing, press ⏮ or ⏭ slightly.

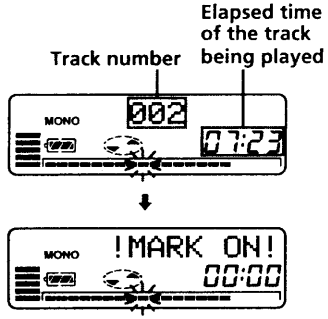
Continue to next page →

Track marking important points

While you record a discussion or an interview, you can add not only regular track marks but special track marks. Special track marks can be found independently of the regular track marks during playback.
You can add special track marks only with the remote controller while recording.



While recording, press TRACK MARK on the remote controller twice.
A special track mark is added and the track number will increase by one.
The record indicator flashes and "!MARK ON!" appears in the display.



Note
To add a special track mark, press TRACK MARK twice within one second. If you press the button secondly after more than one second passes, two regular track marks will be recorded.

Special track marks cannot be added after recording
You can add special track marks only while recording.

To erase special track marks
See "Erasing a track mark" (page 24).

To find special track marks while playing
While pressing VOR ON/OFF, press ⏮ or ⏭ slightly.
The special track mark indication "TT" appears following the track number.
Each time you press ⏮, you can find the previous special track mark. Each time you press ⏭, you can find the succeeding track mark.

Tips on track marks

Total number of track marks
You can record up to 254 track marks in total of the two kinds – regular track marks to divide a recording and special track marks – on an MD.

Regular and special track marks are recorded in the same way as the track marks on music discs.
The two kinds of track marks recorded with this recorder can be used for playback operation in the same way as the track marks recorded on the beginning of each music track on a music disc.

Tips on recording

To monitor the sound being recorded

Connect headphones (not supplied) to the ∩ jack and adjust the volume by turning VOL. Sound levels are copied onto the MD automatically and independently of the volume for monitoring.

To know the recording condition

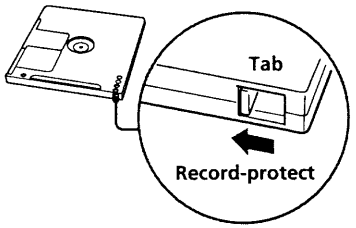
The record indicator flashes according to the recording condition.

Recording condition	Record indicator
While recording	Flashes according to the loudness of the source (voice mirror).
Recording standby	Flashes.
Recording with less than 3 minutes' recording time available	Slowly flashes.

To protect a recorded MD

To record-protect an MD, slide open the tab at the side of the MD. In this position, the MD cannot be recorded. To record again, slide the tab back so the tab is visible.

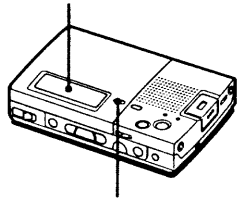
Rear of an MD



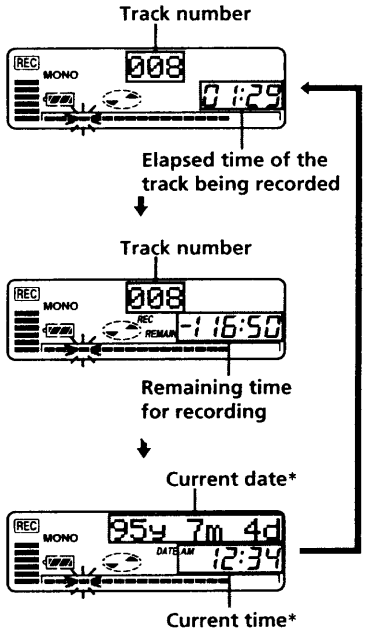
Continue to next page →

To know the remaining time, etc.

Display window

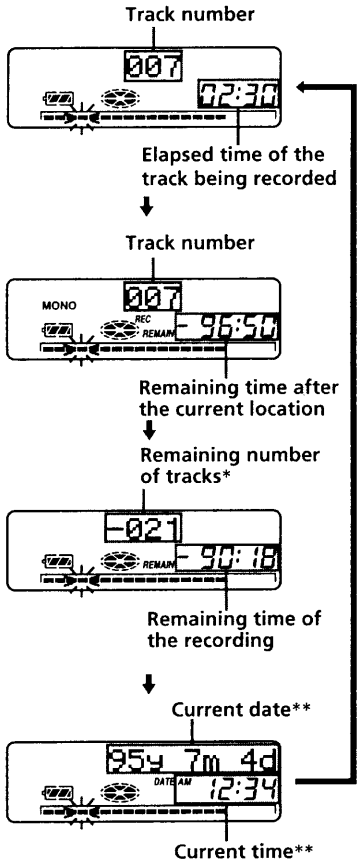


- *While recording*
  Press DISPLAY while recording.
  Each time you press the button, the display changes as follows.



* Appears only when the clock is set.

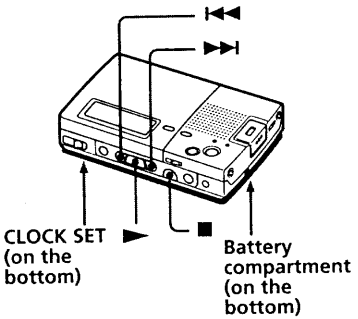
- *While in stop mode*
  Press DISPLAY while the recorder is in stop mode.
  Each time you press the button, the display changes as follows.



* A disc name appears only with MDs that have been electronically labeled.
** Appears only when the clock is set.

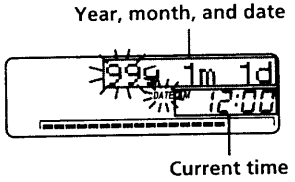
Setting the clock to stamp the recorded time

To stamp the date and time on the MD when you record, you first need to set the clock. When you use the recorder for the first time or after a long period of disuse, charge the built-in battery for the clock after setting the clock (page 18).



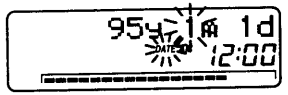
1 Connect the power source.
Install three size AA (LR6) batteries.

2 Press CLOCK SET on the bottom of the recorder.
Use a pointed object.
The digits of the year flash.

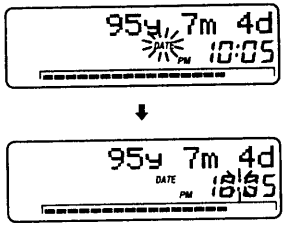


3 Enter the current year by pressing ⏮ or ⏭.
To change the digits rapidly, keep pressing ⏮ or ⏭.

4 Press ►.
The year is set and the digit of the month flashes.



5 Repeat steps 3 and 4 to enter the current month, date, hour, and minute.
When you press ► to set the minute, the clock starts operating.



If you make a mistake while setting the clock

Press ■, and set the clock again from step 2. You can skip a step by pressing ►.

On the clock display

- To display the current time
  When the recorder is not operating or while recording, press DISPLAY repeatedly until the current time appears in the display. The time indication disappears after 10 seconds.
- To display the time in the 24-hour system
  While setting the clock, press DISPLAY. To display the time in the 12-hour system, press DISPLAY again.

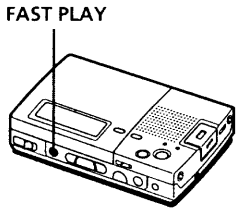
Continue to next page →

Charging the built-in battery for the clock

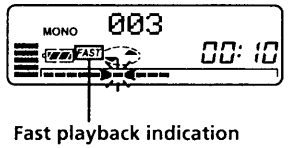
After setting the clock, leave the recorder with the dry batteries installed for about 2 hours to charge the built-in battery for the clock. You can use the recorder while charging. Once charged, the built-in battery should last about a month without connecting to any of the power sources. The recorder will automatically charge the built-in battery while connected to dry batteries, AC power, or a rechargeable battery.

Listening at a fast speed

You can reduce the listening time by using the fast playback function. The playback speed can be set to 1.6 or 2.2 times as fast as the normal playback.



Press FAST PLAY.
"FAST" appears in the display, and fast playback starts at a speed of 1.6 times normal.
To change the speed to 2.2 times, press FAST PLAY again.



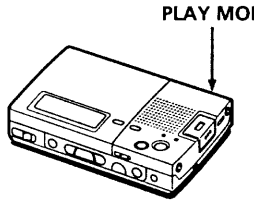
To suspend fast playback
Press ❚❚.

To find track marks
Press ⏮ or ⏭ during fast playback.

To switch to normal playback
Press ▶.
To return to fast playback, press FAST PLAY.

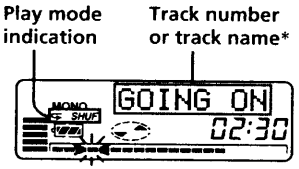
Playing tracks repeatedly

You can play tracks repeatedly in three ways – all repeat, single repeat, and shuffle repeat.



Press PLAY MODE while the recorder is playing an MD.
Each time you press PLAY MODE, the play mode indication changes as shown in the next page.

Continue to next page →



* Appears only with MDs that have been electronically labeled.

"(none)" (normal play)
A whole disc (all the tracks) is played once.

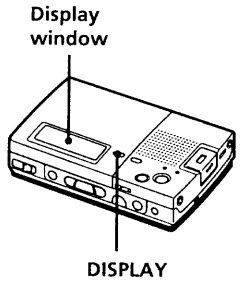
"↻" (all repeat)
A whole disc (all the tracks) is played repeatedly.

"↻ 1" (single repeat)
A single track is played repeatedly.

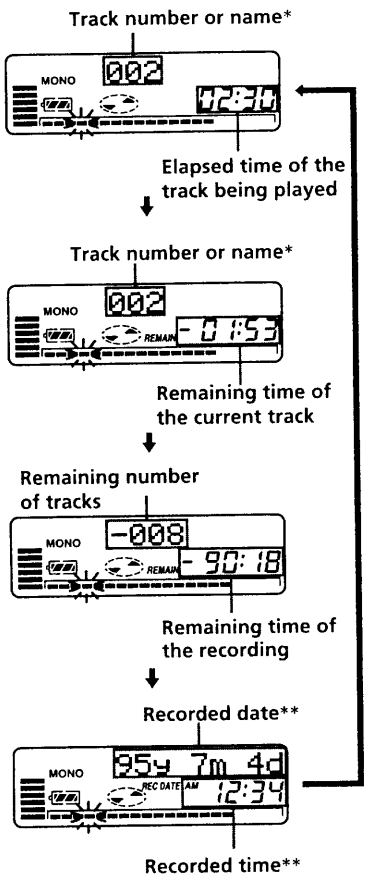
"↻ SHUF" (shuffle repeat)
All the tracks are played repeatedly in random order.

Tips on playback

To know the time and track name
You can see in the display window the name, number, remaining time, and recorded time of the track being played.



Press DISPLAY while the recorder is playing an MD.
Each time you press DISPLAY, the display changes as shown on the next page.

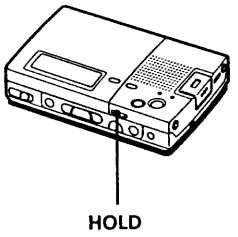


* Appears only with MDs that have been electronically labeled.

** The indications show the date and time when you started recording or added the track mark.
If you record without setting the clock or play an MD that has no recorded date, "- - y - - m - - d" and "- - : - -" appear.

To lock the controls (Hold function)

To prevent the buttons from being accidentally operated while carrying the recorder, use this function.

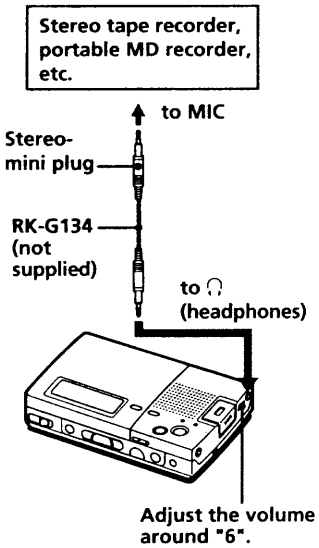


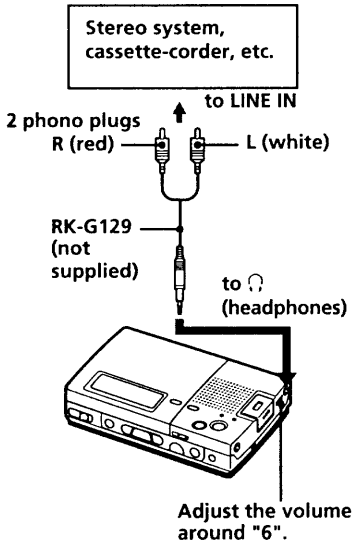
Slide HOLD in the direction of the →.

The controls on both the recorder and the remote controller are locked.

Listening with other equipment

Connect the ∩ jack of the recorder to a tape player or an amplifier with a line cable (RK-G134, or RK-G129, not supplied).
You can listen to an MD with your stereo system or record on a cassette tape, etc.





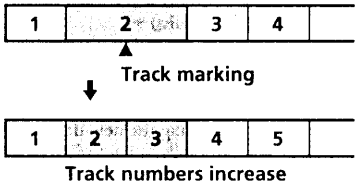
To listen with a monaural player
Connect the RK-G135 line cable (not supplied) to the MIC jack of the source equipment.

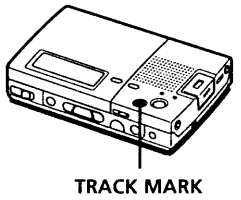
▶*Editing recorded tracks*

You can edit your recordings by adding or erasing track marks, or erasing tracks.
Premastered MDs cannot be edited.

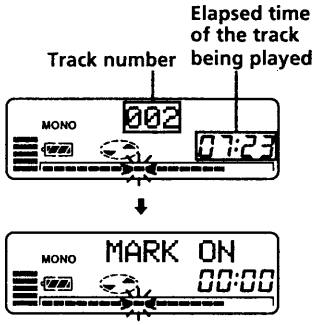
Track marking a recording

You can add track marks so that you can quickly find and play from the marked position.
The track numbers will increase as follows.





While the recorder is playing an MD, press TRACK MARK on the recorder at the point you want to mark.
A track mark is added and the track number will increase by one.



Note
TRACK MARK on the remote controller does not function during playback.

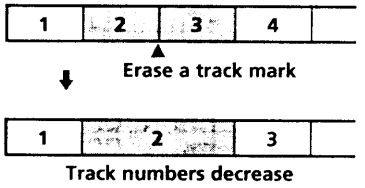
To add track marks while recording
See "Track marking while recording" (page 13).

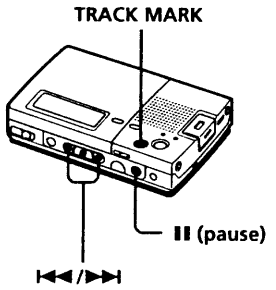
To erase track marks
See "Erasing a track mark" (page 24).

Notes
- When you press ■ after adding track marks, "Toc Edit" flashes and the recorder starts writing the new data to the MD. Do not move or jog the recorder while "Toc Edit" is flashing in the display.
- You cannot add track marks on an MD that is record-protected. Before adding track marks, close the tab on the side of the MD.

Erasing a track mark

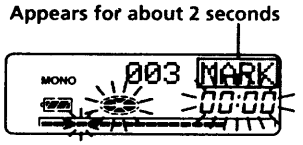
You can erase a track mark to combine the tracks before and after the track mark. You can erase regular track marks and special track marks in the same way.
The track numbers will change as follows.



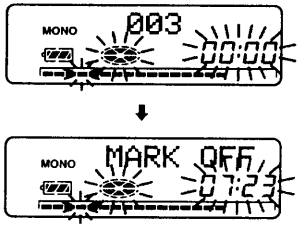


1 While the recorder is playing an MD, press II to pause.

2 Find the track mark you want to erase by pressing I◄◄ or ►►I slightly.
The track number and "MARK" appear in the display.
For example, to erase the third track mark, find the beginning of the third track.



3 Press TRACK MARK on the recorder to erase the mark.
The track mark is erased and the two tracks are combined.

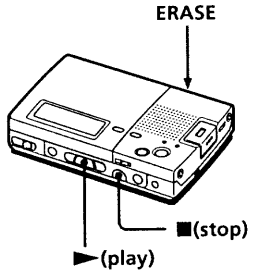


To erase other track marks
Repeat steps 2 and 3.

Notes
- When you press ■ after erasing track marks, "Toc Edit" flashes and the recorder starts writing the new data to the MD. Do not move or jog the recorder while "Toc Edit" is flashing in the display.
- You cannot ease track marks on an MD that is record-protected. Before erasing track marks, close the tab on the side of the MD.

Erasing a track

Note that once a recording has been erased, you cannot retrieve it. Check the track number before erasing.



1 Play the track you want to erase.

2 Press ERASE while playing the track.
"Erase OK?" and "PushErase" appear in the display alternately, and the recorder plays the selected track repeatedly.
To cancel erasing, press ■.

3 Check the track number in the display and press ERASE again.
The track is erased from the MD and the remaining tracks are renumbered. The recorder then starts to play the succeeding track. If you have erased the last track of the MD, the recorder pauses at the end of the preceding track.

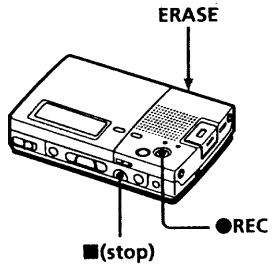
To erase other tracks
Repeat steps 1 to 3.

To erase a part of a track
Add track marks at the beginning and the end of the part you want to erase, then erase the part.

Notes
- When you press ■ after erasing a track, "Toc Edit" flashes and the recorder starts writing the new data to the MD. Do not move or jog the recorder while "Toc Edit" is flashing in the display.
- You cannot erase a track on an MD that is record-protected. Before erasing a track, close the tab on the side of the MD.

Erasing a whole disc

You can quickly erase all the tracks and data of the MD at a time. Note that once a recording has been erased, you cannot retrieve it.



1 Play the MD you want to erase.
Check the contents of the disc.

2 Press ■ to stop.

3 While pressing ERASE, press ●REC.
"AllErase?" and "PushErase" appear in the display alternately.
To cancel erasing, press ■.

4 Press ERASE again.
"Toc Edit" flashes in the display.
When erasing finishes, "BLANKDISC" appears.

Notes
- Do not move or jog the recorder while "Toc Edit" is flashing in the display.
- You cannot erase recordings on an MD that is record-protected. Before erasing, close the tab on the side of the MD.

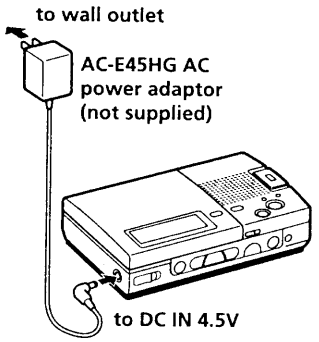
▶Power sources

You can use the recorder on dry batteries, house current, or a lithium ion rechargeable battery.

Using on house current

It is preferable to use the recorder on house current when recording for a long time.

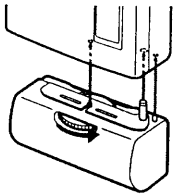
Connect the DC IN 4.5V jack of the recorder to a wall outlet with the AC-E45HG AC power adaptor (not supplied).



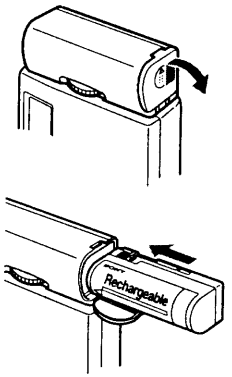
Using on a lithium ion rechargeable battery

Before using the LIP-12 lithium ion rechargeable battery (not supplied) for the first time, charge it with the ACP-MZ60A battery charger (not supplied).

1 Attach the battery case (supplied).



2 Insert the charged battery LIP-12 (not supplied) into the battery case.



Note

You cannot charge the battery while it is in the recorder.

Continue to next page →

When to charge or replace the batteries

You can check the battery condition with the battery indication displayed while using the recorder.

Used batteries

↓

Weak batteries.
Charge the rechargeable battery, or replace all the dry batteries.

↓

The batteries have gone out. "LOW BATT" flashes in the display, and the power goes off.

Battery life[a]

Batteries	Recording[b]	Playback[c]
Size AA (LR6) alkaline batteries	Approx. 3 hours	Approx. 6 hours
Lithium ion rechargeable battery (LIP-12)	Approx. 2 hours	Approx. 3 hours
Size AA (LR6) alkaline batteries and a lithium ion rechargeable battery (LIP-12)	Approx. 6 hours	Approx. 10 hours

[a] The battery life may be shorter due to operating conditions and the temperature of the location.
[b] When you record, use new dry batteries or a fully charged rechargeable battery.
[c] When played using the built-in speaker

Notes on a rechargeable battery

- When you use the battery for the first time or after a long period of disuse, the battery life may be shorter. In this case, charge and discharge the battery several times. The battery life will be restored.
- If the rechargeable battery capacity becomes half the normal life, replace it with a new one.

Notes on dry batteries

Incorrect battery usage may lead to leakage of battery fluid or bursting batteries. To prevent such accidents, observe the following precautions:

- Install the + and – poles of the batteries correctly.
- Do not install new and used batteries or different kinds of batteries together.
- Do not try to recharge the batteries.
- When the recorder is not to be used for a long time, be sure to remove the batteries.
- If a battery leak should develop, carefully and thoroughly wipe away battery fluid from the battery compartment before inserting new ones.

Precautions

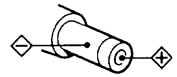
On safety

Do not put any foreign objects in the DC IN 4.5 V jack.

On power sources

- Use three size AA (LR6) batteries, the house current, or a lithium ion rechargeable battery.
- For use in your house: Use the AC-E45HG AC power adaptor (not supplied). Do not use any other AC power adaptor since it may cause the recorder to malfunction.

Polarity of the plug



- 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 (dry batteries, AC power adaptor, or a rechargeable battery). To remove the AC power adaptor from the wall outlet, grasp the adaptor plug itself; never pull the cord.

On heat build-up

Heat may build up in the recorder if it is used for an extended period of time. In this case, leave the recorder to cool down.

On installation

- Never use the recorder where it will be subjected to extremes of light, temperature, moisture or vibration.
- Never wrap the recorder in anything when it is being used with the AC power adaptor. Heat build-up in the recorder may cause malfunction or injury.

While carrying the recorder

Keep personal credit cards using magnetic coding or spring-wound watches, etc., away from the recorder to prevent possible damage from the magnet used for the speaker.

On the headphones

Road safety

Do not use headphones while driving, cycling, or operating any motorized vehicle. It may create a traffic hazard and is illegal in many areas. It can also be potentially dangerous to play your recorder at high volume while walking, especially at pedestrian crossings. You should exercise extreme caution or discontinue use in potentially hazardous situations.

Preventing hearing damage

Avoid using headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce the volume or discontinue use.

Caring for others

Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate of the people around you.

On the MiniDisc cartridge

- Do not break open the shutter.
- Do not place the cartridge where it will be subject to light, temperature, moisture or dust.

On cleaning

- Clean the recorder casing with a soft cloth slightly moistened with water or a mild detergent solution.
  Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzene as it may mar the finish of the casing.
- Wipe the disc cartridge with a dry cloth to remove dirt.

Continue to next page →

- Dust on the lens may prevent the unit from operating properly. Be sure to close the disc compartment lid after inserting and ejecting an MD.

Note on mechanical noise

The recorder gives out mechanical noise while operating, which is caused by the power-saving system of the recorder and it is not a trouble.

Notes on recording

Mechanical shock or vibration

Do not subject the recorder to strong mechanical shock or continuous vibration while recording. The sound may be skipped or recording may stop. After you stop recording, "Toc Edit" flashes while the data of the recording is being stored. Do not move or jog the recorder while the indication is flashing in the display.

Noise while recording

When you record with the built-in microphone or an external microphone, the sound is sent as an analog signal, converted to a digital signal, and recorded on an MD. During these processes, noise may be recorded. And when you record with the built-in microphone in a quiet place, mechanical noise of the recorder may be recorded. These are not problems.

You cannot record using a timer.

If you press the ●REC button with the power off or not connected, the button will stay pressed down. But as soon as the power is turned on, the button will be released automatically. For this reason, you cannot record using a timer.

For Customers in the USA

DISPOSAL OF MANGANESE DIOXIDE LITHIUM BATTERY AND LITHIUM ION BATTERY.

MANGANESE DIOXIDE LITHIUM BATTERY AND LITHIUM ION BATTERY.
DISPOSE OF PROPERLY.

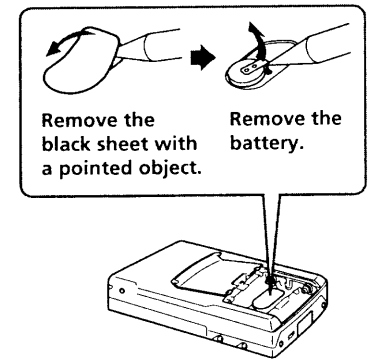
You can return your unwanted manganese dioxide lithium batteries and lithium ion batteries to your nearest Sony Service Center.
Note: In some areas the disposal of lithium ion batteries and manganese dioxide lithium batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (United States only)

Caution: Do not handle damaged or leaking lithium ion battery and manganese dioxide lithium battery.

To remove the manganese dioxide lithium battery

On disposal of this product, remove the manganese dioxide lithium battery in the battery compartment and treat it as mentioned above.



Do not remove the black sheet unless you are disposing of this product, or it may not work properly.

If you have any questions or problems concerning your recorder, please consult your nearest Sony dealer.

Troubleshooting

Should any problem persist after you have made these checks, consult your nearest Sony dealer.

Symptom	Cause/Solution
The recorder does not work or works poorly.	• Moisture has condensed inside the recorder. ➡ Take the MD out and leave the recorder in a warm place for several hours until the moisture evaporates. • The dry batteries or rechargeble battery are weak (▭ "LOW BATT" flashes). ➡ Replace the dry batteries or recharge the battery (page 6 or 27). • The dry batteries have been installed incorrectly. ➡ Install the batteries correctly (page 6). • You pressed a button while the disc indication was rotating quickly. ➡ Wait until the indication rotates slowly. • The AC adaptor was unplugged during recording or a power outage occurred. • Audio sources may not be securely connected. ➡ Disconnect the audio sources once and connect them again (pages 12, 22). • While operating, the recorder received a mechanical shock, too much static, abnormal power voltage caused by lightning, etc. ➡ Restart the operation as follows: **1** Disconnect all the power sources. **2** Leave the recorder for about 30 seconds. **3** Connect the power source.
No sound comes through the speaker.	• Volume is too low. ➡ Adjust the volume by turning VOL.
An MD is not played from the first track.	• Disc playing stopped before it came to the last track. ➡ Press ⏮ repeatedly or open and close the lid once to go back to the beginning of the disc, and restart playing after checking the track number in the display.
Playback sound skips.	• The recorder is placed where it receives continuous vibration. ➡ Put the recorder on stable place. • A very short track may cause sound to skip.

Symptom	Cause/Solution
Sound has a lot of static.	• Strong magnetism from a television or such device is interfering with operation. ➡ Move away from the source of strong magnetism.
The REC button stays pressed down.	• You pressed the REC button while the recorder was not connected to the power source. ➡ Install dry batteries or a rechargeable battery. Or connect to house current with the AC power adaptor (page 6 or 27).
Cannot erase the track marks.	• You tried to erase the track marks after pressing ⏮ or ⏭ and pressing ⏸. ➡ Press ⏸ before pressing ⏮ or ⏭, then erase the track marks.
The clock loses time or the display flashes.	• The built-in battery for a clock is weak. ➡ Connect the power source to charge the built-in battery. After charging, set the clock again. Note that the clock normally loses about 2 minutes per month (page 18).
The recording date was not stamped onto the disc.	• The time indication flashes. ➡ Set the clock again (page 17).
Cannot record for the maximum recording time of a disc.	• When a lot of short tracks are recorded on a disc, the total recording time may be shorter than the maximum recording capacity. • You recorded over a previous recording repeatedly (page 33). ➡ Erase all the tracks of the disc, then start recording (page 26).

System limitations

The recording system in your MiniDisc recorder is radically different from those used in cassette and DAT decks and is characterized by the limitations described below. Note, however, that these limitations are due to the inherent nature of the MD recording system itself and not to mechanical causes.

Symptom	Cause
"TR FULL" appears even before the disc has reached the maximum recording time (120 or 148 minutes in monaural, 60 or 74 minutes in stereo).	When 254 tracks have been recorded on the disc, "TR FULL" appears regardless of the total recorded time. More than 254 tracks cannot be recorded on the disc. To continue recording, erase unnecessary tracks.
"TR FULL" appears even before the disc has reached the maximum track number or recording time.	Repeating recording and erasing may cause fragmentation and scattering of data. Although those scattered data can be read, each fragment is counted as a track. In this case, the number of tracks may reach 254 and further recording is not possible. To continue recording, erase unnecessary tracks.
Track marks cannot be erased.	When the data of a track is fragmented, the track mark of a fragment under 12 seconds long cannot be erased.
The remaining recording time does not increase even after erasing numerous short tracks.	Tracks of under 24 seconds in monaural (12 seconds in stereo) in length are not counted and so erasing them may not lead to an increase in the recording time.
The total recorded time and the remaining time on the disc may not total the maximum recording time (120 or 148 minutes in monaural, 60 or 74 minutes in stereo).	Recording is done in minimum units of 4 seconds (2 seconds in stereo) each, no matter how short the material. Even if the last unit of recording is less than 4 seconds, it is counted as a unit of 4 seconds. Then 4 seconds' space is put before recording starts again to prevent the last unit of the previous track from being erased. The contents recorded may thus be shorter than the maximum recording capacity.
The edited tracks may exhibit sound dropout during search operations.	The fragmentation of data may cause sound dropout while searching because the tracks are played at higher speed than normal playback.

Error messages

If the following error messages flash in the display window, check the chart below.

Error message	Meaning/Remedy
BLANKDISC	• An MD with no recording on it is inserted. ➡ Insert a recorded MD.
BUSY	• You tried to operate the recorder while it was accessing the recorded data. ➡ Wait until the message goes out (in rare cases, it may take 2–3 minutes).
CANNOT	• You tried to erase a track mark while playing the MD or at the beginning of the first track. • You tried to erase a track mark to combine tracks the recorder cannot combine. (This is caused by system limitation.)
DISC ERR	• The recorder cannot read the disc (it's scratched or dirty). ➡ Reinsert or replace the disc.
DISC FULL	• There is no more space on the disc (less than 24 seconds available in monaural). ➡ Replace the disc.
Hi DC in	• Power supply is too high (The recommended AC power adaptor is not used). ➡ Use the recommended AC power adaptor.
HOLD	• The recorder is locked. ➡ Slide HOLD against the allow to unlock the recorder (page 21).
LOW BATT	• Batteries are weak. ➡ Replace the dry batteries or charge the rechargeable battery (page 6 or 27).
NO DISC	• You tried to play or record with no disc in the recorder. ➡ Insert an MD.
PB DISC	• You tried to record or edit on a premastered MD (PB means playback.) ➡ Insert a recordable MD.
PROTECTED	• You tried to record or edit on a MD with the tab in the record-protect position. ➡ Slide the tab back (page 15).

Continue to next page →

Error message	Meaning/Remedy
TEMP OVER	• Heat has built up in the recorder. ➡ Leave the recorder to cool down.
TR FULL	• There is no more space for new data when you are editing the MD. ➡ Erase unneccessary track numbers or tracks (page 24 or 25).
TRprotect	• You tried to record or edit on a track that is protected from erasing. ➡ Record or edit on other tracks.

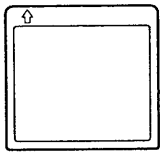
What is the MD?

How MiniDiscs work

MiniDiscs (MD) come in two types: premastered (prerecorded) and recordable (blank). Premastered MDs, recorded at music studios, can be played back almost endlessly. However, they can't be recorded on or over like cassette tapes. To record, you must use a "recordable MD".

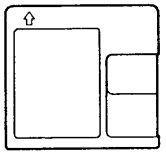
Premastered MDs

Premastered MDs are played like regular CDs. A laser beam focuses on the pits in the surface of the MD and reflects the information back to the lens in the recorder. The recorder then decodes the signals and plays them back as music.



Recordable MDs

Recordable MDs, which use magneto-optical (MO) technology, can be recorded again and again. The laser inside the recorder applies heat to the MD, demagnetizing the magnetic layer of the MD. The recorder then applies a magnetic field to the layer. This magnetic field corresponds exactly to the audio signals generated by the connected source. (The north and south polarities equate to digital "1" and "0".) The demagnetized MD adopts the polarity of the magnetic field, resulting in a recorded MD.

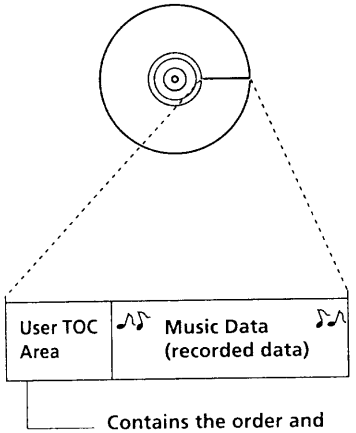


How the MiniDisc got so small

The 2.5-inch MiniDisc, encased in a plastic cartridge that looks like a 3.5-inch diskette, uses a new digital audio compression technology called ATRAC (Adaptive TRansform Acoustic Coding). To store more sound in less space, ATRAC extracts and encodes only those frequency components actually audible to the human ear.

Quick Random Access

Like CDs, MDs offer instantaneous random access to the beginning of any music track. Premastered MDs are recorded with location addresses corresponding to each music selection. Recordable MDs are manufactured with a "User TOC Area" to contain the order of the music. The TOC system is similar to the "directory management system" of floppy disks. In other words, starting and ending addresses for all music tracks recorded on the disc are stored in this area. This lets you randomly access the beginning of any track as soon as you enter the track number (AMS), as well as label the location with a track name as you would file on a diskette.



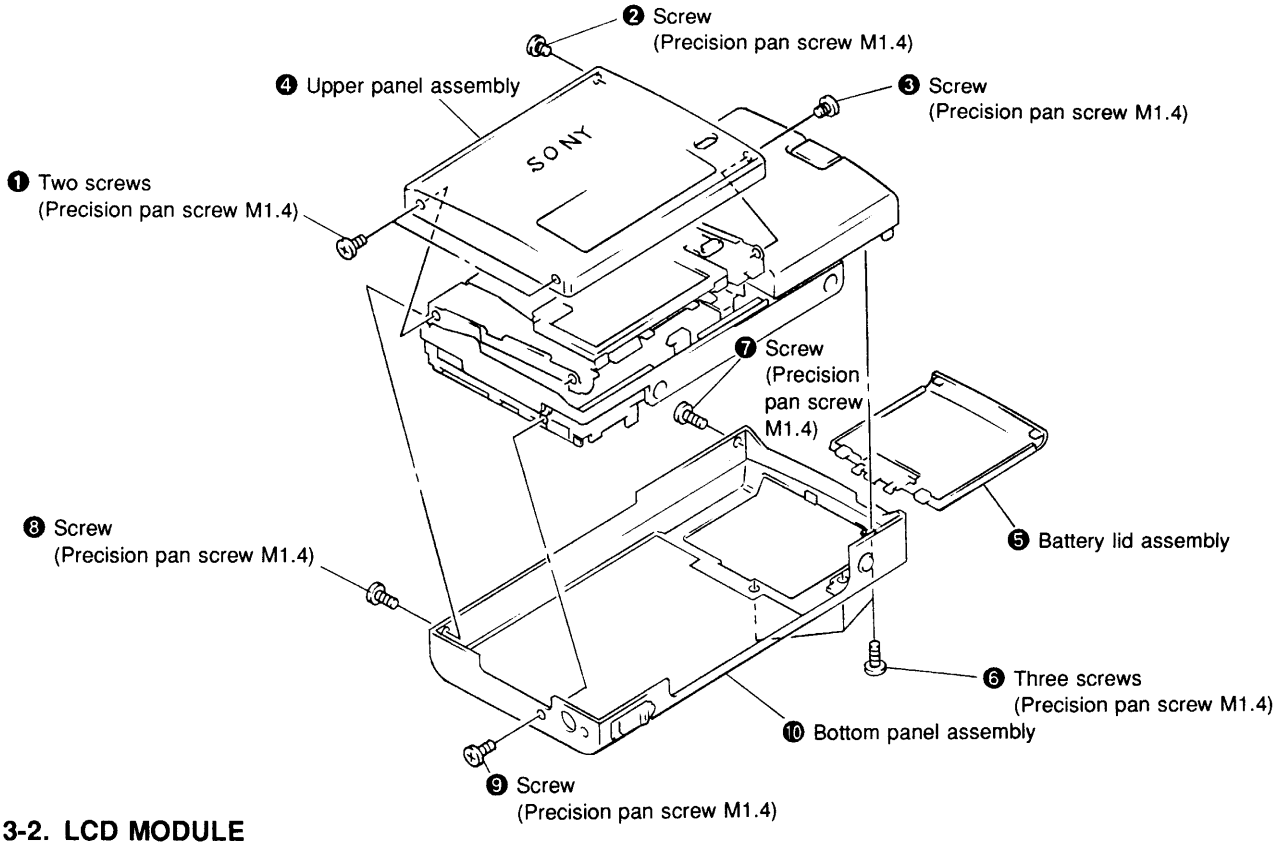
Shock-Resistant Memory

One major drawback of optical read systems is that they can skip or mute when subjected to vibration. The MD system resolves this problem by using a buffer memory that stores audio data.
This feature allows you to enjoy playback while carrying the recorder, record while holding the recorder, and so on.

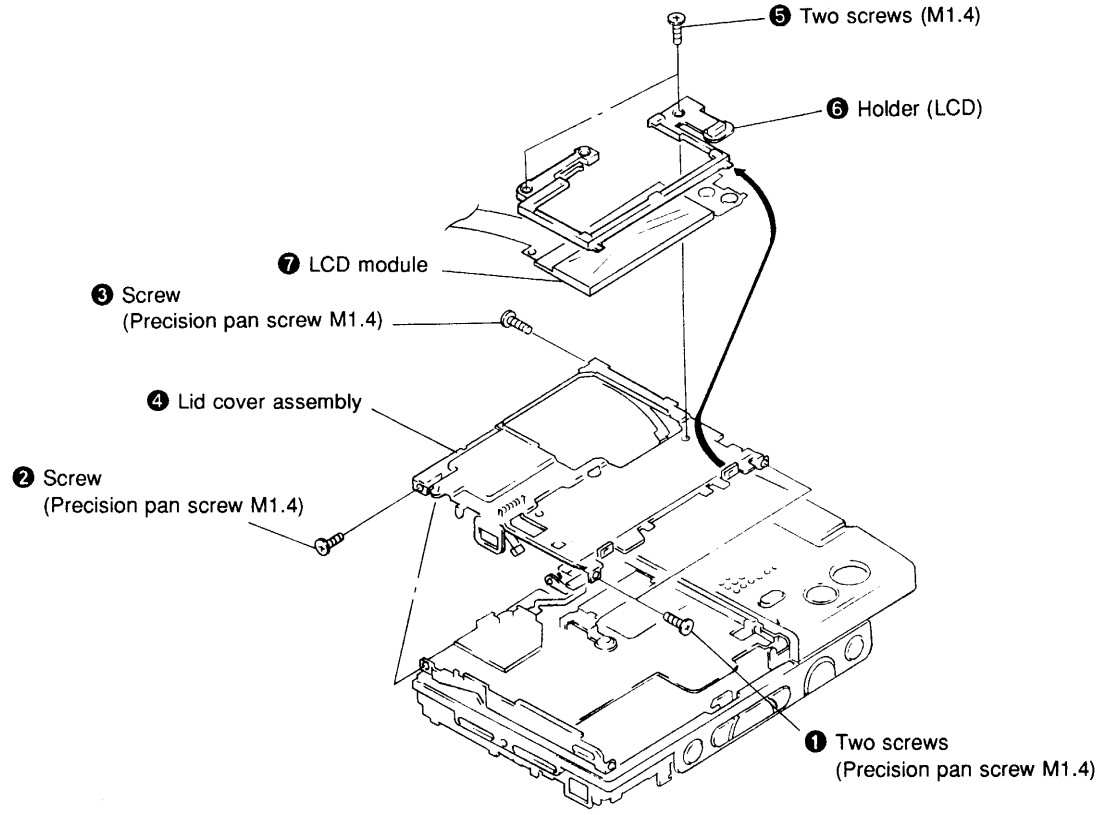
SECTION 3
DISASSEMBLY

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

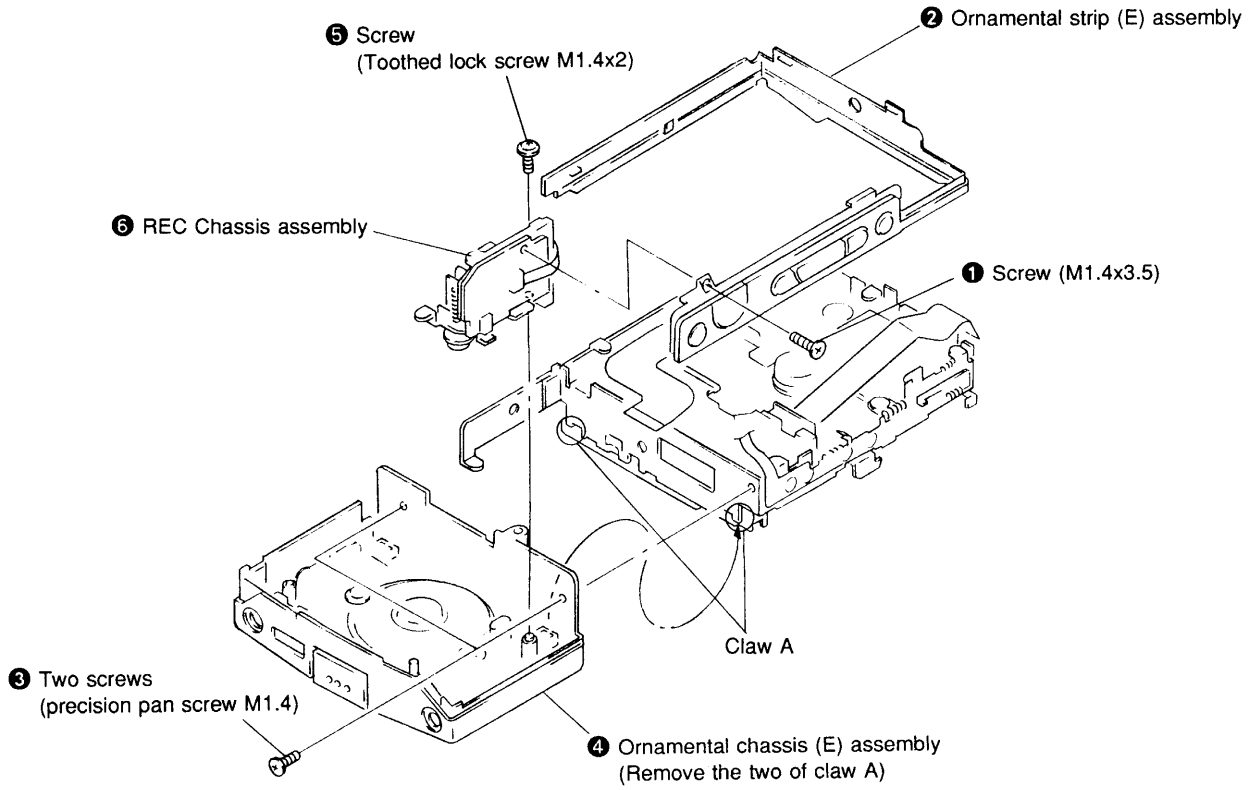
3-1. UPPER PANEL (E) ASSEMBLY AND BOTTOM PANEL ASSEMBLY



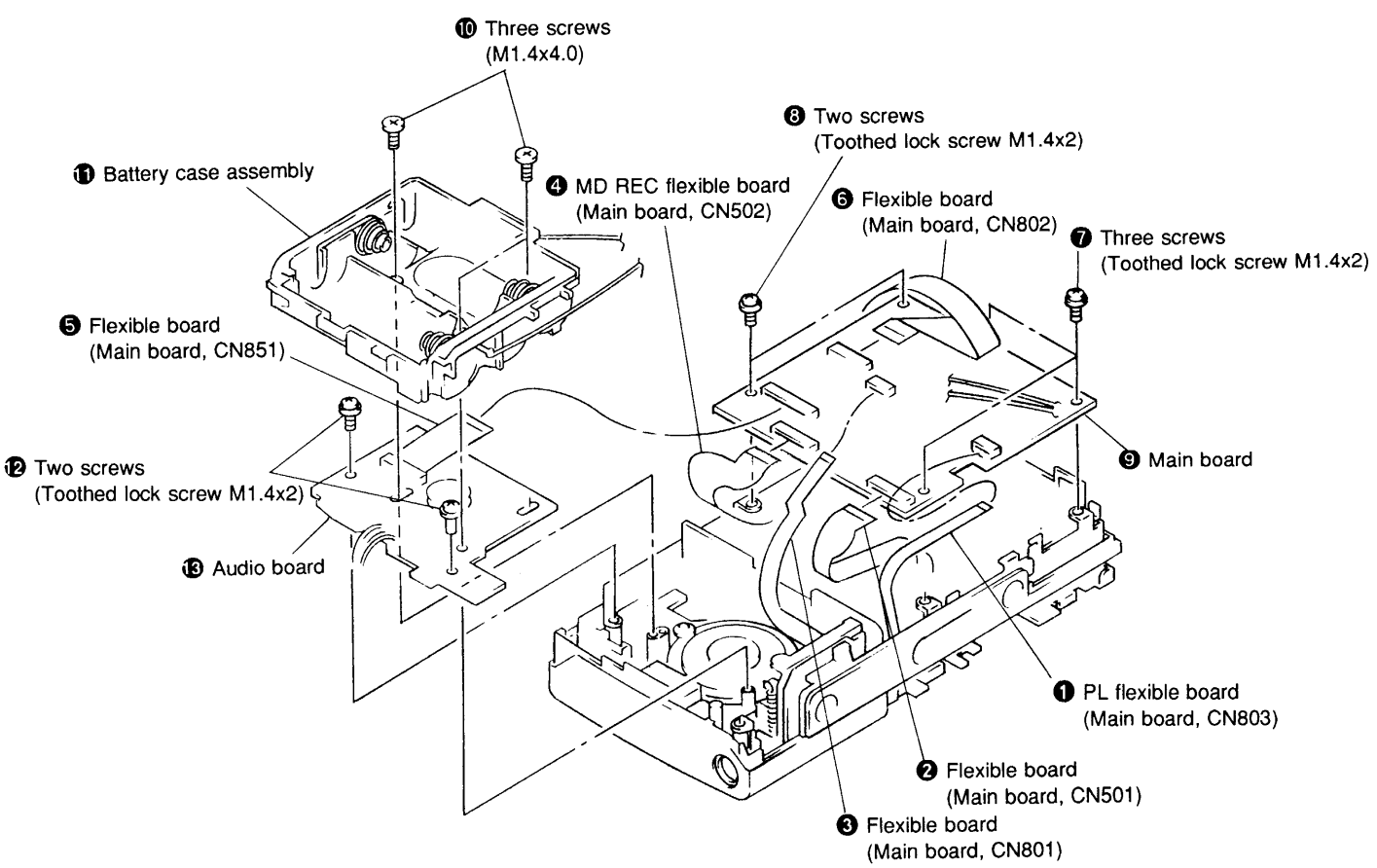
3-2. LCD MODULE



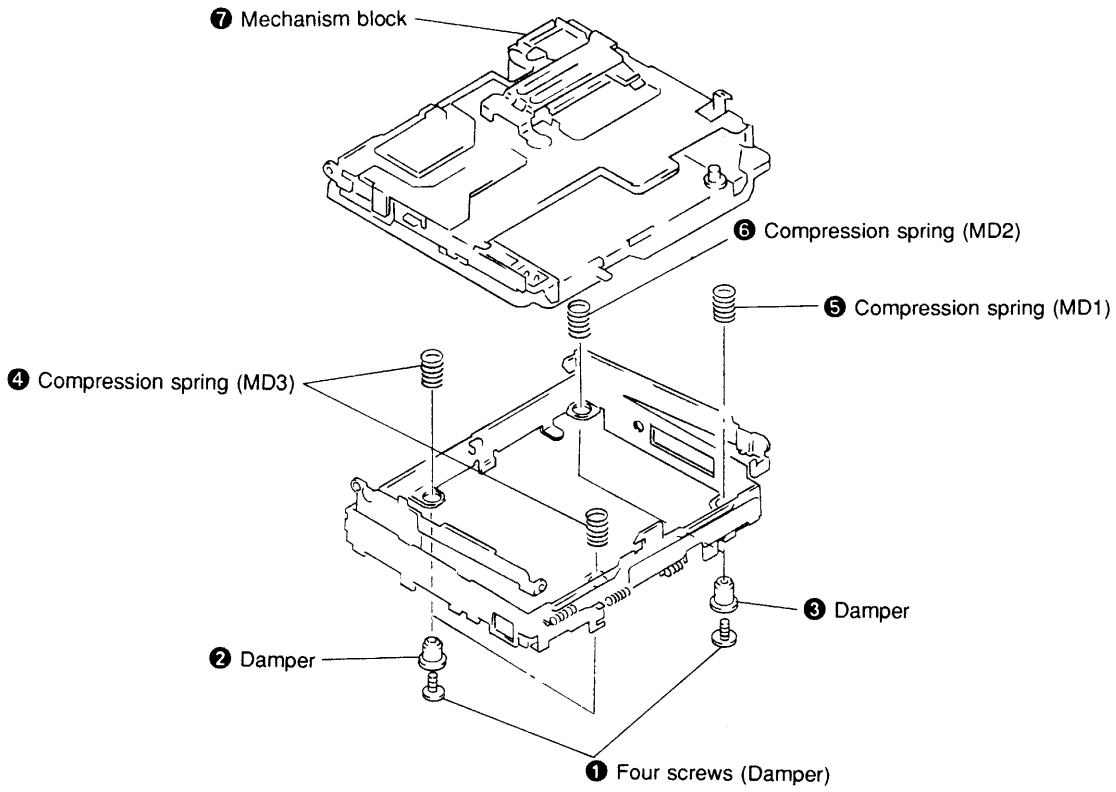
3-3. ORNAMENTAL CHASSIS (E) ASSEMBLY, REC CHASSIS ASSEMBLY



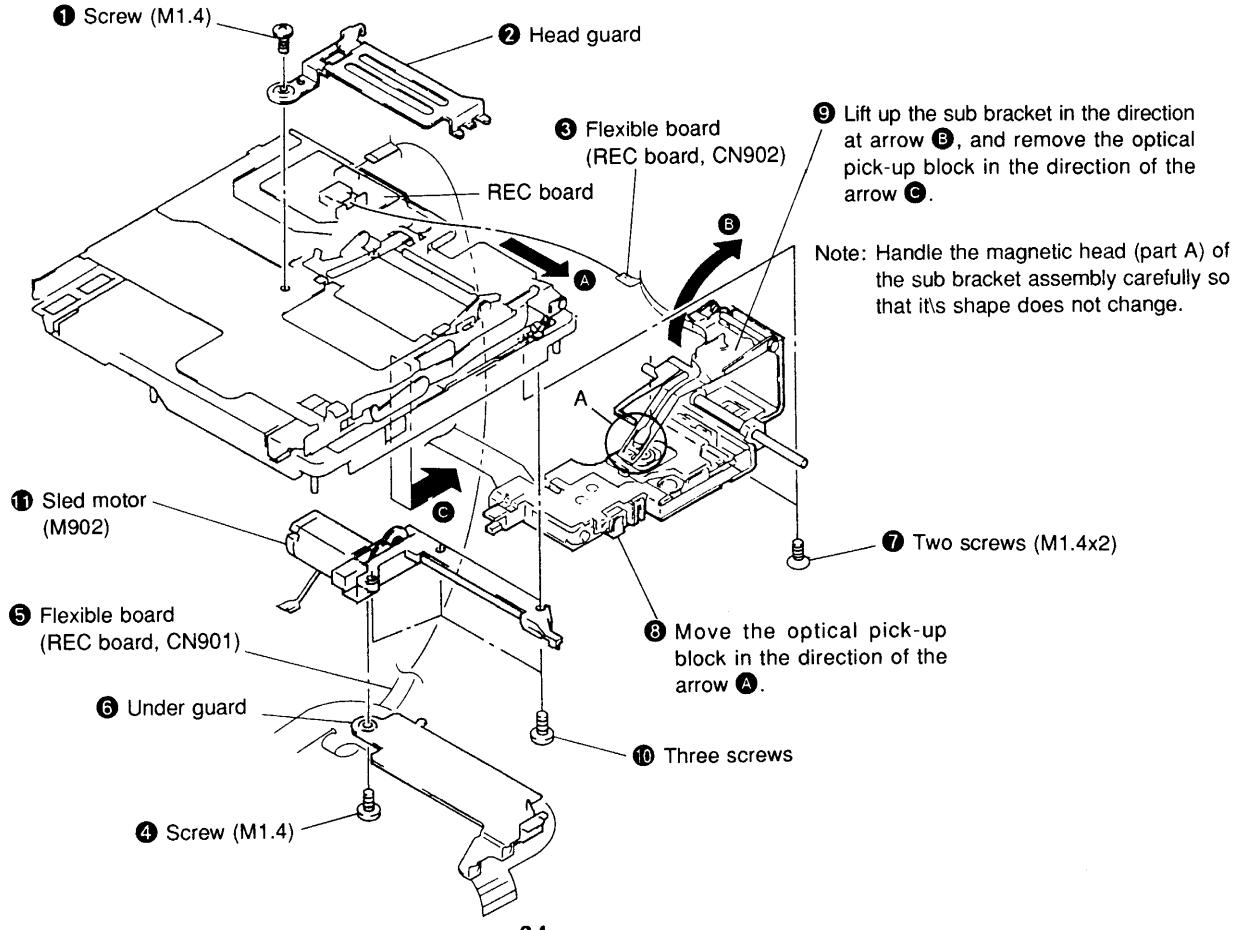
3-4. MAIN BOARD, AUDIO BOARD



3-5. MECHANISM DECK (MT-MZB3-109)



3-6. SLED MOTOR AND OPTICAL PICK-UP BLOCK (KMS-194B/J-N)



SECTION 4
TEST MODE

[Outline]

- The general adjustment mode of this unit performs CD and MO adjustments automatically when set. In this mode, the disc is determined if CD or MO and adjustments are automatically performed in order. If errors are detected, the faulty locations are displayed. The servo mode performs each adjustment automatically.

[Setting the Test Mode]

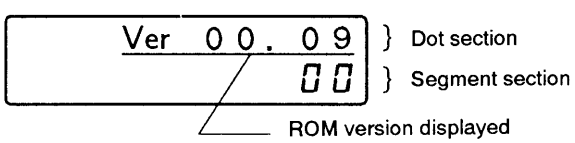
Short-circuit the soldering bridge of TAP801 (MODE) on the main board (connect Pin ㊻ of IC801 to the GND) and turn on the power supply.

[Exiting the Test Mode]

Turn off the power supply and open the soldering bridge of TAP801 (MODE) on the main board.

[Operations When Test Mode is Set]

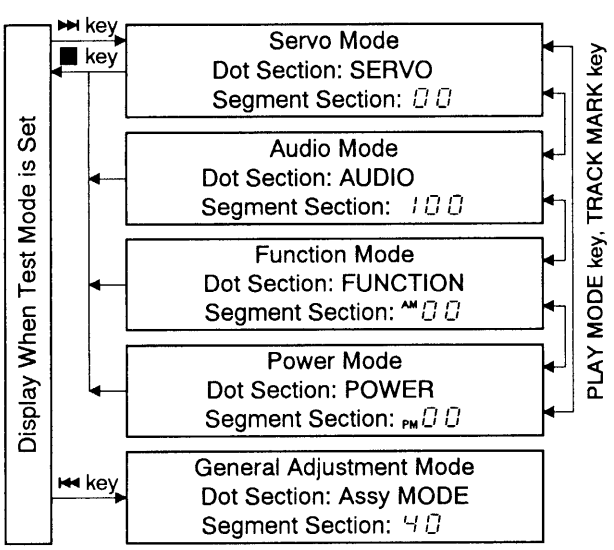
When the test mode is set, the LCD will display as follows.



- The LCD performs the following repeatedly.
  ROM version displayed ➡ all lit ➡ all off
- The display can be held and checked by pressing ▮▮ key.

[Structure of Test Mode]

The test mode of this unit consists of the following five modes.

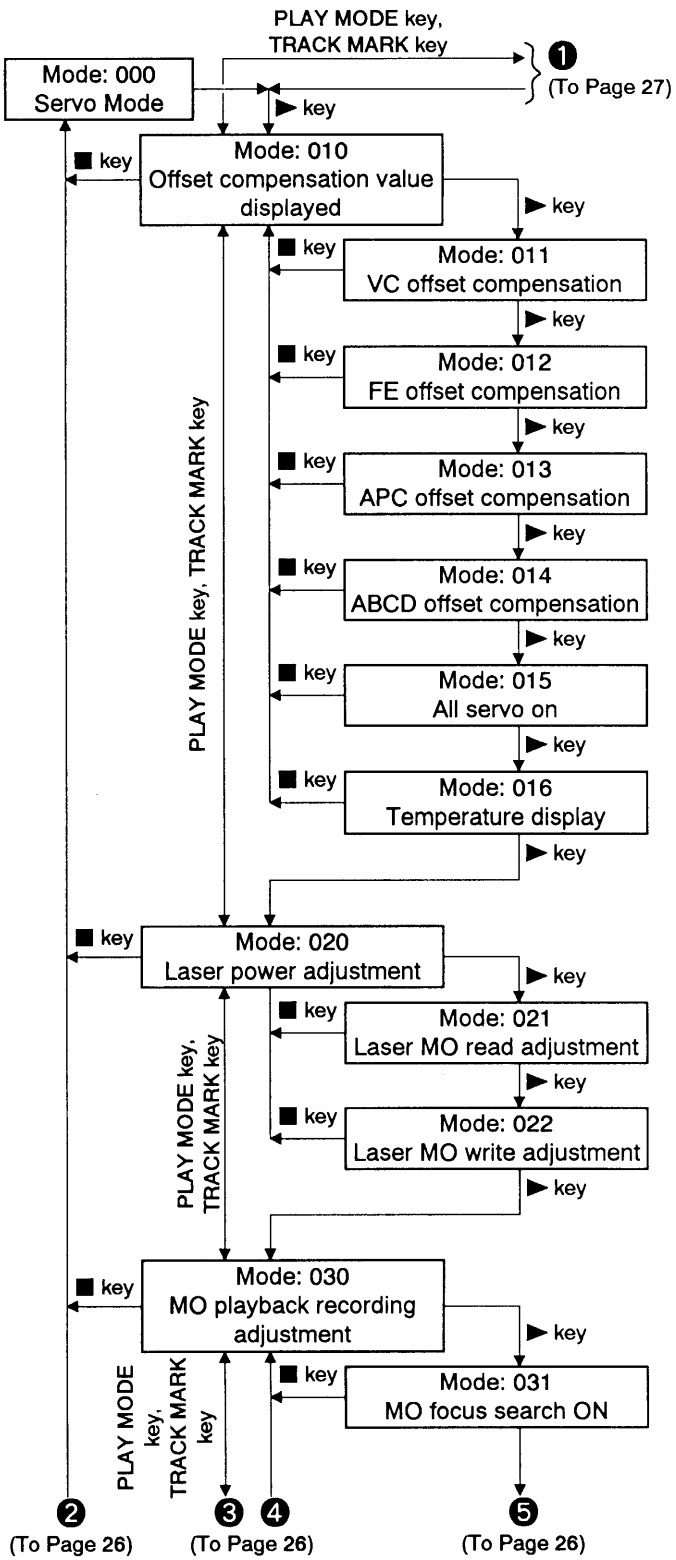


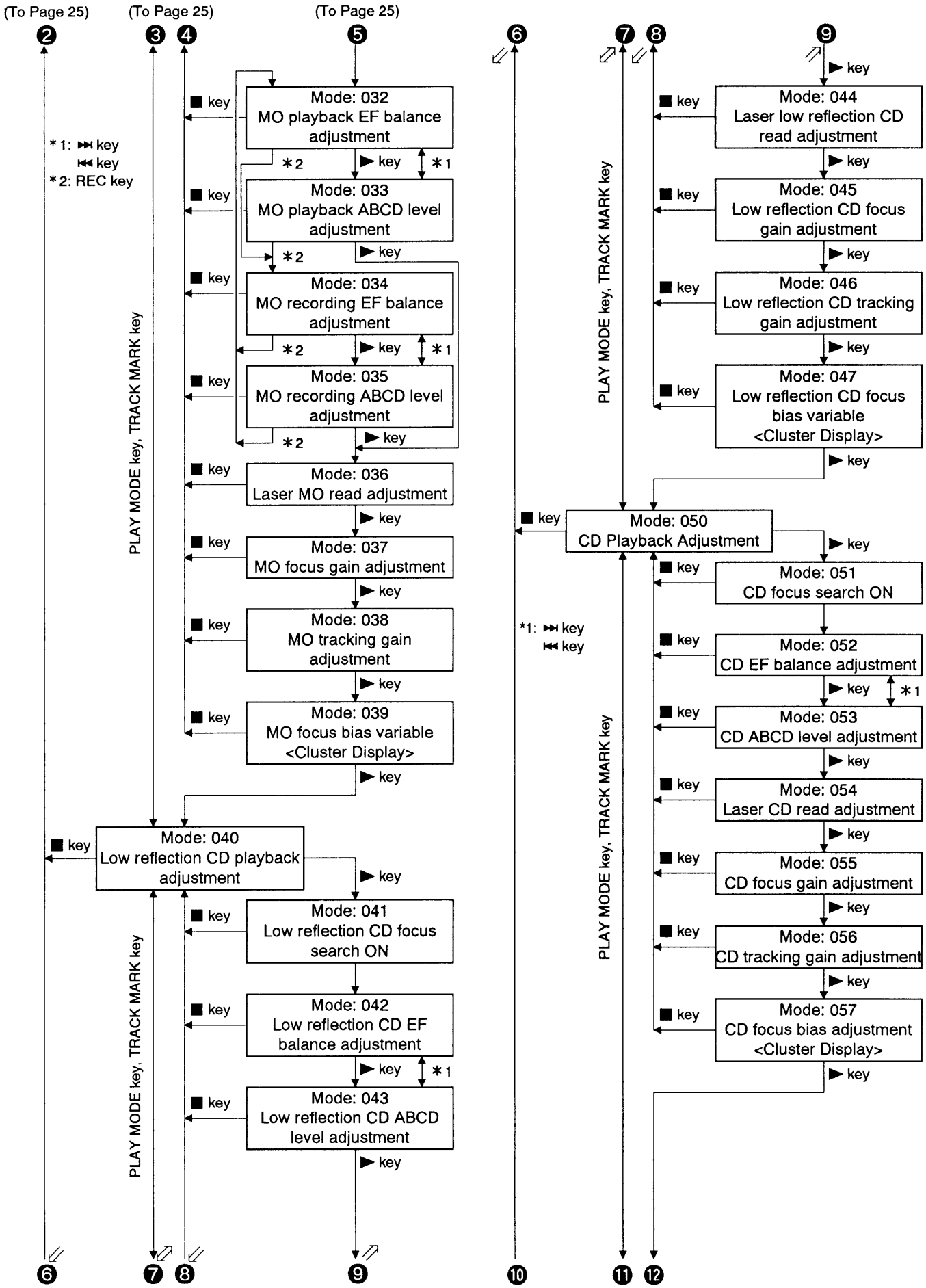
- In modes other than the general adjustment mode, the last two digits of the mode number will be displayed at the 00 section.

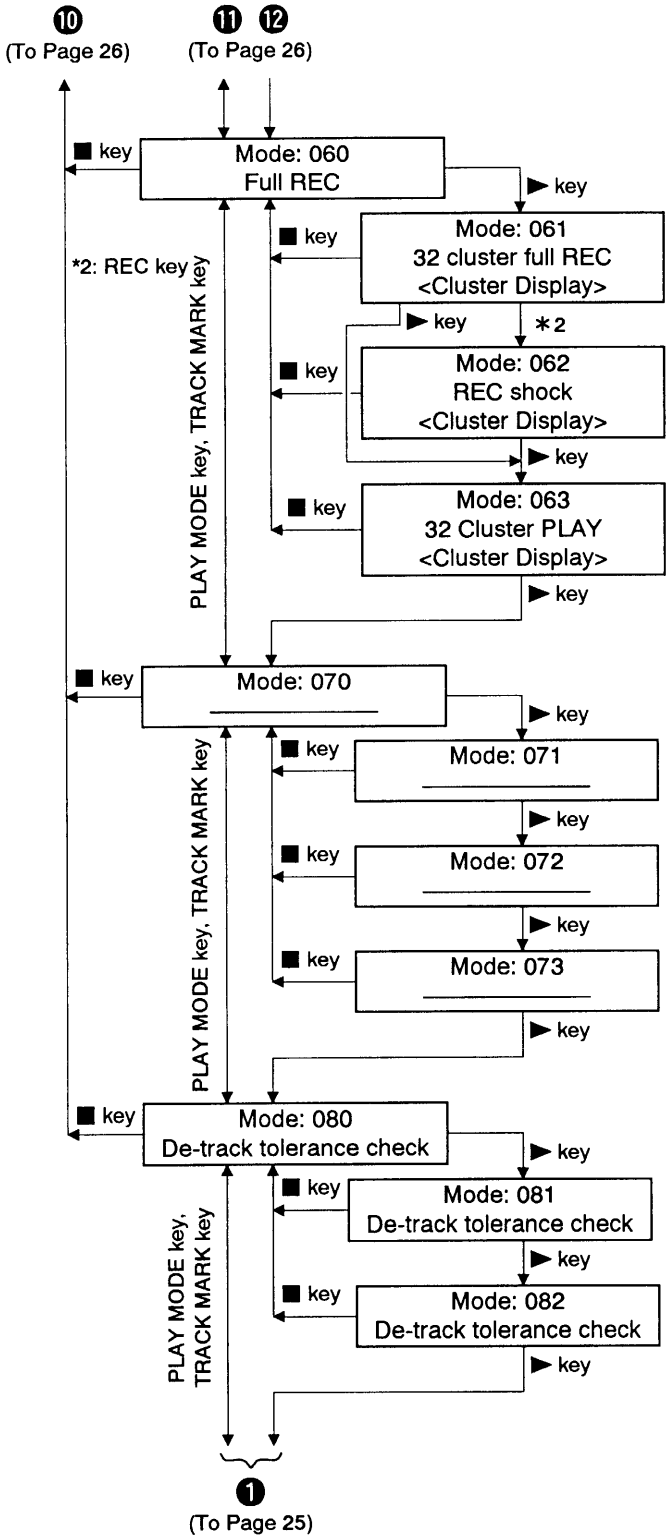
[Servo Mode]

- Set the test mode, press the ⏭ key, and set the servo mode using the PLAY MODE, TRACK MARK keys.
- When the servo mode is set, the optical pickup will move to the outer circumference or inner circumference if the ⏭ key or ⏮ key is pressed.
- To set other modes, refer to "Structure of Test Mode".

- **Structure of Servo Mode**

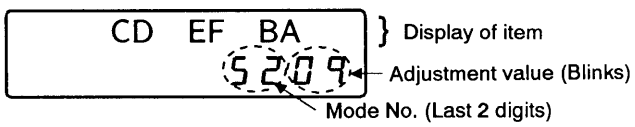



(To Page 25)
(To Page 25)
(To Page 25)
*1: ⏭ key
⏮ key
*2: REC key
PLAY MODE key, TRACK MARK key
■ key
▶ key
Mode: 032
MO playback EF balance adjustment
Mode: 033
MO playback ABCD level adjustment
Mode: 034
MO recording EF balance adjustment
Mode: 035
MO recording ABCD level adjustment
Mode: 036
Laser MO read adjustment
Mode: 037
MO focus gain adjustment
Mode: 038
MO tracking gain adjustment
Mode: 039
MO focus bias variable
<Cluster Display>
Mode: 040
Low reflection CD playback adjustment
Mode: 041
Low reflection CD focus search ON
Mode: 042
Low reflection CD EF balance adjustment
Mode: 043
Low reflection CD ABCD level adjustment
Mode: 044
Laser low reflection CD read adjustment
Mode: 045
Low reflection CD focus gain adjustment
Mode: 046
Low reflection CD tracking gain adjustment
Mode: 047
Low reflection CD focus bias variable
<Cluster Display>
Mode: 050
CD Playback Adjustment
Mode: 051
CD focus search ON
Mode: 052
CD EF balance adjustment
Mode: 053
CD ABCD level adjustment
Mode: 054
Laser CD read adjustment
Mode: 055
CD focus gain adjustment
Mode: 056
CD tracking gain adjustment
Mode: 057
CD focus bias adjustment
<Cluster Display>
(To Page 27)
(To Page 27)

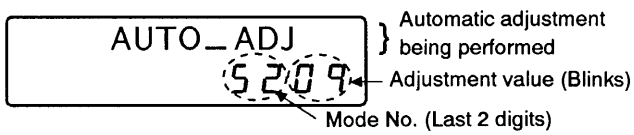


- **Adjusting Method**

1. When the adjustment modes are set according to "Structure of Servo Mode", the last two digits of the mode number and the adjustment value written in the EEPROM will be displayed blinking.

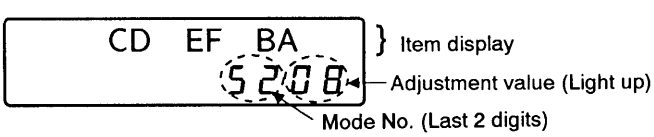


2. When the ▮▮ key is pressed, the following will be displayed and adjustments will be performed automatically.

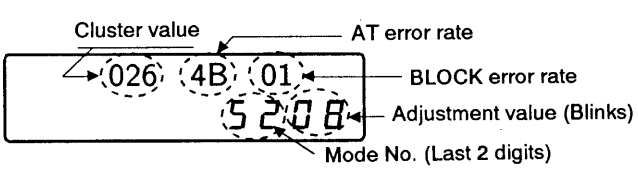


Note) The adjustment value can be changed as desired using the PLAY MODE, TRACK MARK keys, but try to avoid this as much as possible.

3. After the adjustments are completed, the item is displayed again and the adjustment value that was blinking lights up.



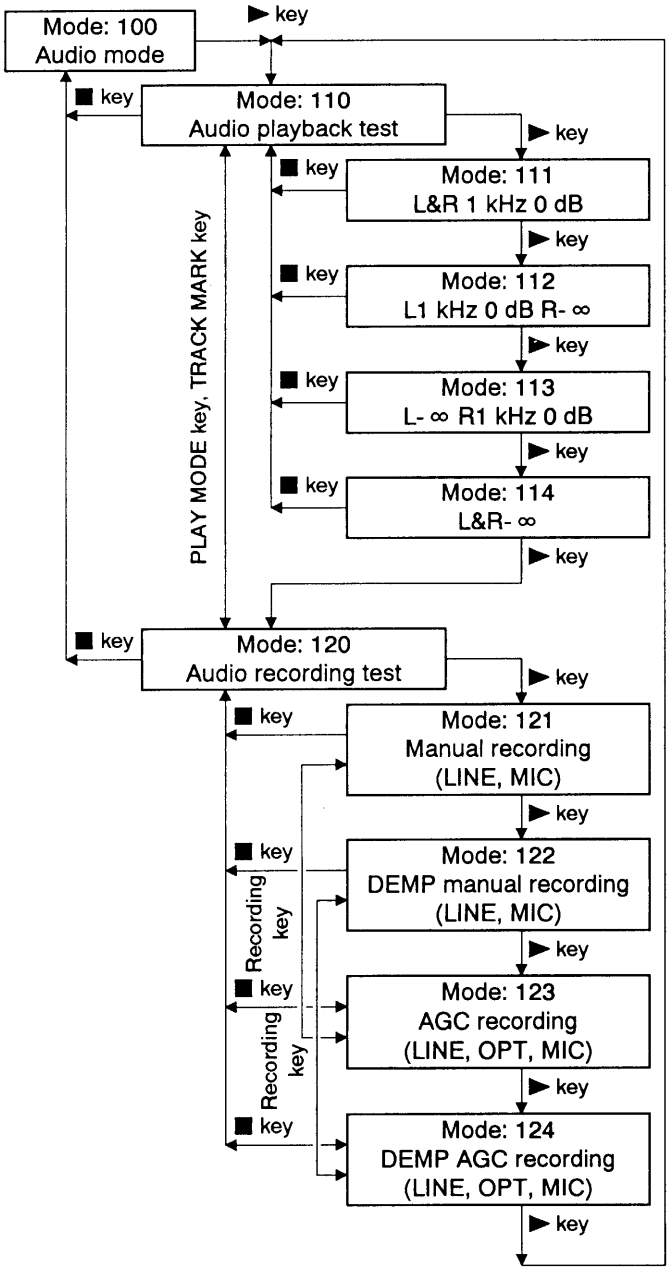
- **Cluster display**



- Nothing is performed at mode numbers 070 to 073.
- At mode numbers 080 to 082, automatic adjustments are performed only in the general adjustment mode.

[Audio Mode]

- Set the test mode, press the ⏭ key, and set the audio mode using the PLAY MODE, TRACK MARK keys.
- To set other modes, refer to "Structure of Test Mode".
- **Structure of Audio Mode**

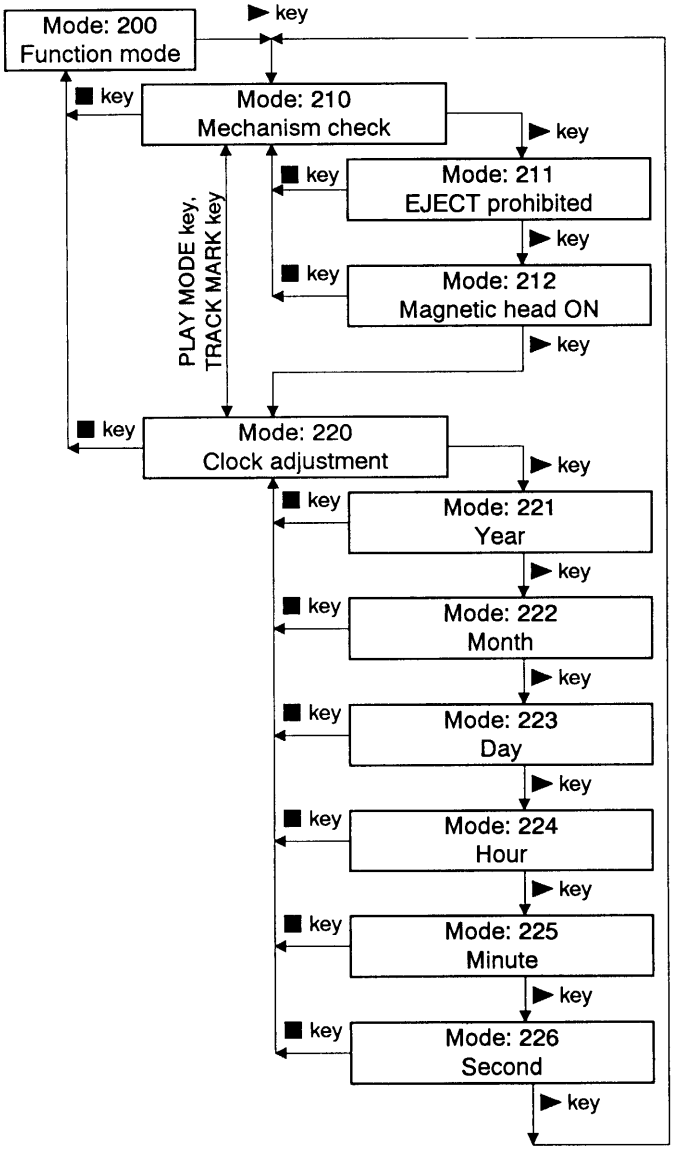


- When the ▮▮ key is pressed at mode numbers 100, 110 to 114, the buzzer will sound.
- When the PLAY MODE and TRACK MARK keys are pressed at mode numbers 111 to 113, 122 or 123, the volume of the headphone output will increase/decrease.
  When the ⏮ key or ⏭ key is pressed, the volume of the headphone output will become maximum/minimum.
- When the PLAY MODE and TRACK MARK keys are pressed at mode numbers 121 or 122, the recording level will increase/decrease.
  When the ⏮ key or ⏭ key is pressed, the recording level will become maximum/minimum.
- At mode numbers 121 to 124, the recording LED will light up.
- At mode numbers 121 to 124, the microprocessor will detect the port and automatically determine the input.

[Function Mode]

- Set the test mode, press the ⏭ key, and set the function mode using the PLAY MODE, TRACK MARK keys.
- To set other modes, refer to "Structure of Test Mode".

- **Structure of Function Mode**

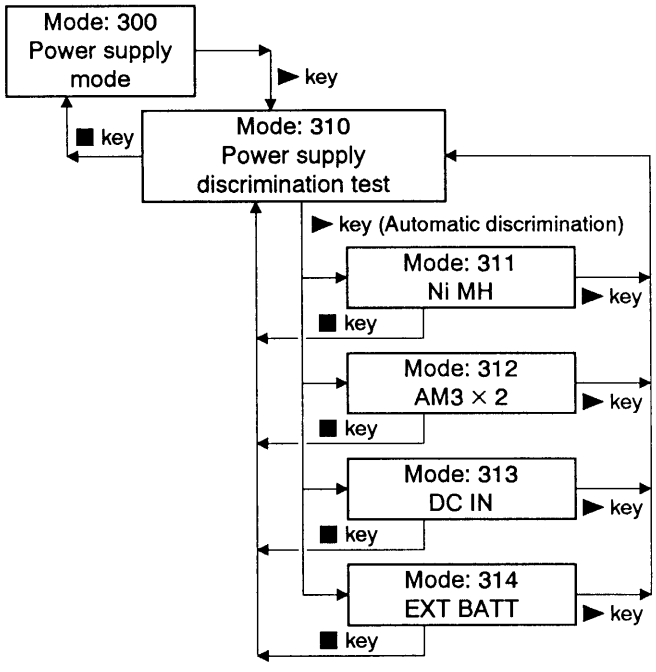


- At mode numbers 200, 210 to 212, the optical pickup can be moved to the outer circumference or inner circumference using the ⏮ or ⏭ key.

[Power Supply Mode]

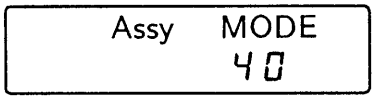
- Set the test mode, press the ⏭ key, and set the power supply mode using the PLAY MODE, TRACK MARK keys.
- To set other modes, refer to "Structure of Test Mode".

- **Structure of Power Supply Mode**

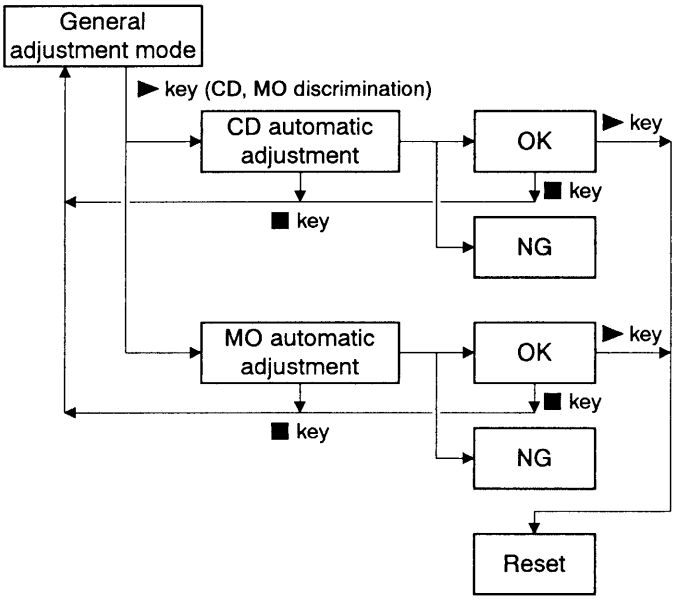


[General Adjustment Mode]

- Set the test mode, press the ⏮ key, and set the general adjustment mode.
- To set other modes, exit the test mode once and set the test mode again.
- When the general adjustment mode is set, the LCD display will be as follows.



- **Structure of General Adjustment Mode**

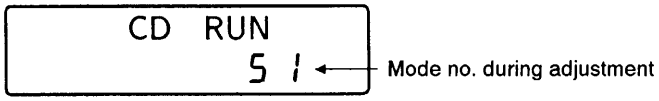


- **Adjusting Method**

1. Set the test mode, press the ⏮ key to set the general adjustment mode.
2. Load the CD test disc (TDYS-1) or SONY MO disc available on the market.
3. When the ▶ key is pressed, the disc is determined if CD or MO, the automatic adjustment modes are set, and adjustments are performed automatically in the following order.
   - CD Automatic Adjustment

No.	Mode No.	Adjustment
1	052	CD EF balance adjustment
2	053	CD ABCD level adjustment
3	055	CD focus gain adjustment
4	056	CD tracking gain adjustment
5	057	CD focus bias adjustment

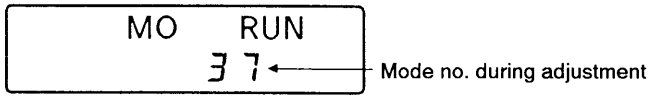
* Display during CD automatic adjustment



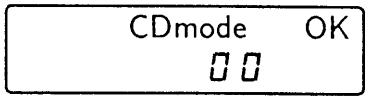
- MO Automatic Adjustment

No.	Mode No.	Adjustment
1	032	MO playback EF balance adjustment
2	033	MO playback ABCD level adjustment
3	034	MO recording EF balance adjustment
4	035	MO recording ABCD level adjustment
5	037	MO focus gain adjustment
6	038	MO tracking gain adjustment
7	061	32 cluster full REC
8	062	REC shock
9	063	32 cluster PLAY
10	039	MO focus bias adjustment
11	042	Low reflection CD EF balance adjustment
12	043	Low reflection CD ABCD level adjustment
13	045	Laser low reflection CD read adjustment
14	046	Low reflection CD tracking gain adjustment

* Display during MO automatic adjustment

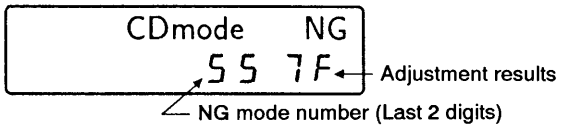


4. If the automatic adjustment results are OK, the following will be displayed.

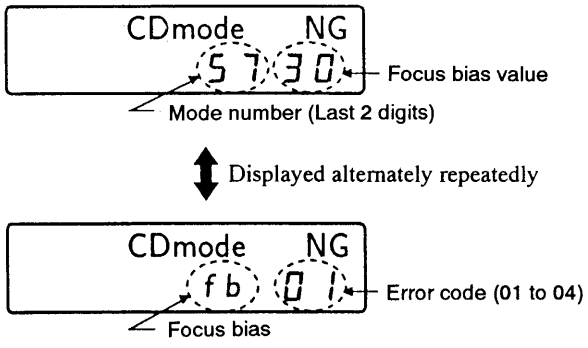


* In this case, when the ▶ key is pressed, the unit will be reset.

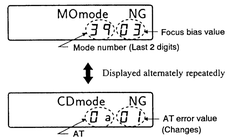
5. If the automatic adjustment results are NG, the following will be displayed.



* When the mode number is 039, 057 and the focus bias value is NG, the following will be displayed repeatedly.



* When the mode number is 039, 061 and the AT error rate is NG, the following will be displayed repeatedly.



* When NG, set the servo mode and perform the automatic adjustment of the NG item. (Refer to "Servo Mode".)

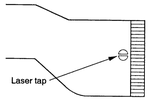
SECTION 5
ELECTRICAL ADJUSTMENTS

[Precautions for Laser Diode Emission Check]

When checking the emission of the laser diode during adjustments, never view directly downwards as this may lead to blindness.

[Precautions for Using Optical Pick Up (KMS-194B/J-N)]

As the laser diode inside the optical pickup damages by static electricity easily, solder the laser tap of the flexible board when handling. Also take the necessary measures to prevent damages by static electricity. Handle the flexible board with care as it breaks easily.



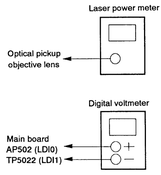
Optical pickup flexible board

[Precautions for Adjustment]

1) Perform all adjustments in the order given in the test mode. After adjusting, exit the test mode.
2) Use the following tools and measuring instruments.
   - CD test disc TDYS-1 (Parts Code: 4-963-646-01)
   - Recorded MO disc PTDM-1 (Parts Code: J-2501-054-A)
   - Laser power meter LPM-8001 (Parts Code: J-2501-046-A)
   - Oscilloscope (Frequency band above 40 MHz. Perform the calibration of probe first before measuring.)
   - Digital voltmeter
3) Unless specified otherwise, supply DC4.5V from the DC IN 4.5V jack.
4) Switch position
   Hold switch ·····OFF

[Laser Power Check]

Connection:

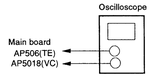


Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ▶ key, and set the laser power adjustment mode (Mode: 020) using the PLAY MODE, TRACK MARK keys.
3. Press the ⏮ key and move the optical pickup to the inner most circumference.
4. Open the cover and set the laser power meter on the objective lens of the optical pickup.
5. Press the ▶ key, and set the laser MO read adjustment mode (Mode: 021).
6. Check that the laser power meter reading is 0.85 ± 0.06 mW.
7. Check that the voltage between AP502 (LDI0) and AP5022 (LDI1) at this time is below 61 mV.
8. Press the ▶ key, and set the laser MO write adjustment mode (Mode: 022).
9. Check that the laser power meter reading is 6.8 ± 0.05 mW.
10. Press the ▮▮ key to finalize the adjustment data.
11. Check that the voltage between AP502 (LDI0) and AP5022 (LDI1) at this time is below 132 mV.
12. Press the ■ key.
13. Exit the test mode.

[MO Traverse Adjustment]

Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ▶ key, and set the MO playback adjustment mode (Mode: 030) using the PLAY MODE, TRACK MARK keys.
3. Press the ⏮ and ⏭ keys and move the optical pickup to the center circumference.
4. Load any MO disc available on the market.
5. When the ▶ key is pressed, the MO playback EF balance adjustment mode (Mode: 032) will be set after focus search ON (Mode: 031).
6. Press the ▮▮ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.
7. Slide the recording key and set the MO recording EF balance adjustment mode (Mode: 034).
8. Press the ▮▮ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse Waveform)

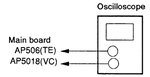
Specification: A=B, C ≧ 2.0 Vp-p

9. Check that the traverse level at this time is above 2.0 Vp-p.
10. Press the ■ key.
11. Exit the test mode.

Note) Using a recorded disc in this adjustment will erase the data.

[Low Reflection CD Traverse Adjustment]

Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ▶ key, and set the low reflection CD playback adjustment mode (Mode: 040) using the PLAY MODE, TRACK MARK keys.
3. Load any MO disc available on the market.
4. When the ▶ key is pressed, the low reflection CD playback EF balance adjustment mode (Mode: 042) will be set after low reflection CD focus search ON (Mode: 041).
5. Press the ▮▮ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

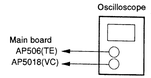
(Traverse Waveform)

Specification: A=B, C ≧ 2.0 Vp-p

6. Check that the traverse level at this time is above 2.0 Vp-p.
7. Press the ■ key.
8. Exit the test mode.

[CD Traverse Adjustment]

Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ▶ key, and set the CD playback adjustment mode (Mode: 050) using the PLAY MODE, TRACK MARK keys.
3. Press the ⏮ and ⏭ keys and move the optical pickup to the center circumference.
4. Load a CD test disc (TDYS-1).
5. When the ▶ key is pressed, the CD EF balance adjustment mode (Mode: 052) will be set after CD focus search ON (Mode: 051).
6. Press the ▮▮ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

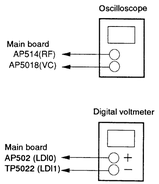
(Traverse Waveform)

Specification: A=B, C ≧ 2.0 Vp-p

7. Check that the traverse level at this time is above 2.0 Vp-p.
8. Exit the test mode.

[CD RF Level Check]

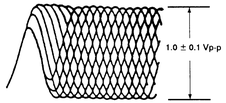
Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ▶ key, and set the CD playback adjustment mode (Mode: 050) using the PLAY MODE, TRACK MARK keys.
3. Press the ⏮ and ⏭ keys and move the optical pickup to the center circumference.
4. Load a CD test disc (TDYS-1).
5. When the ▶ key is pressed, the CD EF balance adjustment mode (Mode: 052) will be set after CD focus search ON (Mode: 051).
6. When the ▶ key is pressed, the ABCD level adjustment mode (Mode: 053) is set.
7. Press the ▮▮ key to perform automatic adjustment, and check that the RF level is 1.0 ± 0.1 Vp-p.

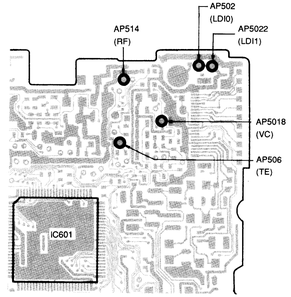
(RF Waveform)



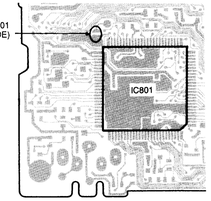
8. Check that the voltage between AP502 (LDI0) and AP5022 (LDI1) at this time is below 61 mV.
9. Press the ■ key.
10. Exit the test mode.

— Adjustment location —

[MAIN BOARD] (SIDE B)

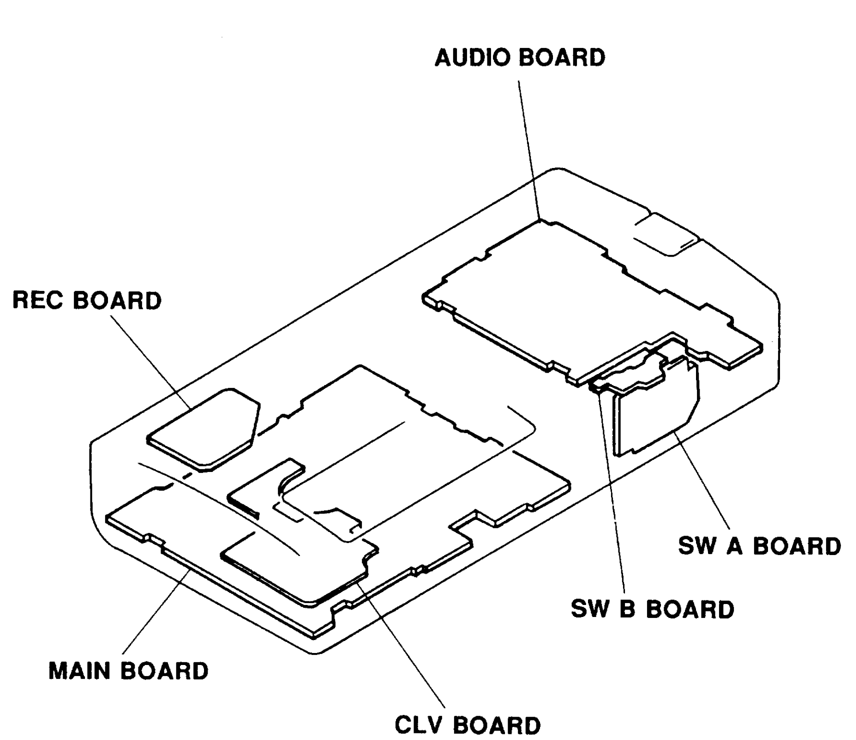


[MAIN BOARD] (SIDE B)



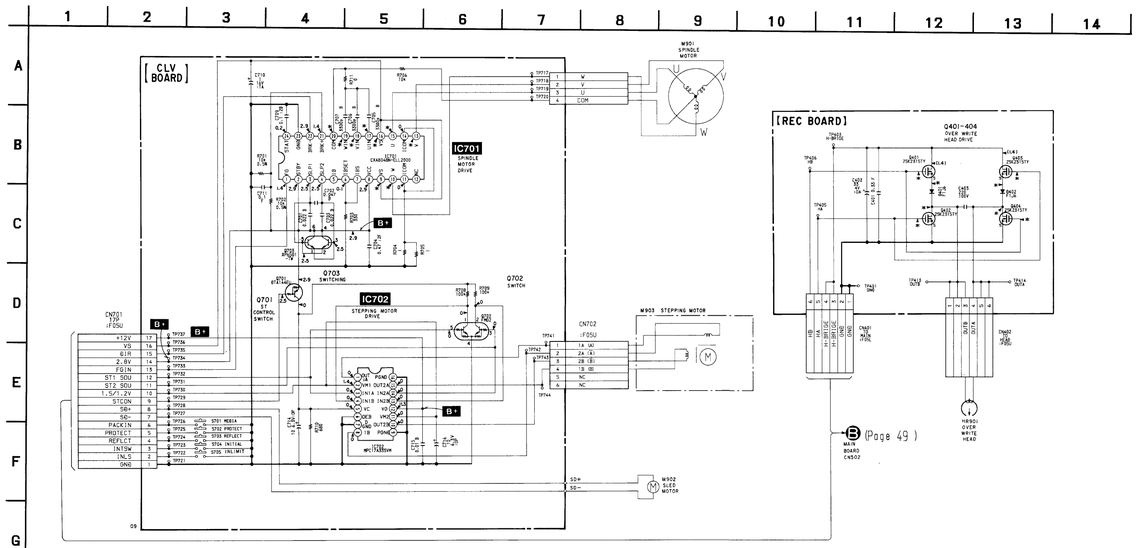
SECTION 6
DIAGRAMS

6-1. CIRCUIT BOARDS LOCATION



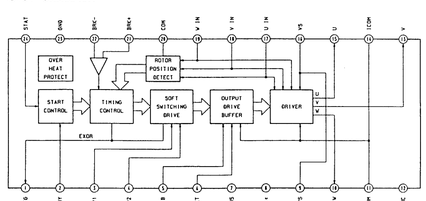
6-2. BLOCK DIAGRAM

6-3. SCHEMATIC DIAGRAM — MD SECTION —

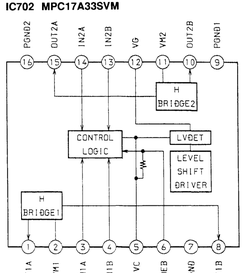


• IC Block Diagrams

IC701 CXA8048N



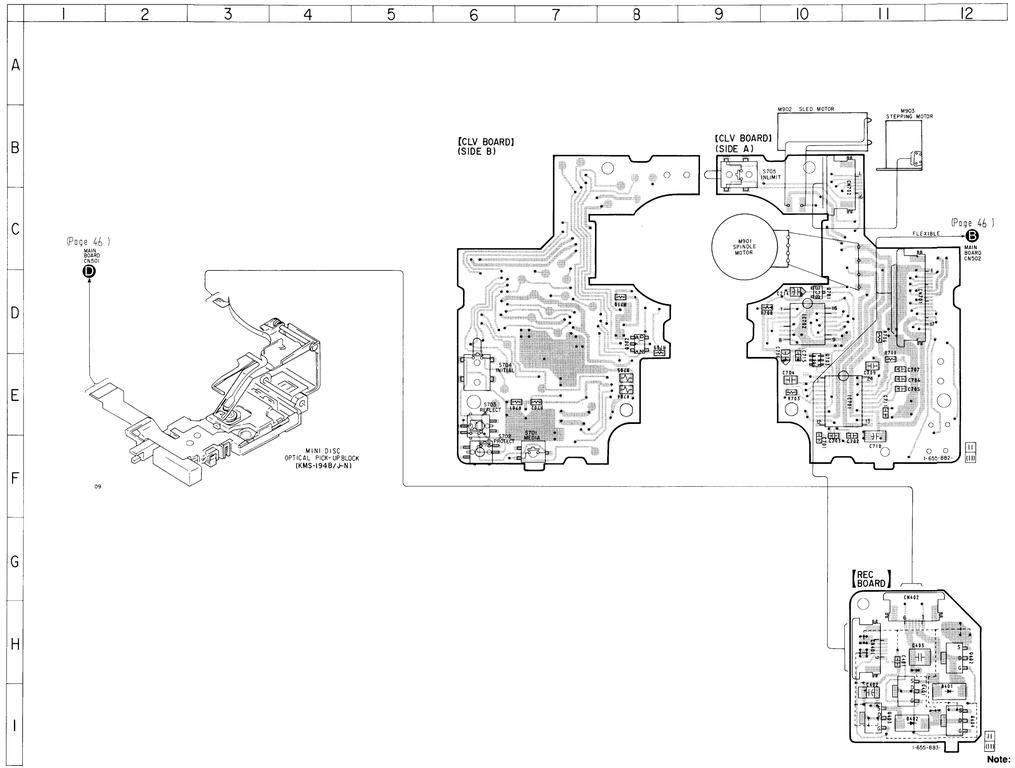
IC702 MPC17A33SVM



Note:

- All capacitors are in μF unless otherwise noted. pF:μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- B+ : B+ Line
- Voltage and waveforms are dc with respect to ground . no mark : Play the test disc (TDYS-1)
  ( ) : REC
  ✱ : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.

6-4. PRINTED WIRING BOARD — MD SECTION —



• Semiconductor Location

Ref. No.	Location
D401	I-12
D402	I-11
D804	I-4
D805	I-4
IC701	E-10
IC702	D-10
Q401	I-11
Q402	H-12
Q403	I-11
Q404	I-12
Q701	D-10
Q702	D-8
Q703	E-10

Note:

- : parts extracted from the component side.
- : Through hole.
- : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)
- : Pattern of the rear side.

6-5. PRINTED WIRING BOARD — MAIN SECTION —

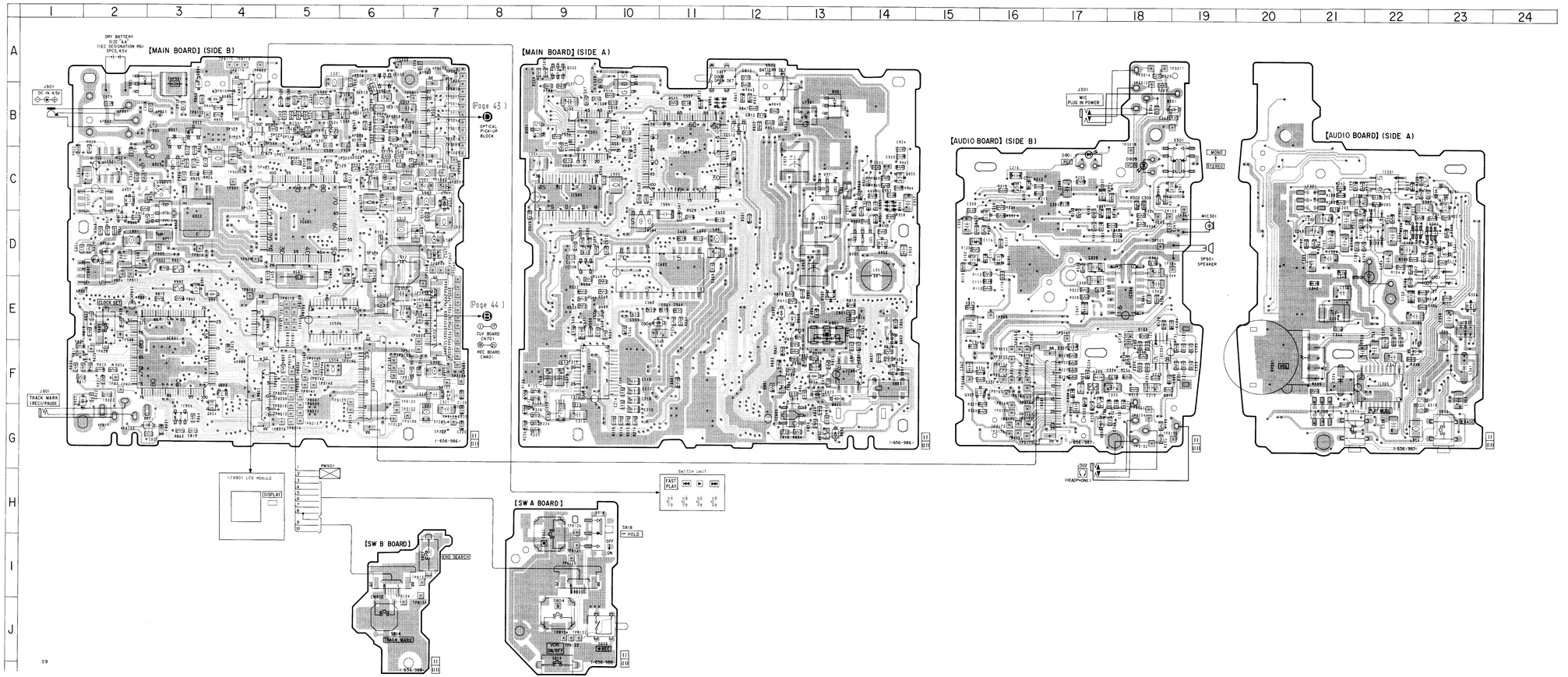
• See page 36 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D101	D-23	IC510	B-12
D201	C-23	IC601	D-5
D301	B-19	IC602	D-11
D302	G-17	IC801	E-3
D303	E-22	IC802	D-2
D502	C-7	IC803	G-12
D504	E-10	IC804	F-14
D801	C-17	IC806	G-3
D802	D-2	IC921	C-2
D803	G-13	IC951	C-2
D804	A-3		
D805	B-4	Q101	D-16
D806	F-13	Q102	D-15
D807	E-12	Q201	C-23
D808	E-13	Q202	C-16
D809	C-18	Q301	C-19
D821	G-3	Q302	D-23
D822	F-1	Q303	D-22
D823	F-13	Q306	E-23
D824	F-13	Q307	F-15
D901	A-13	Q308	C-16
D905	B-2	Q310	F-23
D921	B-3	Q501	B-8
D922	B-3	Q502	A-9
D951	D-3	Q504	D-10
D991	E-4	Q509	E-10
D992	E-13	Q510	A-10
		Q590	B-11
IC101	D-23	Q801	F-14
IC201	C-22	Q802	E-14
IC301	D-22	Q803	F-4
IC303	F-9	Q804	G-4
IC304	F-18	Q921	C-13
IC305	F-22	Q922	D-3
IC306	E-18	Q923	C-3
IC307	E-23	Q951	D-14
IC501	B-9	Q952	D-3
IC502	A-6	Q953	D-14
IC503	C-11	Q954	C-14
IC504	B-5	Q955	C-14
IC505	C-9	Q956	D-2
IC506	E-5	Q957	C-2
IC507	B-4	Q991	E-3
IC508	D-9		

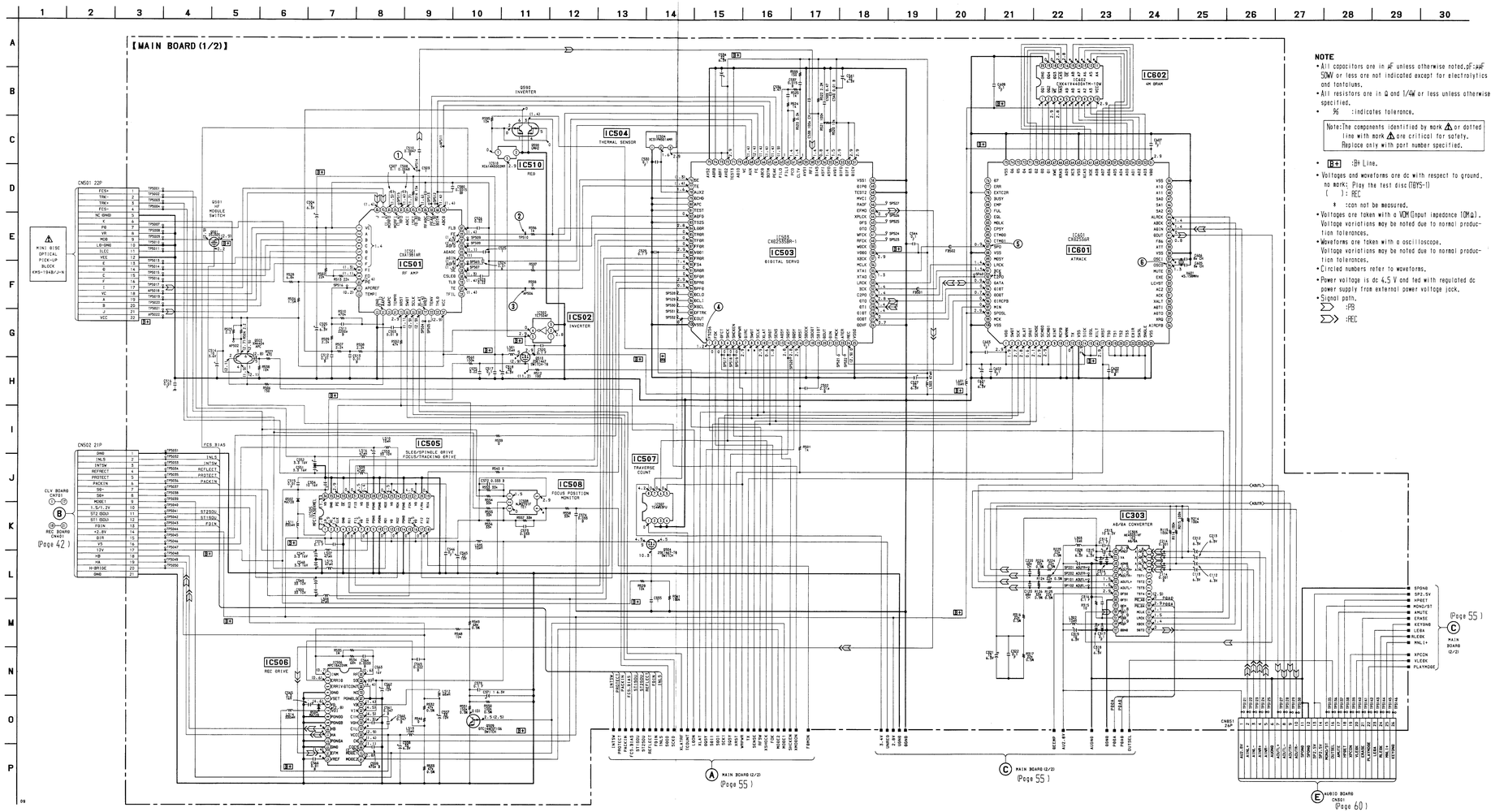
Note:

- ○——: parts extracted from the component side.
- ●——: parts extracted from the conductor side.
- ○: Through hole.
- △: internal component.
- ▒▒: Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

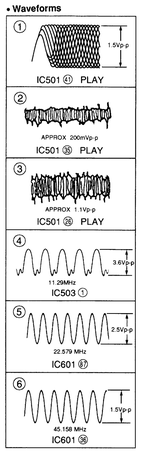


6-6. SCHEMATIC DIAGRAM — MAIN (SERVO/PROCESS) SECTION —

• See page 62 for IC Pin Functions. (IC501, 503, 601)



• Waveforms



NOTE

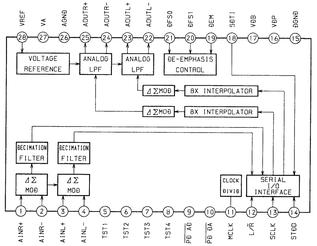
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantaluns.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.

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

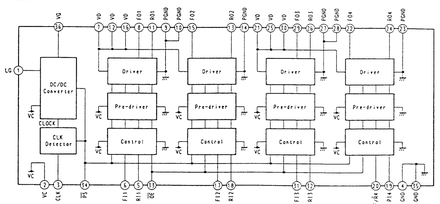
- B+ : B+ Line.
- Voltages and waveforms are dc with respect to ground. no mark: Play the test disc (TYS-1)
  ( ): REC
  * : can not be measured.
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
- Signal path.
  :PB
  :REC

• IC Block Diagrams

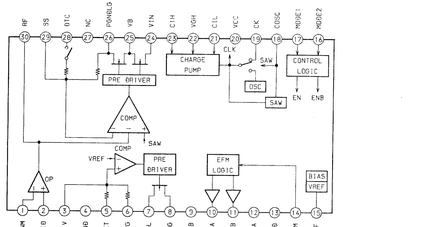
IC303 AK4503-VF



IC505 MPC17A38VMEL



IC506 MPC18A20VM

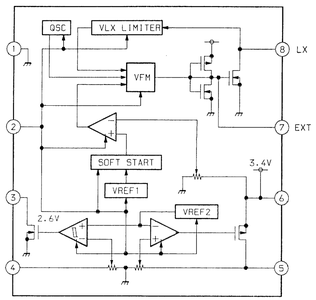


6-7. SCHEMATIC DIAGRAM — MAIN (SYSTEM CONTROL) SECTION —

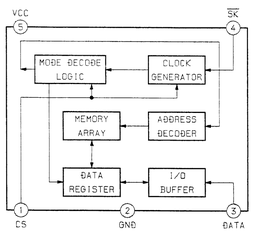
• See page 45 for printed Wiring Boards.
• See page 68 for IC Pin Functions. (IC801)

• IC Block Diagrams

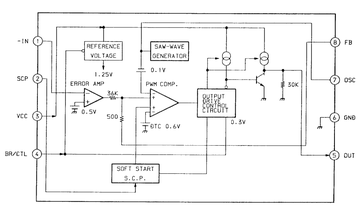
IC802 RS5RJ29261

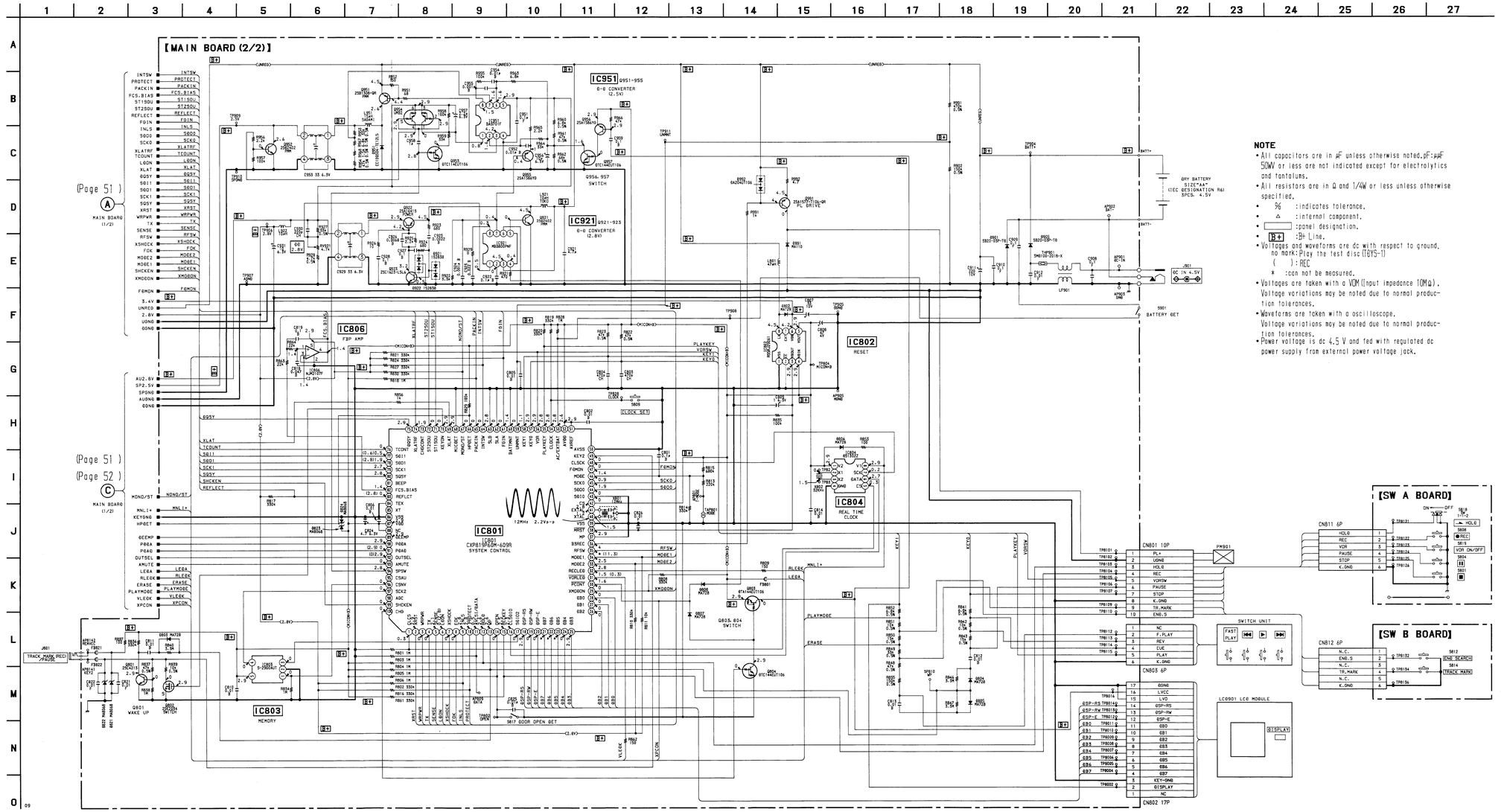


IC803 S-2900AUT



IC921 MB3800PNF



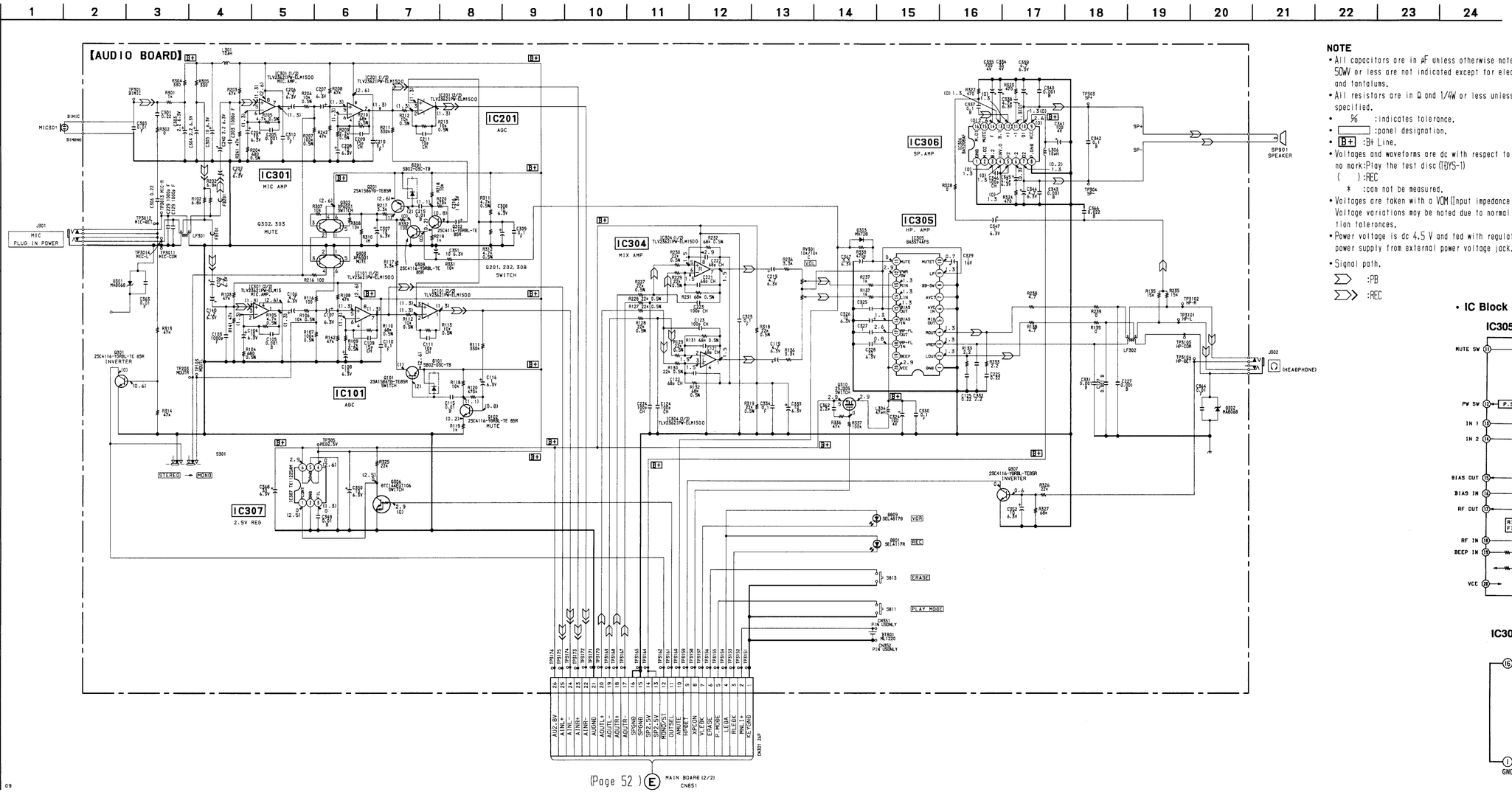


NOTE

- All capacitors are in μF unless otherwise noted. pF: pμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- Voltages and waveforms are dc with respect to ground. no mark: Play the test disc (TDYS-1)
  ( ) : REC
  * : can not be measured.
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.

6-8. SCHEMATIC DIAGRAM — MAIN (AUDIO) SECTION —

• See page 45 for printed Wiring Boards.

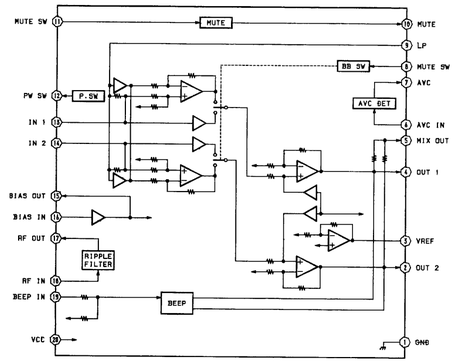


NOTE

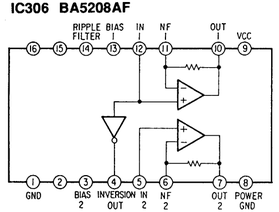
- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- B+ : B+ Line.
- Voltages and waveforms are dc with respect to ground.
  no mark: Play the test disc (TDYS-1)
  ( ) : REC
  * : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
- Signal path.
  ⟩ : PB
  ⟩⟩ : REC

• IC Block Diagrams

IC305 BA3574AFS



IC306 BA5208AF



6-9. IC PIN FUNCTIONS

• IC501 RF Amplifier (CXA1981AR)

Pin No.	Pin Name	I/O	Function
1	VC	O	Middle point voltage (+1.4V) generation output pin
2 to 7	A to F	I	Input of signal from optical block detector
8	FI	I	F operation amplifier input
9	FO	O	F operation amplifier output
10	PD	I	Front monitor. Connected to photo diode
11	APCREF	I	Input pin for setting laser power
12	TEMPI	I	Temperature sensor connection pin (Opened)
13	GND	–	Ground pin
14	AAPC	O	APC LD amplifier output pin
15	DAPC	O	Not used (Opened)
16	TEMPR	O	Temperature sensor reference voltage output pin (Opened)
17	XRST	I	Input of reset signal from system controller (IC801). Reset: "L"
18	SWDT	I	Input of write data signal from system controller (IC801)
19	SCLK	I	Input of clock signal from system controller (IC801)
20	XLAT	I	Input of latch signal from system controller (IC801)
21	VREF	O	Reference voltage output
22	TENV	O	Not used
23	THLD	I	Not used (Opened)
24	VCC	–	Power supply pin (+2.8V)
25	TFIL	I	Not used (Opened)
26	TE	O	Output of tracking error signal to CXD2535BR (IC503)
27	TLB	I	Input pin of add signal to tracking error
28	CSLED	I	Sled error LPF pin
29	SE	O	Output of sled error signal to CXD2535BR (IC503)
30	ADFM	O	ADIP FM signal output
31	ADIN	I	Inputs ADIP FM signal by AC coupling
32	ADAGC	I	Connection pin of external capacitor for ADIP AGC
33	ADFG	O	Output of ADIP dual FM signal to CXD2535BR (IC503) (22.05 kHz ± 1 kHz)
34	AUX	O	Output of auxiliary signal to CXD2535BR (IC503)
35	FE	O	Output of focus error signal to CXD2535BR (IC503)
36	FLB	I	Focus bias control signal input
37	ABCD	O	Output of light amount signal to CXD2535BR (IC503)
38	BOTM	O	Output of bottom hold signal of light amount signal to CXD2535BR (IC503)
39	PEAK	O	Output of peak hold signal of light amount signal to CXD2535BR (IC503)
40	RFAGC	I	Connection pin of RF AGC circuit external capacitor
41	RF	O	Output of playback EFM RF signal to CXD2535BR (IC503)
42	ISET	I	Internal circuit constant setting pin. 22 kHz BPF center frequency
43	AGCT	I	Inputs RF signal by AC coupling
44	RFO	O	Output pin of RF signal
45	MORFI	I	Inputs MO RF signal by AC coupling
46	MORFO	O	Output pin of MO RF signal
47, 48	I, J	I	Input of signal from optical block detector

• IC503 Digital signal processor, digital servo processor (CXD2535BR-1)

Pin No.	Pin Name	I/O	Function
1	FS256	O	11.2896 MHz clock output (MCLK)
2	FOK	O	Output of FOK signal to system controller (IC801) Outputs "H" when focus is set
3	DFCT	O	Outputs defect ON/OFF switching signal to CXD2536R (IC601)
4	SHCK	O	Outputs track jump detection signal to system controller (IC801)
5	SHCKEN	I	Track jump detection enable input
6	WRPWR	I	Inputs laser power switching signal from system controller (IC801)
7	DIRC	I	Not used (Fixed at "H")
8	SWDT	I	Inputs write data signal from system controller (IC801)
9	SCLK	I	Inputs serial clock signal from system controller (IC801)
10	XLAT	I	Inputs serial latch signal from system controller (IC801)
11	SRDT	O	Outputs write data signal to system controller (IC801)
12	SENS	O (3)	Outputs internal status (SENSE) to system controller (IC801)
13	ADSY	O	ADIP sync signal output (Opened)
14	SQSY	O	Output subcode Q sync (SCOR) to system controller (IC801) Outputs "L" every 13.3 msec. Outputs "H" at all most mostly
15	DQSY	O	Outputs digital-in U-bit CD format subcode Q sync (SCOR) to system controller (IC801). Outputs "L" every 13.3 msec Outputs "H" at all most mostly
16	XRST	I	Inputs reset signal from system controller (IC801). Reset: "L"
17	SBOCK	I	Test input (Fixed at "L")
18	SBODT	O	Not used (Opened)
19	SBIDT	I	Test input (Fixed at "L")
20	DOUT	O	Digital audio signal output pin (For optical output) (Opened)
21	DIN	I	Digital audio signal input pin (For optical input) (Opened)
22	FMCK	O	ADIP FM demodulation clock signal output (Not used)
23	ATER	O	ADIP CRC flag output. "H":Error (Not used)
24	REC	I	Input of recording/playback switching signal from system controller (IC601) Recording: "H". Playback: "L"
25	DVSS	–	Ground pin (Digital)
26	DOVF	I	Digital audio output validity flag input pin (Fixed at "L")
27	DODT	I	Input pin of 16bit data for digital audio output from CXD2536R (IC601)
28	DIDT	O	Output pin of 16bit data for digital audio input to CXD2536R (IC601)
29	DTI	I	Input pin of recording audio data signal from CXD2536R (IC601)
30	DTO	O (3)	Output pin of playback audio data signal to CXD2536R (IC601)
31	C2PO	O	Outputs C2PO signal to CXD2536R (IC601). (Output indicating data error status) Playback: C2PO ("H"). Digital recording: D.In-Vflag. Analog recording: "L"
32	BCK	O	Outputs bit clock signal (2.8224 MHz) to CXD2536R (IC601) (MCLK)
33	LRCK	O	Outputs L/R clock signal (44.1 kHz) to CXD2536R (IC601) (MCLK)
34	XTAO	O	System clock (512 Fs=22.5792 MHz) signal output (Opened)
35	XTAI	I	Input of system clock (512Fs=22.5792 MHz) signal input from CXD2536R (IC601)
36	MCLK	O	MCLK clock (22.5792 MHz) signal output (Opened)
37	XBCK	O	Pin 32 (BCK) inversion output (Opened)
38	DVD0	–	Power supply pin (+2.8V) (Digital)
39	WDCK	O	WDCK clock (88.2 kHz) signal output (MCL) (Opened)
40	RFCK	O	RFCK clock (7.35 kHz) signal output (MCLK) (Not used)

Pin No.	Pin Name	I/O	Function
41	WFCK	O	WFCK clock (7.35 kHz) signal output (Playback: EFM decoder PLL. Recording: EFM encoder PLL) (Not used)
42	GTO	O	"H": Opens playback EFM frame sync protection window
43	GFS	O	"H": Playback EFM sync and interpolation protection timing match (Not used)
44	XPLCK	O	EFM decoder PLL clock output (98 Fs=4.3218 MHz) Falling edge and EFM signal edge match (Not used)
45	EFMO	O	EFM signal output (Rec)
46	RAOF	O	Internal RAM overflow detection signal output (decoder monitor output) Outputs "H" when the disc rotation exceeds ± 4F jitter margin during playback (Not used)
47	MVCI	I	Digital-in PLL oscillation input (Opened)
48	TEST2	I	Test pin (Fixed at "L")
49	DIPD	O (3)	Digital-in PLL phase comparison output Internal VCO: (Frequency: Low → "H"). External VCO: (Frequency: Low → "L") (Opened)
50	VSS1	–	Ground pin (Digital)
51	DICV	I (A)	Digital-in PLL internal VCO control voltage input (Fixed at "H")
52	DIFI	I (A)	Filter input when digital-in PLL internal VCO is used (Fixed at "H")
53	DIFO	O (A)	Filter output when digital-in PLL internal VCO is used (Opened)
54	AVDI	–	Power supply pin (+2.8V) (Analog)
55	ASYO	O	Playback EFM full-swing output (L=VSS, H=VDD)
56	ASYI	I (A)	Playback EFM asymmetry comparate voltage input
57	BIAS	I (A)	Playback EFM asymmetry circuit constant current input
58	RFI	I (A)	Inputs playback EFM RF signal from CXA1981AR (IC501)
59	AVS1	–	Ground pin (Analog)
60	CLTV	I (A)	Decoder PLL master clock PLL VCO control voltage input
61	PCO	O (3)	Decoder PLL master clock PLL phase comparison output
62	FILI	I (A)	Decoder PLL master clock PLL filter input
63	FILO	O (3)	Decoder PLL master clock PLL filter output
64	PEAK	I (A)	Inputs peak hold signal for light amount signal from CXA1981AR (IC501)
65	BOTM	I (A)	Inputs bottom hold signal for light amount signal from CXA1981AR (IC501)
66	ABCD	I (A)	Light amount signal from CXA1981AR (IC501)
67	FE	I (A)	Input of focus error signal from CXA1981AR (IC501)
68	AUX	I (A)	Input of auxiliary signal from CXA1981AR (IC501)
69	VC	I (A)	Input of middle point voltage (+1.4V) from CXA1981AR (IC501)
70	ADIO	O (A)	A/D converter input signal monitor output (Opened)
71	TEST3	I (A)	Test input (Fixed at "L")
72	AVD2	–	Power supply pin (+2.8V) (Analog)
73	ADRT	I (A)	A/D converter operation range upper limit voltage input (Fixed at "H")
74	ADRB	I (A)	A/D converter operation range lower limit voltage input (Fixed at "L")
75	AVS2	–	Ground pin (Analog)
76	SE	I (A)	Input of sled error signal from CXA1981AR (IC501)
77	TE	I (A)	Input of tracking error signal from CXD1981AR (IC501)
78	AUX2	I (A)	Auxiliary input pin 2
79	DCHG	I (A)	Connected to GND
80	APC	I (A)	Laser APC input (Fixed at "L")

Pin No.	Pin Name	I/O	Function
81	TEST	I	Test pin (Fixed at "L")
82	ADFG	I	Input of ADIP dual FM signal from CXA1981AR (IC501) (22.05 kHz ± 1 kHz) (TTL Schmidt input)
83	TS25	I	Test pin (Fixed at "L")
84	LDDR	O	Laser APC signal output
85	TRDR	O	Tracking servo drive signal output (–)
86	TFDR	O	Tracking servo drive signal output (+)
87	FFDR	O	Focus servo drive signal output (+)
88	VDD1	–	Power supply pin (+2.8V) (Digital)
89	FRDR	O	Focus servo drive signal output (–)
90	FS4	O	176.4 kHz clock signal output (MCLK)
91	SRDR	O	Sled servo drive signal output (–)
92	SFDR	O	Sled servo drive signal output (+)
93	SPRD	O	Spindle servo drive signal output (–)
94	SPFD	O	Spindle servo drive signal output (+)
95	DCLO	O	Not used
96	DCLI	I	Not used
97	XDCL	O	Not used
98	OFTRK	O	Off track signal output (Not used)
99	COUT	O	Traverse count signal output
100	VSS2	–	Ground pin (Digital)

* (3) of I/O is 3-state output, (A) is analog output.

- **IC601 ATRAC Encoder/Decoder (CXD2536R)**

Pin No.	Pin Name	I/O	Function
1	VDD	–	Power supply pin (+2.8V)
2	SWDT	I	Input of write data signal from system controller (IC801)
3	SCK	I	Input of serial clock signal from system controller (IC801)
4	XLAT	I	Input of serial latch signal from system controller (IC801)
5	SRDT	O/Z	Output of read data signal to system controller (IC801)
6	SENSE	O/Z	Output of internal status (SENSE) to system controller (IC801)
7	SCMD0	I	Input of serial command control mode from system controller (Fixed at "H")
8	SCMD1	I	Input of serial command control mode from system controller (Fixed at "H")
9	XINT	O	Output of interrupt status to system controller (Opened)
10	RCPB	I	Recording/playback switching input (Fixed at "L")
11	WRMN	I	Input of write/monitor mode switching signal from system controller (Fixed at "L")
12	TX	I	Input of write data transmission timing from system controller (IC801) Also used as magnetic field head ON/OFF output
13	VSS	–	Ground pin
14	SICK	I	Chip reservation pin (Fixed at "H")
15	IDSL	I	Chip reservation pin (Fixed at "H")
16	XILT	I	Chip reservation pin (Fixed at "H")
17	XRST	I	Input of reset signal from system controller (IC801). Reset: "L"
18 to 21	TS0 to TS3	I	Test pin (Fixed at "L")
22	EXIR	I	Chip reservation pin (Fixed at "L")
23	SASL	I	Block selection in single use. "L": ATRAC. "H": RAM controller (Fixed at "L")
24	SNGLE	I	Normally fixed at "L. Fixed at "H" when used as ATRAC or RAM controller for single (Fixed at "L")
25	VSS	–	Ground pin
26	AIRCPB	O	Output pin of ATRAC and external audio block recording/playback mode signal (Opened)
27	XRQ	I/O	ATRAC I/F XRQ signal input/output pin (Opened)
28	ADTO	I/O	ATRAC decode data signal input/output pin (Opened)
29	ADTI	I/O	ATRAC encode data signal input/output (Opened)
30	XALT	I/O	ATRAC I/F XALT signal input/output pin (Opened)
31	ACK	I/O	ATRAC I/F ACK signal input/output pin (Opened)
32	AC2	I/O	ATRAC I/F error data signal input/output pin (Opened)
33	LCHST	I/O	ATRAC I/F Lch start data signal input/output pin (Opened)
34	EXE	I/O	ATRAC I/F EXE signal input/output pin (Opened)
35	MUTE	I/O	ATRAC I/F MUTE signal input/output pin (Opened)
36	OSCO	O	Clock output (45 MHz)
37	OSCI	I	Clock input (45 MHz)
38	VSS	–	Ground pin
39	ATT	I/O	ATRAC I/F ATT signal input/output pin (Opened)
40	F86	O	ATRAC block 11.6 msec timing signal output pin (Opened)
41	DOUT	O	Output of monitor/decode audio data signal to A/D, D/A converter (IC303)
42	ADIN	I	Input of recording signal from A/D, D/A converter (IC303)
43	ABCK	O	Output of bit clock signal to A/D, D/A converters (IC303)
44	ALRCK	O	Output of L/R clock to A/D, D/A converters (IC303)
45 to 47	SA2 to SA0	O	Address signal output (Opened)

Pin No.	Pin Name	I/O	Function
48, 49	A11, A10	O	Address signal output (Opened)
50	VSS	–	Ground pin
51	VDD	–	Power supply pin (+2.8V)
52 to 55	A03 to A00	O	Output of address signal to RAM (IC602)
56 to 60	A04 to A08	O	Output of address signal to RAM (IC602)
61	XOE	O	Output of output enable control signal to RAM (IC602)
62	XCAS	O	Output of column address strobe signal to RAM (IC602)
63	VSS	–	Ground pin
64	XCS	O	Output of chip select signal to RAM (IC602)
65	A09	O	Output of address signal to RAM (IC602)
66	XRAS	O	Output of row address strobe signal to RAM (IC602)
67	XWE	O	Output of read/write control signal to RAM (IC602)
68, 69	D1, D0	I/O	Input/output pin of data signal to/from RAM (IC602)
70, 71	D2, D3	I/O	Input/output pin of data signal to/from RAM (IC602)
72 to 74	D4 to D6	I/O	Data signal input/output pin (Opened)
75	VSS	–	Ground pin
76	D7	I/O	Data signal input/output pin (Opened)
77	ERR	I/O	Input/output pin of error (C2PO) data to external RAM (Opened)
78	EXTC2R	I	External RAM selection input for error data writing ("H": External RAM) (Fixed at "L")
79	BUSY	O	RAM access BUSY signal output (Opened)
80	EMP	O	EMPTY or immediately before FULL of ATRAC data (When DSC=ASC+1: "H") (Opened)
81	FUL	O	FULL or immediately before EMPTY of ATRAC data (When ASC=DSC+1: "H") (Opened)
82	EQL	O	ATRAC data EMPTY (When DSC=ASC: "H") (Opened)
83	MDLK	O	Indicates recording/playback data main/sub ("H": Sub, Linking: "L": Main) (Opened)
84	CPSY	O	Interpolation sync signal output (Opened)
85	CTMD0	O	DSC counter mode output (Opened)
86	CTMD1	O	DSC counter mode output (Opened)
87	SPO	O	Output of system clock (512Fs=22.5792 MHz) signal to CXD2535BR (IC503)
88	VSS	–	Ground pin
89	MDSY	O	Main data sync detection signal output (Opened)
90	LRCK	I	Input of L/R clock signal from CXD2535BR (IC503) (44.1 kHz)
91	BCK	I	Input of bit clock signal from CXD2535BR (IC503) (2.8224 MHz)
92	C2PO	I	Input of C2PO signal from CXD2535BR (IC503) (Shows data error status) Playback:C2PO ("H"). Digital recording: D.In-Vflag. Analog recording: "L"
93	DATA	I/O	Recording:Output of recording audio data signal to CXD2535BR (IC503) PLayback:Input of playback audio data signal from CXD2535BR (IC503)
94	DIDT	I	Input of digital audio input 16-bit data from CXD2535BR (IC503)
95	DODT	O	Output of digital audio output 16-bit data to CXD2535BR (IC503)
96	DIRCPB	O	Disc drive and EFM encoder/decoder recording/playback mode output
97	MIN	I	Input of defect ON/OFF switching signal from CXD2535BR (IC503)
98	SPOSL	I	Pin 87 (SPO) input/output switching input pin ("L":IN. "H":OUT) (Fixed at "H")
99	MCK	O	RAM controller internal master clock output pin (Opened)
100	VSS	–	Ground pin

- **IC801 System Control (CXP819P60MR-4)**

Pin No.	Pin Name	I/O	Function
1	CLCS	O	Chip select output to real time clock DS1302Z (IC804)
2	XRST	O	Reset output. "L": Reset
3	WRPWR	–	Laser power switching signal output
4	TX	O	Write data transfer timing output
5	SENSE	I	Internal status (SENSE) input
6	LDON	O	Laser ON signal. "H": ON
7	XSHOCK	I	Track jump detection input from CXD2535BR (IC503)
8	FOK	I	Focus OK signal from CXD2535BR (IC503)
9	INLS	I	Detecting switch for internal curcuit of sledding "L": Internal curcuit
10	PROTECT	I	Disc Write Protect switch. "H": Protect
11	AVLSI/DATA	O	LCD data output to remote control (Fixed at "L")
12	HOLD	I	Hold switch input (This unit). "L": Hold
13	WP	I	Wake-up signal input from remote control key and this unit key
14	OPEN	I	Upper cover open/close detecting "L": CLOSE
15	RECKEY	I	REC key input
16	CLSDIO	I	Serial clock input
17	SDIO2	I/O	Serial data input/output
18	DSP-RS	O	LCD data output
19	DSP-RW	O	
20	DSP-E	O	
21 to 28	DB7 to DB0	O	
29	XMODON	O	High frequency module ON/OFF control. "H": ON
30	$\overline{\text{PCONT}}$	O	Power Control output. "L"=ON
31	$\overline{\text{VORLED}}$	O	VOR LED control. "L"=ON
32	RECLED	O	REC LED control. "L"=ON
33	MODE2	O	Head drive (IC506) control signal output
34	MODE1	O	
35	RFSW	O	Power control output to RF amplifier (IC501)
36	B3REC	O	Plunger control output. "H"=ON
37	MP	–	Microprocessor mode input (Fixed at "L")
38	$\overline{\text{MRST}}$	I	Microprocessor reset input
39	VSS	–	GND
40	XTAL	–	System clock (12 MHz)
41	EXTAL	–	
42	CS	–	Chip Select input (Connected to +2.8V)
43	SDI0	I	Not used (Fixed at "L")
44	SDO0	O	Serial data output
45	SCK0	O	Serial clock output
46	MODE	I	SET & TEST MODE decision nput
47	FDMON	I	Focus coil position monitor input
48	CLSCK	O	Serial clock output to real time clock (IC804)
49	KEY2	I	Remote control key input
50	AVSS	–	A/D converter ground terminal
51	AVREF	–	A/D converter reference voltage input
52	AVDD	–	A/D converter power supply terminal
53	AC/EXTBAT	I	AC adaptor or EXT battery detection input. "L": EXT battery

Pin No.	Pin Name	I/O	Function
54	CLOCK	I	CLOCK SET key input
55	PLAYKEY	I	PLAY key input
56	VOR	I	VOR key input
57	KEY0	I	Key input
58	KEY1	I	
59	UNMNT	I	UNREG voltage monitor
60	BATTMNT	I	Battery voltage monitor when the power is supplied from DC IN
61	FGIN	I	FG input from monitor driver (IC701)
62	SLA	I	Dial signal input
63	SLB	I	
64	INTSW	I	INITIAL switch input
65	PACK IN	I	MEDIA switch input
66	HPDET	I	HP jack detection input
67	MONO/ST	I	STEREO/MONO detection input
68	MICDET	I	MIC jack detection (Fixed at "L")
69	XLAT	O	Latch output
70	KEYON	O	TRACK MARK jack input
71	ST1SOU	O	Stepping motor signal output
72	ST2SOU	O	
73	CHGCONT	O	Charge current control (Opened)
74	XLATRF	O	Latch output to RF amplifier (IC501)
75	DQSY	I	Subcode Q sync (SCOR) of digital in U-bit CD format from CXD2535BR (IC503)
76	TCOUNT	I	Traverse count signal input
77	SDI1	I	Serial data input
78	SDO1	O	Serial data output
79	SCK1	O	Serial clock output
80	SQSY	I	SUB-Q/ADIP SYNC input
81	BEEP	O	Buzzer output control
82	FCS. BIAS	O	Focus Bias voltage control output
83	REFLCT	I	CD/MO descrimination switch
84	TEX	–	Not used (Fixed at "L")
85	XT	–	Opened
86	VSS	–	GND
87	VDD	–	Power supply pin (+2.8V)
88	NC	–	Not used (Fixed at "L")
89	$\overline{\text{DEEMP}}$	O	De-emphasis control. "L": De-emphasis ON
90	PDDA	O	D/A converter power down detect during recording. "H": Power down
91	PDAD	O	A/D converter power down detect during playback. "H": Power down
92	OUTSEL	O	Output select signal output
93	AMUTE	O	Analog MUTE control. "L"=Mute
94	SPSW	O	Power control signal
95	CSAU	O	Opened
96	CSNV	O	Chip Select output
97	SCK2	O	Serial clock output
98	AGC	O	AGC signal (Opened)
99	SHCKEN	O	Track jump detection enable output
100	CHG	O	Charge control. "H": Charge

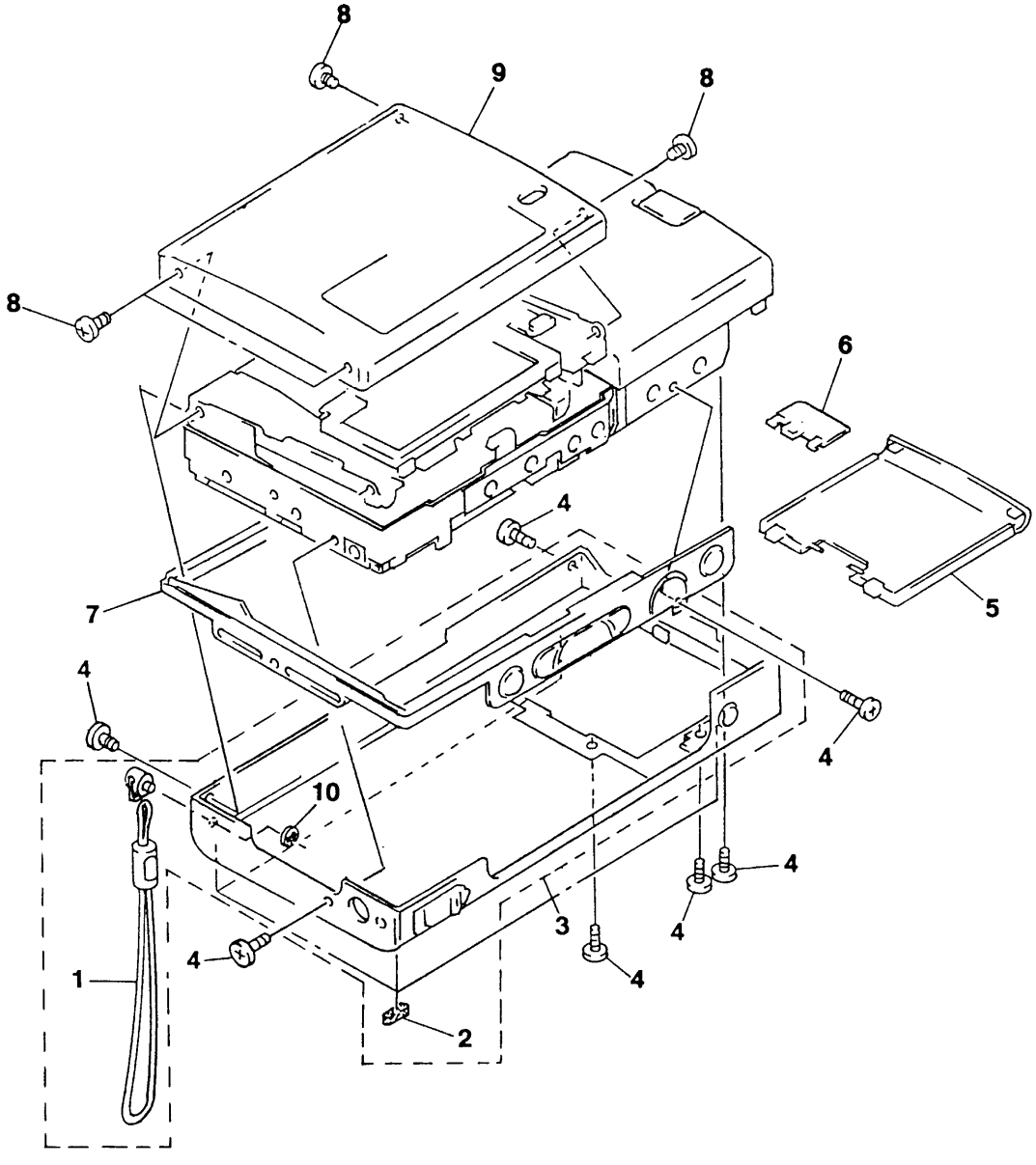
SECTION 7
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of this parts list.

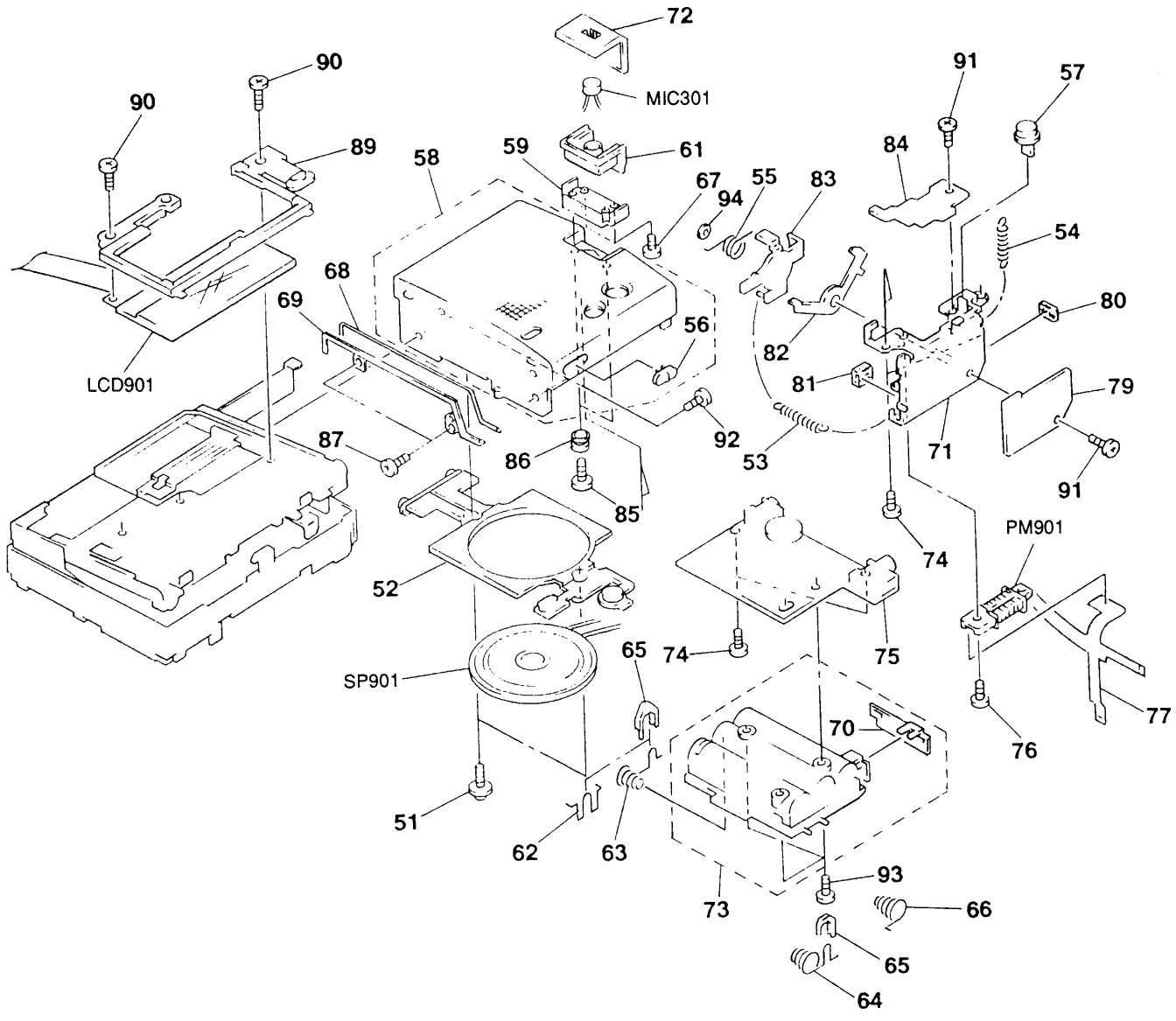
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	4-973-308-01	STRAP, HAND	
2	3-360-629-11	CUSHION (FOOT)	
3	X-4946-051-1	PANEL ASSY, BOTTOM	
4	4-963-883-81	SCREW (M1.4), PRECISION PAN	
5	4-973-268-01	LID, BATTERY CASE	
6	4-972-499-01	HINGE (BATTERY CASE LID)	
7	X-4946-052-2	STRIP ASSY (E), ORNAMENTAL	
8	4-963-883-31	SCREW (M1.4), PRECISION PAN	
9	X-4946-050-1	PANEL ASSY (E), UPPER	
10	7-624-102-04	STOP RING 1.5, TYPE -E	

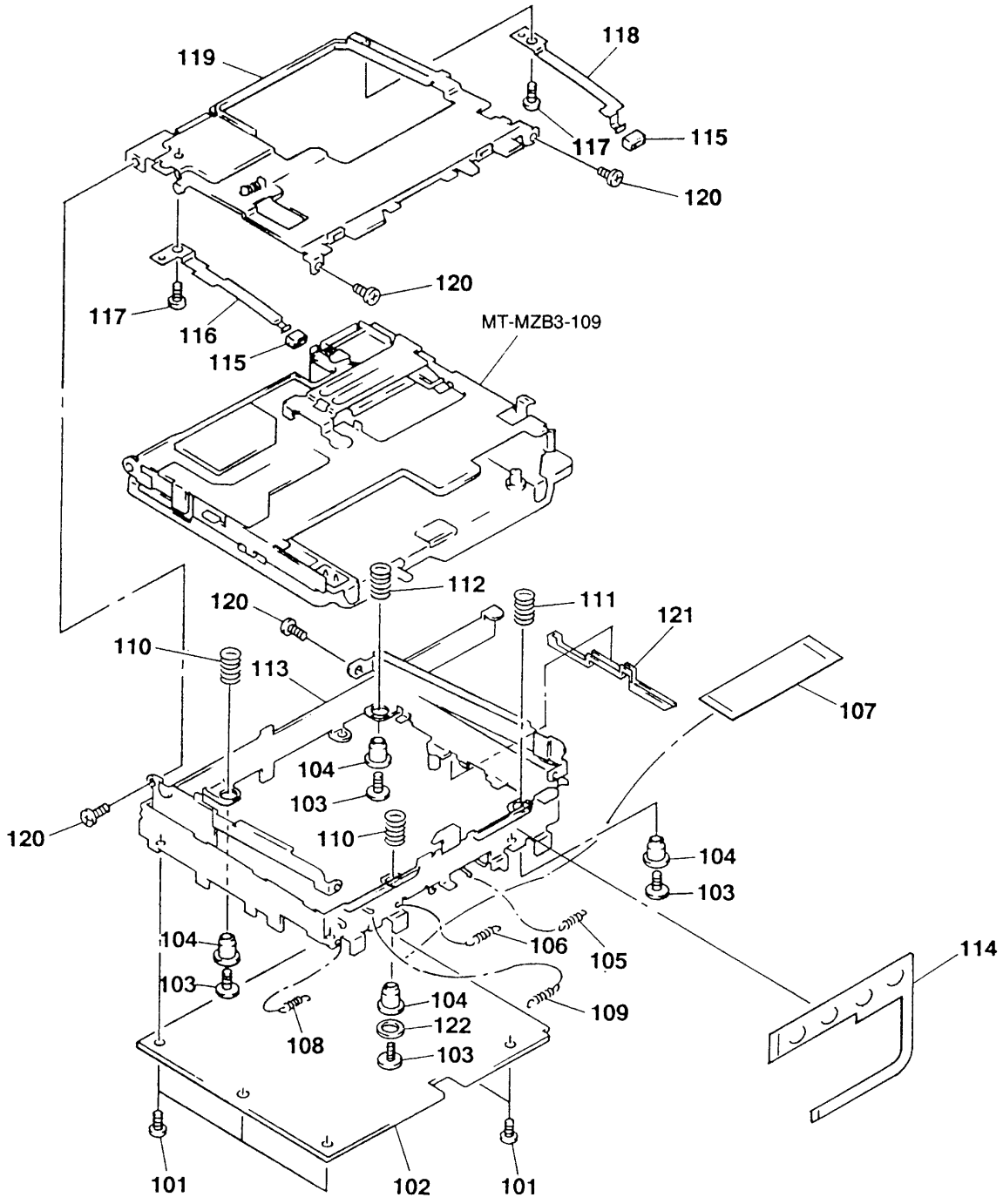
7-2. MIC PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	4-973-264-01	SCREW (1.7X2.5)	
52	4-973-267-01	GRILLE, SP	
53	4-973-272-01	SPRING (BT), TENSION	
54	4-973-273-01	SPRING (REC), TENSION	
55	4-973-271-01	SPRING (LOCK), TORSION	
56	4-977-351-01	KNOB (HOLD)	
57	4-973-263-01	BUTTON (REC)	
58	X-4946-053-1	CHASSIS ASSY (E), ORNAMENTAL	
* 59	4-973-277-01	RETAINER (MICROPHONE)	
* 61	4-973-284-01	BASE, MICROPHONE	
62	4-973-279-01	SPRING (A), BATTERY COIL	
63	4-973-280-01	SPRING (B), BATTERY COIL	
64	4-973-281-01	SPRING (C), BATTERY COIL	
65	4-973-282-01	TERMINAL BOARD, BATTERY	
66	4-973-283-01	SPRING (D), BATTERY COIL	
67	3-355-424-71	SCREW, TAPPING	
68	4-976-185-01	CUSHION (DIA. 0.8)	
69	4-976-480-01	RETAINER (CUSHION)	
70	4-973-274-01	KNOB (ST-MONO)	
71	X-4945-908-1	CHASSIS ASSY, REC	
72	X-4945-909-1	PANEL ASSY, MICROPHONE	
73	X-4945-911-1	CASE ASSY, BATTERY	
74	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK	

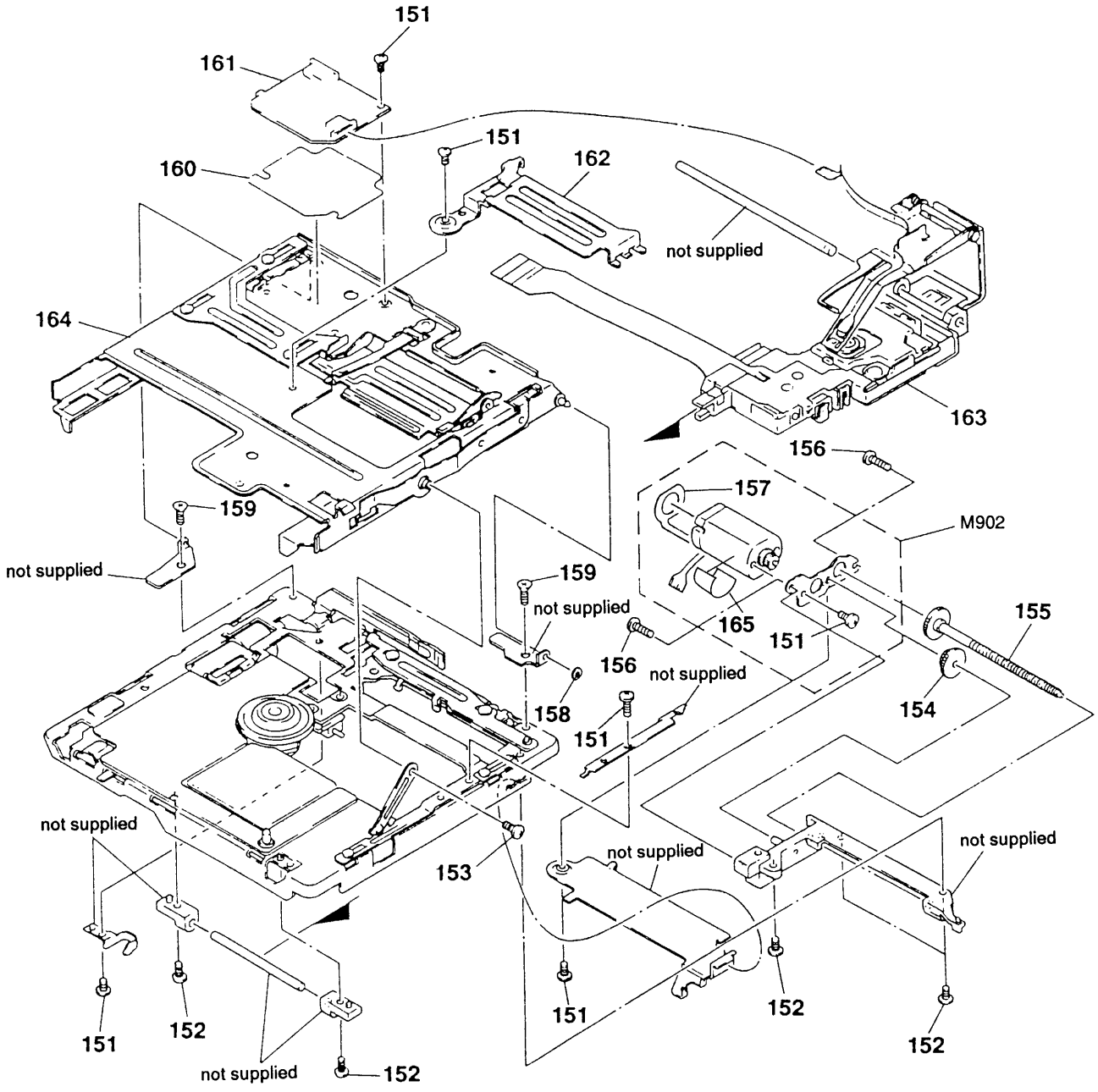
Ref. No.	Part No.	Description	Remark
75	A-3276-816-A	AUDIO BOARD, COMPLETE	
76	3-361-216-71	SCREW (M1.4X2.8)	
77	1-656-990-11	PL FLEXIBLE BOARD	
* 79	1-656-988-11	SW A BOARD	
* 80	3-556-814-01	CUSHION	
* 81	3-387-142-01	CUSHION (BUTTON)	
82	4-973-269-01	PLATE, LOCK	
83	4-973-270-01	DISK	
* 84	1-656-989-11	SW B BOARD	
85	3-309-836-01	SHAFT, FITTING, MOTOR	
86	3-570-770-21	CUSHION (A), MOTOR	
87	3-704-197-11	SCREW (M1.4X2.0), LOCKING	
89	4-973-265-01	HOLDER (LCD)	
90	3-349-825-83	SCREW, PRECISION	
91	4-963-883-31	SCREW (M1.4), PRECISION PAN	
92	4-963-883-51	SCREW (M1.4), PRECISION PAN	
93	4-964-537-01	SCREW (M1.4X4.5), TAPPING	
94	7-623-921-01	RING, RETAINING, CAPSTAN	
LCD901	1-810-790-11	LCD MODULE	
MIC301	1-542-142-11	MICROPHONE, BUILT-IN	
PM901	1-454-583-11	SOLENOID, PLUNGER	
SP901	1-504-887-11	SPEAKER (3.6CM)	

7-3. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark
101	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK	
102	A-3276-773-A	MAIN BOARD, COMPLETE	
103	4-963-924-01	SCREW (DAMPER)	
104	4-963-909-01	DAMPER	
105	4-972-514-01	SPRING (SW), TENSION (SW LEVER)	
106	4-972-516-01	SPRING, TENSION (LOCK ARM)	
107	1-769-836-11	CABLE, FLAT (26 CORE)	
108	4-972-520-01	SPRING (BP), TENSION	
109	4-972-522-01	SPRING (OPEN), TENSION	
110	4-963-922-01	SPRING (MD3), COMPRESSION	
111	4-963-911-01	SPRING (MD1), COMPRESSION	
112	4-963-912-01	SPRING (MD2), COMPRESSION	
* 113	X-4945-904-1	CHASSIS ASSY, SET	
114	1-473-211-11	SWITCH UNIT	
115	4-963-945-01	CUSHION (DAMPER)	
116	4-963-944-01	SPRING (MD RETAINER B), LEAF	
117	3-366-890-11	SCREW (M1.4)	
118	4-963-943-01	SPRING (MD RETAINER A), LEAF	
119	X-4945-807-1	COVER ASSY, LID	
120	4-963-883-31	SCREW (M1.4), PRECISION PAN	
121	4-975-964-01	CUSHION (ORNAMENT CHASSIS)	
122	4-963-882-01	STOPPER (DAMPER)	

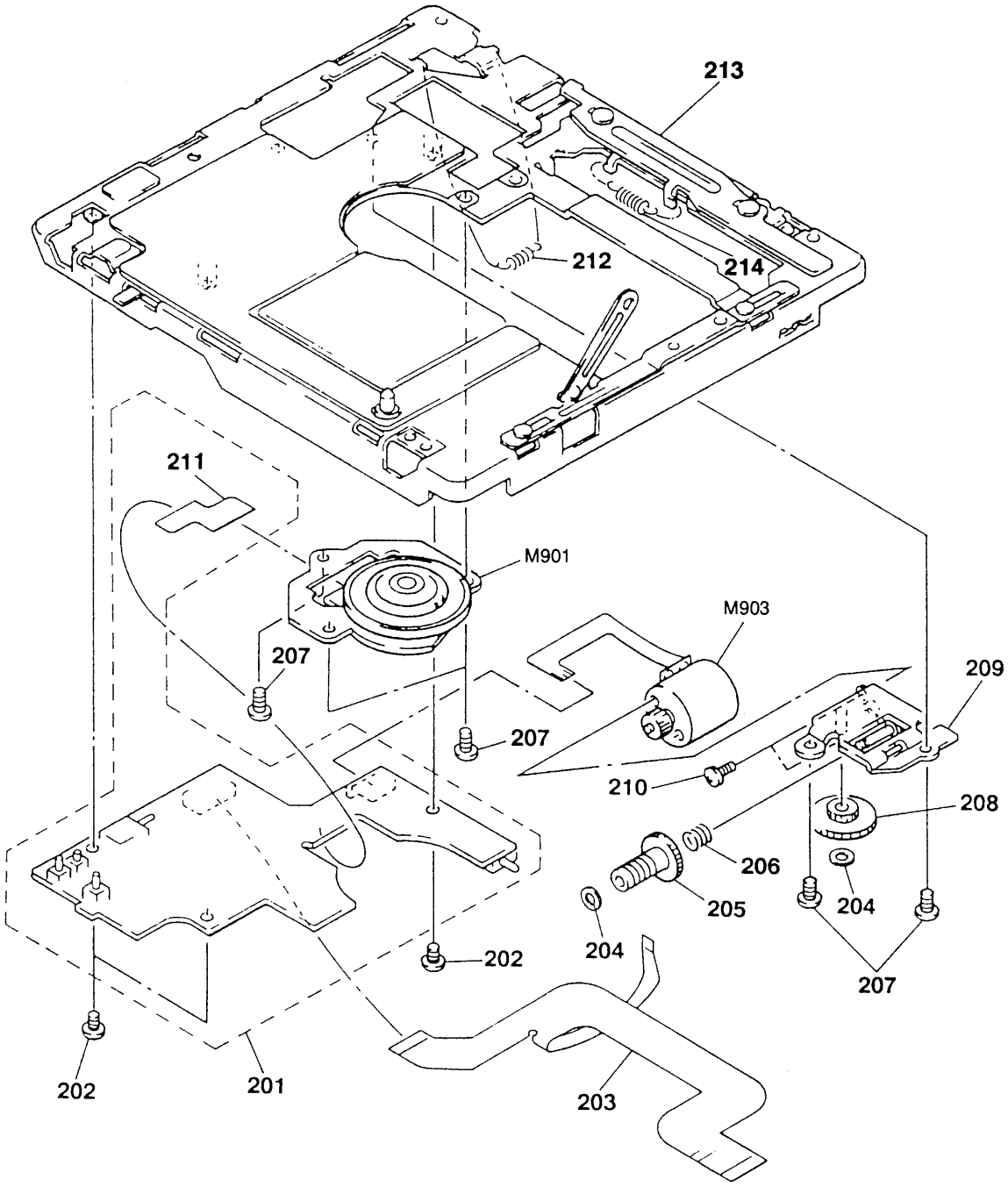
7-4. MECHANISM SECTION-1 (MT-MZB3-109)



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
151	3-366-890-11	SCREW (M1.4)	
152	3-704-197-33	SCREW (M1.4X3.0), LOCKING	
153	4-963-883-31	SCREW (M1.4), PRECISION PAN	
154	4-972-548-01	GEAR (BH)	
155	A-3303-501-A	SCREW BLOCK ASSY, LEAD	
156	4-964-537-01	SCREW (M1.4X4.5), TAPPING	
157	1-651-018-11	SLED FLEXIBLE BOARD	
158	3-338-645-31	WASHER (0.8-2.5)	
159	4-964-538-01	SCREW (M1.4X2)	
160	4-964-223-01	SHEET(REC PC BOARD), INSULATING	
* 161	1-655-883-11	REC BOARD	
* 162	4-963-889-02	GUARD, HEAD	
⚠163	X-4946-194-1	OPTICAL PICK-UP BLOCK	
164	X-4945-549-1	HOLDER ASSY	
165	4-972-551-01	ADSORBENT (MOTOR), VIBRATION	
M902	A-3303-502-A	MOTOR BLOCK ASSY, SLED	

7-5. MECHANISM SECTION-2 (MT-MZB3-109)



Ref. No.	Part No.	Description	Remark
201	A-3276-694-A	CLV BOARD, COMPLETE	
202	3-366-890-11	SCREW (M1.4)	
203	1-655-881-11	MD REC FLEXIBLE BOARD	
204	3-315-384-11	WASHER, STOPPER	
205	4-963-901-01	GEAR, WORM	
206	4-972-546-01	SPRING (WORM GEAR), COMPRESSION	
207	4-955-841-21	SCREW	
208	4-963-898-01	GEAR (WORM WHEEL)	
209	X-4944-449-1	CHASSIS ASSY, GEAR	

Ref. No.	Part No.	Description	Remark
210	4-964-564-01	SCREW (M1.2X1.6)	
211	1-651-017-11	CLV FLEXIBLE BOARD	
212	4-963-900-01	SPRING (LOCK), TENSION	
213	X-4945-260-2	CHASSIS ASSY	
214	4-974-743-01	SPRING (EJECT), TENSION	
M901	1-698-542-11	MOTOR (SPINDLE)	
M903	A-3303-499-A	STEPPER BLOCK ASSY (STEPPING MOTOR)	

SECTION 8
ELECTRICAL PARTS LIST

AUDIO

NOTE:

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

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

- 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, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description			Remark
	A-3276-816-A	AUDIO BOARD, COMPLETE			
		**********			
	4-973-278-01	SPACER (LED)			
		< BATTERY >			
BT801	1-528-593-11	BATTERY (ML1220-HI1)			
		< CAPACITOR >			
C102	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C103	1-162-971-11	CERAMIC CHIP	0.001uF	10%	50V
C104	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C105	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C106	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C107	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C108	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C109	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C110	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C111	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C116	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C119	1-135-242-11	TANTAL. CHIP	4.7uF	20%	6.3V
C121	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C122	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C123	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C124	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C125	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C127	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C129	1-162-971-11	CERAMIC CHIP	0.001uF	10%	50V
C140	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C202	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C203	1-162-971-11	CERAMIC CHIP	0.001uF	10%	50V
C204	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C205	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C206	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C207	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C208	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C209	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C210	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C211	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C215	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C216	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C219	1-135-242-11	TANTAL. CHIP	4.7uF	20%	6.3V

Ref. No.	Part No.	Description			Remark
C221	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C222	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C223	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C224	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C225	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C227	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C229	1-162-971-11	CERAMIC CHIP	0.001uF	10%	50V
C240	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C301	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C303	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C304	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C305	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C306	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C307	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C308	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C309	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C310	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C323	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C324	1-126-209-11	ELECT	100uF	20%	4V
C325	1-164-346-11	CERAMIC CHIP	1uF		16V
C326	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C327	1-164-346-11	CERAMIC CHIP	1uF		16V
C328	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C329	1-135-091-00	TANTAL. CHIP	1uF	20%	16V
C330	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C331	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C332	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C333	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C334	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C335	1-104-848-11	TANTAL. CHIP	100uF	20%	4V
C336	1-135-318-11	TANTAL. CHIP	33uF	20%	4V
C337	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C338	1-135-242-11	TANTAL. CHIP	4.7uF	20%	6.3V
C339	1-135-242-11	TANTAL. CHIP	4.7uF	20%	6.3V
C340	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C341	1-126-209-11	ELECT	100uF	20%	4V
C342	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C343	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C344	1-135-242-11	TANTAL. CHIP	4.7uF	20%	6.3V
C345	1-135-242-11	TANTAL. CHIP	4.7uF	20%	6.3V
C346	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C347	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V

Ref.No.	Part No.	Description			Remark
C348	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C349	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C350	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C351	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C352	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C362	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C363	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C364	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C365	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C366	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C367	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
		< CONNECTOR >			
CN301	1-691-364-21	CONNECTOR, FFC/FPC (ZIF) 26P			
CN351	1-770-311-11	RECEPTACLE, PIN			
CN352	1-770-311-11	RECEPTACLE, PIN			
		< DIODE >			
D101	8-719-975-43	DIODE	RB420D		
D201	8-719-975-43	DIODE	RB420D		
D301	8-719-017-58	DIODE	MA8068		
D302	8-719-017-58	DIODE	MA8068		
D303	8-719-421-27	DIODE	MA728		
D801	8-719-313-61	DIODE	SEL4117R (REC)		
D809	8-719-052-50	DIODE	SEL4817D (VOR)		
		< FERRITE BEAD >			
FB101	1-414-228-11	INDUCTOR, FERRITE BEAD			
FB201	1-414-228-11	INDUCTOR, FERRITE BEAD			
		< IC >			
IC101	8-759-252-90	IC	TLV2362IPW-ELM1500		
IC201	8-759-252-90	IC	TLV2362IPW-ELM1500		
IC301	8-759-252-90	IC	TLV2362IPW-ELM1500		
IC304	8-759-252-90	IC	TLV2362IPW-ELM1500		
IC305	8-759-285-22	IC	BA3574AFS		
IC306	8-759-910-71	IC	BA5208AF		
IC307	8-759-337-18	IC	TK11225AMTL		
		< JACK >			
J301	1-507-999-11	JACK (MIC PLUG IN POWER)			
J302	1-507-999-21	JACK (∩)			
		< COIL >			
L301	1-412-006-31	INDUCTOR CHIP	10uH		
L304	1-414-402-11	INDUCTOR	47uH		
L306	1-414-398-11	INDUCTOR	10uH		

Ref.No.	Part No.	Description			Remark
		< LINE FILTER >			
LF301	1-403-601-21	FILTER, COMMON MODE			
LF302	1-403-601-21	FILTER, COMMON MODE			
		< TRANSISTOR >			
Q101	8-729-230-60	TRANSISTOR	2SA1586-YG		
Q102	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q201	8-729-230-60	TRANSISTOR	2SA1586-YG		
Q202	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q301	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q302	8-729-427-83	TRANSISTOR	XP6501		
Q303	8-729-427-83	TRANSISTOR	XP6501		
Q306	8-729-905-18	TRANSISTOR	DTC144EU		
Q307	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q308	8-729-230-63	TRANSISTOR	2SC4116-YG		
Q310	8-729-023-89	TRANSISTOR	2SJ305		
		< RESISTOR >			
R102	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R103	1-216-841-11	METAL CHIP	47K	5%	1/16W
R104	1-218-688-11	METAL CHIP	680	0.50%	1/16W
R105	1-218-708-11	METAL CHIP	4.7K	0.50%	1/16W
R106	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R107	1-218-740-11	METAL CHIP	100K	0.50%	1/16W
R108	1-216-841-11	METAL CHIP	47K	5%	1/16W
R109	1-218-700-11	METAL CHIP	2.2K	0.50%	1/16W
R110	1-218-736-11	METAL CHIP	68K	0.50%	1/16W
R111	1-216-851-11	METAL CHIP	330K	5%	1/16W
R112	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R113	1-218-716-11	METAL CHIP	10K	0.50%	1/16W
R116	1-216-809-11	METAL CHIP	100	5%	1/16W
R117	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R118	1-216-833-11	METAL CHIP	10K	5%	1/16W
R119	1-216-821-11	METAL CHIP	1K	5%	1/16W
R120	1-216-853-11	METAL CHIP	470K	5%	1/16W
R127	1-218-724-11	METAL CHIP	22K	0.50%	1/16W
R128	1-218-724-11	METAL CHIP	22K	0.50%	1/16W
R129	1-218-724-11	METAL CHIP	22K	0.50%	1/16W
R130	1-218-724-11	METAL CHIP	22K	0.50%	1/16W
R131	1-218-736-11	METAL CHIP	68K	0.50%	1/16W
R132	1-218-736-11	METAL CHIP	68K	0.50%	1/16W
R133	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R135	1-216-835-11	METAL CHIP	15K	5%	1/16W
R136	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R137	1-216-821-11	METAL CHIP	1K	5%	1/16W
R138	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R139	1-216-864-11	METAL CHIP	0	5%	1/16W
R141	1-216-841-11	METAL CHIP	47K	5%	1/16W
R142	1-216-841-11	METAL CHIP	47K	5%	1/16W

Ref.No.	Part No.	Description			Remark
R202	1-216-831-11	METAL CHIP	6.8K	5% 1/16W	
R203	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R204	1-218-688-11	METAL CHIP	680	0.50% 1/16W	
R205	1-218-708-11	METAL CHIP	4.7K	0.50% 1/16W	
R206	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R207	1-218-740-11	METAL CHIP	100K	0.50% 1/16W	
R208	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R209	1-218-700-11	METAL CHIP	2.2K	0.50% 1/16W	
R210	1-218-736-11	METAL CHIP	68K	0.50% 1/16W	
R211	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R212	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R213	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R216	1-216-809-11	METAL CHIP	100	5% 1/16W	
R217	1-216-827-11	METAL CHIP	3.3K	5% 1/16W	
R218	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R219	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R220	1-216-853-11	METAL CHIP	470K	5% 1/16W	
R227	1-218-724-11	METAL CHIP	22K	0.50% 1/16W	
R228	1-218-724-11	METAL CHIP	22K	0.50% 1/16W	
R229	1-218-724-11	METAL CHIP	22K	0.50% 1/16W	
R230	1-218-724-11	METAL CHIP	22K	0.50% 1/16W	
R231	1-218-736-11	METAL CHIP	68K	0.50% 1/16W	
R232	1-218-736-11	METAL CHIP	68K	0.50% 1/16W	
R233	1-216-789-11	METAL CHIP	2.2	5% 1/16W	
R235	1-216-835-11	METAL CHIP	15K	5% 1/16W	
R236	1-216-827-11	METAL CHIP	3.3K	5% 1/16W	
R237	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R238	1-216-308-00	METAL CHIP	4.7	5% 1/10W	
R239	1-216-864-11	METAL CHIP	0	5% 1/16W	
R241	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R242	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R301	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R302	1-216-864-11	METAL CHIP	0	5% 1/16W	
R304	1-216-815-11	METAL CHIP	330	5% 1/16W	
R305	1-216-815-11	METAL CHIP	330	5% 1/16W	
R307	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R308	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R310	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R311	1-218-708-11	METAL CHIP	4.7K	0.50% 1/16W	
R312	1-218-708-11	METAL CHIP	4.7K	0.50% 1/16W	
R313	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R314	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R318	1-218-724-11	METAL CHIP	22K	0.50% 1/16W	
R319	1-218-724-11	METAL CHIP	22K	0.50% 1/16W	
R322	1-216-817-11	METAL CHIP	470	5% 1/16W	
R323	1-216-817-11	METAL CHIP	470	5% 1/16W	
R324	1-216-817-11	METAL CHIP	470	5% 1/16W	
R325	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R326	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R327	1-216-843-11	METAL CHIP	68K	5% 1/16W	
R328	1-216-864-11	METAL CHIP	0	5% 1/16W	
R331	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R332	1-216-809-11	METAL CHIP	100	5% 1/16W	
R336	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R337	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R338	1-216-853-11	METAL CHIP	470K	5% 1/16W	

< VARIABLE RESISTOR >

RV301	1-223-874-11	RES, VAR, CARBON 10K/10K (VOL)

< SWITCH >

S301	1-571-674-11	SWITCH, SLIDE (STEREO/MONO)
S811	1-692-088-11	SWITCH, TACTILE (PLAY MODE)
S813	1-692-088-11	SWITCH, TACTILE (ERASE)

****

A-3276-694-A CLV BOARD, COMPLETE
****

1-651-017-11 CLV FLEXIBLE BOARD

< CAPACITOR >

C701	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C702	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C703	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C704	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C705	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C706	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C707	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C709	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C710	1-135-091-00	TANTAL. CHIP	1uF	20%	16V
C711	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C714	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C715	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C716	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V

< CONNECTOR >

CN701	1-691-381-11	CONNECTOR, FFC/FPC 17P
CN702	1-691-370-11	CONNECTOR, FFC/FPC 6P

< IC >

IC701	8-759-335-44	IC CXA8048N-ELL2000
IC702	8-759-329-45	IC MPC17A33SVMEL

< TRANSISTOR >

Q701	8-729-905-12	TRANSISTOR DTA144EU
Q702	8-729-904-07	TRANSISTOR FMG2
Q703	8-729-427-83	TRANSISTOR XP6501

Ref.No.	Part No.	Description			Remark
		< RESISTOR >			
R701	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R702	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R703	1-216-815-11	METAL CHIP	330	5% 1/16W	
R704	1-217-671-11	METAL CHIP	1	5% 1/10W	
R705	1-217-671-11	METAL CHIP	1	5% 1/10W	
R706	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R708	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R709	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R710	1-216-819-11	METAL CHIP	680	5% 1/16W	
R711	1-216-864-11	METAL CHIP	0	5% 1/16W	
		< SWITCH >			
S701	1-692-849-21	SWITCH, PUSH (1 KEY)(MEDIA)			
S702	1-692-847-21	SWITCH, PUSH (1 KEY)(PROTECT)			
S703	1-692-377-31	SWITCH, PUSH (1 KEY)(REFLECT)			
S704	1-572-467-31	SWITCH, PUSH (1 KEY)(INITIAL)			
S705	1-572-467-31	SWITCH, PUSH (1 KEY)(INLIMIT)			
**********					
	A-3276-773-A	MAIN BOARD, COMPLETE			
		**********			
*	3-317-577-01	SPACER (Z)			
	4-974-502-01	REINFORCEMENT (RM JACK)			
		< CAPACITOR >			
C112	1-135-337-11	TANTAL. CHIP	1uF	20% 6.3V	
C113	1-135-337-11	TANTAL. CHIP	1uF	20% 6.3V	
C114	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C120	1-162-925-11	CERAMIC CHIP	68PF	5% 50V	
C212	1-135-337-11	TANTAL. CHIP	1uF	20% 6.3V	
C213	1-135-337-11	TANTAL. CHIP	1uF	20% 6.3V	
C214	1-162-964-11	CERAMIC CHIP	0.001uF	10% 50V	
C220	1-162-925-11	CERAMIC CHIP	68PF	5% 50V	
C312	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C313	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C314	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C315	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C316	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C317	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C318	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C319	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C320	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C321	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C322	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C502	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C503	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C504	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C505	1-135-259-11	TANTAL. CHIP	10uF	20% 6.3V	
C507	1-107-826-11	CERAMIC CHIP	0.1uF	10% 16V	

Ref.No.	Part No.	Description			Remark
C508	1-162-969-11	CERAMIC CHIP	0.0068uF	10% 25V	
C509	1-109-982-11	CERAMIC CHIP	1uF	10% 10V	
C510	1-162-968-11	CERAMIC CHIP	0.0047uF	10% 50V	
C511	1-162-966-11	CERAMIC CHIP	0.0022uF	10% 50V	
C512	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C513	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C514	1-113-703-11	TANTAL. CHIP	10uF	20% 6.3V	
C515	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C516	1-162-974-11	CERAMIC CHIP	0.01uF	50V	
C517	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C518	1-104-752-11	TANTAL. CHIP	33uF	20% 6.3V	
C520	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C523	1-164-489-11	CERAMIC CHIP	0.22uF	10% 16V	
C524	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C525	1-109-982-11	CERAMIC CHIP	1uF	10% 10V	
C526	1-164-489-11	CERAMIC CHIP	0.22uF	10% 16V	
C527	1-104-929-11	TANTAL. CHIP	22uF	20% 6.3V	
C529	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C530	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C534	1-104-929-11	TANTAL. CHIP	22uF	20% 6.3V	
C536	1-107-823-11	CERAMIC CHIP	0.47uF	10% 16V	
C537	1-164-245-11	CERAMIC CHIP	0.015uF	10% 25V	
C538	1-162-927-11	CERAMIC CHIP	100PF	5% 50V	
C539	1-107-823-11	CERAMIC CHIP	0.47uF	10% 16V	
C540	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C541	1-104-929-11	TANTAL. CHIP	22uF	20% 6.3V	
C544	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C545	1-104-852-11	TANTAL. CHIP	22uF	20% 10V	
C546	1-164-360-11	CERAMIC CHIP	0.1uF	16V	
C547	1-107-765-11	TANTAL. CHIP	3.3uF	20% 16V	
C548	1-107-765-11	TANTAL. CHIP	3.3uF	20% 16V	
C549	1-107-814-11	TANTAL. CHIP	33uF	20% 10V	
C550	1-107-814-11	TANTAL. CHIP	33uF	20% 10V	
C551	1-107-765-11	TANTAL. CHIP	3.3uF	20% 16V	
C552	1-107-765-11	TANTAL. CHIP	3.3uF	20% 16V	
C553	1-107-814-11	TANTAL. CHIP	33uF	20% 10V	
C554	1-104-913-11	TANTAL. CHIP	10uF	20% 16V	
C555	1-107-682-11	CERAMIC CHIP	1uF	10% 16V	
C557	1-107-814-11	TANTAL. CHIP	33uF	20% 10V	
C558	1-104-752-11	TANTAL. CHIP	33uF	20% 6.3V	
C559	1-162-962-11	CERAMIC CHIP	470PF	10% 50V	
C560	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V	
C561	1-165-176-11	CERAMIC CHIP	0.047uF	10% 16V	
C562	1-107-814-11	TANTAL. CHIP	33uF	20% 10V	
C563	1-135-091-00	TANTAL. CHIP	1uF	20% 16V	
C564	1-162-967-11	CERAMIC CHIP	0.0033uF	10% 50V	
C565	1-107-765-11	TANTAL. CHIP	3.3uF	20% 16V	
C566	1-162-970-11	CERAMIC CHIP	0.01uF	10% 25V	
C569	1-164-227-11	CERAMIC CHIP	0.022uF	10% 25V	
C570	1-164-360-11	CERAMIC CHIP	0.1uF	16V	

Ref. No.	Part No.	Description			Remark
C571	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C572	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C573	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C574	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C575	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C576	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C580	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C601	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C602	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C603	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C605	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C606	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C607	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C608	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C622	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C801	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C802	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C803	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C804	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C806	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C807	1-107-814-11	TANTAL. CHIP	33uF	20%	10V
C808	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C809	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C810	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C811	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C812	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C813	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C814	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C818	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C819	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C821	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C822	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C824	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C825	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C826	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C908	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C909	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C910	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C911	1-126-923-11	ELECT	220uF	20%	10V
C912	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C921	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C922	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C923	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C924	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C925	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C926	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C927	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C928	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C929	1-107-833-11	ELECT CHIP	33uF	20%	6.3V
C930	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C931	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C951	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C952	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C953	1-107-833-11	ELECT CHIP	33uF	20%	6.3V
C954	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C955	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C956	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C957	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C958	1-164-346-11	CERAMIC CHIP	1uF		16V
C959	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V

< CONNECTOR >

CN501	1-691-386-11	CONNECTOR, FFC/FPC 22P
CN502	1-691-359-21	CONNECTOR, FFC/FPC (ZIF) 21P
CN801	1-691-374-11	CONNECTOR, FFC/FPC 10P
CN802	1-691-381-11	CONNECTOR, FFC/FPC 17P
CN803	1-691-370-11	CONNECTOR, FFC/FPC 6P
CN851	1-691-364-21	CONNECTOR, FFC/FPC (ZIF) 26P

< DIODE >

D502	8-719-421-27	DIODE	MA728
D504	8-719-421-27	DIODE	MA728
D802	8-719-420-51	DIODE	MA729
D803	8-719-421-27	DIODE	MA728
D804	8-719-421-27	DIODE	MA728
D805	8-719-421-27	DIODE	MA728
D806	8-719-421-27	DIODE	MA728
D807	8-719-421-27	DIODE	MA728
D808	8-719-421-27	DIODE	MA728
D821	8-719-017-58	DIODE	MA8068
D822	8-719-017-58	DIODE	MA8068
D823	8-719-017-58	DIODE	MA8068
D824	8-719-017-58	DIODE	MA8068
D901	8-719-974-51	DIODE	SB20-03P
D905	8-719-974-51	DIODE	SB20-03P
D921	8-719-801-78	DIODE	1SS184
D922	8-719-801-78	DIODE	1SS184
D951	8-719-210-39	DIODE	EC10QS-04
D991	8-719-404-46	DIODE	MA110
D992	8-719-941-23	DIODE	DA204U

< FERRITE BEAD >

FB501	1-500-238-11	BEAD, FERRITE (CHIP)
FB502	1-500-233-11	BEAD, FERRITE (CHIP)
FB801	1-414-228-11	INDUCTOR, FERRITE BEAD
FB821	1-414-228-11	INDUCTOR, FERRITE BEAD
FB822	1-414-228-11	INDUCTOR, FERRITE BEAD

MAIN

Ref. No.	Part No.	Description	Remark
		< IC >	
IC303	8-759-326-98	IC AK4503-VF-E2	
IC501	8-752-072-68	IC CXA1981AR	
IC502	8-759-031-84	IC SC7S04F	
IC503	8-752-375-82	IC CXD2535BR-1	
IC504	8-759-332-25	IC XC31PNS01AMR	
IC505	8-759-179-60	IC MPC17A38VMEL	
IC506	8-759-329-43	IC MPC18A20VMEL	
IC507	8-759-082-61	IC TC4W53FU	
IC508	8-759-710-79	IC NJM2107F	
IC510	8-759-333-42	IC XC61AN3002MR	
IC601	8-752-371-17	IC CXD2536R	
IC602	8-759-341-28	IC CXK41V4400ATM-10W	
IC801	8-752-868-25	IC CXP81960M-609R	
IC802	8-759-343-90	IC RS5RJ29261	
IC803	8-759-252-57	IC S-2900AUT	
IC804	8-759-343-88	IC DS1302Z	
IC806	8-759-710-79	IC NJM2107F	
IC921	8-759-331-73	IC MB3800PNF-EF	
IC951	8-759-335-71	IC BA9701F-E2	
		< JACK >	
J801	1-770-773-11	JACK (TRACK MARK (REC)/PAUSE)	
J901	1-691-099-51	JACK, DC (POLARITY UNIFIED TYPE) (DC IN 4.5V)	
		< COIL >	
L302	1-414-398-11	INDUCTOR 10uH	
L303	1-414-398-11	INDUCTOR 10uH	
L501	1-414-398-11	INDUCTOR 10uH	
L503	1-414-402-11	INDUCTOR 47uH	
L505	1-414-410-21	INDUCTOR 10uH	
L507	1-414-402-11	INDUCTOR 47uH	
L508	1-412-031-11	INDUCTOR CHIP 47uH	
L509	1-414-402-11	INDUCTOR 47uH	
L510	1-414-410-21	INDUCTOR 10uH	
L511	1-412-034-11	INDUCTOR CHIP 330uH	
L512	1-411-322-21	COIL, CHOKE 68.0uH	
L513	1-414-398-11	INDUCTOR 10uH	
L514	1-412-034-11	INDUCTOR CHIP 330uH	
L515	1-414-402-11	INDUCTOR 47uH	
L516	1-414-402-11	INDUCTOR 47uH	
L601	1-414-398-11	INDUCTOR 10uH	
L801	1-414-402-11	INDUCTOR 47uH	
L921	1-411-197-11	COIL, DD CONVERTER	
L922	1-414-410-21	INDUCTOR 10uH	
L951	1-411-324-11	COIL, CHOKE 15uH	
		< LINE FILTER >	
LF901	1-411-312-11	FILTER, COMMON MODE	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q501	8-729-023-89	TRANSISTOR 2SJ305	
Q502	8-729-422-39	TRANSISTOR XN4404	
Q504	8-729-019-25	TRANSISTOR 2SK1467-TD	
Q509	8-729-905-18	TRANSISTOR DTC144EU	
Q510	8-729-019-25	TRANSISTOR 2SK1467-TD	
Q590	8-729-930-13	TRANSISTOR UMH2	
Q801	8-729-013-37	TRANSISTOR 2SC4213-AB	
Q802	8-729-031-34	TRANSISTOR 2SK2034	
Q803	8-729-905-12	TRANSISTOR DTA144EU	
Q804	8-729-905-18	TRANSISTOR DTC144EU	
Q921	8-729-031-31	TRANSISTOR 2SD2402	
Q922	8-729-031-29	TRANSISTOR 2SA1641S	
Q923	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q951	8-729-923-45	TRANSISTOR 2SB1308-QR	
Q952	8-729-031-31	TRANSISTOR 2SD2402	
Q953	8-729-907-00	TRANSISTOR DTC114EU	
Q954	8-729-929-80	TRANSISTOR UMB2	
Q955	8-729-230-60	TRANSISTOR 2SA1586-YG	
Q956	8-729-230-60	TRANSISTOR 2SA1586-YG	
Q957	8-729-905-18	TRANSISTOR DTC144EU	
Q991	8-729-922-10	TRANSISTOR 2SA1577-QR	
		< RESISTOR >	
R114	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R115	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R124	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R125	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R126	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R214	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R215	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R224	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R225	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R226	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R315	1-216-797-11	METAL CHIP 10 5% 1/16W	
R316	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R317	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R501	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R502	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R504	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R505	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R506	1-216-811-11	METAL CHIP 150 5% 1/16W	
R507	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R508	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R509	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R510	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R512	1-216-809-11	METAL CHIP 100 5% 1/16W	
R513	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R514	1-216-835-11	METAL CHIP 15K 5% 1/16W	

Ref.No.	Part No.	Description			Remark
R520	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R521	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R522	1-216-861-11	METAL CHIP	2.2M	5% 1/16W	
R523	1-216-827-11	METAL CHIP	3.3K	5% 1/16W	
R524	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R525	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R528	1-216-831-11	METAL CHIP	6.8K	5% 1/16W	
R529	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R532	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R533	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R534	1-216-843-11	METAL CHIP	68K	5% 1/16W	
R535	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R536	1-216-859-11	METAL GLAZE	1.5M	5% 1/16W	
R537	1-216-817-11	METAL CHIP	470	5% 1/16W	
R538	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R539	1-216-864-11	METAL CHIP	0	5% 1/16W	
R540	1-216-864-11	METAL CHIP	0	5% 1/16W	
R541	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R546	1-216-864-11	METAL CHIP	0	5% 1/16W	
R548	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R549	1-218-736-11	METAL CHIP	68K	0.50% 1/16W	
R550	1-218-740-11	METAL CHIP	100K	0.50% 1/16W	
R551	1-218-899-11	METAL CHIP	150K	0.50% 1/16W	
R552	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R553	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R554	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R555	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R556	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R557	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R558	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R559	1-216-811-11	METAL CHIP	150	5% 1/16W	
R560	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R595	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R596	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R597	1-216-864-11	METAL CHIP	0	5% 1/16W	
R598	1-216-864-11	METAL CHIP	0	5% 1/16W	
R801	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R802	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R803	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R804	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R805	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R806	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R808	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R809	1-216-811-11	METAL CHIP	150	5% 1/16W	
R810	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R811	1-216-833-11	METAL CHIP	10K	5% 1/16W	
R813	1-216-849-11	METAL CHIP	220K	5% 1/16W	
R814	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R815	1-216-855-11	METAL CHIP	680K	5% 1/16W	
R816	1-216-851-11	METAL CHIP	330K	5% 1/16W	

Ref.No.	Part No.	Description			Remark
R817	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R818	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R819	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R820	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R821	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R822	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R823	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R824	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R827	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R828	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R829	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R830	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R834	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R835	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R836	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R837	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R838	1-216-857-11	METAL CHIP	1M	5% 1/16W	
R839	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R840	1-216-863-11	METAL GLAZE	3.3M	5% 1/16W	
R841	1-218-867-11	METAL CHIP	6.8K	0.50% 1/16W	
R842	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R843	1-218-720-11	METAL CHIP	15K	0.50% 1/16W	
R846	1-216-863-11	METAL GLAZE	3.3M	5% 1/16W	
R847	1-216-863-11	METAL GLAZE	3.3M	5% 1/16W	
R848	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R849	1-218-883-11	METAL CHIP	33K	0.50% 1/16W	
R850	1-218-720-11	METAL CHIP	15K	0.50% 1/16W	
R851	1-218-716-11	METAL CHIP	10K	0.50% 1/16W	
R852	1-218-867-11	METAL CHIP	6.8K	0.50% 1/16W	
R853	1-216-809-11	METAL CHIP	100	5% 1/16W	
R855	1-218-899-11	METAL CHIP	150K	0.50% 1/16W	
R856	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R861	1-216-851-11	METAL CHIP	330K	5% 1/16W	
R862	1-216-811-11	METAL CHIP	150	5% 1/16W	
R863	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R864	1-216-837-11	METAL CHIP	22K	5% 1/16W	
R897	1-216-025-00	METAL GLAZE	100	5% 1/10W	
R901	1-218-768-11	METAL CHIP	470K	0.50% 1/10W	
R902	1-218-899-11	METAL CHIP	150K	0.50% 1/16W	
R921	1-216-817-11	METAL CHIP	470	5% 1/16W	
R922	1-216-827-11	METAL CHIP	3.3K	5% 1/16W	
R923	1-216-819-11	METAL CHIP	680	5% 1/16W	
R924	1-216-819-11	METAL CHIP	680	5% 1/16W	
R925	1-216-825-11	METAL CHIP	2.2K	5% 1/16W	
R926	1-216-797-11	METAL CHIP	10	5% 1/16W	
R927	1-218-883-11	METAL CHIP	33K	0.50% 1/16W	
R928	1-218-708-11	METAL CHIP	4.7K	0.50% 1/16W	
R929	1-216-864-11	METAL CHIP	0	5% 1/16W	
R951	1-216-807-11	METAL CHIP	68	5% 1/16W	
R952	1-216-811-11	METAL CHIP	150	5% 1/16W	

MAIN **REC** **SW A** **SW B**

Ref.No.	Part No.	Description			Remark
R953	1-218-883-11	METAL CHIP	33K	0.50% 1/16W	
R954	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R955	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R956	1-216-825-11	METAL CHIP	2.2K	5% 1/16W	
R957	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R958	1-216-845-11	METAL CHIP	100K	5% 1/16W	
R959	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R960	1-218-867-11	METAL CHIP	6.8K	0.50% 1/16W	
R961	1-218-732-11	METAL CHIP	47K	0.50% 1/16W	
R962	1-218-736-11	METAL CHIP	68K	0.50% 1/16W	
R963	1-216-831-11	METAL CHIP	6.8K	5% 1/16W	
R964	1-216-839-11	METAL CHIP	33K	5% 1/16W	
R965	1-216-825-11	METAL CHIP	2.2K	5% 1/16W	
R966	1-216-841-11	METAL CHIP	47K	5% 1/16W	
R967	1-218-867-11	METAL CHIP	6.8K	0.50% 1/16W	
R968	1-218-851-11	METAL CHIP	1.5K	0.50% 1/16W	
R991	1-216-821-11	METAL CHIP	1K	5% 1/16W	
R992	1-216-308-00	METAL CHIP	4.7	5% 1/10W	
		< VARIABLE RESISTOR >			
RV921	1-238-089-11	RES, ADJ, CERMET	4.7K		
		< SWITCH >			
S809	1-572-473-11	SWITCH, TACTIL (CLOCK SET)			
S817	1-572-467-31	SWITCH, PUSH (1 KEY) (DOOR OPEN DET)			
S901	1-572-467-31	SWITCH, PUSH (1 KEY) (BATTERY DET)			
		< THERMISTOR(POSITIVE) >			
THP901	1-810-792-11	SWITCH, POLYETHYLENE			
		< VIBRATOR >			
X601	1-760-173-11	VIBRATOR, CRYSTAL (45.158MHz)			
X801	1-760-174-11	VIBRATOR, CERAMIC (12MHz)			
X802	1-579-886-21	VIBRATOR, CRYSTAL (32kHz)			
**********					
*	1-655-883-11	REC BOARD			
		*********			
		< CAPACITOR >			
C401	1-165-112-11	CERAMIC CHIP	0.33uF	16V	
C402	1-107-810-11	TANTAL. CHIP	33uF	20% 4V	
C403	1-109-814-11	MICA CHIP	220PF	5% 100V	
		< CONNECTOR >			
CN401	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P			
CN402	1-691-370-11	CONNECTOR, FFC/FPC 6P			

Ref.No.	Part No.	Description	Remark
		< DIODE >	
D401	8-719-046-86	DIODE F1J6TP	
D402	8-719-046-86	DIODE F1J6TP	
		< TRANSISTOR >	
Q401	8-729-024-44	TRANSISTOR 2SK2315TYTR	
Q402	8-729-024-44	TRANSISTOR 2SK2315TYTR	
Q403	8-729-024-44	TRANSISTOR 2SK2315TYTR	
Q404	8-729-024-44	TRANSISTOR 2SK2315TYTR	
**********			
*	1-656-988-11	SW A BOARD	
		**********	
		< CONNECTOR >	
CN811	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P	
		< SWITCH >	
S801	1-692-453-11	SWITCH, KEY BOARD (■)	
S804	1-692-453-11	SWITCH, KEY BOARD (▮▮)	
S808	1-572-467-31	SWITCH, PUSH (1 KEY) (● REC)	
S818	1-762-371-21	SWITCH, SLIDE (HOLD)	
S819	1-572-473-11	SWITCH, TACTIL (VOR ON/OFF)	
**********			
*	1-656-989-11	SW B BOARD	
		**********	
		< CONNECTOR >	
CN812	1-691-370-11	CONNECTOR, FFC/FPC 6P	
		< SWITCH >	
S812	1-572-473-11	SWITCH, TACTIL (END SEARCH)	
S814	1-692-112-11	SWITCH, TACTIL 8TRACK MARK)	
**********			
		MISCELLANEOUS	
		**********	
77	1-656-990-11	PL FLEXIBLE BOARD	
107	1-769-836-11	CABLE, FLAT (26 CORE)	
114	1-473-211-11	SWITCH UNIT	
157	1-651-018-11	SLED FLEXIBLE BOARD	
⚠163	X-4946-194-1	OPTICAL PICK-UP BLOCK	
203	1-655-881-11	MD REC FLEXIBLE BOARD	
211	1-651-017-11	CLV FLEXIBLE BOARD	
LCD901	1-810-790-11	LCD MODULE	
M901	1-698-542-11	MOTOR (SPINDLE)	
M902	A-3303-502-A	MOTOR BLOCK ASSY, SLED	

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
M903	A-3303-499-A	STEPPER BLOCK ASSY (STEPPING MOTOR)	
MIC301	1-542-142-11	MICROPHONE, BUILT-IN	
PM901	1-454-583-11	SOLENOID, PLUNGER	
SP901	1-504-887-11	SPEAKER (3.6CM)	

****

ACCESSORIES & PACKING MATERIALS

****

	1-473-212-11	REMOTE CONTROL UNIT (RM-MZB3)	
	1-759-048-11	BATTERY CASE (LITHIUM ION) (AEP)	
	1-759-048-21	BATTERY CASE (LITHIUM ION) (US)	
	3-798-610-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SPANISH) (AEP)	
	3-798-610-21	MANUAL, INSTRUCTION (ENGLISH) (US)	
	3-798-610-41	MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN, PORTUGUESE) (AEP)	
*	3-922-362-01	INDIVIDUAL CARTON	
*	3-922-365-01	CUSHION	
	4-973-275-01	CASE, CARRYING	

9-960-295-11

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Personal A&V Products Div.

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MZ-B3

SONY

US Model
AEP Model

SERVICE MANUAL

CORRECTION -1

File this Correction with the Service Manual.

☛ : corrected portion.

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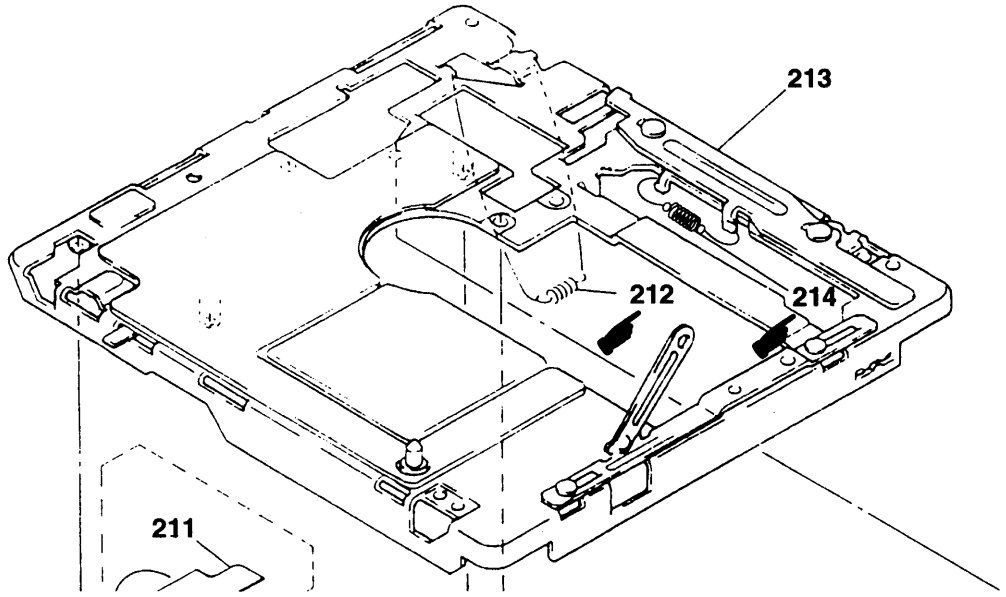
7-5. MECHANISM SECTION-2 (MT-MZB3-109)



	INCORRECT		CORRECT	
Ref. No.	Part No.	Description	Part No.	Description
212	4-963-900-01	SPRING (LOCK), TENSION	4-974-743-01	SPRING (EJECT), TENSION
214	4-974-743-01	SPRING (EJECT), TENSION	4-963-900-01	SPRING (LOCK), TENSION

9-960-295-91

Sony Corporation
Personal A&V Products Company

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