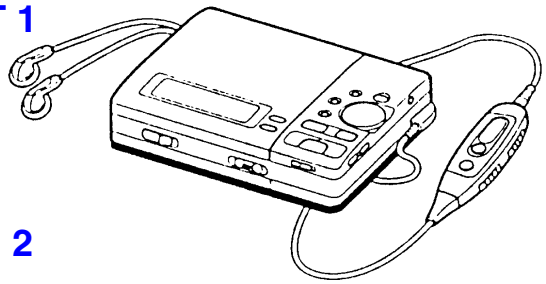
MZ-R3

SERVICE MANUAL

Ver 1.1 2001.04
With SUPPLEMENT 1
(9-960-080-84)
With
CORRECTION 1
(9-960-080-91)
With CORRECTION 2
(9-960-080-92)



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

Model Name Using Similar Mechanism	MZ-R2
MD Mechanism Type	MT-MZR3-109
Optical Pick-up Type	KMS-194A/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 74 minutes (MDW-74, stereo recording)
Maximum 148 minutes (MDW-74, monaural 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 ± 2 dB

Wow and Flutter
Below measurable limit
Inputs
Microphone: stereo mini-jack, 0.22 – 0.78 mV
Line in: stereo mini-jack, 69 – 194 mV
Optical (Digital) in: optical (digital) mini-jack
Outputs
Headphones: stereo mini-jack, maximum output level 5 mW + 5 mW, load impedance 16 ohm
Line out: stereo mini-jack, 194 mV, load impedance 10 kilohm

General
Power requirements
Sony AC Power Adaptor (supplied) connected at the DC IN 4.5 V jack: 220–230 V AC, 50/60 Hz (European model)
120 V AC, 60 Hz (Canadian model)
100–240V AC, 50/60 Hz (Other models)
Two R6 (size AA) alkaline batteries (not supplied)
Nickel metal hydride rechargeable battery BP-DM20 (not supplied)
Lithium-ion rechargeable battery LIP-12 (not supplied)
Battery operation time
See "Using on dry batteries" (page 27)
Dimensions
Approx. 115.8 × 29.8 × 81 mm (w/h/d)
(4 5/8 × 1 3/16 × 3 1/4 in.)

Mass
Approx. 265 g (9.4 oz) recorder only
Approx. 360 g (12.7 oz) incl. a recordable MD, remote controller, and two Sony alkaline AM3 (N) batteries
Supplied accessories
AC power adaptor (1)
Connecting cord (1)
Headphones with a remote controller (1)
R6 (size AA) alkaline batteries (2, supplied only with tourist model)
Nickel metal hydride rechargeable battery (1, supplied only with tourist model)
Battery case (1, for LIP-12 Lithium-ion Battery)
Recordable MD (1)
Carrying case (1)

US and foreign patents licensed from Dolby Laboratories Licensing Corporation

Design and specifications are subject to change without notice.

PORTABLE MINIDISC RECORDER

9-960-080-12
2001D0900-1

Sony Corporation
Personal Audio Company
Shinagawa Tec Service Manual Production Group

SONY®

For Customers in Europe

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This MiniDisc Recorder is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE, OR LOSSES OR EXPENSES RESULTING FROM ANY DEFECTIVE PRODUCT OR THE USE OF ANY PRODUCT.

"MD WALKMAN" is a trademark of Sony Corporation.

CAUTION

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

Notes on chip component replacement

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

Flexible Circuit Board Repairing

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

SAFETY-RELATED COMPONENT WARNING !!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

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

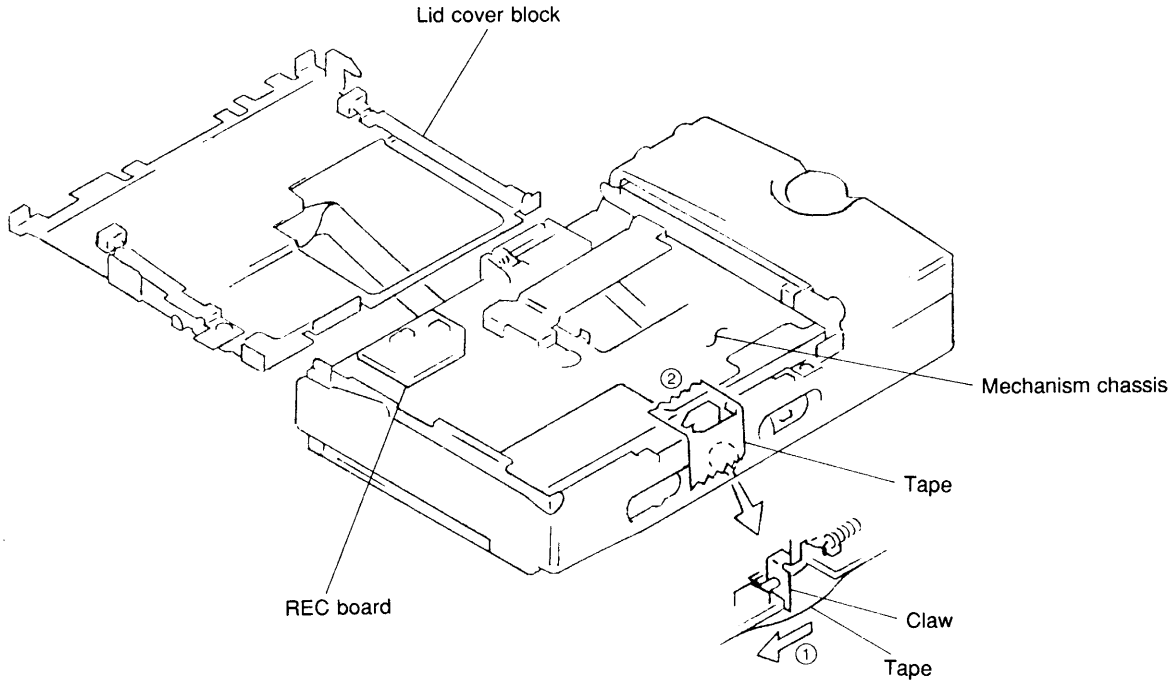
TABLE OF CONTENTS

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.

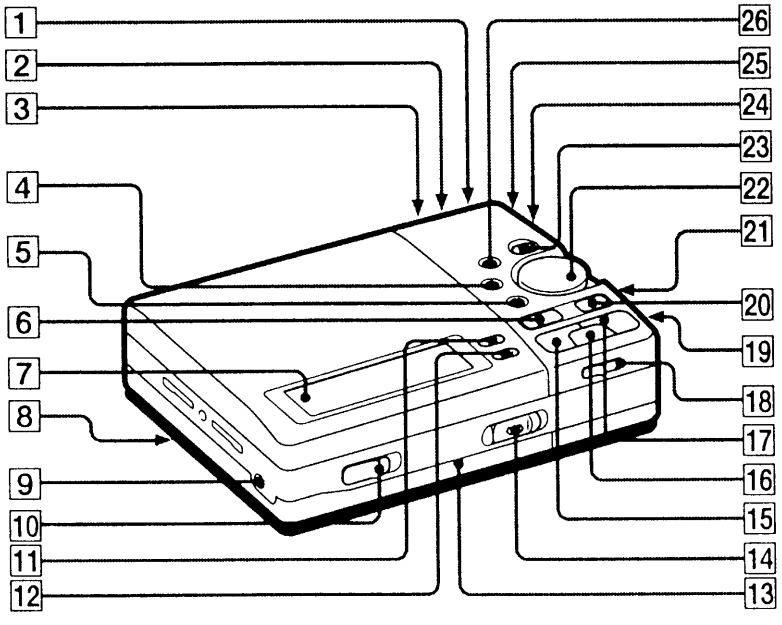
② Secure the mechanism chassis with tape so that it does not move.



Looking at the controls

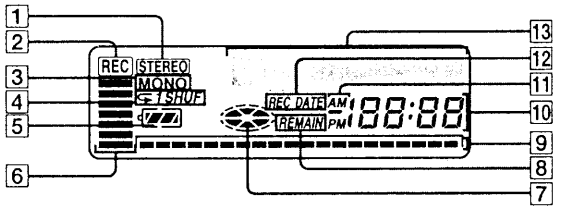
See pages in ( ) for more details.

The recorder



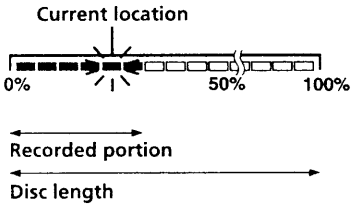
1 LINE OUT jack (20)
2 LINE IN (OPTICAL) jack (6)
3 BASS BOOST switch (20)
4 END SEARCH button (7)
5 ERASE button (24)
6 ■STOP/CHARGE button
7 Display window (7, 9, 15)
8 CLOCK SET button (on the bottom) (17)
9 DC IN 4.5 V jack (6)
10 OPEN button (6)
11 DISPLAY button (15)
12 MODE button (12)
13 Record indicator
14 REC (record) switch (7)
15 ⏮ (search/AMS) button (7, 9)
16 ▶ (play) button (9)
17 ⏭ (search /AMS) button (7, 9)
18 HOLD switch (19)
19 VOLUME +/– button (9)
20 ⏸ (pause) button (7, 9)
21 Battery compartment (on the bottom) (27)
22 Select dial (23)
23 TITLE/ENTER button(23)
24 MIC (PLUG IN POWER) jack (12)
25 🎧 (headphones)/REMOTE jack (8)
26 TRACK MARK button (13)

The display window



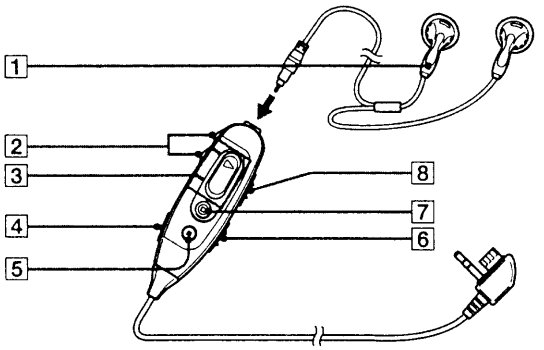
1 STEREO indication
2 REC indication (7)
Lights up while recording. When flashing, the recorder is in record standby mode.
3 MONO (monaural) indication
4 Play mode indication (18)
Shows the play mode of the MD.
5 Battery indication
Shows battery condition
6 Level meter
Shows the volume of the MD being played or recorded.
7 Disc indication
Shows that the disc is rotating for recording, playing or editing an MD.
8 REMAIN (remaining time/tracks) indication (15, 19)
Lights up along with the remaining time of the track, the remaining time of the MD, or the remaining number of tracks.

9 Position indicator (7, 9)
Shows the current location on the MD. The point under recording or playing flashes. The recorded portion lights up.



10 Time display (15, 19)
Shows the recorded time, current time, elapsed time of the track or MD being recorded or played.
11 AM/PM indication (17)
Lights up along with the time indication in the 12-hour system.
12 REC DATE (recorded/current date) indication (19)
Lights up along with the date and time the MD was recorded. When only "DATE" lights up, the current date and time are displayed.
13 Character information display
Displays the disc and track names, date, error messages, track numbers, etc.

The headphones with a remote controller

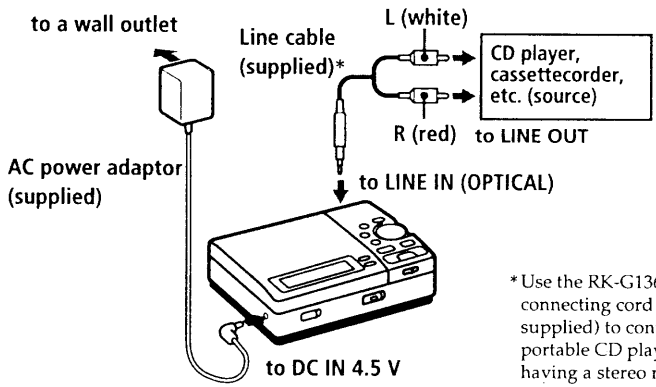


1 Headphones
Can be replaced with optional headphones.
2 VOL (volume) +/– buttons (9)
3 ► (play)/I◄◄ /►►I (search, AMS) buttons (7, 9)
Press ► to play. While playing, press the I◄◄ side to find beginning of the current or preceding tracks or to search backward, or press the ►►I side to find the beginning of the succeeding tracks or to search forward.
4 TRACK MARK button (13)
5 II (pause) button
6 AVLS (Automatic Volume Limiter System) switch (20)
Slide to ON to limit the maximum volume.
7 ■ (stop) button
8 HOLD switch (19)
Slide to lock the controls of the remote controller.

Recording an MD right away!

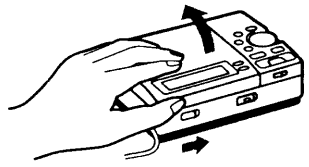
Use the supplied line cable to hook up an analog source. The source sound of CDs or tapes will be sent as an analog signal and recorded digitally. The recorded sound will be stereo. Use a "recordable MD" (supplied) to record. Premastered MDs cannot be recorded over.

1 Make connections.

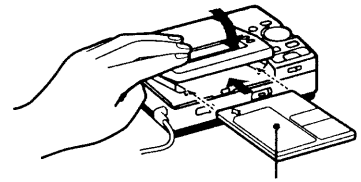


* Use the RK-G136 connecting cord (not supplied) to connect to a portable CD player having a stereo minijack.

2 Insert a recordable MD.

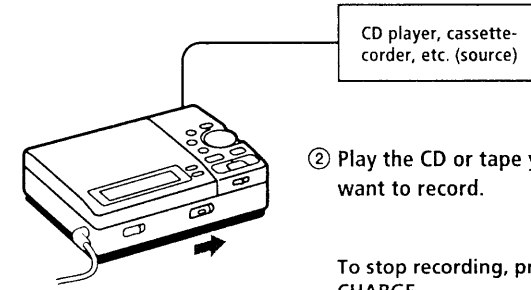


① Slide OPEN and open the lid.



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

3 Record an MD.



① Slide REC to the right while pressing its button.
"REC" lights up and recording starts from the beginning of the disc. The level of the recorded sound is adjusted automatically.

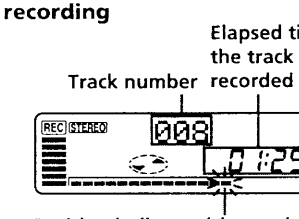
② Play the CD or tape you want to record.

To stop recording, press ■STOP/CHARGE.
"Toc Edit" flashes to record 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.

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

If the recording does not start
- Make sure the recorder is not locked (page 19).
- Make sure the MD is not record-protected (page 14).

Display window while recording

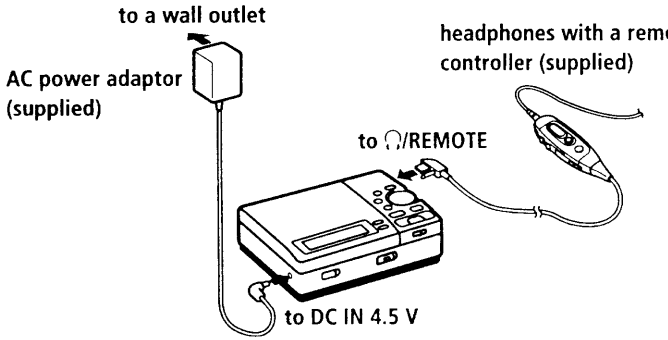


* A new track is added at the point where you pressed ❚❚, and the recording will be marked with the new track number when you resume recording.
** Once you open the lid, the point to start recording will change to the beginning of the first track. When recording on a recorded MD, check the point to start recording on the display.

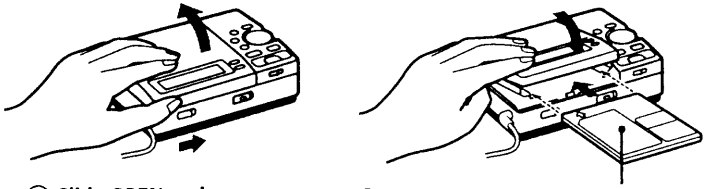
Playing an MD right away!

If you want to play an MD right now, choose to use your recorder on house current. Other choices are dry batteries and two kinds of rechargeable batteries (see page 27–29). The recorder automatically switches to play the stereo or monaural sound according to the recorded sound.

1 Make connections.



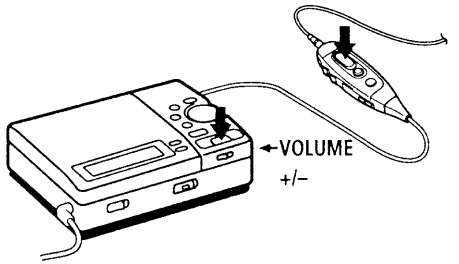
2 Insert an MD.



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. A short beep sounds in the headphones.

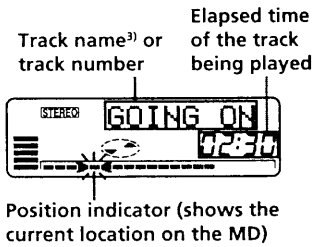
② Press VOLUME +/– to adjust the volume.
You can check the volume in the display.

To stop play, press ■STOP/CHARGE.
A long beep sounds in the headphones.

To	Press (Beeps in the headphones)
Pause	❚❚ (Continuous short beeps) Press ❚❚ again to resume play.
Find the beginning of the current track	I◄◄ once (Three short beeps)
Find the beginning of the next track	►►I once (Two short beeps)
Go backwards while playing[1]	keep pressing I◄◄
Go forward while playing[1]	keep pressing ►►I
Remove the MD	■ STOP/ CHARGE and open the lid.[2]

If the play does not start
Make sure the recorder is not locked (page 19).

Display window while playing back



1) To go backward or forward quickly without listening, press ❚❚ and keep pressing I◄◄ or ►►I.
2) Once you open the lid, the point to start play will change to the beginning of the first track.
3) Appears only with MDs that have been electronically labeled.

Two ways of connection to a sound source

The input jack of this recorder works as both digital and analog input jack. Connect the recorder to a CD player or a cassette-corder using either digital input or analog input. To record, see "Recording with digital input" (page 11) to record using digital input, and "Recording an MD right away!" (page 6) to record using analog input.

Difference between digital and analog inputs

Difference (connection) / Input	Digital input	Analog (line) input
Connectable source	Equipment with an optical digital output jack	Equipment with an analog (line) output jack
Usable cord	Digital cable (with an optical or an optical-mini plug)	Line cable (with 2 phono plugs or a stereo-mini plug)
Signal from the source	Digital	Analog Even when a digital source (such as a CD) is connected, the signal sent to the recorder is analog.
Recorded track numbers	Marked (copied) automatically at the same positions as the source.	Marked after more than 2 seconds of silence. You can erase unnecessary marks after recording ("Erasing a track mark", page 22).
Recorded sound level	Same as the source	Adjusted automatically. Can also be adjusted manually ("Adjusting the recording level", page 16).

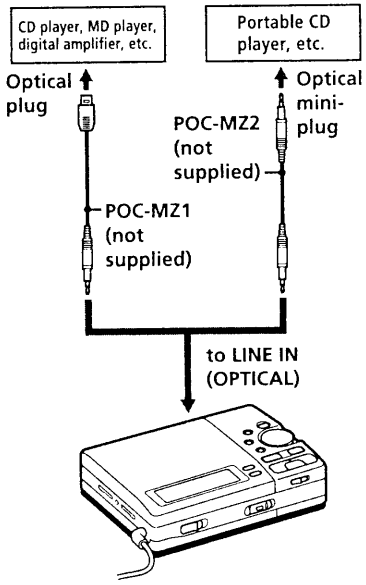
Note

Track marks may be copied incorrectly

- when you record from some CD players or multi disc players using digital input.
- when the source is in shuffle or program play mode while recording using digital input. In this case, play the source in normal play mode.

Recording with digital input

Use an optical cable (POC-MZ1 or POC-MZ2, not supplied) to hook up a digital source such as a CD, etc. The source sound will be sent and recorded as a digital signal.



Insert a recordable MD and start recording.

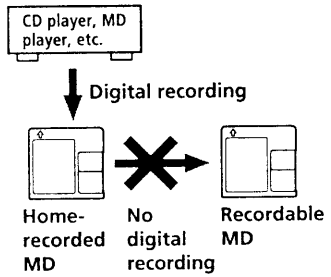
To record, see "Recording an MD right away!" (page 6). To record from a portable CD player, put the CD player on pause and then start recording.

LINE IN (OPTICAL) jack is for both digital and analog input

The recorder automatically recognizes the line cable and switches to digital or analog input.

Notes

- A digital source which has a different sampling frequency (such as the DAT Walkman) cannot be recorded using the digital connection. Use instead the analog (line out) connection (see "Recording an MD right away!" (page 6).
- You can make a digital recording only from an optical type output.
- If you use the above connection to record your MD, you will not be able to make copies from the recorded disc. You can only make copies from a home-recorded MD by using the analog (line out) connection.

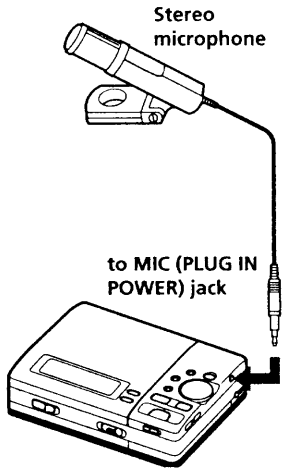


Recording from a microphone

Connect a stereo microphone ECM-909A, ECM-727P, ECM-717, etc., (not supplied) at the MIC (PLUG IN POWER) jack.

Note

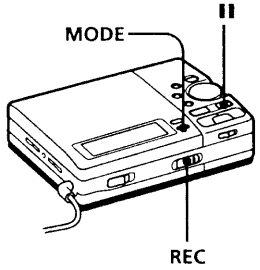
To record from a microphone, you must first disconnect any digital source. If connected, the recorder will not switch to microphone input.



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

Recording in monaural for double the normal recording time of an MD

For longer recordings, choose to record in monaural sound. The recording time becomes double the normal.



1 While pressing II, slide REC to the right to enter record standby mode.

2 Press MODE.
"Mono REC" appears in the display, and the recorder switches to monaural recording.

3 Press II again to start recording.

4 Play the sound source.

To stop recording, press ■STOP/CHARGE.

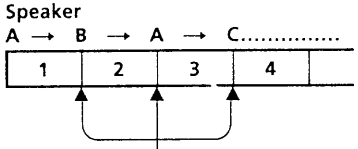
The recorder switches back to stereo recording when you record next time.

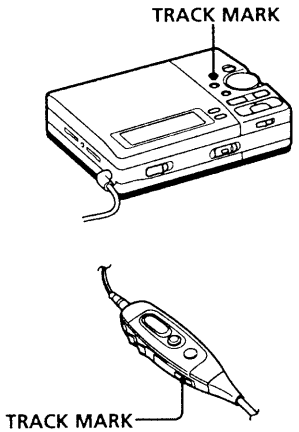
Notes

- If you record in monaural sound from a stereo source using a digital cable, 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.

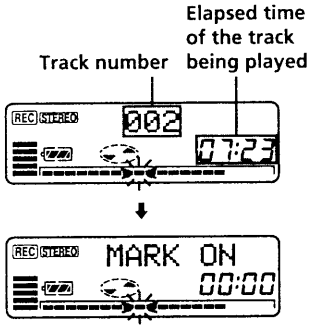
Track marking while recording

Track marking 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, etc., from a microphone.





While recording, press TRACK MARK.
A track mark is added and the track number will increase by one.
When you add a mark, the record indicator flashes and a short beep sounds in headphones.



To add track marks after recording

See "Track marking a recording" (page 21).

To erase track marks

See "Erasing a track mark" (page 22).

Tips on recording

To monitor the sound being recorded

Connect the headphones to ∩/ REMOTE and adjust the volume by pressing VOLUME +/– (VOL +/– on the remote commander). Sound levels are copied onto the MD automatically and independently of the volume for monitoring.

To know the recording condition

The record indicator lights up or flashes according to the recording condition.

Recording condition	Record indicator
While recording	lights up flashes according to the loudness of the source while recording with a microphone (voice mirror)
Recording standby	flashes
Recording with less than 3 minutes' recording time available	slowly flashes

To start recording precisely

1 While pressing ❚❚, slide REC to the right to enter record standby mode.

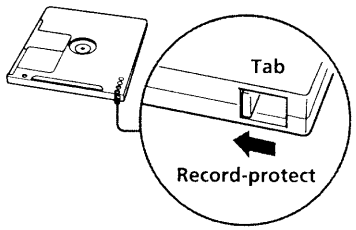
2 Press ❚❚ again to start recording.

3 Play the sound source.
The sound source is recorded from the beginning.

To protect a recorded MD

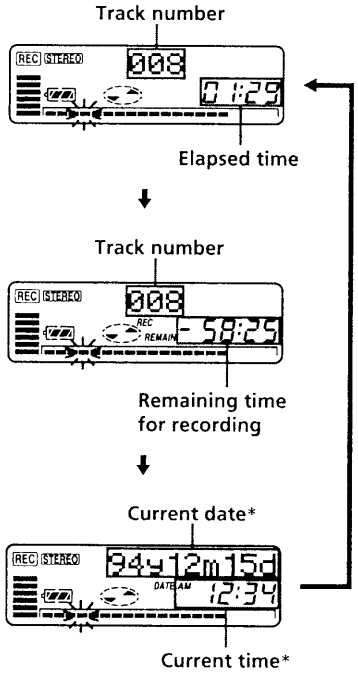
To record-protect an MD, slide open the tab at the side of the MD. In this position, the MD cannot be recorded. To record again, slide the tab back so the tab is visible.

Back of the MD



To know the remaining time

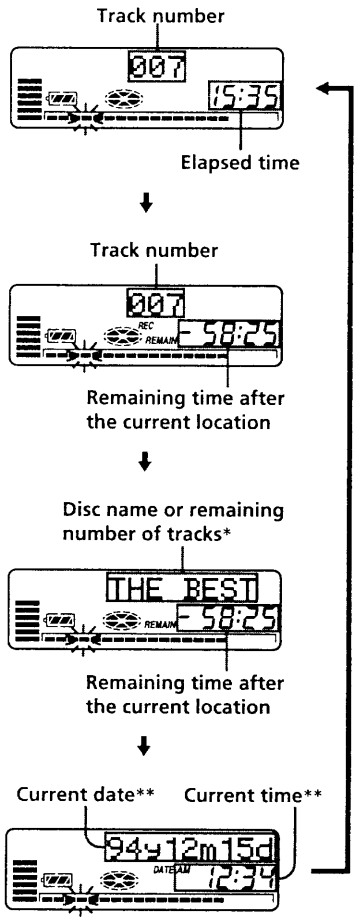
Press DISPLAY while recording.
Each time you press the button, the display changes as follows.



*Appears only when the clock is set.

To know the disc name and current time

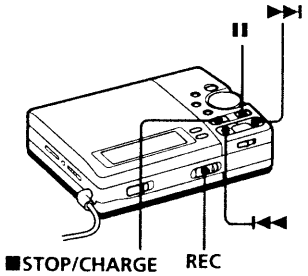
Press DISPLAY while the recorder is in stop mode.
Each time you press the button, the display changes as follows.



* Remaining number of tracks appears when the MD has no disc name.
** Appears only when the clock is set.

Adjusting the recording level (Manual recording)

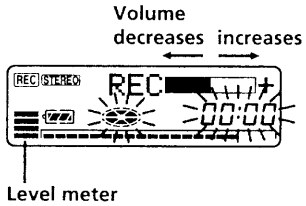
When you record with a microphone or an analog input, the sound level is adjusted automatically. If necessary, you can set the level manually.



1 While holding down ▮▮, hold REC to the right for more than 2 seconds.
"ManualREC" appears and the recorder enters record pause mode. To return to the automatic control, while the recorder is in record pause mode, hold REC to the right for more than 2 seconds.

2 Play the source.

3 While observing the level meter in the display, adjust the recording level by pressing ▶▶I (+) or I◀◀ (–).
Set the level to around the middle of the level meter.



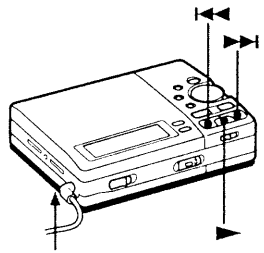
Note
The recording level should be adjusted while the recorder is in standby mode. You cannot adjust it while recording.

4 Press ▮▮ again to start recording.

5 Press ■STOP/CHARGE. to stop recording.
The recording level control is switched back to automatic control.

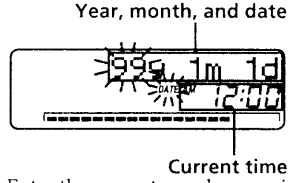
Setting the clock to stamp the recorded time

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.



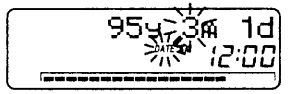
1 Connect the power source.
Use the supplied AC power adaptor.

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

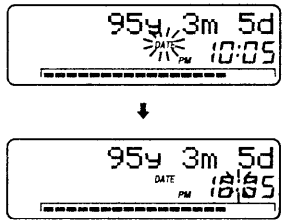


3 Enter the current year by pressing I◀◀ or ▶▶I.
To change the digits rapidly, keep pressing I◀◀ or ▶▶I.

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

Charging the built-in battery for the clock

After setting the clock, leave the recorder connected to the AC power for about 2 hours to charge the built-in battery for the clock. 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 AC power, dry batteries or a rechargeable battery.

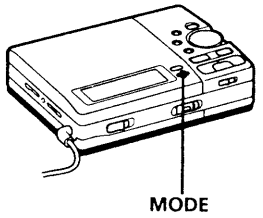
On the clock display

- 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.

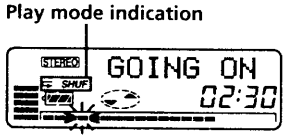
▶*Various ways of playback*

Playing tracks repeatedly

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



Press MODE while the recorder is playing an MD.
Each time you press MODE, the play mode indication changes as follows.



"(none)" (normal play)
All the tracks are played once.

↓

"↻" (all repeat)
All the tracks are played repeatedly.

↓

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

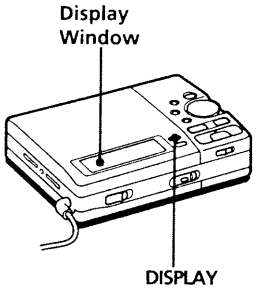
↓

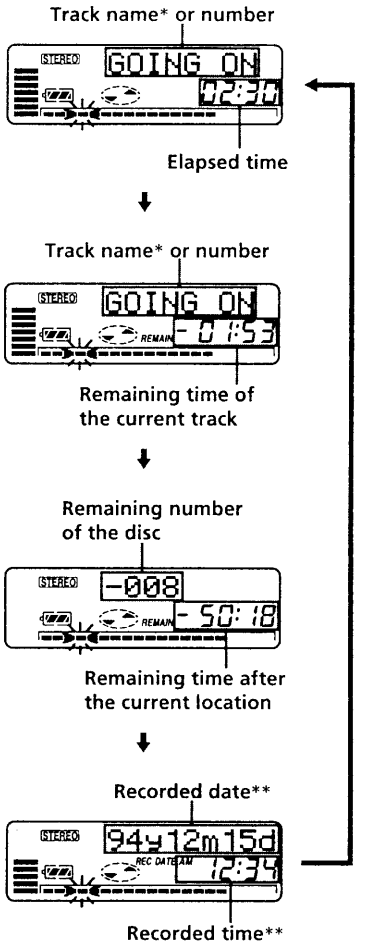
"↻ SHUF" (shuffle repeat)
All the tracks are played repeatedly in random order.

Tips on playback

To know the track name and time

Press DISPLAY while the recorder is playing an MD.
Each time you press DISPLAY, the display changes as follows.

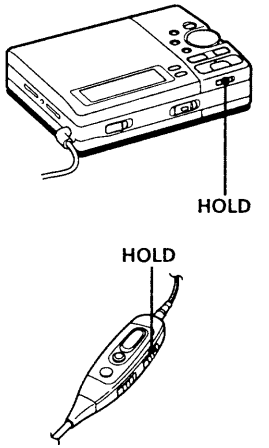




* Appears only with MDs that have been electronically labeled.
** If you record without setting the clock or play an MD that has no recorded date, "--y--m--d" and "--:--" appear.

To lock the controls

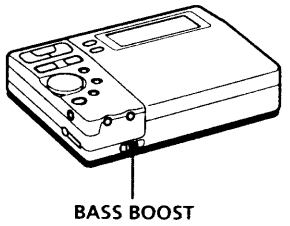
To prevent the buttons from being accidentally operated when you carry the recorder, use this function.



Slide HOLD in the direction of the →.
On the recorder, slide HOLD to lock the controls of the recorder. On the remote controller, slide HOLD to lock the controls of the remote controller.

To emphasize bass (Bass boost feature)

The Bass Boost feature intensifies low frequency sound for richer quality audio reproduction.



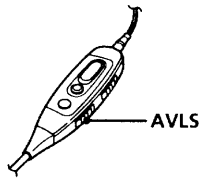
Slide BASS BOOST.
Choose MID (slight effect) or MAX (strong effect). To cancel the effect, set BASS BOOST to NORM.

Notes

- If the sound is distorted when emphasizing bass, turn down the volume.
- This feature does not affect the sound being recorded.

To protect your hearing (AVLS)

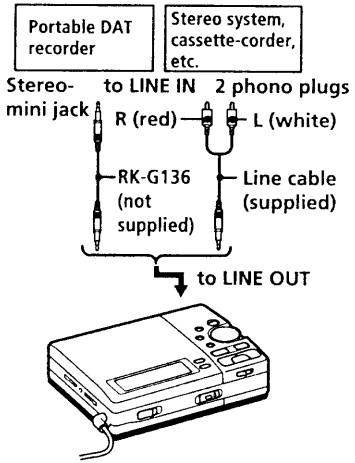
The AVLS (Automatic Volume Limiter System) function keeps down the maximum volume to prevent excessive sound from harming your ears.



Set AVLS on the remote controller to ON.
The volume is kept at a moderate level, even if you try to turn the volume above the limited level.

Connecting to a stereo system

Connect the LINE OUT jack of the recorder to the LINE IN jacks of an amplifier or a tape player with the supplied line cable (or RK-G136, not supplied). The output is analog. The recorder plays the MD digitally and sends analog signals to the connected equipment.

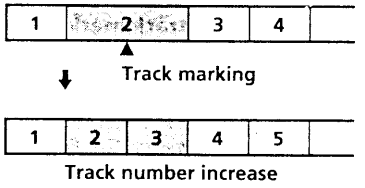


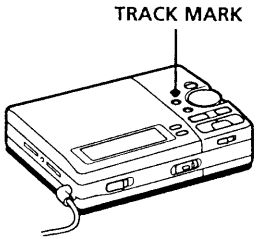
▶*Editing recorded tracks*

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

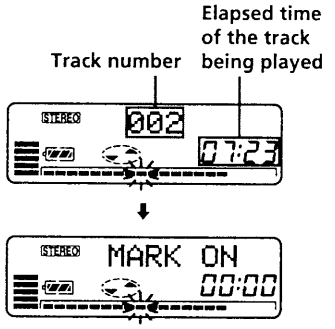
Track marking a recording

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 commander does not function during playback.

To add track marks while recording

See "Track marking while recording" (page 13).

To erase track marks

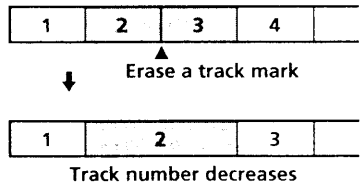
See "Erasing a track mark" (page 22).

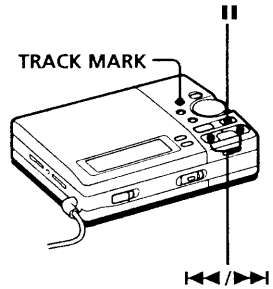
Notes

- When you press ■STOP/CHARGE 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

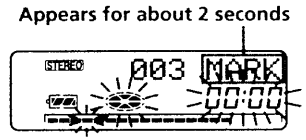
When you record with analog (line) input, unnecessary track marks may be recorded. You can erase a track mark to combine the tracks before and after the track mark. The track numbers will change as follows.



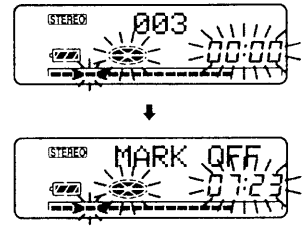


1 While the recorder is playing an MD, press II to pause.

2 Find the track mark you want to erase by pressing I◄◄ or ►►I slightly.
"MARK" appears 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

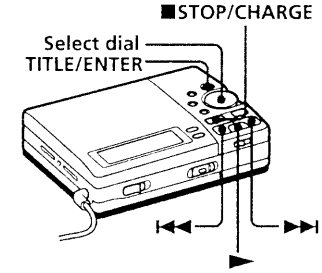
- When you press ■STOP/CHARGE after erasing track marks, "Toc Edit" flashes and the recorder starts writing the new data to the MD. Do not move or jog the recorder while "Toc Edit" is flashing in the display.
- You cannot ease track marks on an MD that is record-protected. Before erasing track marks,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

Date and time recorded

The combined track whose mark has been erased is recorded with the date and time of the beginning of the first of the two combined tracks.

Labeling recordings

You can label the MDs and tracks you recorded with letters, numbers, and marks. Each label can be made up of up to 200 characters, and each MD can be made up of up to 1700 characters.



1 Insert the MD you want to label. Make sure it is a recordable MD. If the MD is already inserted, press ■STOP/CHARGE so that the recorder stops operating.
Or, to label a particular track, play that track.

2 Press TITLE/ENTER on the recorder.
If you have selected a track in step 1 above, the recorder will play that track repeatedly.

3 Rotate the select dial to select a character.
Press ► to select the first of capital letters, small letters, and numbers quickly.

4 Press ►►I to move to the next character.
Press I◄◄ to move backward.

5 Repeat steps 3 and 4 until you have entered all the characters for the label.

6 Press the TITLE/ENTER.
Labeling is completed.

To cancel labeling

Press ■STOP/CHARGE .

Available characters

- Capital and small letters of the English alphabet
- Numbers 0 to 9
- ! " # $ % & ( ) * + − . ; < = > ? @ _ ` ' , / : _ (space)

To relabel recordings

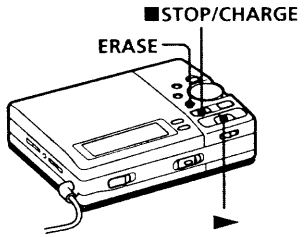
Do steps 1 and 2 to display the label of the track or MD. Enter a new character over the one you want to change. To add a character one by one to an already existing name, press END SEARCH. To erase characters one by one, press ERASE.

Notes

- When you press ■STOP/CHARGE after labeling, "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 label recordings on an MD that is record-protected. Before labeling, close the tab on the side of the MD.
- You cannot relabel premastered MDs or label MDs that have not been recorded.

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 ■STOP/CHARGE .

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

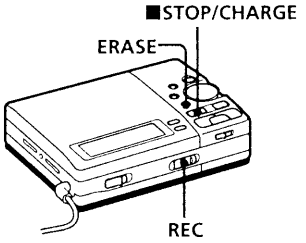
Add track marks at the beginning and the end of the part you want to erase, then erase the part.

Notes

- When you press ■STOP/CHARGE 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 the 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 ■STOP/CHARGE to stop.

3 While pressing ERASE, slide REC to the right.
"AllErase?" and "PushErase" appear in the display alternately.
To cancel erasing, press ■STOP/CHARGE .

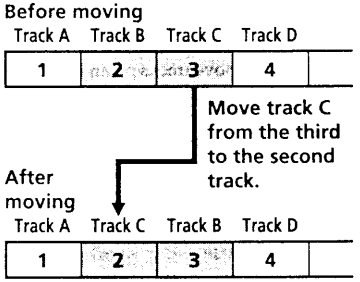
4 Press ERASE again.
"Toc Edit" flashes in the display.
When erasing finishes, "BLANKDISC" appears.

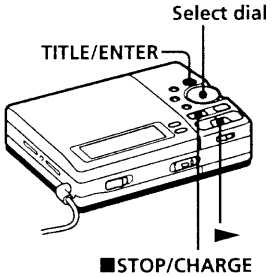
Notes

- 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.

Moving recorded tracks

You can change the order of the recorded tracks.



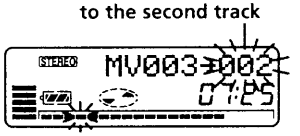


1 Play the track you want to move.

2 While pressing ►, press TITLE/ENTER.
The recorder plays the selected track repeatedly. To cancel moving, press ■STOP/CHARGE .

3 Rotate the select dial to select the new track position.

When moving a track to the second track



4 Press TITLE/ENTER again.
Moving is completed and the recorder plays the moved track.

Notes

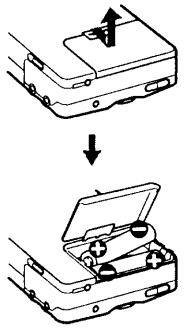
- When you press ■STOP/CHARGE after you moved a track, "Toc Edit" flashes and the recorder starts writing the new data to the MD. Do not move or jog the recorder while "Toc Edit" is flashing in the display.
- You cannot move tracks on an MD that is record-protected. Before moving tracks, close the tab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

▶Power sources

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

Using on dry batteries

It is preferable to use the recorder on house current when recording for a long time.
Install two R6 (size AA) alkaline batteries (supplied only with tourist model), and close the lid.



When to replace or charge the batteries

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

Used batteries

↓

Weak batteries. Replace all the batteries

↓

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

Battery life*

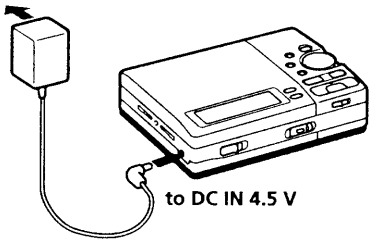
Batteries	Record-ing**	Playback
Two R6 (size AA) alkaline batteries	Approx. 2 hours	Approx. 4 hours
Nickel metal hydride rechargeable battery (BP-DM20)	Approx. 2 hours	Approx. 3 hours
Lithium ion rechargeable battery (LIP-12)	Approx. 2.5 hours	Approx. 4 hours
Two R6 (size AA) alkaline batteries and a lithium ion rechargeable battery (LIP-12)	Approx. 4.5 hours	Approx. 8 hours
Nickel metal hydride rechargeable battery (BP-DM20) and a lithium ion rechargeable battery (LIP-12)	Approx. 4.5 hours	Approx. 7 hours

* The battery life may be shorter due to operating conditions and the temperature of the location.
** When you record, use a fully charged rechargeable battery or new dry batteries.

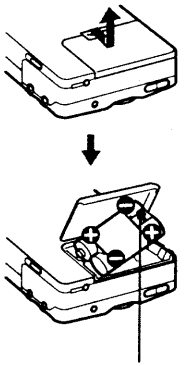
Using on a nickel metal hydride rechargeable battery

Before using the rechargeable battery (supplied only with tourist model) for the first time, charge it.

1 Connect the supplied AC power adaptor.



2 Insert the battery, and close the lid.



3 Press ■STOP/CHARGE on the recorder.
"Charging" and the battery indication appear in the display and charging starts. When charging is completed, "Charging" and the battery indication go out. A completely discharged battery takes about 3 hours to charge fully. To stop charging before the battery is fully charged, press ■STOP/CHARGE.

4 Disconnect the AC power adaptor.
As long as the recorder is connected to the AC power, the power will be supplied from the AC source instead of the battery.

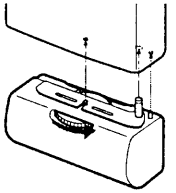
Notes

- Be sure to use the supplied AC power adaptor.
- Charging time may vary depending on the battery condition.
- 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.

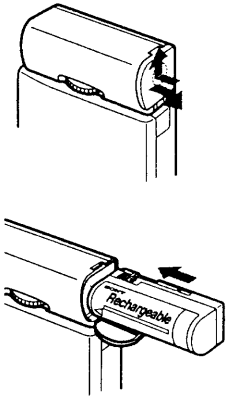
Using on a lithium ion rechargeable battery

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 into the battery case.



Note

You cannot charge the battery in the recorder.

Precautions

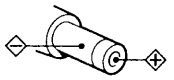
On safety

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

On power sources

- Use the house current, two R6 (size AA) batteries, nickel metal hydride rechargeable battery, lithium ion rechargeable battery, or car battery.
- For use in your house: Use the AC power adaptor supplied with this recorder. Do not use any other AC power adaptor since it may cause the recorder to malfunction.

Polarity of the plug



- The recorder is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the recorder itself has been turned off.
- If you are not going to use this recorder for a long time, be sure to disconnect the power supply (AC power adaptor, dry batteries, rechargeable batteries, or car battery cord). To remove the AC power adaptor from the wall outlet, grasp the adaptor plug itself; never pull the cord.
- For use in the car: Use the CPA-8 car connecting pack (not supplied).

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.

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 some 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.
- 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.

Notes on the 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.

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.

For the customers in Canada

DISPOSAL OF NICKEL METAL HYDRIDE BATTERY AND LITHIUM ION BATTERY.
NICKEL METAL HYDRIDE BATTERY. LITHIUM ION BATTERY. DISPOSE OF PROPERLY.
You can return your unwanted nickel metal hydride batteries and lithium ion batteries to your nearest Sony Factory Service Center.
Note: In some areas the disposal of nickel metal hydride batteries and lithium ion batteries in household or business trash may be prohibited.
For the Sony Factory Service Center nearest you call 416-499 SONY (Canada only)
Caution: Do not handle damaged or leaking nickel metal hydride battery or lithium ion battery.

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

Troubleshooting

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

Symptom	Cause/Solution
The recorder does not work or works poorly.	• Audio sources may not be securely connected. ➡ Disconnect the audio sources once and connect them again (page 6). • 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 is weak ("LOW BATT" flashes). ➡ Replace the dry batteries or recharge the battery (page 27–29). • The dry batteries have been installed incorrectly. ➡ Install the batteries correctly (page 27–29). • You pressed a button while the disc indication was rotating quickly. ➡ Wait until the indication rotates slowly. • The recording volume is too low. • The AC adaptor was unplugged during recording or a power outage occurred. • 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 headphones.	• The headphones plug is not firmly connected. ➡ Connect the headphones with a remote controller plug firmly to ∩/REMOTE. • Volume is too low. ➡ Adjust the volume by pressing VOLUME +/– (VOL +/– on the remote commander). • AVLS is on. ➡ Slide AVLS to OFF (page 20).
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.

Symptom	Cause/Solution
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.
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.
Cannot find the track marks.	• You pressed ⏸ after pressing ⏮ or ⏭. ➡ Press ⏸ before pressing ⏮ or ⏭.
Charging the rechargeable battery does not start.	• The rechargeable battery has been inserted incorrectly or the AC power adaptor has been connected incorrectly. ➡ Insert the battery correctly or connect the AC power adaptor correctly.
The clock loses time or the display flashes. The recording date was not stamped onto the disc.	• The built-in battery for a clock is weak. ➡ Connect the AC power adaptor to DC IN 4.5 V on the recorder and the wall outlet to charge the built-in battery. After charging, set the clock again. Note that the clock normally loses about 2 minutes per month (page 17).

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 (60 or 74 minutes).	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 12 seconds 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 (60 or 74 minutes).	Recording is done in minimum units of 2 seconds each, no matter how short the material. Even if the last unit of recording is less than 2 seconds, it is counted as a unit of 2 seconds. Then 2 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 in higher speed than normal playback.

Error messages

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

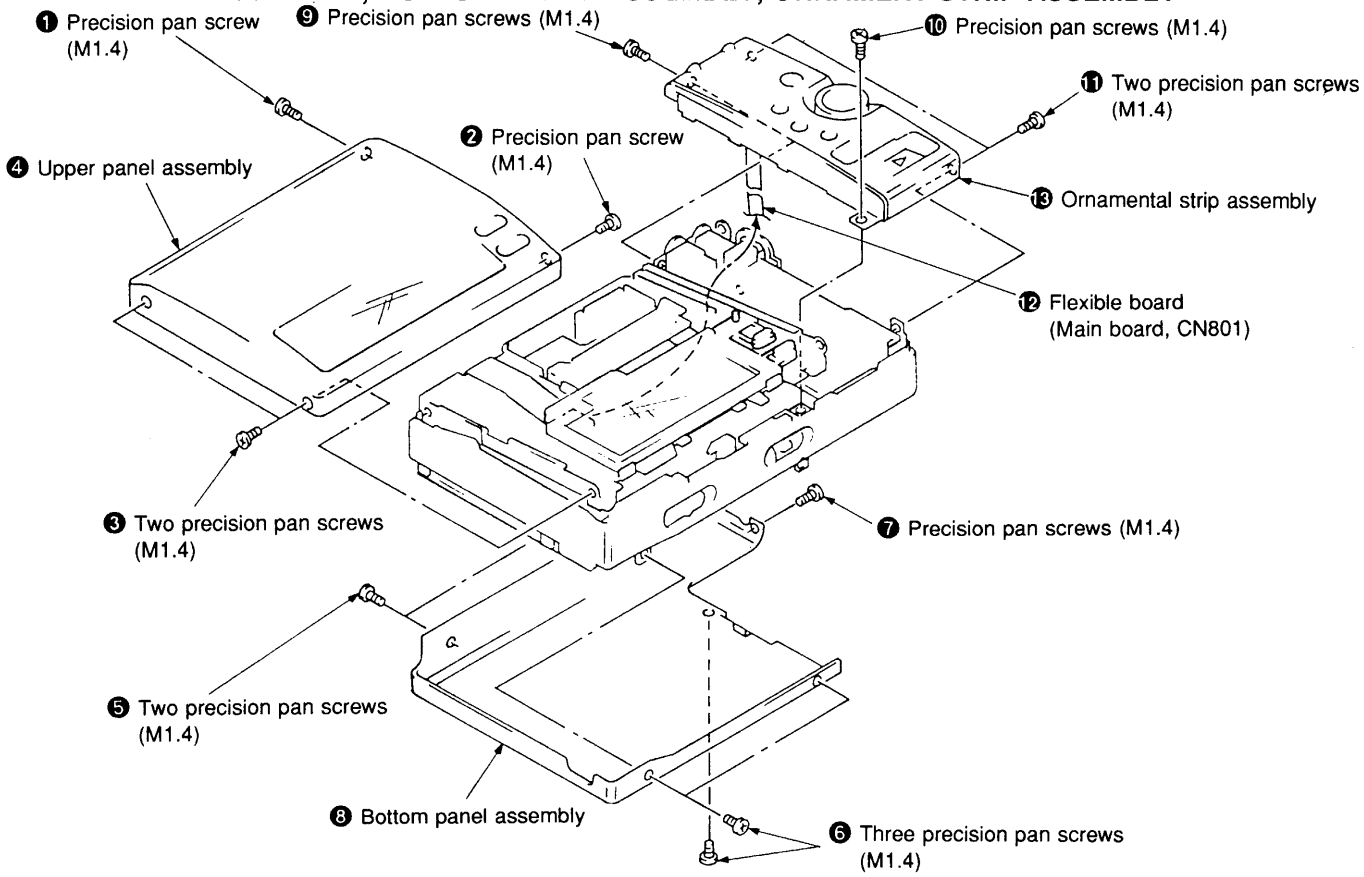
Error message	Meaning/Remedy
BLANKDISC	• An MD with no recording on it is inserted. ➡ Insert a recorded MD.
BUSY	• You tried to operate the recorder while it was accessing the recorded data. ➡ Wait until the message goes out (in rare cases, it may take 2–3 minutes).
CANNOT	• You tried to erase a track 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. (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 12 seconds available). ➡ Replace the disc.
FULL	• You tried to enter more than 200 characters of track and disc name or the characters entered in an MD are more than 1700. ➡ Enter the characters within the limit.
Hi DC in	• Power supply is too high (The supplied AC power adaptor or the recommended car battery cord is not used). ➡ Use the supplied AC power adaptor or the recommended car battery cord.
HOLD	• The recorder is locked. ➡ Slide HOLD against the allow to unlock the recorder (page 19).
LOW BATT	• Batteries are weak. ➡ Replace the dry batteries or charge the rechargeable battery (page 27–29).
NO COPY	• You tried to make a copy from a disc that is protected by the Serial Copy Management System. You cannot make copies from a digitally connected source which was itself recorded using the digital connection. ➡ Use the analog connection instead (page 6).
NO DISC	• You tried to play or record with no disc in the recorder. ➡ Insert an MD.

Error message	Meaning/Remedy
NO SIGNAL	• There is no digital input signal. ➡ Make sure that the source is connected firmly and it has the same sampling frequency as the recorder (44.1kHz). • When recording from a portable CD player using digital input, set it to pause mode and then start recording. • If the error message appears while recording, press ■STOP/CHARGE to stop recording.
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 14).
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 tracks (page 24).
TRprotect	• You tried to record or edit on a track that is protected from erasing. ➡ Record or edit on other tracks.

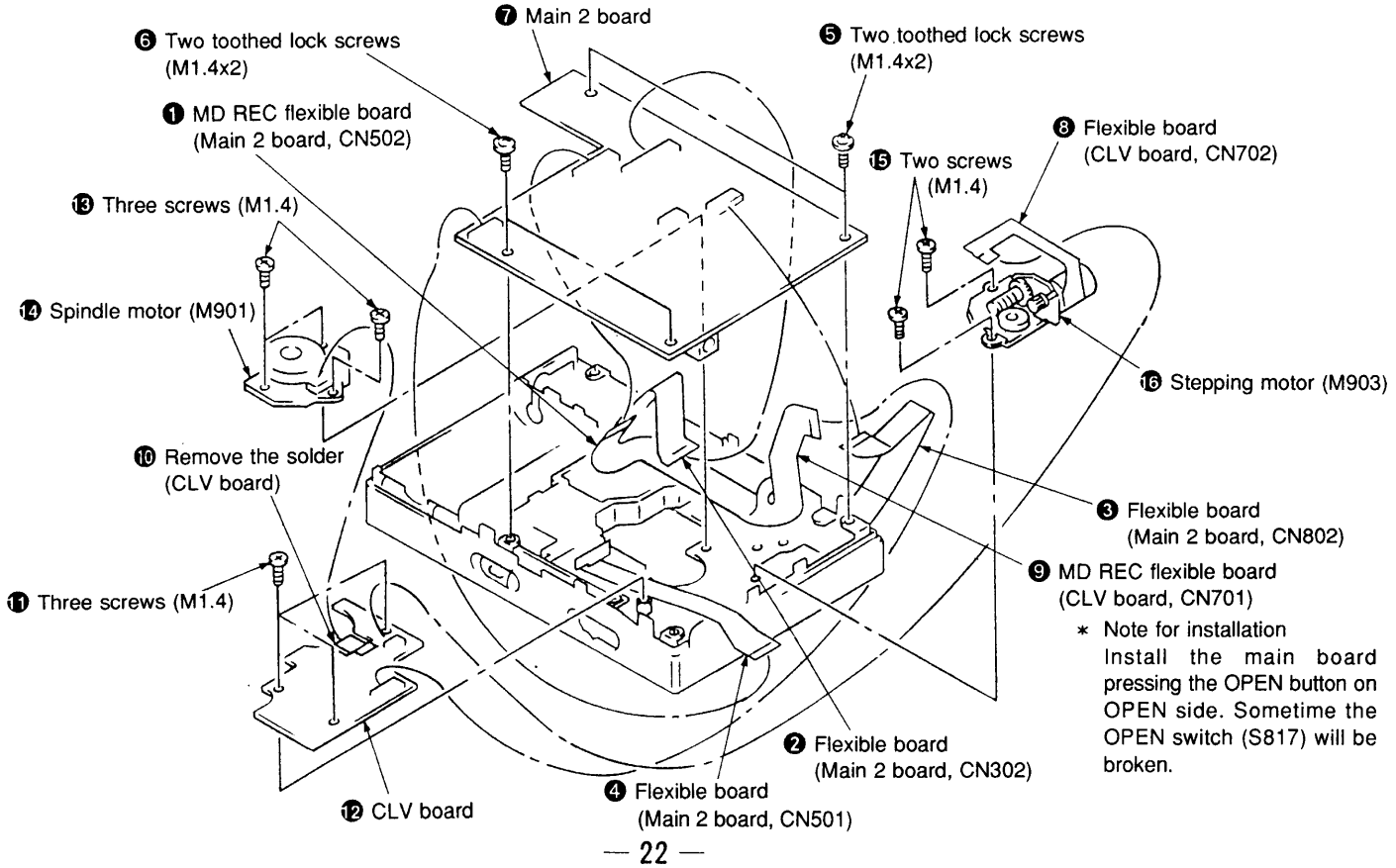
SECTION 3
DISASSEMBLY

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

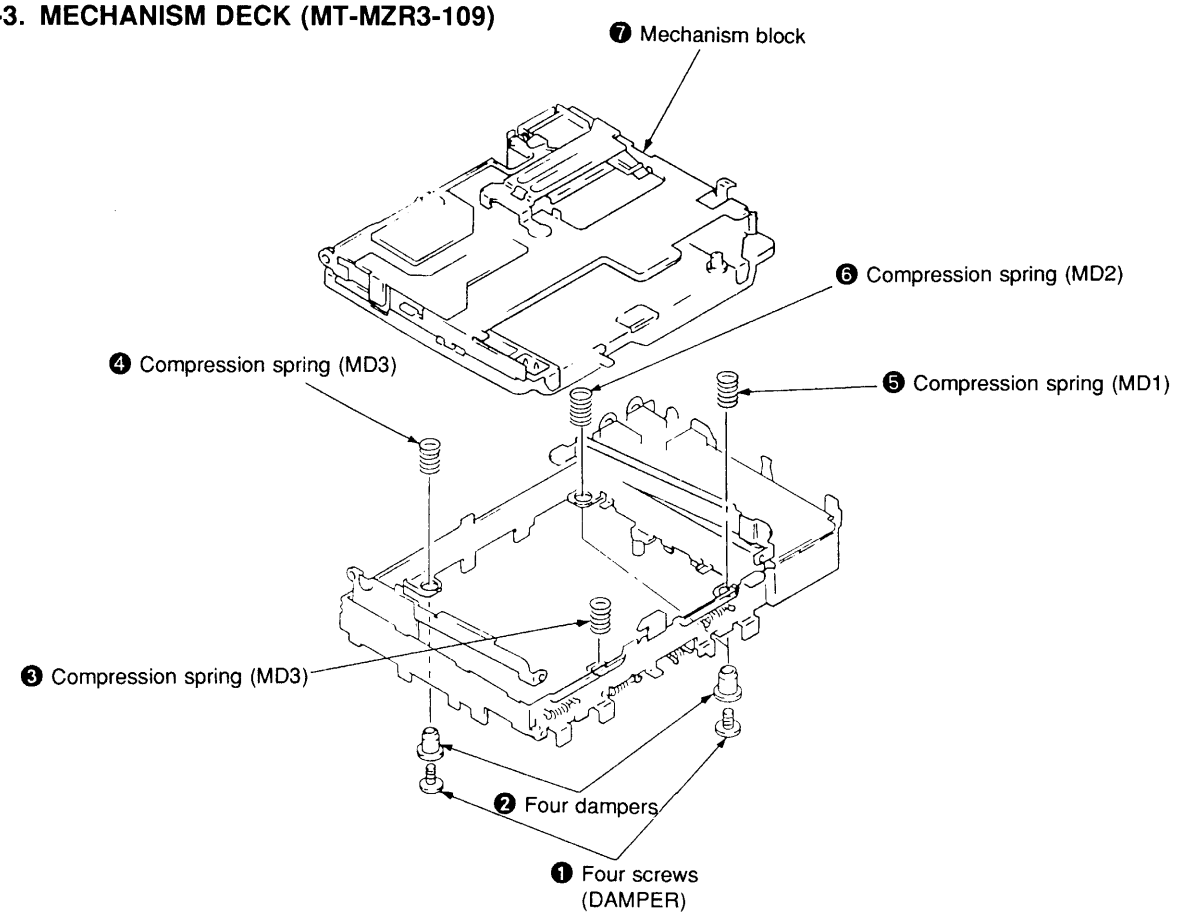
3-1. UPPER PANEL ASSEMBLY, BOTTOM PANEL ASSEMBLY, ORNAMENT STRIP ASSEMBLY



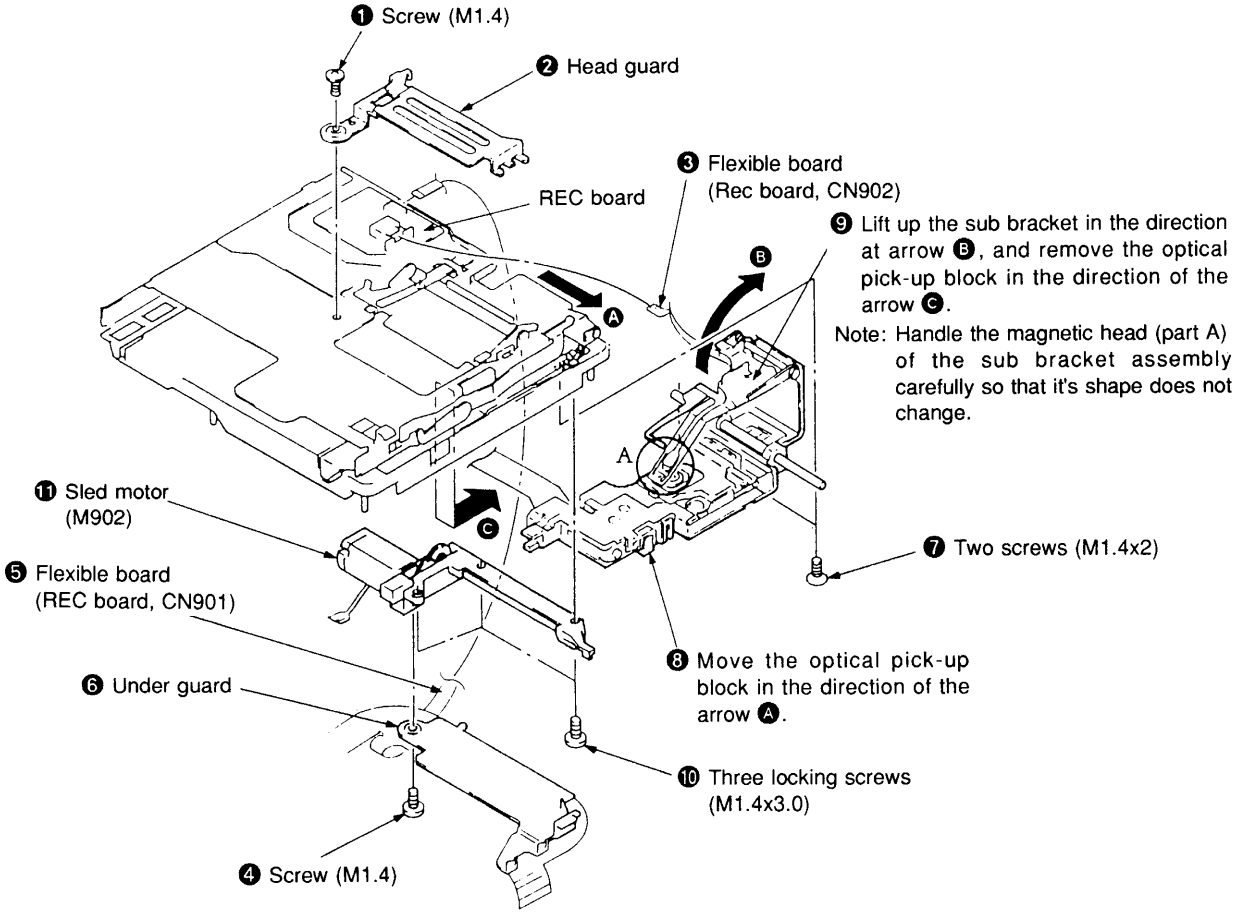
3-2. MAIN 2 BOARD, CLV BOARD, SPINDLE MOTOR, STEPPING MOTOR



3-3. MECHANISM DECK (MT-MZR3-109)



3-4. SLED MOTOR, OPTICAL PICK-UP BLOCK (KMS-194A/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]

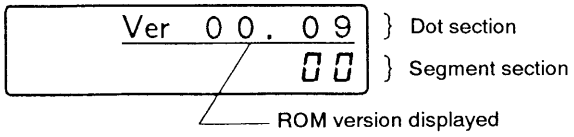
Short-circuit the soldering bridge of TAP801 (MODE) on the main board (connect Pin ㊻ of IC801 to the GND) and turn on the power supply.

[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]

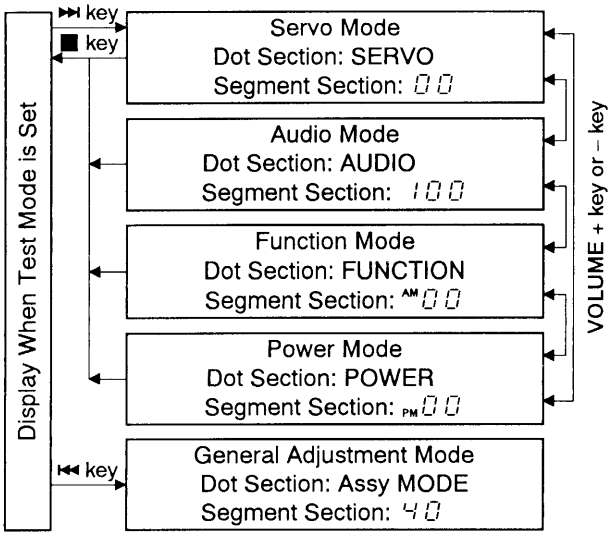
When the test mode is set, the LCD will display as follows.



- 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.

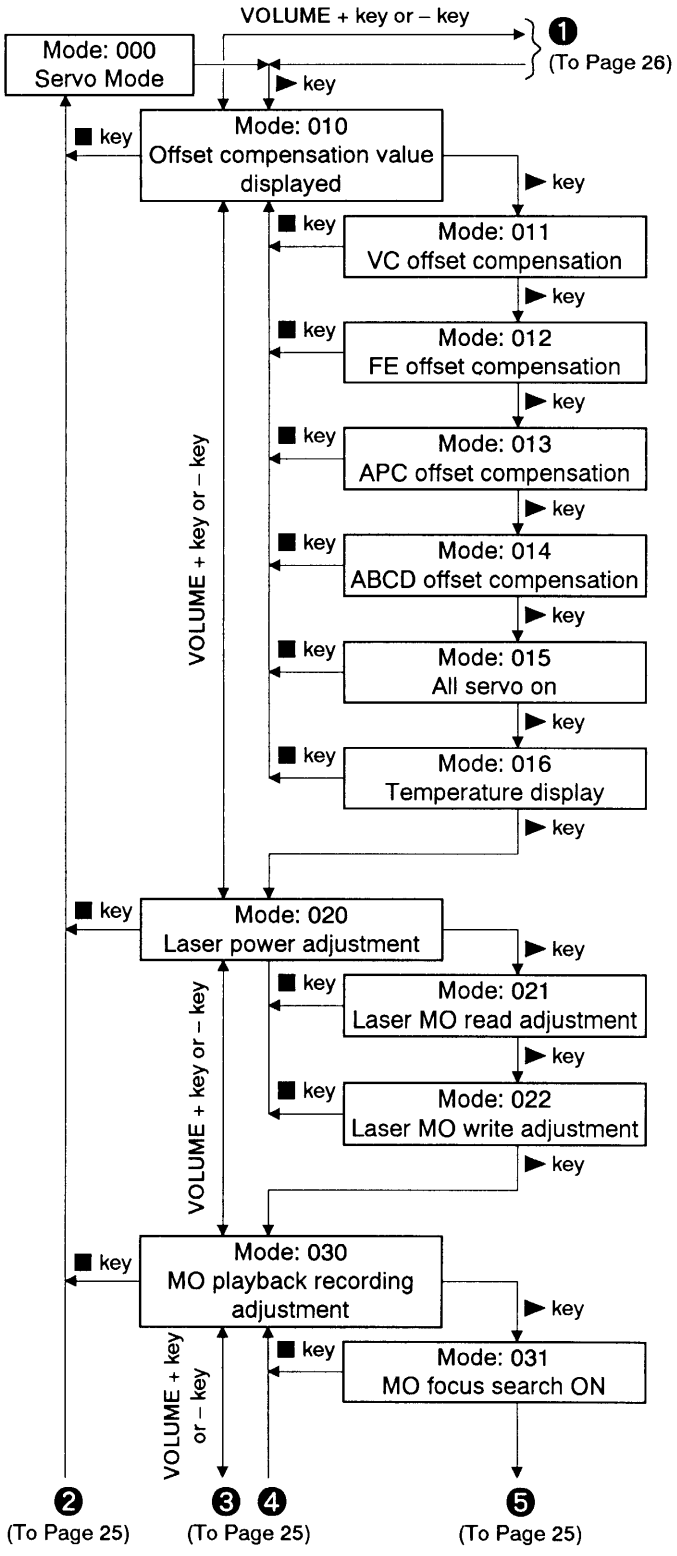


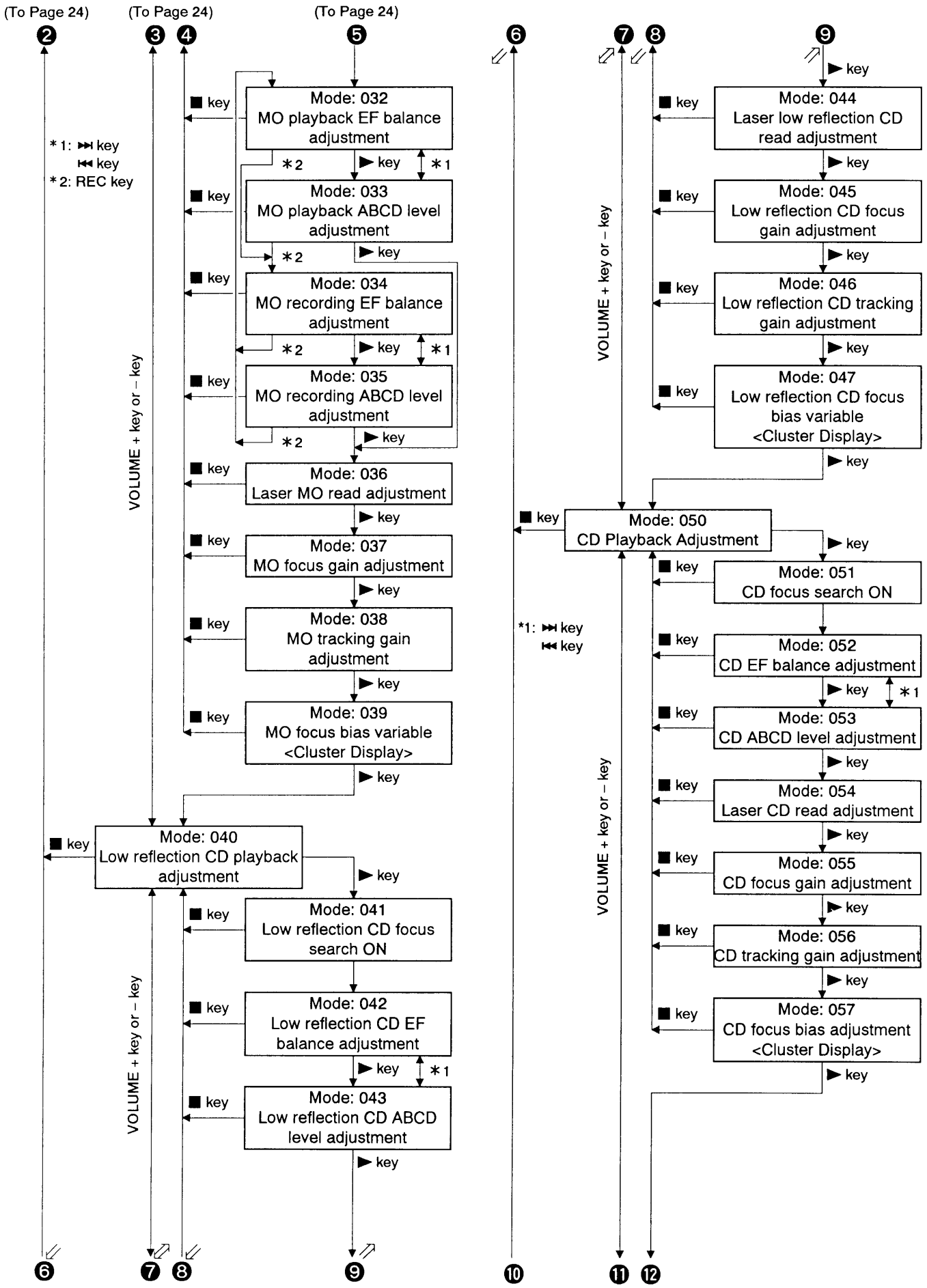
- In modes other than the general adjustment mode, the last two digits of the mode number will be displayed at the 00 section.

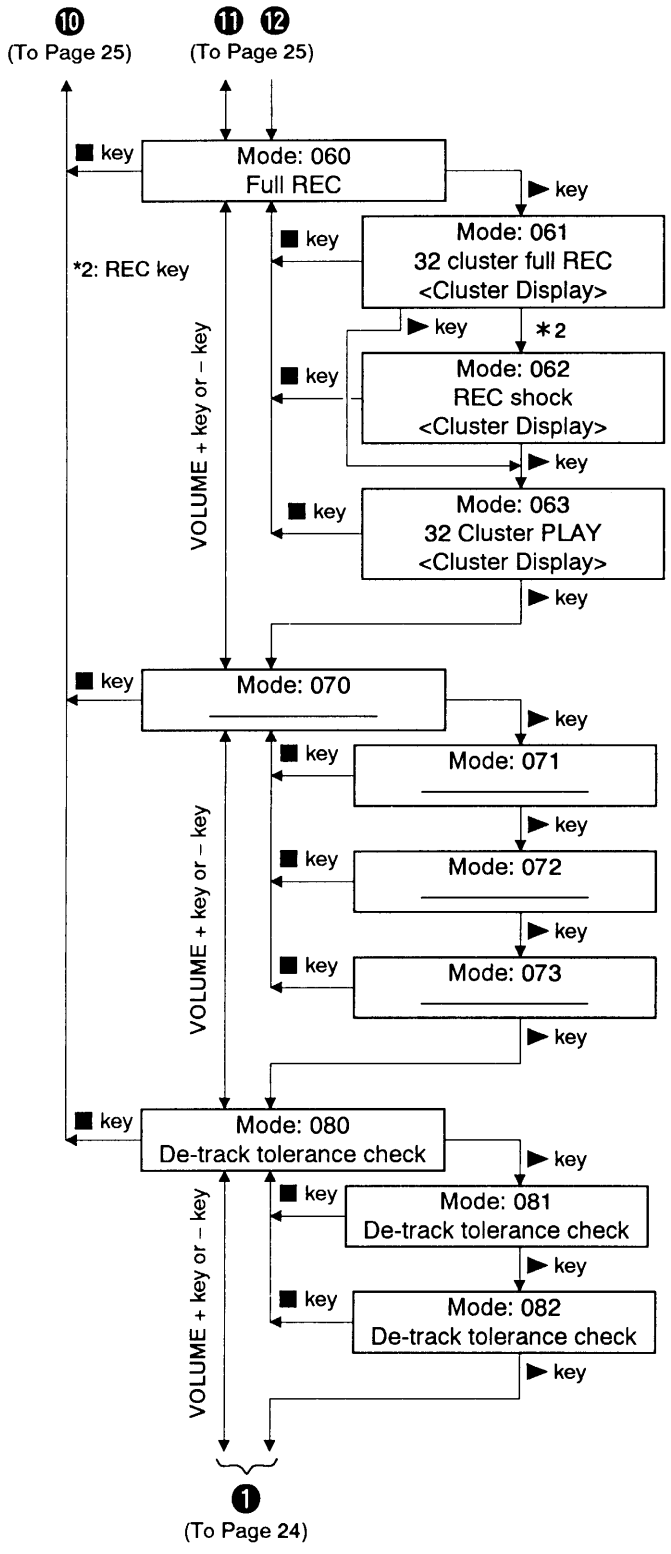
[Servo Mode]

- Set the test mode, press the ⏭ key, and set the servo mode using the VOLUME + and – 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**

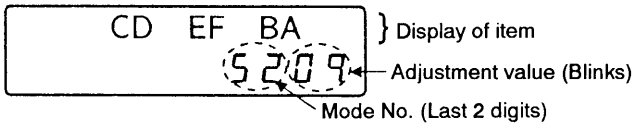



(To Page 24)
(To Page 24)
(To Page 24)
*1: ⏭ key
⏮ key
*2: REC key
■ key
▶ key
Mode: 032
MO playback EF balance adjustment
Mode: 033
MO playback ABCD level adjustment
Mode: 034
MO recording EF balance adjustment
Mode: 035
MO recording ABCD level adjustment
Mode: 036
Laser MO read adjustment
Mode: 037
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
VOLUME + key or – key
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 26)
(To Page 26)

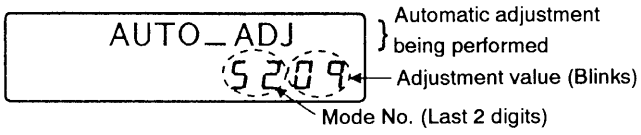


- **Adjusting Method**

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.

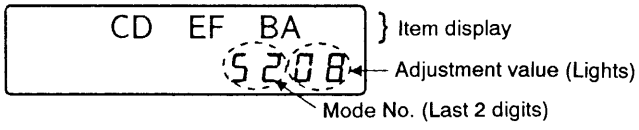


2. When the ▮▮ key is pressed, the following will be displayed and adjustments will be performed automatically.

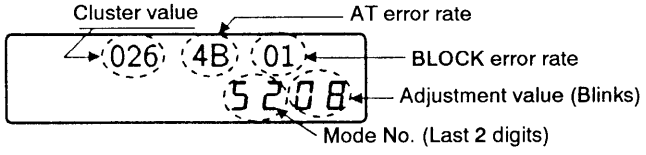


Note) The adjustment value can be changed as desired using the VOLUME + and – keys, but try to avoid this as much as possible.

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



- **Cluster display**

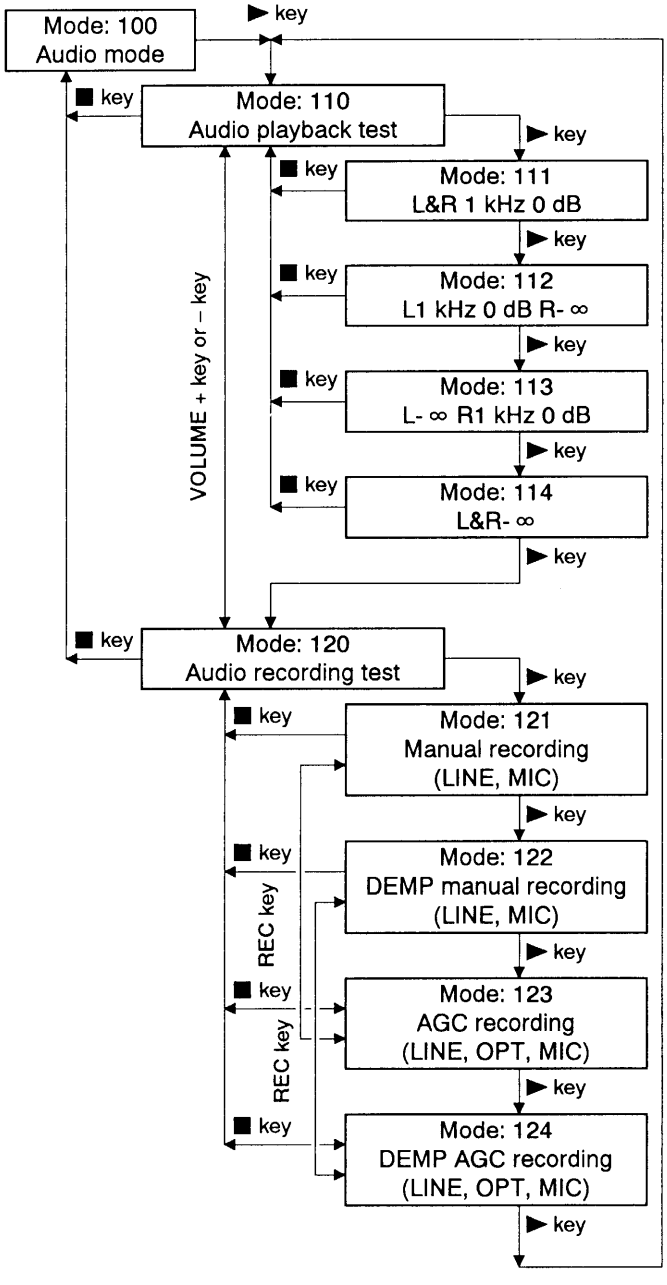


- Nothing is performed at mode numbers 070 to 073.
- At mode numbers 080 to 082, automatic adjustments are performed only in the general adjustment mode.

[Audio Mode]

- Set the test mode, press the ⏭ key, and set the audio mode using the VOLUME + and – keys.
- To set other modes, refer to "Structure of Test Mode".

• Structure of Audio Mode

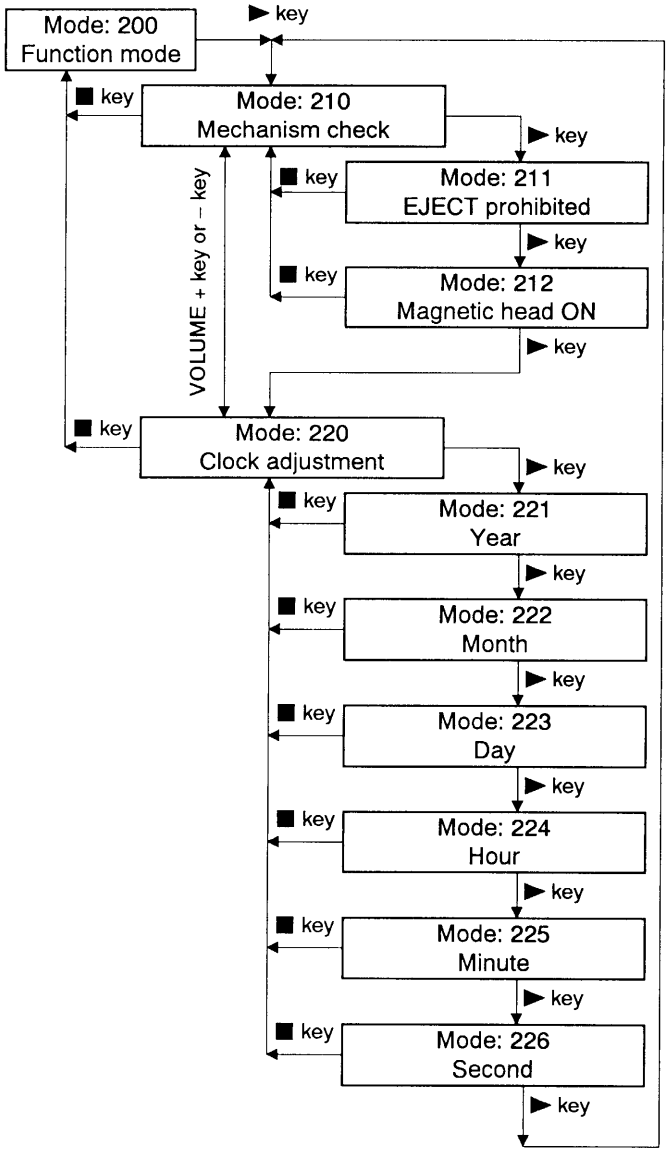


- When the ▮▮ key is pressed at mode numbers 100, 110 to 114, the buzzer will sound.
- When the VOLUME keys + and – are pressed at mode numbers 111 to 113, 122 or 123, the volume of the headphone output will increase/decrease.
  When the ⏮ key or ⏭ key is pressed, the volume of the headphone output will become maximum/minimum.
- When the VOLUME keys + and – 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 VOLUME + and – keys.
- To set other modes, refer to "Structure of Test Mode".

- **Structure of Function Mode**

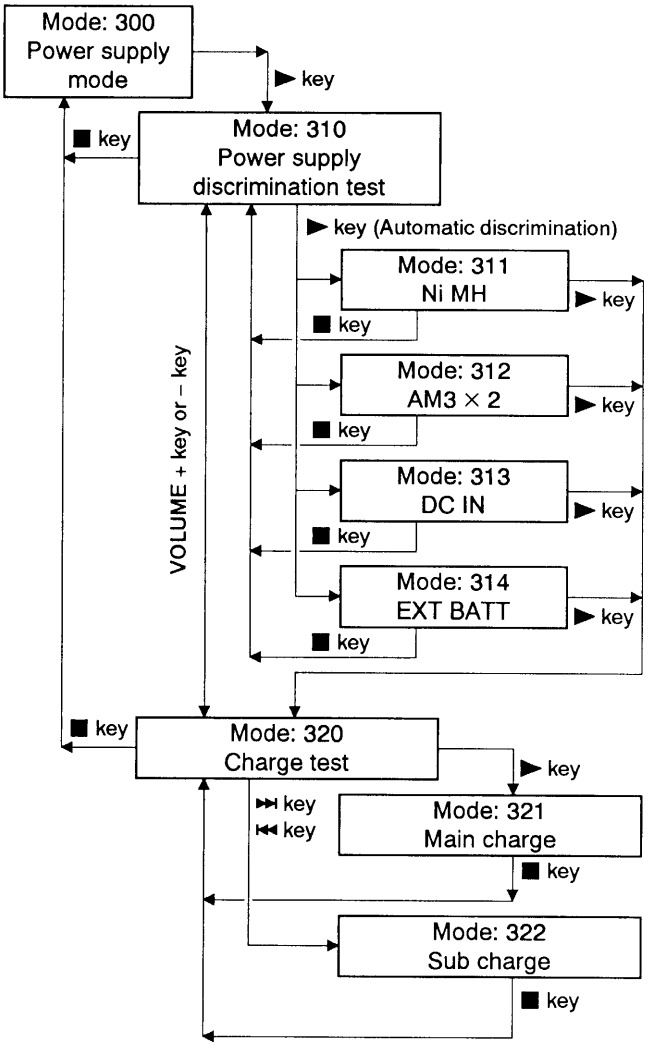


- At mode numbers 200, 210 to 212, the optical pickup can be moved to the outer circumference or inner circumference using the ⏮ or ⏭ key.

[Power Supply Mode]

- Set the test mode, press the ⏭ key, and set the power supply mode using the VOLUME + and – keys.
- To set other modes, refer to "Structure of Test Mode".

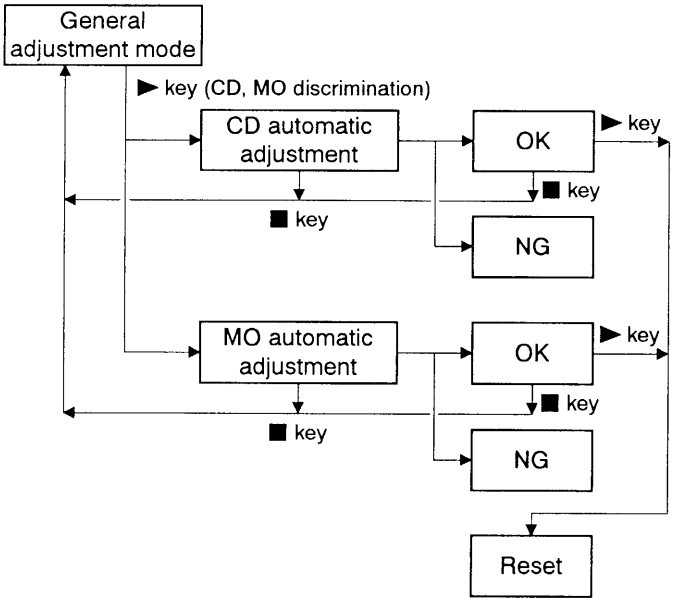
- **Structure of Power Supply Mode**



[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

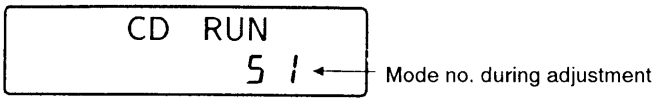


• Adjusting Method

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

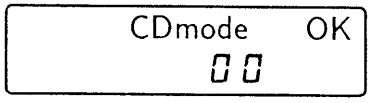


   - MO Automatic Adjustment

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

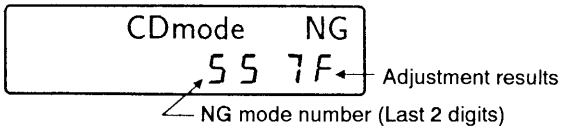
* Display during MO automatic adjustment

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

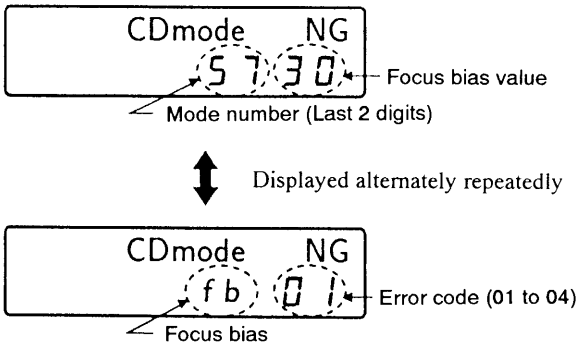


* In this case, when the ▶ key is pressed, the unit will be reset.

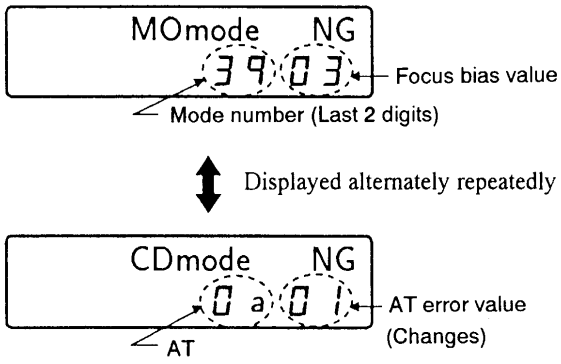
5. If the automatic adjustment results are NG, the following will be displayed.



* 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".)

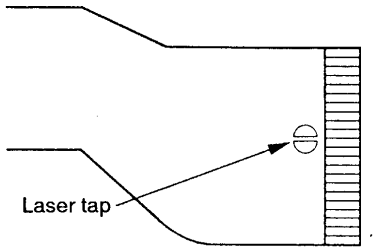
SECTION 5
ELECTRICAL ADJUSTMENTS

[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-194A/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.



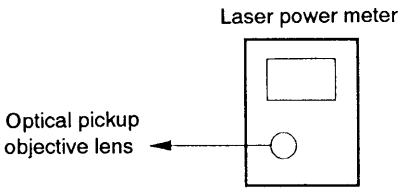
Optical pickup flexible board

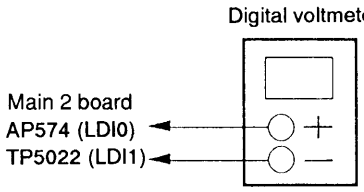
[Precautions for Adjustment]

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.
   - SONY MO disc available on the market.
   - 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, knob positions
   Hold switch ····· OFF
   AVLS switch (Remote control) ····· OFF

[Laser Power Check]

Connection:



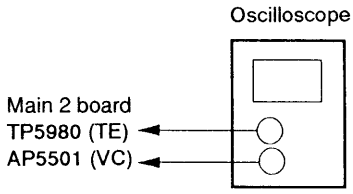


Adjusting Method:

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 volume + and – 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 AP574 (LDI0) and TP5022 (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 AP574 (LDI0) and TP5022 (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 volume + and – 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)

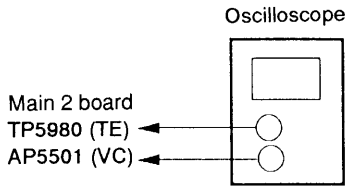
Specification: A=B, C ≧ 2.0 Vp-p

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 volume + and – 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.

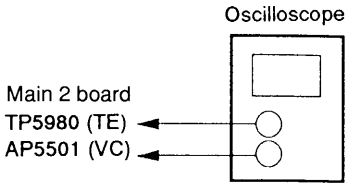
(Traverse Waveform)

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 volume + and – 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 playback 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.

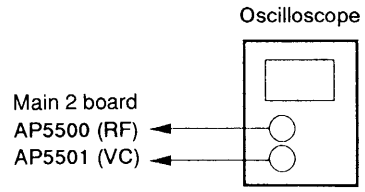
(Traverse Waveform)

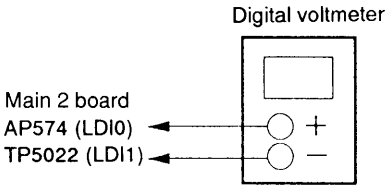
Specification: A=B, C ≧ 2.0 Vp-p

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:

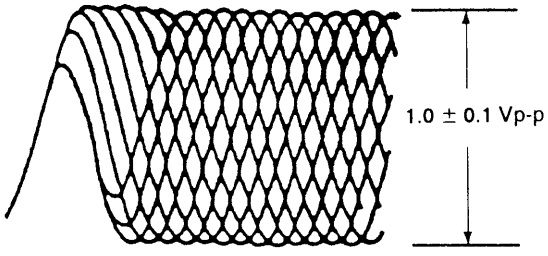




Adjusting Method:

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 volume + and – 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.

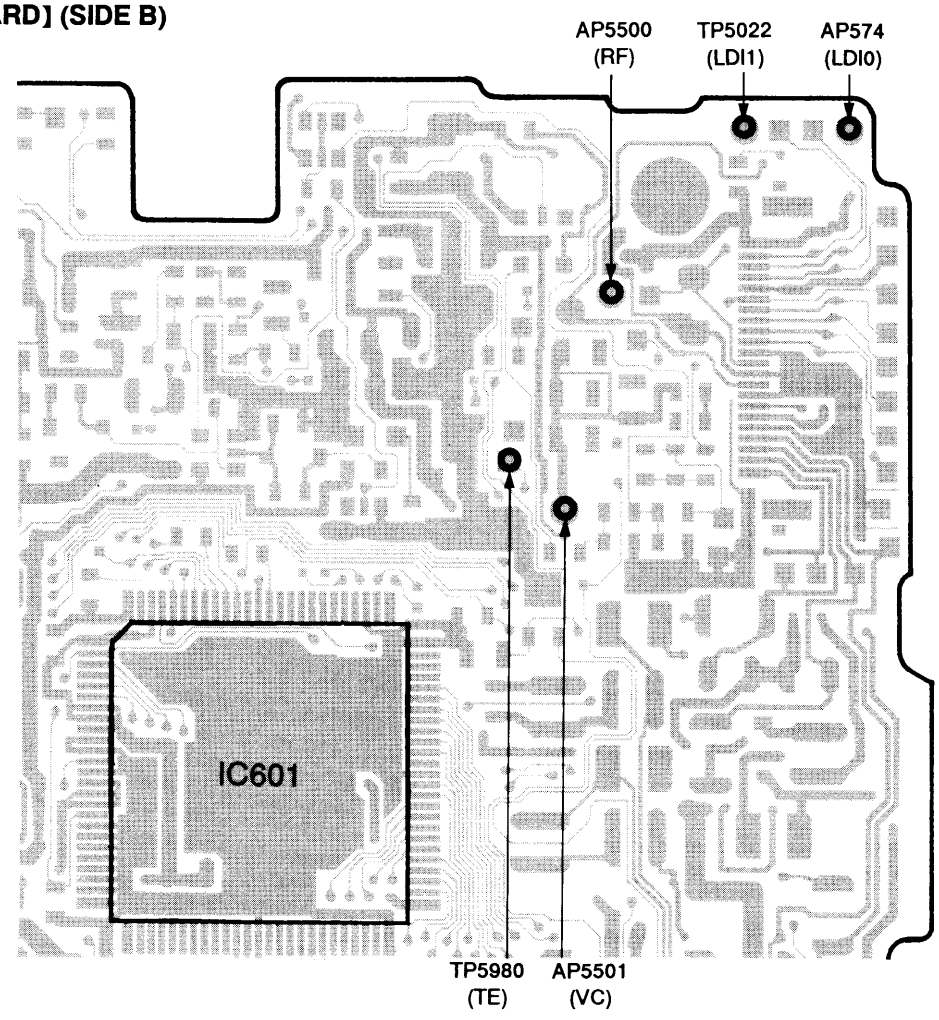
(RF Waveform)



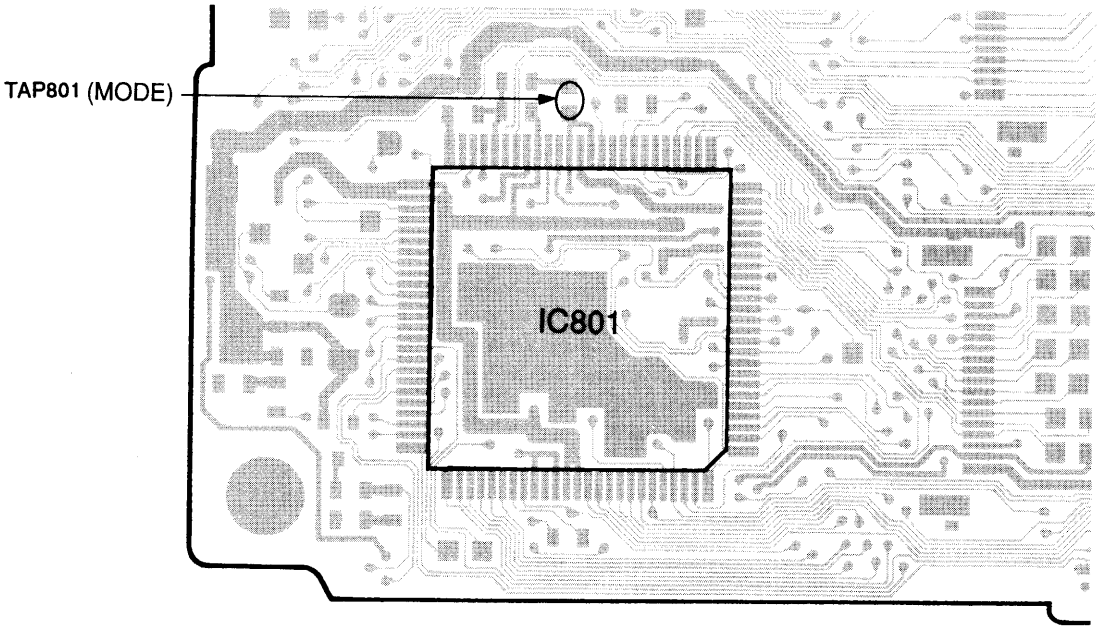
8. Check that the voltage between AP574 (LDI0) and TP5022 (LDI1) at this time is below 61 mV.
9. Press the ■ key.
10. Exit the test mode.

— Adjustment location —

[MAIN 2 BOARD] (SIDE B)

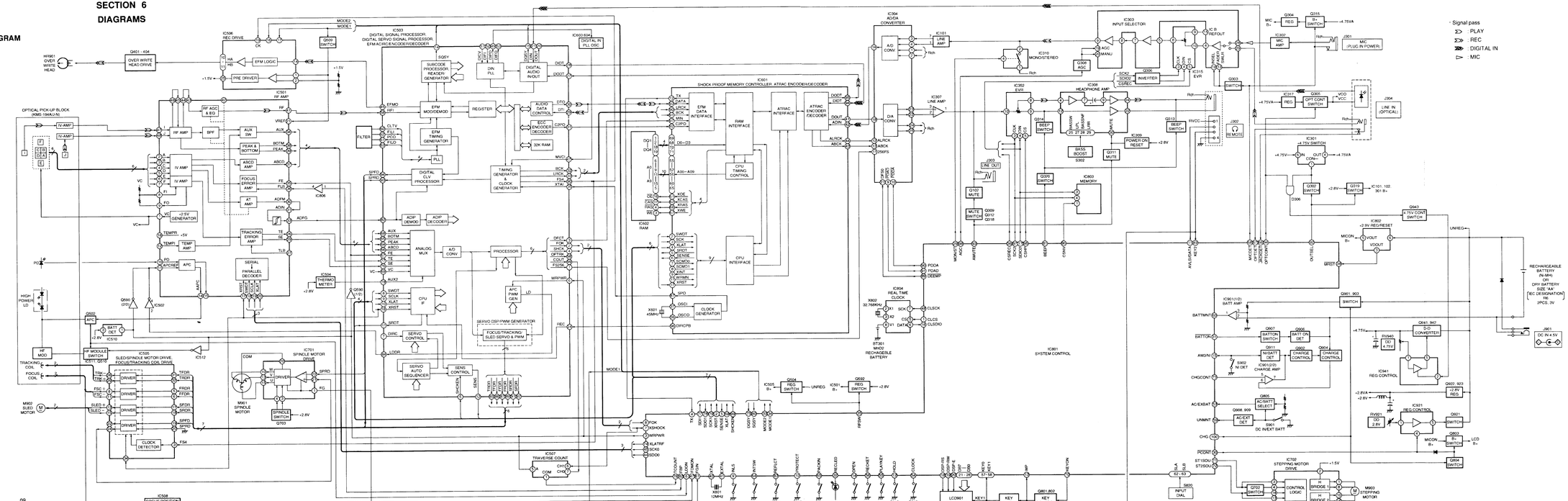


[MAIN 2 BOARD] (SIDE B)



SECTION 6
DIAGRAMS

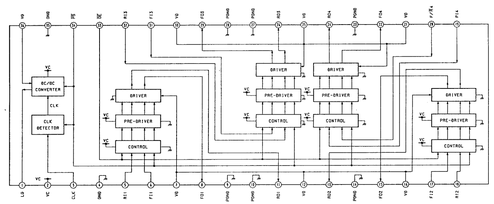
6-1. BLOCK DIAGRAM



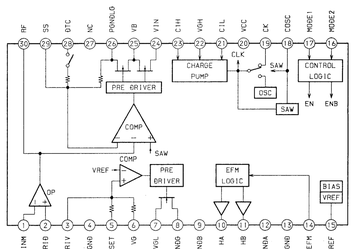
6-2. PRINTED WIRING BOARD — MAIN SECTION —

• IC Block Diagrams

IC505 MPC17A38VMEL



IC506 MPC18A20VMEL

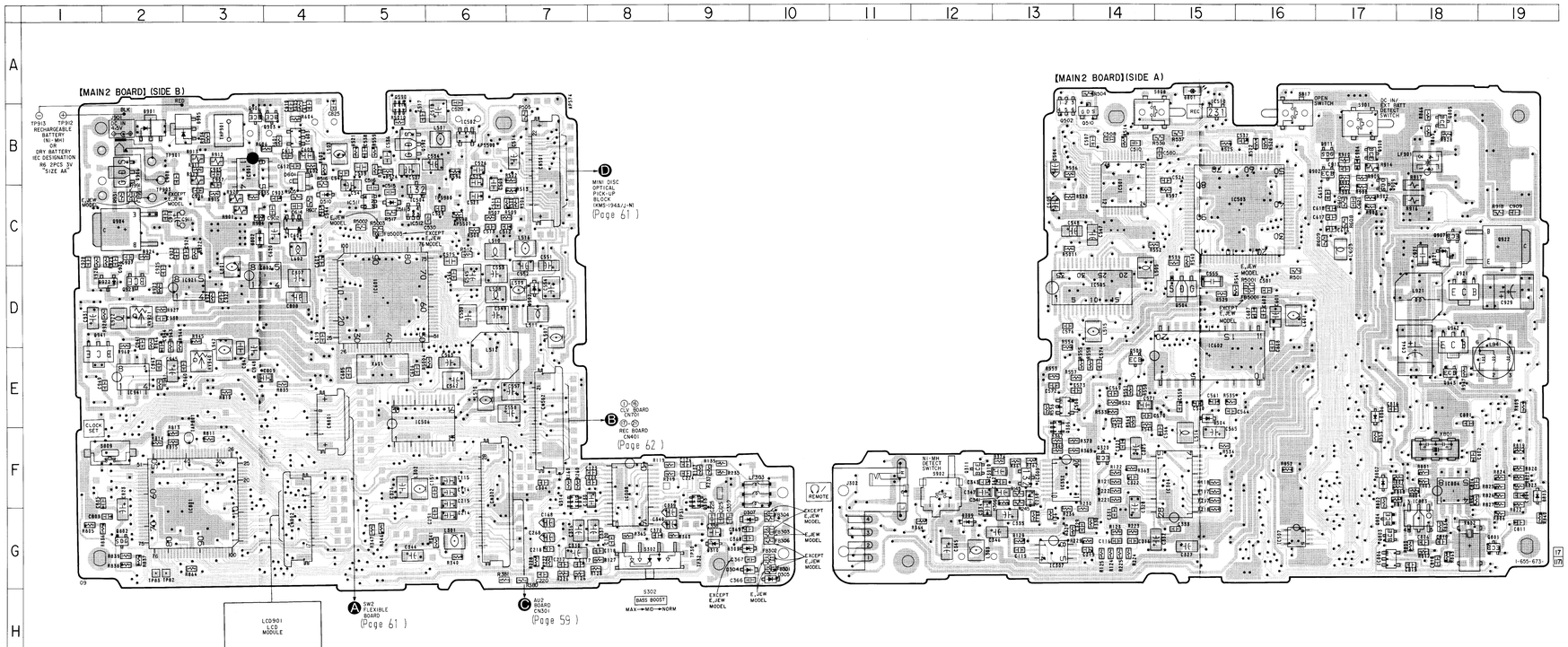


• Semiconductor Location

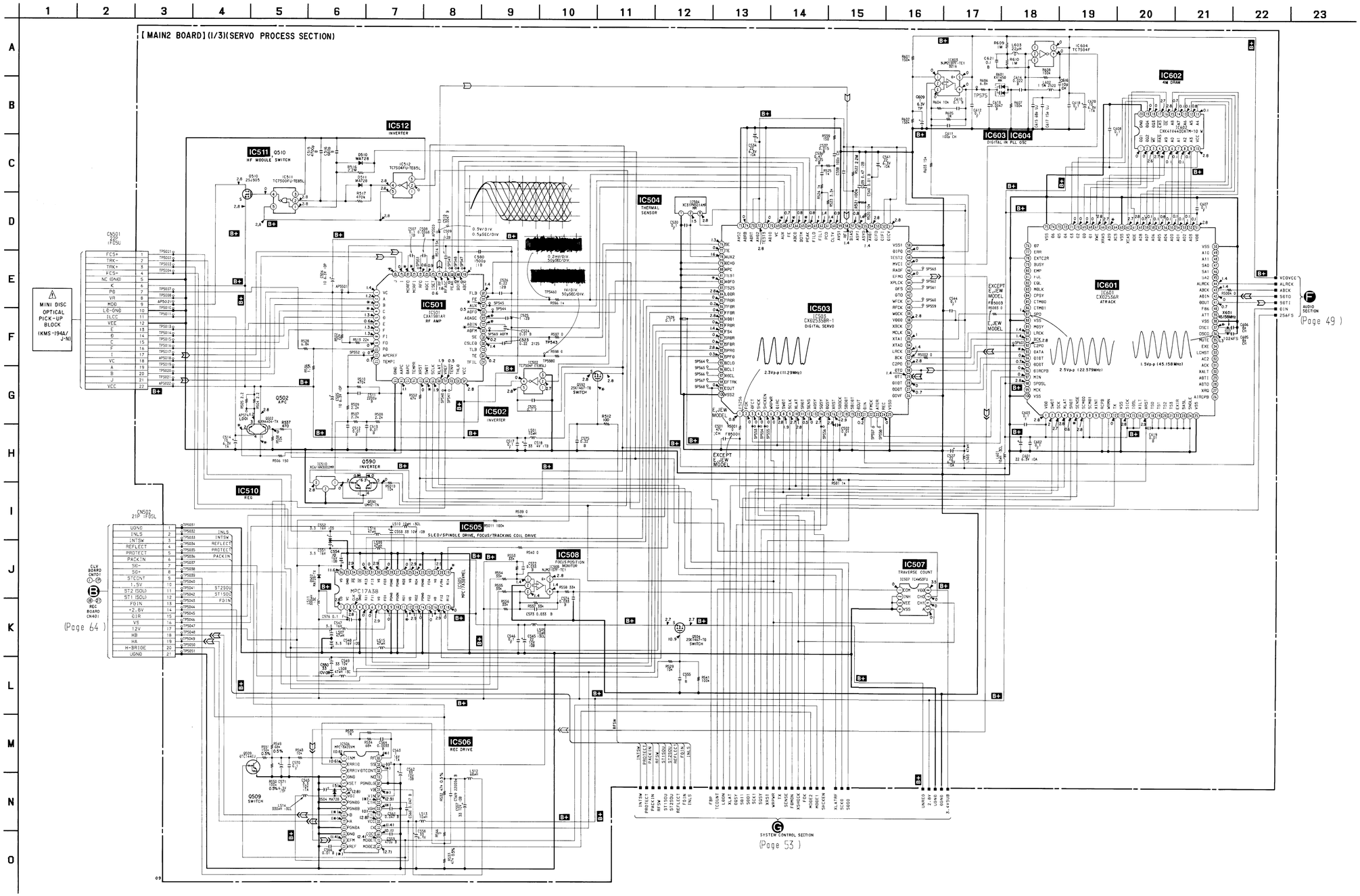
Ref. No.	Location	Ref. No.	Location
D303	G-9	IC801	G-2
D304	G-9	IC802	D-3
D305	G-10	IC803	G-18
D309	G-12	IC804	G-18
D310	G-9	IC806	G-17
D502	D-7	IC901	B-3
D504	F-15	IC921	D-3
D510	C-4	IC941	E-2
D511	C-5		
D601	B-4	Q306	F-13
D801	B-15	Q311	F-12
D802	C-3	Q313	G-9
D803	G-19	Q314	G-7
D806	F-17	Q320	F-14
D807	F-17	Q502	B-13
D901	B-2	Q504	D-15
D905	B-3	Q509	E-14
D921	D-18	Q510	B-14
D922	D-1	Q590	B-5
		Q592	B-5
IC304	F-15	Q801	G-19
IC307	G-13	Q802	G-2
IC308	F-8	Q803	G-17
IC309	F-13	Q804	G-17
IC352	F-13	Q805	B-18
IC501	C-14	Q901	B-3
IC502	B-6	Q902	C-16
IC503	C-16	Q903	B-4
IC504	C-5	Q904	C-2
IC505	D-14	Q906	B-2
IC506	F-5	Q907	C-18
IC507	G-16	Q908	B-17
IC508	F-13	Q909	C-17
IC510	B-15	Q911	B-17
IC511	C-5	Q921	D-18
IC512	C-5	Q922	C-19
IC601	D-5	Q923	D-2
IC602	E-15	Q941	D-1
IC603	B-4	Q942	E-18
IC604	C-4	Q943	E-18

Note:

- ● : Through hole.
- △ : internal component.
- ▒ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)
- Abbreviation
  JEW : Tourist model.



6-3. SCHEMATIC DIAGRAM — MAIN (SERVO/PROCESS) SECTION —
• See page 66 for IC Pin Functions. (IC501, 503, 601)



Note:

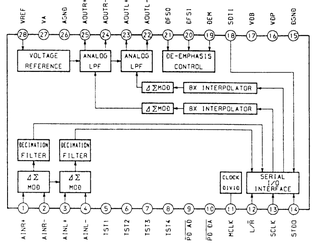
- All capacitors are in μF unless otherwise noted. pF:μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

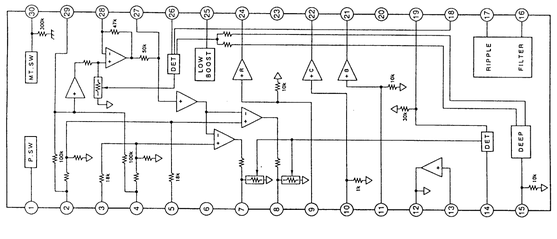
- B+ : B+ Line
- Voltage and waveforms are dc with respect to ground .
  no mark : Play the test disc (TDYS-1)
  ( ) : REC
  ✱ : can not be measured.
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with 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 (J901).
- Signal path.
  ▷ : PB
  ▷ : REC
- Abbreviation
  JEW : Tourist model.

• IC Block Diagrams

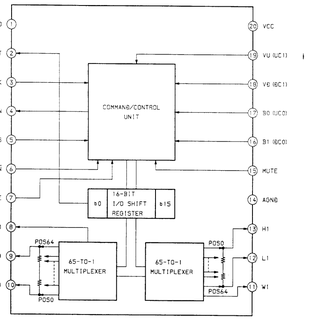
IC304 AK4503-VF-E2



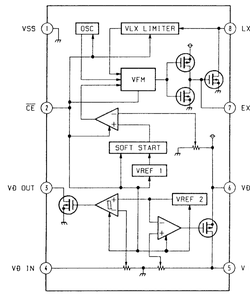
IC308 LA4805V



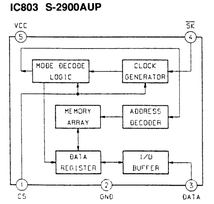
IC352 DS1802E



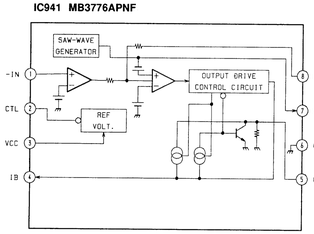
IC802 RS5RJ29261



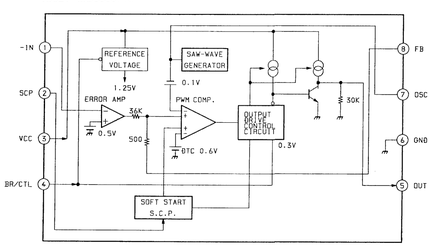
IC803 S-2900AUP



IC941 MB3776APNF

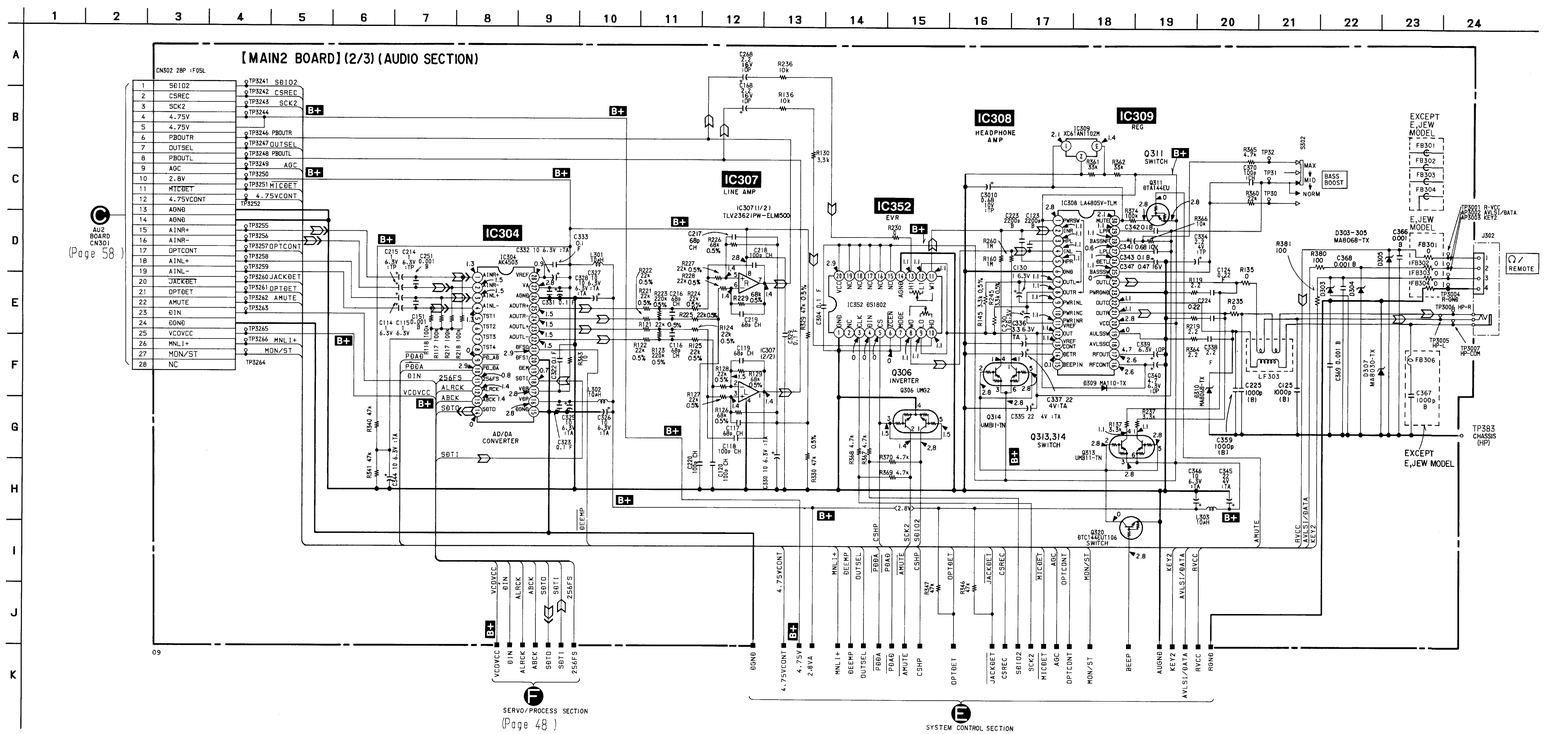


IC921 MB3800PNF



6-4. SCHEMATIC DIAGRAM — MAIN (AUDIO) SECTION —

• See page 40 for printed Wiring Boards.



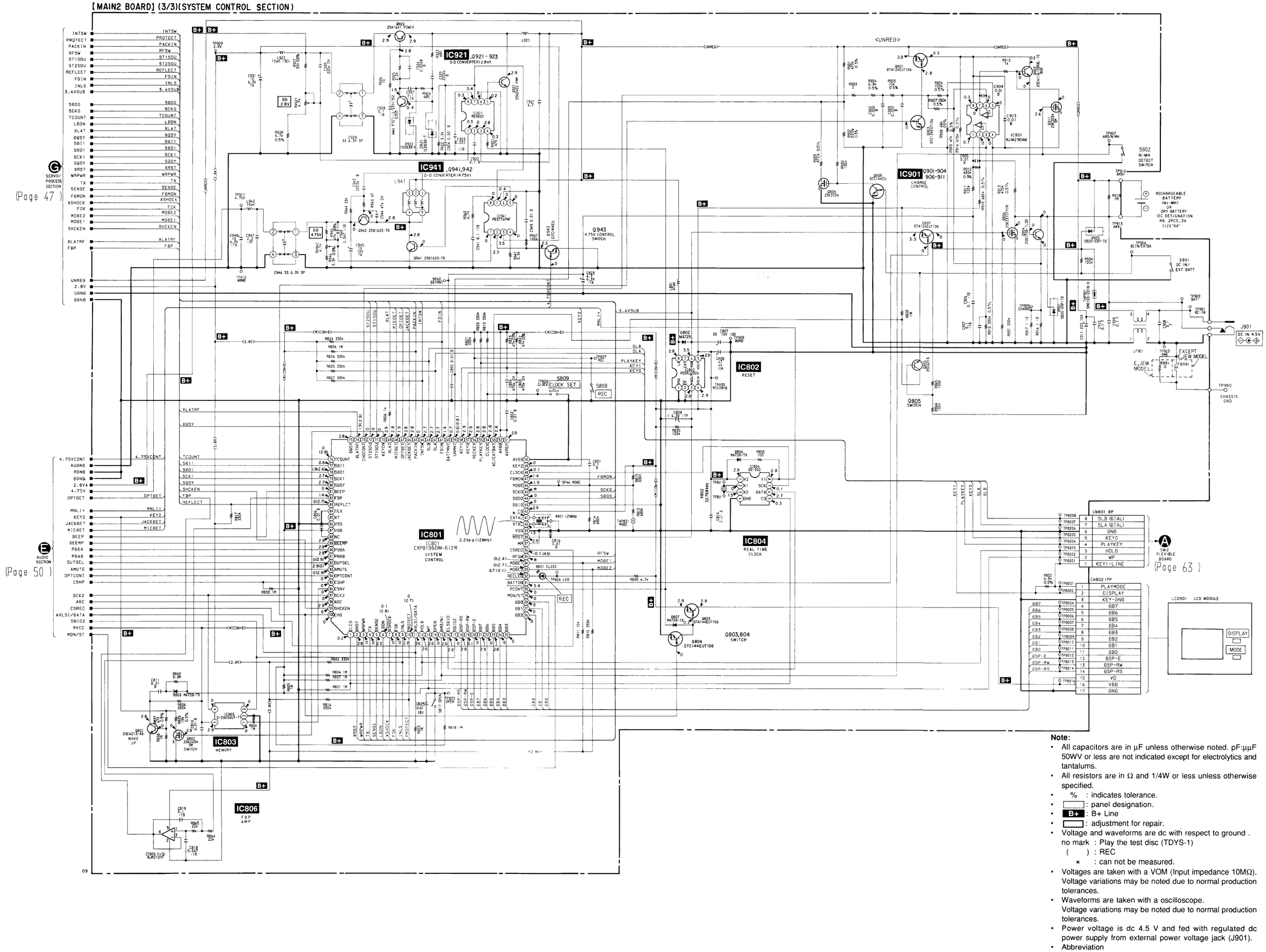
Note:

- 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
- Voltage and waveforms are dc with respect to ground .
  no mark : Play the test disc (TDYS-1)
- 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 (J901).
- Signal path.
  ▷ : PB
  ▷ : REC
- Abbreviation
  JEW : Tourist model.

6-5. SCHEMATIC DIAGRAM — MAIN (SYSTEM CONTROL) SECTION —

- See page 40 for printed Wiring Boards.
- See page 72 for IC Pin Functions. (IC801)

【MAIN2 BOARD】(3/3)(SYSTEM CONTROL SECTION)

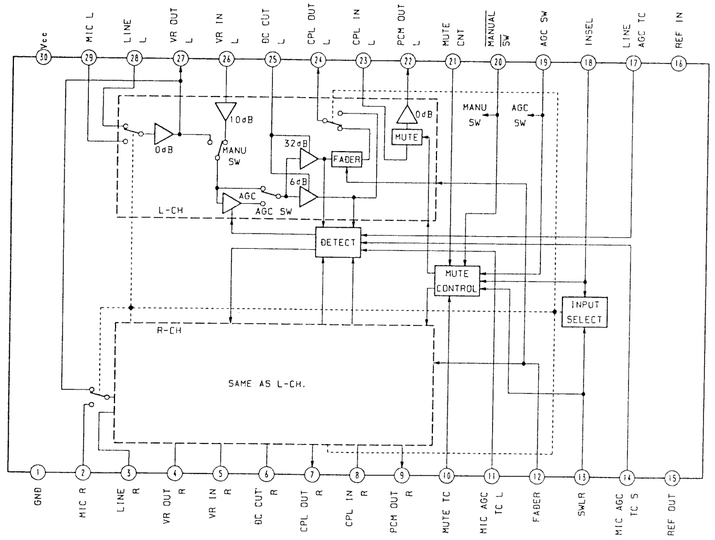


Note:

- 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
- ▭ : adjustment for repair.
- 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.
- 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 (J901).
- Abbreviation
  JEW : Tourist model.

• **IC Block Diagrams**

IC303 CXA1497AN

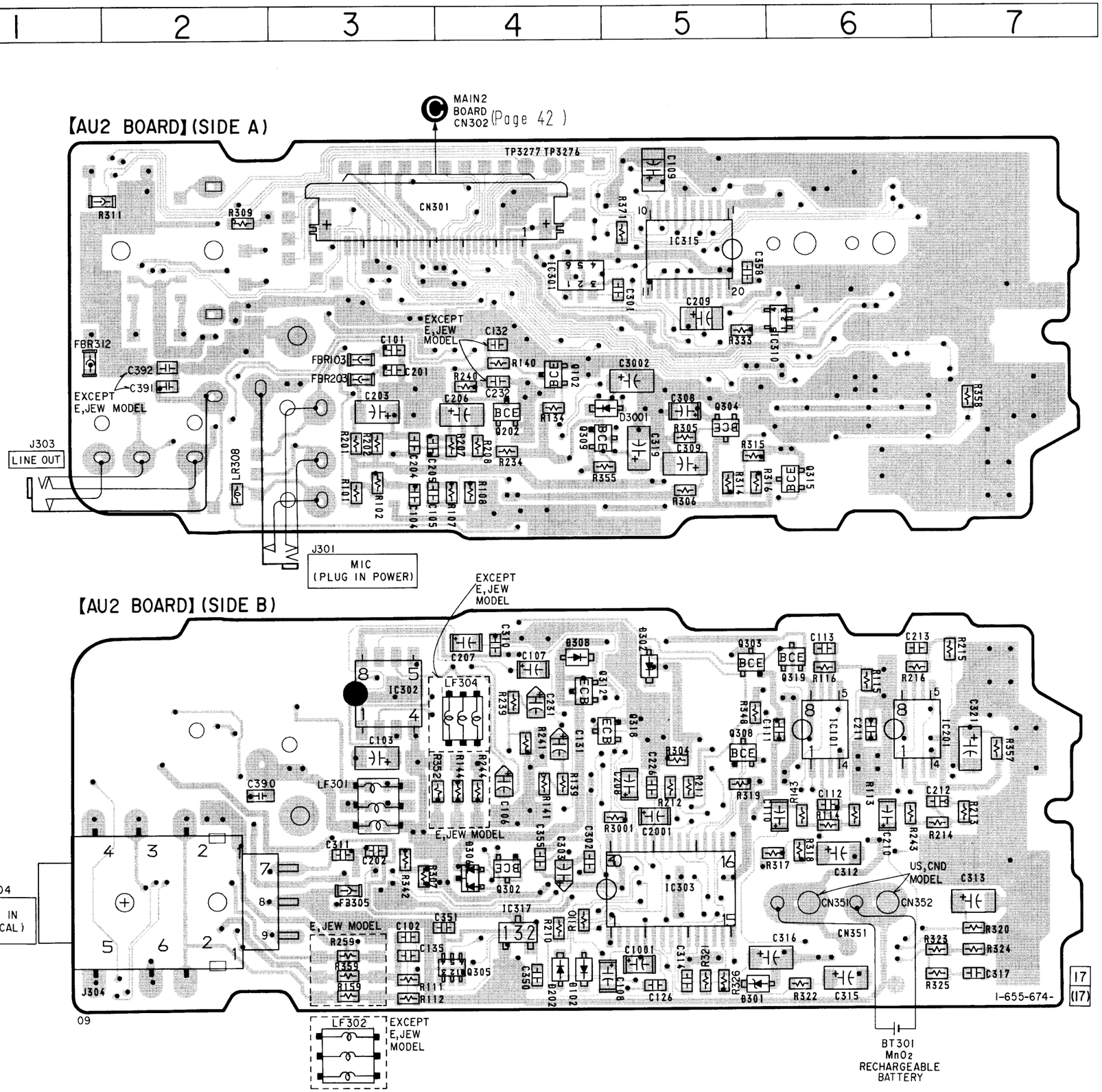


Note:

- 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
- Voltage and waveforms are dc with respect to ground . no mark : Play the test disc (TDYS-1) ( ) : REC
- 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 (J901).
- Signal path.
  - ▷ : PB
  - ▷▷ : REC
  - ▽ : MIC
- Abbreviation
  CND : Canadian model.
  JEW : Tourist model.

6-6. SCHEMATIC DIAGRAM — AUDIO SECTION —

6-7. PRINTED WIRING BOARD — AUDIO SECTION —



- **Semiconductor Location**

Ref. No.	Location
D102	F-4
D202	F-4
D301	F-5
D302	D-5
D306	E-4
D308	D-4
D3001	C-5
IC101	E-6
IC201	E-7
IC301	B-4
IC302	D-3
IC303	F-5
IC310	B-6
IC315	B-5
IC317	F-4
Q102	C-4
Q202	C-4
Q302	E-4
Q303	D-5
Q304	C-5
Q305	F-4
Q308	E-5
Q309	C-4
Q312	D-4
Q315	C-6
Q318	E-5
Q319	D-6

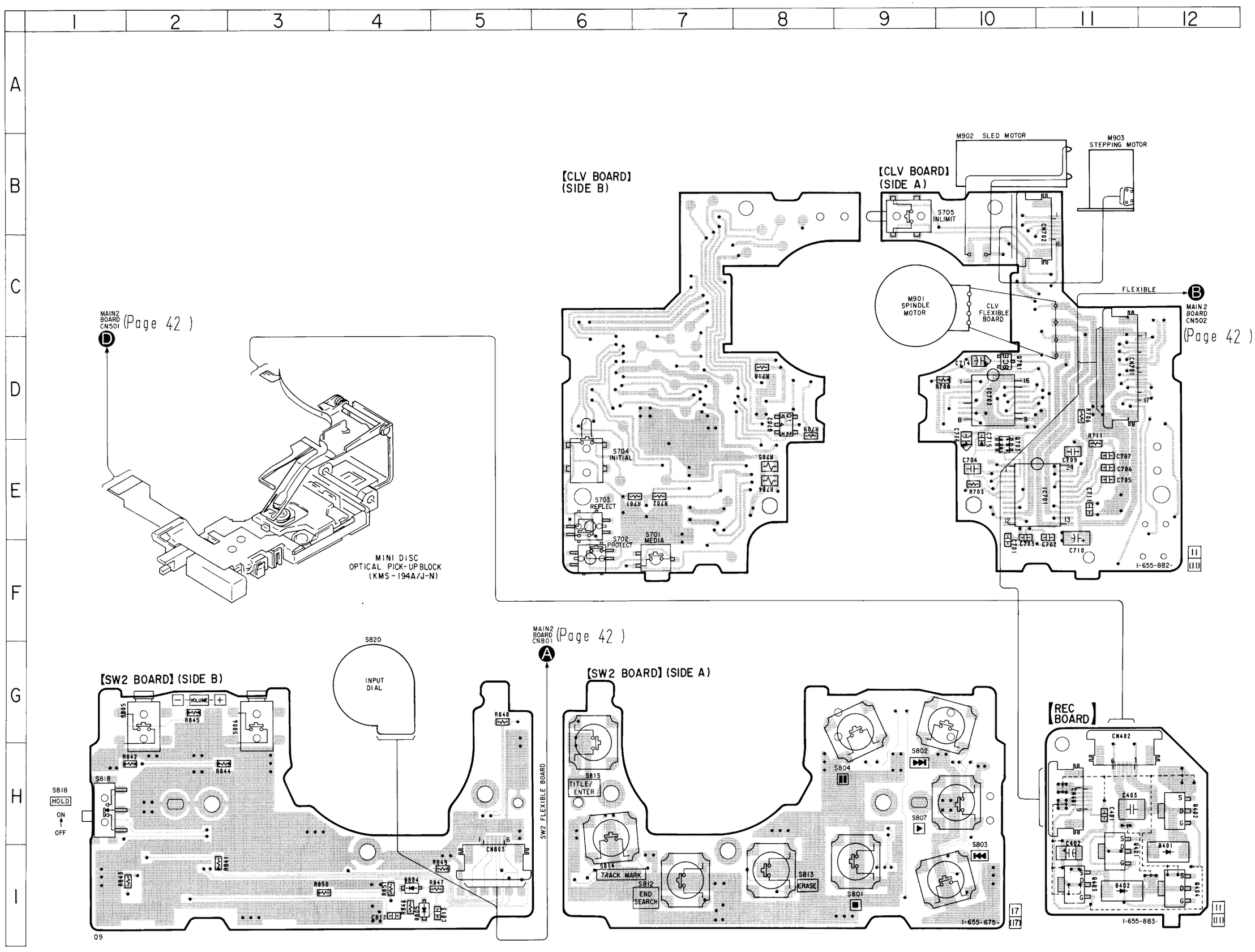
Note:

- ● : Through hole.
- ▒ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)
- Abbreviation
  CND : Canadian model.
  JEW : Tourist model.

6-8. PRINTED WIRING BOARD — REC/SW/MD SECTION —

- **Semiconductor Location**

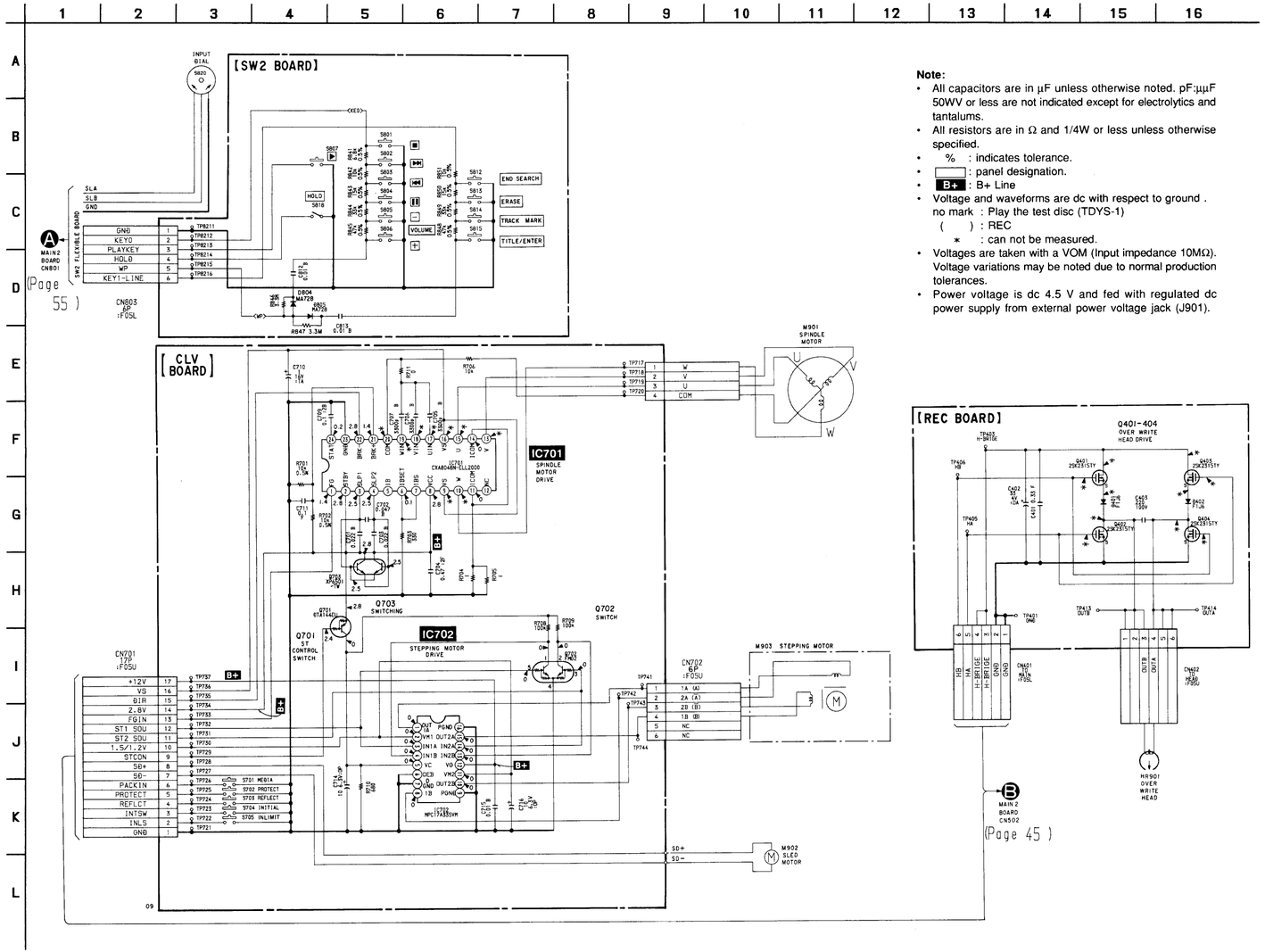
Ref. No.	Location
D401	I-12
D402	I-11
D804	I-4
D805	I-4
IC701	E-10
IC702	D-10
Q401	I-11
Q402	H-12
Q403	I-11
Q404	I-12
Q701	D-10
Q702	D-8
Q703	E-10



Note:

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

6-9. SCHEMATIC DIAGRAM — REC/SW/MD SECTION —

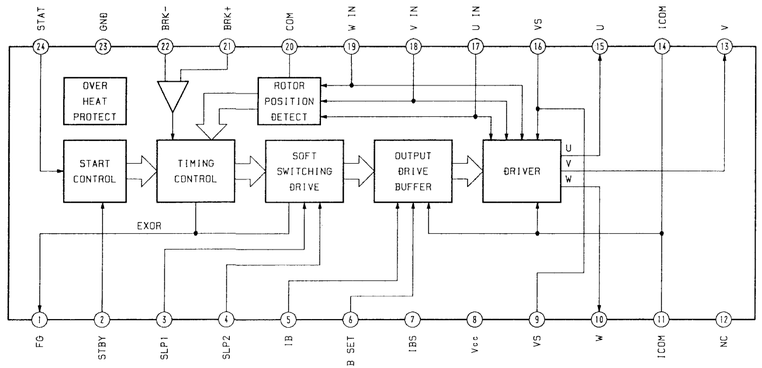


Note:

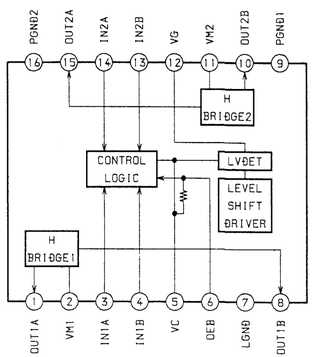
- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- ▭ : panel designation.
- **B+** : B+ Line
- Voltage and waveforms are dc 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 (J901).

• IC Block Diagrams

IC701 CXA8048N



IC702 MPC17A33SVMEL



6-10. 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 (Opened)
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 (Opened)
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)
22	FMCK	O	ADIP FM demodulation clock signal output (Opened)
23	ATER	O	ADIP CRC flag output. "H":Error (Not used)
24	REC	I	Input of recording/playback switching signal from CXD2536R (IC601) Recording: "H". Playback: "L"
25	VSS0	–	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	VDD0	–	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) (Opened)
42	GTO	O	"H": Opens playback EFM frame sync protection window (Opened)
43	GFS	O	"H": Playback EFM sync and interpolation protection timing match (Opened)
44	XPLCK	O	EFM decoder PLL clock output (98 Fs=4.3218 MHz) Falling edge and EFM signal edge match (Opened)
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 (Opened)
47	MVCI	I	Digital-in PLL oscillation input
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	AVD1	–	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 (IC304)
42	ADIN	I	Input of recording signal from A/D, D/A converter (IC304)
43	ABCK	O	Output of bit clock signal to A/D, D/A converters (IC304)
44	ALRCK	O	Output of L/R clock to A/D, D/A converters (IC304)
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 (Opened)
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 (CXP81960MR-612R)**

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 circuit of sleding. Internal circuit: "L"
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	Detecting switch for opening and closing of the upper cover. Close: "L"
15	AM3/NI	I	Detects whether the internal battery is a dry battery or Ni/MH charging battery. Ni/MH="L"
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	MON/ST	I	MONO/Stereo detection input
30	$\overline{\text{PCONT}}$	O	Power Control output. "L"=ON
31	$\overline{\text{BATTON}}$	O	Outputs "L" while operating with a battery
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	CSREC	O	Outputs chip select to EVR (IC315)
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 detection input
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	RECKEY	I	REC 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	$\overline{\text{JACKDET}}$	I	INPUT jack detection input
67	OPTDET	I	Detecting input an optical input
68	MICDET	I	MIC jack detection
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
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	BEEP sound output control. "H"=BEEP sound output
82	FBP	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 "H")
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	OPTCONT	O	Power supply control output for an optical input
95	CSHP	O	Chip Select output
96	CSNV	O	
97	SCK2	O	Serial clock output
98	AGC	O	AGC signal
99	SHCKEN	O	Track jump detection enable output
100	CHG	O	Charge control. "H": Charge

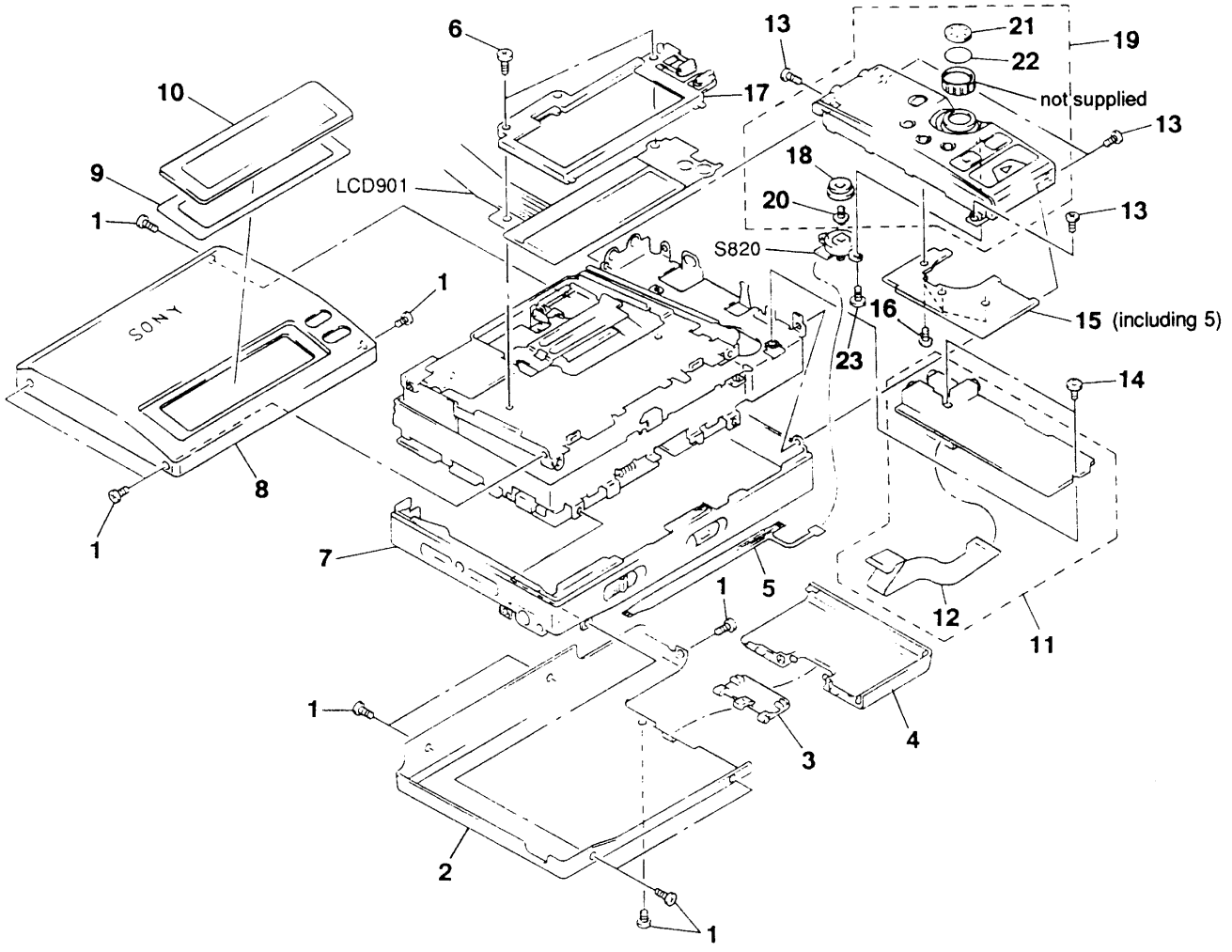
SECTION 7
EXPLODED VIEWS

NOTE:
- 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.
- Abbreviation
  CND : Canadian model
  AUS : Australian model
  JEW : Tourist model

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

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

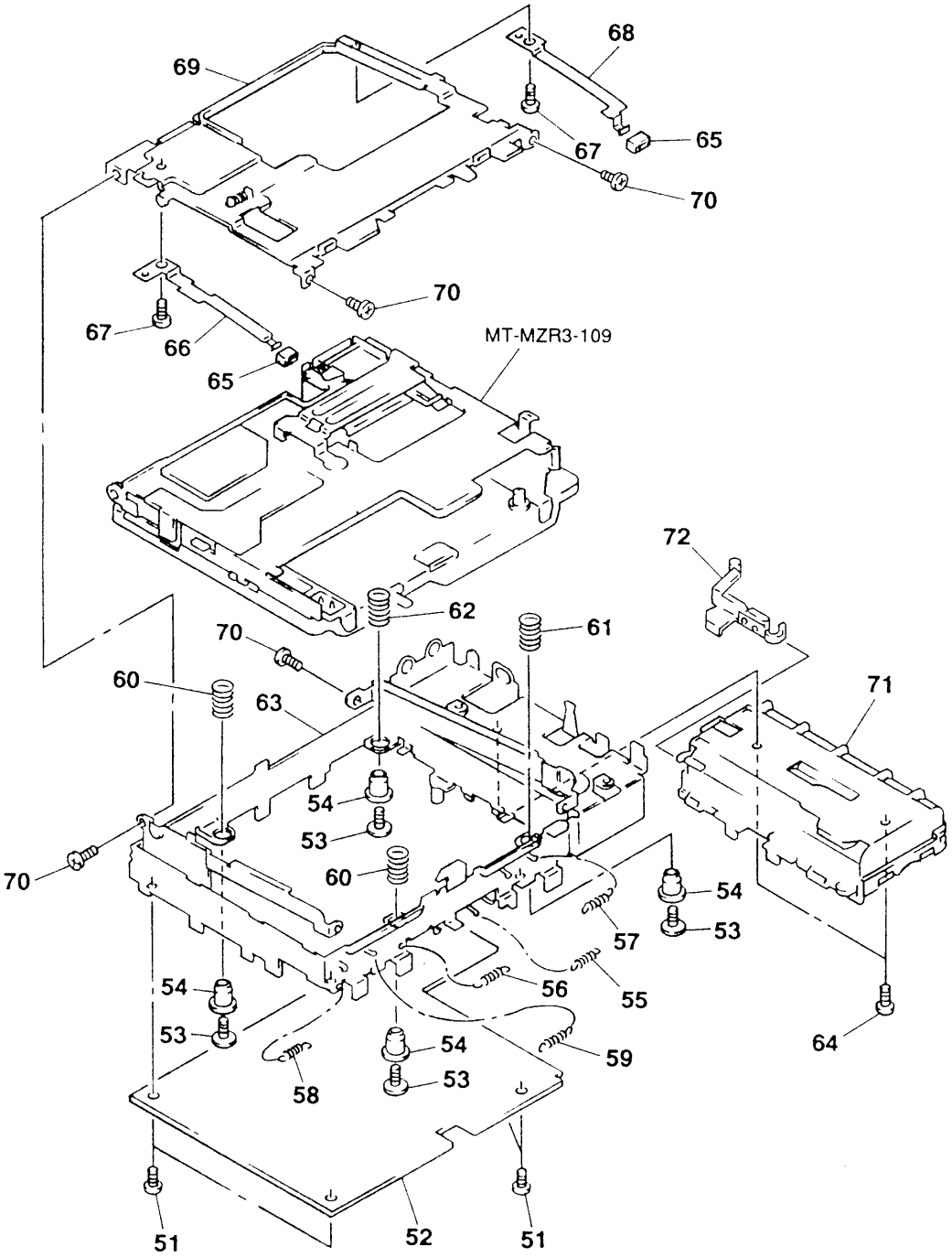
7-1. CABINET AND BOARDS SECTION



Ref. No.	Part No.	Description	Remark
1	4-963-883-31	SCREW (M1.4), PRECISION PAN	
2	X-4945-846-1	PANEL ASSY, BOTTOM	
3	4-972-499-01	HINGE (BATTERY CASE LID)	
4	4-972-498-01	LID, BATTERY CASE	
5	1-655-783-11	SW 2 FLEXIBLE BOARD	
6	3-349-825-83	SCREW, PRECISION	
7	X-4945-805-1	STRIP (E) ASSY, ORNAMENTAL	
8	X-4945-845-1	PANEL (E) ASSY, UPPER	
9	4-972-461-01	SHEET (LCD), ADHESIVE	
10	4-972-460-11	WINDOW (LCD)	
11	A-3276-676-A	AU 2 BOARD, COMPLETE (E, JEW)	
11	A-3276-743-A	AU 2 BOARD, COMPLETE (US, CND, AEP)	
11	A-3276-747-A	AU 2 BOARD, COMPLETE (UK, AUS)	
12	1-655-782-11	AU 2 FLEXIBLE BOARD	

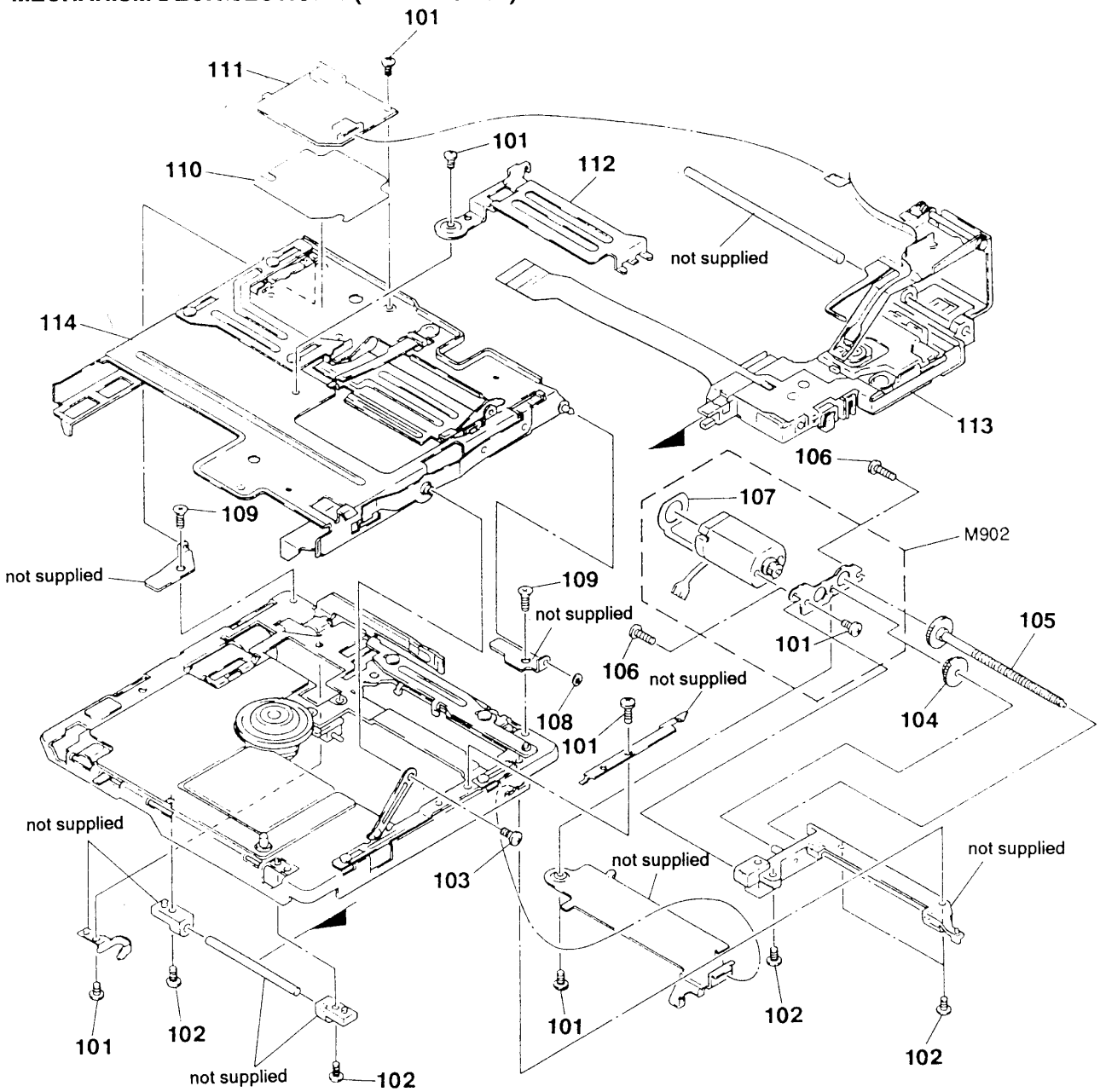
Ref. No.	Part No.	Description	Remark
13	4-963-883-61	SCREW (M1.4), PRECISION PAN	
14	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK	
15	A-3276-679-A	SW BOARD, COMPLETE	
16	3-318-382-01	SCREW (1.7X3), TAPPING	
* 17	4-972-541-01	HOLDER (LCD)	
18	4-972-538-01	KNOB (TITLE B)	
19	X-4945-844-1	ORNAMENT ASSY, CONTROL	
20	3-318-201-01	SCREW (B) (1.4X3), TAPPING	
21	4-972-545-01	INPUT, ORNAMENTAL	
22	4-973-630-01	SHEET (TITLE), ADHESIVE	
23	3-318-382-51	SCREW (1.7X3.7), TAPPING	
LCD901	1-810-790-11	LCD MODULE	
S820	1-762-297-11	SWITCH, ROTARY (DIAL)	

7-2. CHASSIS AND MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark
51	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK	
52	A-3276-677-A	MAIN 2 BOARD, COMPLETE (E, JEW)	
52	A-3276-744-A	MAIN 2 BOARD, COMPLETE (US, CND)	
52	A-3276-748-A	MAIN 2 BOARD, COMPLETE (AEP, UK, AUS)	
53	4-963-924-01	SCREW (DAMPER)	
54	4-963-909-01	DAMPER	
55	4-972-514-01	SPRING (SW), TENSION	
56	4-972-516-01	SPRING, TENSION	
57	4-972-519-01	SPRING (REC), TENSION	
58	4-972-520-01	SPRING (BP), TENSION	
59	4-972-522-01	SPRING (OPEN), TENSION	
60	4-963-922-01	SPRING (MD3), COMPRESSION	
61	4-963-911-01	SPRING (MD1), COMPRESSION	
62	4-963-912-01	SPRING (MD2), COMPRESSION	
63	X-4945-802-1	CHASSIS (A) ASSY, SET	
64	3-363-220-71	SCREW (M1.4)	
65	4-963-945-01	CUSHION (DAMPER)	
66	4-963-944-01	SPRING (MD RETAINER B), LEAF	
67	3-366-890-11	SCREW (M1.4)	
68	4-963-943-01	SPRING (MD RETAINER A), LEAF	
69	X-4945-807-1	COVER ASSY, LID	
70	4-963-883-31	SCREW (M1.4), PRECISION PAN	
71	X-4945-783-1	CASE ASSY, BATTERY (UK, E, AUS, JEW)	
71	X-4945-962-1	CASE ASSY (U), BATTERY (US, CND, AEP)	
72	X-4945-789-1	LEVER (NI-MH) ASSY, DETECTION	

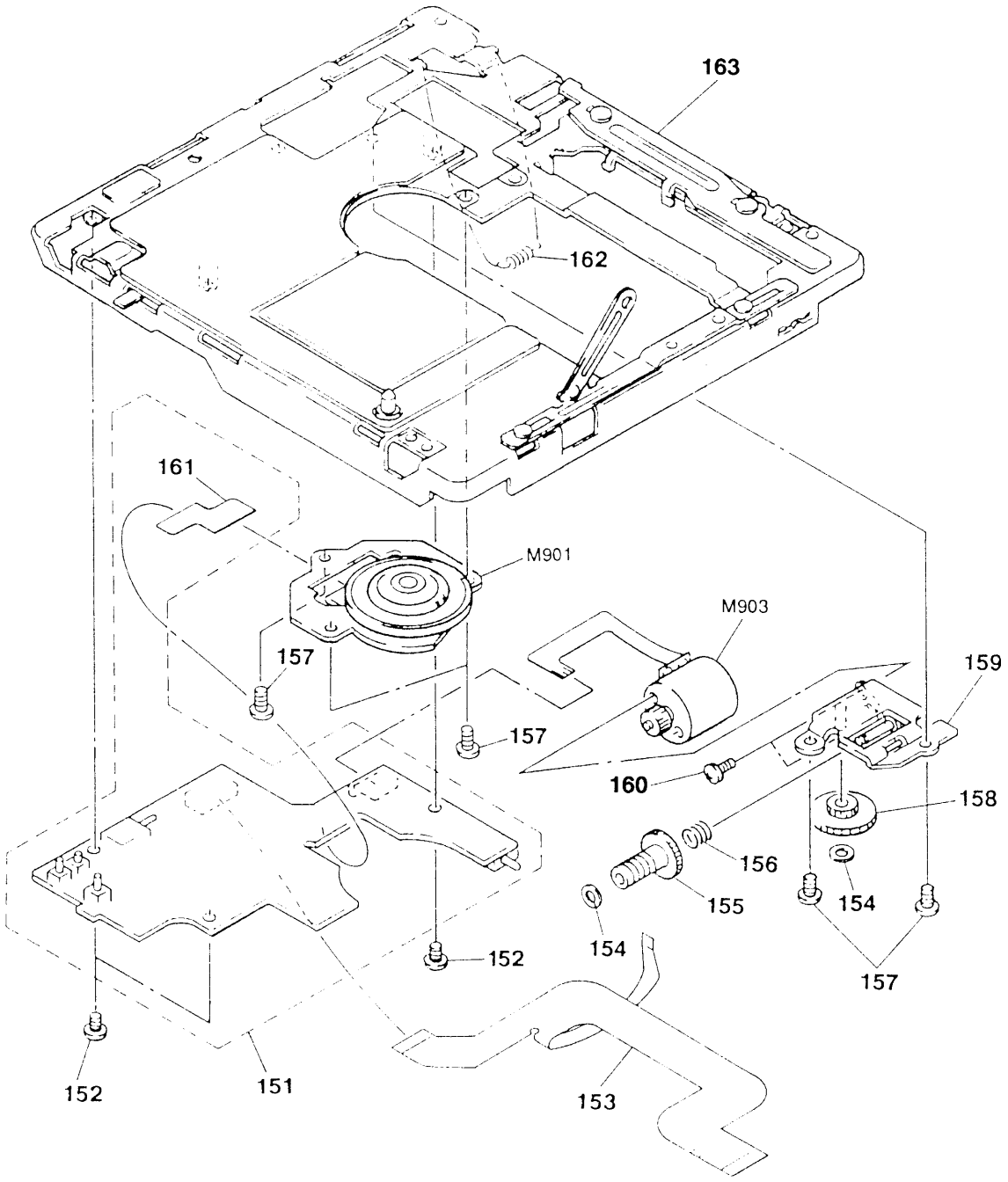
7-3. MECHANISM DECK SECTION 1 (MT-MZR3-109)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	3-366-890-11	SCREW (M1.4)	
102	3-704-197-33	SCREW (M1.4X3.0), LOCKING	
103	4-963-883-31	SCREW (M1.4), PRECISION PAN	
104	4-972-548-01	GEAR (BH)	
105	A-3303-501-A	SCREW BLOCK ASSY, LEAD	
106	4-964-537-01	SCREW (M1.4X4.5), TAPPING	
107	1-651-018-11	SLED FLEXIBLE BOARD	
108	3-338-645-31	WASHER (0.8-2.5)	
109	4-964-538-01	SCREW (M1.4X2)	
110	4-964-223-01	SHEET(REC PC BOARD), INSULATING	
* 111	1-655-883-11	REC BOARD	
* 112	4-963-889-02	GUARD, HEAD	
⚠113	X-4946-054-1	OPTICAL PICK-UP BLOCK	
114	X-4945-549-1	HOLDER ASSY	
M902	A-3303-502-A	MOTOR BLOCK ASSY, SLED	

7-4. MECHANISM DECK SECTION 2 (MT-MZR3-109)



Ref. No.	Part No.	Description	Remark
151	A-3276-694-A	CLV BOARD, COMPLETE	
152	3-366-890-11	SCREW (M1.4)	
153	1-655-881-11	MD REC FLEXIBLE BOARD	
154	3-315-384-11	WASHER, STOPPER	
155	4-963-901-01	GEAR, WORM	
156	4-972-546-01	SPRING (WORM GEAR), COMPRESSION	
157	4-955-841-01	SCREW	
158	4-963-898-01	GEAR (WORM WHEEL)	
159	X-4944-449-1	CHASSIS ASSY, GEAR	
160	4-964-564-01	SCREW (M1.2X1.6)	
161	1-651-017-11	CLV FLEXIBLE BOARD	
162	4-963-900-01	SPRING (LOCK), TENSION	
163	X-4945-260-2	CHASSIS ASSY	
M901	1-698-542-11	MOTOR (SPINDLE)	
M903	A-3303-499-A	STEPPER BLOCK ASSY (STEPPING MOTOR)	

AU 2

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

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

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

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.
- 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
- Abbreviation
  CND : Canadian model
  AUS : Australian model
  JEW : Tourist model

Ref. No.	Part No.	Description			Remark
	A-3276-676-A	AU 2 BOARD, COMPLETE (E, JEW)			
		**********			
	A-3276-743-A	AU 2 BOARD, COMPLETE (US, CND, AEP)			
		**********			
	A-3276-747-A	AU 2 BOARD, COMPLETE (UK, AUS)			
		**********			
	1-655-782-11	AU 2 FLEXIBLE BOARD			
		< BATTERY >			
BT301	1-528-593-11	BATTERY (ML1220-HI1)			
		< CAPACITOR >			
C101	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C102	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C103	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C104	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C105	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C106	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C107	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C108	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C109	1-107-811-11	TANTAL. CHIP	47uF	20%	4V
C110	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C111	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C112	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C113	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C126	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C131	1-107-812-11	TANTAL. CHIP	4.7uF	20%	6.3V
C132	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (US, CND, AEP, UK, AUS)
C135	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C201	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C202	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C203	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C204	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C205	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C206	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C207	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C208	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C209	1-107-811-11	TANTAL. CHIP	47uF	20%	4V
C210	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C211	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C212	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C213	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C226	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C231	1-107-812-11	TANTAL. CHIP	4.7uF	20%	6.3V
C232	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (US, CND, AEP, UK, AUS)
C301	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C302	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C303	1-107-971-11	TANTAL. CHIP	2.2uF	20%	16V
C308	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C309	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C310	1-164-361-11	CERAMIC CHIP	0.047uF		16V
C311	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C312	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C313	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C314	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C315	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C316	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C317	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C319	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C321	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C350	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C351	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C355	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C358	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C390	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C391	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (US, CND, AEP, UK, AUS)
C392	1-216-864-11	METAL CHIP	0	5%	1/16W (US, CND, AEP, UK, AUS)
C1001	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C2001	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C3002	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
		< CONNECTOR >			
CN301	1-691-365-11	CONNECTOR, FFC/FPC (ZIF) 27P			
CN351	1-770-311-11	RECEPTACLE, PIN (US, CND)			
CN352	1-770-311-11	RECEPTACLE, PIN (US, CND)			
		< DIODE >			
D102	8-719-421-27	DIODE MA728			

Ref. No.	Part No.	Description	Remark
D202	8-719-421-27	DIODE MA728	
D301	8-719-017-76	DIODE MA8030	
D302	8-719-421-27	DIODE MA728	
D306	8-719-988-82	DIODE RB715F	
D308	8-719-421-27	DIODE MA728	
D3001	8-719-421-27	DIODE MA728	
		< FERRITE BEAD >	
FB305	1-414-228-11	INDUCTOR, FERRITE BEAD	
FBR103	1-500-238-11	BEAD, FERRITE (CHIP)	
FBR203	1-500-238-11	BEAD, FERRITE (CHIP)	
FBR312	1-216-864-11	METAL CHIP 0 5% 1/16W	
LR308	1-500-238-11	BEAD, FERRITE (CHIP)	
		< IC >	
IC101	8-759-252-90	IC TLV2362IPW-ELM1500	
IC201	8-759-252-90	IC TLV2362IPW-ELM1500	
IC301	8-759-257-94	IC TK11245AM	
IC302	8-759-711-85	IC NJM4580E-D	
IC303	8-759-332-27	IC CXA1497AN-E2	
IC310	8-759-082-60	IC TC7S66FU	
IC315	8-759-332-22	IC DS1802-TE2	
IC317	8-759-332-21	IC XC62AP3502MR	
		< JACK >	
J301	1-764-460-11	JACK (MIC (PLUG IN POWER))	
J303	1-764-460-21	JACK (LINE OUT)	
J304	8-759-252-45	IC GP1F365R (LINE IN (OPTICAL))	
		< LINE FILTER >	
LF301	1-403-601-21	FILTER, COMMON MODE	
LF302	1-403-601-21	FILTER, COMMON MODE (US, CND, AEP, UK, AUS)	
LF304	1-403-601-21	FILTER, COMMON MODE (US, CND, AEP, UK, AUS)	
		< TRANSISTOR >	
Q102	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
Q202	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
Q302	8-729-905-18	TRANSISTOR DTC144EU	
Q303	8-729-905-18	TRANSISTOR DTC144EU	
Q304	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q305	8-729-930-04	TRANSISTOR UMD3	
Q308	8-729-905-18	TRANSISTOR DTC144EU	
Q309	8-729-905-12	TRANSISTOR DTA144EU	
Q312	8-729-230-60	TRANSISTOR 2SA1586-YG	
Q315	8-729-920-99	TRANSISTOR DTA114EU	
Q318	8-729-905-18	TRANSISTOR DTC144EU	
Q319	8-729-920-99	TRANSISTOR DTA114EU	
		< RESISTOR >	
R101	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R102	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R107	1-218-708-11	METAL CHIP 4.7K 0.50% 1/16W	
R108	1-218-688-11	METAL CHIP 680 0.50% 1/16W	
R110	1-216-859-11	METAL GLAZE 1.5M 5% 1/16W	
R111	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R112	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R113	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R114	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R115	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R116	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R134	1-218-692-11	METAL CHIP 1K 0.50% 1/16W	
R139	1-216-813-11	METAL CHIP 220 5% 1/16W	
R140	1-216-813-11	METAL CHIP 220 5% 1/16W	
R141	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R143	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R144	1-216-864-11	METAL CHIP 0 5% 1/16W	(E, JEW)
R159	1-216-864-11	METAL CHIP 0 5% 1/16W	(E, JEW)
R201	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R202	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R207	1-218-708-11	METAL CHIP 4.7K 0.50% 1/16W	
R208	1-218-688-11	METAL CHIP 680 0.50% 1/16W	
R210	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R211	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R212	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R213	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R214	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R215	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R216	1-218-724-11	METAL CHIP 22K 0.50% 1/16W	
R234	1-218-692-11	METAL CHIP 1K 0.50% 1/16W	
R239	1-216-813-11	METAL CHIP 220 5% 1/16W	
R240	1-216-813-11	METAL CHIP 220 5% 1/16W	
R241	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R243	1-218-716-11	METAL CHIP 10K 0.50% 1/16W	
R244	1-216-864-11	METAL CHIP 0 5% 1/16W	(E, JEW)
R259	1-216-864-11	METAL CHIP 0 5% 1/16W	(E, JEW)
R304	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R305	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R306	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R307	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R309	1-216-864-11	METAL CHIP 0 5% 1/16W	
R311	1-216-864-11	METAL CHIP 0 5% 1/16W	
R314	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R315	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R316	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R317	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R318	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R319	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R320	1-216-861-11	METAL CHIP 2.2M 5% 1/16W	
R321	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R322	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	

AU 2 CLV MAIN 2

Ref.No.	Part No.	Description				Remark
R323	1-218-692-11	METAL CHIP	1K	0.50%	1/16W	
R324	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R325	1-216-801-11	METAL CHIP	22	5%	1/16W	
R326	1-216-861-11	METAL CHIP	2.2M	5%	1/16W	
R333	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R342	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R348	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R352	1-216-864-11	METAL CHIP	0	5%	1/16W	(E, JEW)
R355	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R357	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R358	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R359	1-216-864-11	METAL CHIP	0	5%	1/16W	(E, JEW)
R371	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R3001	1-216-837-11	METAL CHIP	22K	5%	1/16W	

****

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-3276-677-A MAIN 2 BOARD, COMPLETE (E, JEW)
****

A-3276-744-A MAIN 2 BOARD, COMPLETE (US, CND)
****

A-3276-748-A MAIN 2 BOARD, COMPLETE (AEP, UK, AUS)
****

< CAPACITOR >

C114	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C115	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C116	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C117	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C118	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C119	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C120	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C123	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C124	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C125	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C130	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C151	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C168	1-107-971-11	TANTAL. CHIP	2.2uF	20%	16V
C214	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C215	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C216	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C217	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C218	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C219	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C220	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C223	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V

Ref. No.	Part No.	Description			Remark
C224	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C225	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C230	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C251	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C268	1-107-971-11	TANTAL. CHIP	2.2uF	20%	16V
C304	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C322	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C323	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C325	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C326	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C327	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C328	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C329	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C330	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C331	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C332	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C333	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C334	1-107-815-11	TANTAL. CHIP	2.2uF	20%	4V
C335	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C336	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C337	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C338	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C339	1-107-812-11	TANTAL. CHIP	4.7uF	20%	6.3V
C340	1-107-812-11	TANTAL. CHIP	4.7uF	20%	6.3V
C341	1-107-816-11	TANTAL. CHIP	0.68uF	20%	10V
C342	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C343	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C344	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C345	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C346	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C347	1-109-847-11	TANTAL. CHIP	0.47uF	20%	16V
C359	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C366	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C367	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (US, CND, AEP, UK, AUS)
C368	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C369	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C370	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C390	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C501	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C502	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C504	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C505	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C507	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
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	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C516	1-162-963-11	CERAMIC CHIP	680PF	10%	50V
C517	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C518	1-135-318-11	TANTAL. CHIP	33uF	20%	4V
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	1-135-264-21	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	1-104-813-11	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	1-104-630-11	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	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
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
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

MAIN 2

Ref. No.	Part No.	Description			Remark
C580	1-162-965-11	CERAMIC CHIP	1500PF	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
C609	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C610	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C611	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C612	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C613	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C614	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C615	1-164-441-11	CERAMIC CHIP	68PF	5%	50V
C616	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C617	1-164-118-11	CERAMIC CHIP	15PF	5%	50V
C618	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C619	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C620	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C621	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
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	1-107-811-11	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
C814	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C816	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
C823	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C825	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C902	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C903	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C904	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C905	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C906	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C907	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
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
C913	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C921	1-164-506-11	CERAMIC CHIP	4.7uF		16V

Ref. No.	Part No.	Description			Remark
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
C941	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C943	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C944	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C945	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C946	1-107-833-11	ELECT CHIP	33uF	20%	6.3V
C947	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C948	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C949	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C960	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C3010	1-107-816-11	TANTAL. CHIP	0.68uF	20%	10V

< CONNECTOR >

CN302	1-691-366-11	CONNECTOR, FFC/FPC (ZIF)	28P
CN501	1-691-386-11	CONNECTOR, FFC/FPC	22P
CN502	1-691-359-21	CONNECTOR, FFC/FPC (ZIF)	21P
CN801	1-691-346-11	CONNECTOR, FFC/FPC (ZIF)	8P
CN802	1-691-381-11	CONNECTOR, FFC/FPC	17P

< DIODE >

D303	8-719-017-58	DIODE	MA8068
D304	8-719-017-58	DIODE	MA8068
D305	8-719-017-58	DIODE	MA8068
D307	8-719-017-77	DIODE	MA8030
D309	8-719-404-46	DIODE	MA110
D310	8-719-017-58	DIODE	MA8068
D502	8-719-421-27	DIODE	MA728
D504	8-719-421-27	DIODE	MA728
D510	8-719-421-27	DIODE	MA728
D511	8-719-421-27	DIODE	MA728
D601	8-719-981-25	DIODE	KV1450
D801	8-719-052-72	DIODE	CL-220HR-C-TS (REC)
D802	8-719-420-51	DIODE	MA729
D803	8-719-421-27	DIODE	MA728
D806	8-719-421-27	DIODE	MA728
D807	8-719-421-27	DIODE	MA728
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

Ref.No.	Part No.	Description	Remark
		< FERRITE BEAD >	
FB301	1-216-864-11	METAL CHIP 0 5% 1/16W (E, JEW)	
FB301	1-414-228-11	INDUCTOR, FERRITE BEAD (US, CND, AEP, UK, AUS)	
FB302	1-216-864-11	METAL CHIP 0 5% 1/16W (E, JEW)	
FB302	1-414-228-11	INDUCTOR, FERRITE BEAD (US, CND, AEP, UK, AUS)	
FB303	1-216-864-11	METAL CHIP 0 5% 1/16W (E, JEW)	
FB303	1-414-228-11	INDUCTOR, FERRITE BEAD (US, CND, AEP, UK, AUS)	
FB304	1-216-864-11	METAL CHIP 0 5% 1/16W (E, JEW)	
FB304	1-414-228-11	INDUCTOR, FERRITE BEAD (US, CND, AEP, UK, AUS)	
FB306	1-414-228-11	INDUCTOR, FERRITE BEAD (US, CND, AEP, UK, AUS)	
FB991	1-500-238-11	BEAD, FERRITE (CHIP) (US, CND, AEP, UK, AUS)	
FB5001	1-500-238-11	BEAD, FERRITE (CHIP) (US, CND, AEP, UK, AUS)	
FB5003	1-500-233-11	BEAD, FERRITE (CHIP) (US, CND, AEP, UK, AUS)	
		< IC >	
IC304	8-759-326-98	IC AK4503-VF-E2	
IC307	8-759-252-90	IC TLV2362IPW-ELM1500	
IC308	8-759-166-95	IC LA4805V-TLM	
IC309	8-759-173-00	IC XC61AN1102MR	
IC352	8-759-332-22	IC DS1802-TE2	
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	
IC511	8-759-058-53	IC TC7S00FU-TE85L	
IC512	8-759-058-57	IC TC7S04FU-TE85L	
IC601	8-752-371-17	IC CXD2536R	
IC602	8-759-341-28	IC CXK41V4400ATM-10W	
IC603	8-759-710-79	IC NJM2107F	
IC604	8-759-031-84	IC SC7S04F	
IC801	8-752-870-05	IC CXP81960M-612R	
IC802	8-759-343-90	IC RS5RJ29261	
IC803	8-759-252-57	IC S-2900AUT	
IC804	8-759-343-88	IC DS1302Z-TE2	
IC806	8-759-710-79	IC NJM2107F	
IC901	8-759-981-69	IC LM2904M	
IC921	8-759-331-73	IC MB3800PNF-EF	
IC941	8-759-097-95	IC MB3776APNF-G-SNY-ER	
		< JACK >	
J302	1-764-453-11	JACK (🎧/REMOTE)	
J901	1-691-099-51	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 4.5V)

Ref.No.	Part No.	Description	Remark
		< COIL >	
L301	1-414-398-11	INDUCTOR 10uH	
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	
L602	1-414-532-31	INDUCTOR 1uH	
L603	1-412-060-21	INDUCTOR CHIP 22uH	
L801	1-414-402-11	INDUCTOR 47uH	
L921	1-411-197-11	COIL, DD CONVERTER	
L922	1-414-410-21	INDUCTOR 10uH	
L941	1-411-202-11	COIL, DD CONVERTER	
L942	1-414-398-11	INDUCTOR 10uH	
		< LINE FILTER >	
LF303	1-403-601-21	FILTER, COMMON MODE	
LF901	1-411-312-11	FILTER, COMMON MODE	
		< TRANSISTOR >	
Q306	8-729-927-74	TRANSISTOR UMG2	
Q311	8-729-905-12	TRANSISTOR DTA144EU	
Q313	8-729-929-99	TRANSISTOR UMB11-TN	
Q314	8-729-929-99	TRANSISTOR UMB11-TN	
Q320	8-729-905-18	TRANSISTOR DTC144EU	
Q502	8-729-422-39	TRANSISTOR XN4404	
Q504	8-729-019-25	TRANSISTOR 2SK1467-TD	
Q509	8-729-905-18	TRANSISTOR DTC144EU	
Q510	8-729-023-89	TRANSISTOR 2SJ305(TE85L)	
Q590	8-729-930-13	TRANSISTOR UMH2	
Q592	8-729-019-25	TRANSISTOR 2SK1467-TD	
Q801	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
Q802	8-729-031-34	TRANSISTOR 2SK2034-TE85L	
Q803	8-729-905-12	TRANSISTOR DTA144EU	
Q804	8-729-905-18	TRANSISTOR DTC144EU	
Q805	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
Q901	8-729-905-57	TRANSISTOR DTA124EU	
Q902	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q903	8-729-905-61	TRANSISTOR DTC124EU	

MAIN 2

Ref. No.	Part No.	Description				Remark
Q904	8-729-922-34	TRANSISTOR	2SD1758F5-QR			
Q906	8-729-024-44	TRANSISTOR	2SK2315TYTR			
Q907	8-729-905-57	TRANSISTOR	DTA124EU			
Q908	8-729-905-18	TRANSISTOR	DTC144EU			
Q909	8-729-031-34	TRANSISTOR	2SK2034-TE85L			
Q911	8-729-031-34	TRANSISTOR	2SK2034-TE85L			
Q921	8-729-031-31	TRANSISTOR	2SD2402-T1			
Q922	8-729-031-29	TRANSISTOR	2SA1641S-TL			
Q923	8-729-120-28	TRANSISTOR	2SC1623-L5L6			
Q941	8-729-821-15	TRANSISTOR	2SD1620			
Q942	8-729-821-15	TRANSISTOR	2SD1620			
Q943	8-729-905-18	TRANSISTOR	DTC144EU			
		< RESISTOR >				
R117	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R118	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R119	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R121	1-218-724-11	METAL CHIP	22K	0.50%	1/16W	
R122	1-218-724-11	METAL CHIP	22K	0.50%	1/16W	
R123	1-218-748-11	METAL CHIP	220K	0.50%	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	1-218-736-11	METAL CHIP	68K	0.50%	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	1-218-736-11	METAL CHIP	68K	0.50%	1/16W	
R130	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R135	1-216-864-11	METAL CHIP	0	5%	1/16W	
R136	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R137	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R145	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W	
R160	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R217	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R218	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R219	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R221	1-218-724-11	METAL CHIP	22K	0.50%	1/16W	
R222	1-218-724-11	METAL CHIP	22K	0.50%	1/16W	
R223	1-218-748-11	METAL CHIP	220K	0.50%	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	1-218-736-11	METAL CHIP	68K	0.50%	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	1-218-736-11	METAL CHIP	68K	0.50%	1/16W	
R230	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R235	1-216-864-11	METAL CHIP	0	5%	1/16W	
R236	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R237	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R245	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W	
R260	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R329	1-218-732-11	METAL CHIP	47K	0.50%	1/16W	
R330	1-218-732-11	METAL CHIP	47K	0.50%	1/16W	
R340	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R341	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R346	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R347	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R360	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R361	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R362	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R363	1-216-797-11	METAL CHIP	10	5%	1/16W	
R364	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R365	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R366	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R367	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R368	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R369	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R370	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R374	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R380	1-216-809-11	METAL CHIP	100	5%	1/16W	
R381	1-216-809-11	METAL CHIP	100	5%	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	
R516	1-216-861-11	METAL CHIP	2.2M	5%	1/16W	
R517	1-216-853-11	METAL CHIP	470K	5%	1/16W	
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	

Ref.No.	Part No.	Description				Remark
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	
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	
R601	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R602	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R603	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R604	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R605	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R606	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R607	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R608	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R609	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R610	1-216-857-11	METAL CHIP	1M	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	
R807	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R809	1-216-829-11	METAL CHIP	4.7K	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	1-216-855-11	METAL CHIP	680K	5%	1/16W	
R814	1-216-855-11	METAL CHIP	680K	5%	1/16W	
R815	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R816	1-216-851-11	METAL CHIP	330K	5%	1/16W	
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	
R825	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R826	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R827	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R828	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R833	1-216-857-11	METAL CHIP	1M	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	
R852	1-218-867-11	METAL CHIP	6.8K	0.50%	1/16W	
R853	1-216-809-11	METAL CHIP	100	5%	1/16W	
R856	1-216-821-11	METAL CHIP	1K	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	
R865	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R866	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R901	1-218-768-11	METAL CHIP	470K	0.50%	1/10W	
R902	1-218-748-11	METAL CHIP	220K	0.50%	1/16W	
R903	1-216-864-11	METAL CHIP	0	5%	1/16W	
R904	1-218-867-11	METAL CHIP	6.8K	0.50%	1/16W	
R905	1-218-716-11	METAL CHIP	10K	0.50%	1/16W	
R906	1-218-899-11	METAL CHIP	150K	0.50%	1/16W	
R907	1-218-899-11	METAL CHIP	150K	0.50%	1/16W	
R908	1-218-736-11	METAL CHIP	68K	0.50%	1/16W	
R909	1-218-732-11	METAL CHIP	47K	0.50%	1/16W	
R910	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R911	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R912	1-218-772-11	METAL CHIP	680K	0.50%	1/10W	
R913	1-218-768-11	METAL CHIP	470K	0.50%	1/10W	
R914	1-218-768-11	METAL CHIP	470K	0.50%	1/10W	
R915	1-218-752-11	METAL CHIP	330K	0.50%	1/16W	
R916	1-217-806-11	METAL GLAZE	1	5%	1/8W	
R917	1-217-806-11	METAL GLAZE	1	5%	1/8W	
R918	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R919	1-218-772-11	METAL CHIP	680K	0.50%	1/10W	
R920	1-218-768-11	METAL CHIP	470K	0.50%	1/10W	
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	
R931	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R934	1-216-845-11	METAL CHIP	100K	5%	1/16W	

MAIN 2 REC SW 2

Ref.No.	Part No.	Description				Remark
R935	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R941	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R943	1-216-805-11	METAL CHIP	47	5%	1/16W	
R944	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R945	1-218-732-11	METAL CHIP	47K	0.50%	1/16W	
R946	1-218-704-11	METAL CHIP	3.3K	0.50%	1/16W	
R947	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R960	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R991	1-216-864-11	METAL CHIP	0	5%	1/16W	(E, JEW)
R5001	1-216-864-11	METAL CHIP	0	5%	1/16W	(E, JEW)
R5002	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5003	1-216-864-11	METAL CHIP	0	5%	1/16W	(E, JEW)
R5004	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5010	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R5011	1-216-845-11	METAL CHIP	100K	5%	1/16W	
		< VARIABLE RESISTOR >				
RV921	1-238-089-11	RES, ADJ, CERMET 4.7K				
RV940	1-238-089-11	RES, ADJ, CERMET 4.7K				
		< SWITCH >				
S302	1-762-079-11	SWITCH, SLIDE (BASS BOOST)				
S808	1-572-467-31	SWITCH, PUSH (1 KEY) (REC)				
S809	1-572-473-11	SWITCH, TACTIL (CLOCK SET)				
S817	1-572-467-31	SWITCH, PUSH (1 KEY) (OPEN)				
S901	1-572-467-31	SWITCH, PUSH (1 KEY) (DC IN/EXT BATT)				
S902	1-692-532-21	SWITCH, PUSH (1 KEY) (Ni-MH DETECT)				
		< 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 (14MHz)				
X802	1-579-886-21	VIBRATOR, CRYSTAL (32.768MHz)				
**********						
*	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 F1J6				
D402	8-719-046-86	DIODE F1J6				
		< TRANSISTOR >				
Q401	8-729-024-44	TRANSISTOR 2SK2315TY				
Q402	8-729-024-44	TRANSISTOR 2SK2315TY				
Q403	8-729-024-44	TRANSISTOR 2SK2315TY				
Q404	8-729-024-44	TRANSISTOR 2SK2315TY				
**********						
	A-3276-679-A	SW 2 BOARD, COMPLETE				
		**********				
	1-655-783-11	SW 2 FLEXIBLE BOARD				
		< CAPACITOR >				
C812	1-162-970-11	CERAMIC CHIP	0.01uF	10%		25V
C813	1-162-970-11	CERAMIC CHIP	0.01uF	10%		25V
		< CONNECTOR >				
CN803	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P				
		< DIODE >				
D804	8-719-421-27	DIODE MA728				
D805	8-719-421-27	DIODE MA728				
		< RESISTOR >				
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	
R844	1-218-883-11	METAL CHIP	33K	0.50%	1/16W	
R845	1-218-732-11	METAL CHIP	47K	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	
		< SWITCH >				
S801	1-692-453-11	SWITCH, KEY BOARD (■)				
S802	1-692-453-11	SWITCH, KEY BOARD (▶▶I)				
S803	1-692-453-11	SWITCH, KEY BOARD (I◀◀)				
S804	1-692-453-11	SWITCH, KEY BOARD (▮▮)				
S805	1-692-088-91	SWITCH, TACTILE (VOLUME -)				
S806	1-692-088-91	SWITCH, TACTILE (VOLUME +)				
S807	1-692-453-11	SWITCH, KEY BOARD (▶)				
S812	1-692-453-11	SWITCH, KEY BOARD (END SEARCH)				

Ref. No.	Part No.	Description	Remark
S813	1-692-453-11	SWITCH, KEY BOARD (ERASE)	
S814	1-692-453-11	SWITCH, KEY BOARD (TRACK MARK)	
S815	1-692-453-11	SWITCH, KEY BOARD (TITLE/ENTER)	
S818	1-762-078-11	SWITCH, SLIDE (HOLD)	
		**********	
		MISCELLANEOUS	
		**********	
5	1-655-783-11	SW 2 FLEXIBLE BOARD	
12	1-655-782-11	AU 2 FLEXIBLE BOARD	
107	1-651-018-11	SLED FLEXIBLE BOARD	
⚠113	X-4946-054-1	OPTICAL PICK-UP BLOCK	
153	1-655-881-11	MD REC FLEXIBLE BOARD	
161	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	
M903	A-3303-499-A	STEPPER BLOCK ASSY (STEPPING MOTOR)	
S820	1-762-297-11	SWITCH, ROTARY (DIAL)	
		**********	
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-467-007-21	ADAPTOR, AC (AC-E455) (AUS)	
⚠	1-467-009-11	ADAPTOR, AC (AC-E455) (US, CND)	
⚠	1-467-550-11	ADAPTOR, AC (AC-E455A) (E, JEW)	
	1-473-109-11	REMOTE CONTROL UNIT (RM-MZR2-MP)	
⚠	1-473-115-11	ADAPTOR, AC (AC-E455D) (UK)	
⚠	1-473-116-31	ADAPTOR, AC (AC-E455D) (AEP)	
	1-528-533-11	BATTERY PACK (Mini plug-RCA pin) (JEW)	
	1-559-906-32	CORD, CONNECTION	
⚠	1-569-007-11	ADAPTER, CONVERSION 2P (E, JEW)	
	3-798-373-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SPANISH) (CND, AEP, E, JEW)	
	3-798-373-21	MANUAL, INSTRUCTION (ENGLISH) (US, UK, AUS)	
	3-798-373-41	MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN, PORTUGUESE) (AEP)	
	3-798-373-51	MANUAL, INSTRUCTION (JAPANESE, KOREAN) (JEW)	
	3-798-373-61	MANUAL, INSTRUCTION (CHINESE) (E)	
	3-800-626-01	INSTRUCTION (A7 SIZE) (JEW)	
*	3-922-340-01	INDIVIDUAL CARTON (US)	
*	3-922-341-01	INDIVIDUAL CARTON (EXCEPT US)	
*	3-922-347-01	CUSHION (EXCEPT US)	
	4-973-528-01	CASE, CARRYING	
	8-953-091-90	HEADPHONE MDR-E838MP SET (EXCEPT US)	
	8-953-101-90	HEADPHONE MDR-24MP SET (US)	

Ref. No.	Part No.	Description	Remark

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

MZ-R3

SONY

SERVICE MANUAL

1997.10

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

SUPPLEMENT - 1

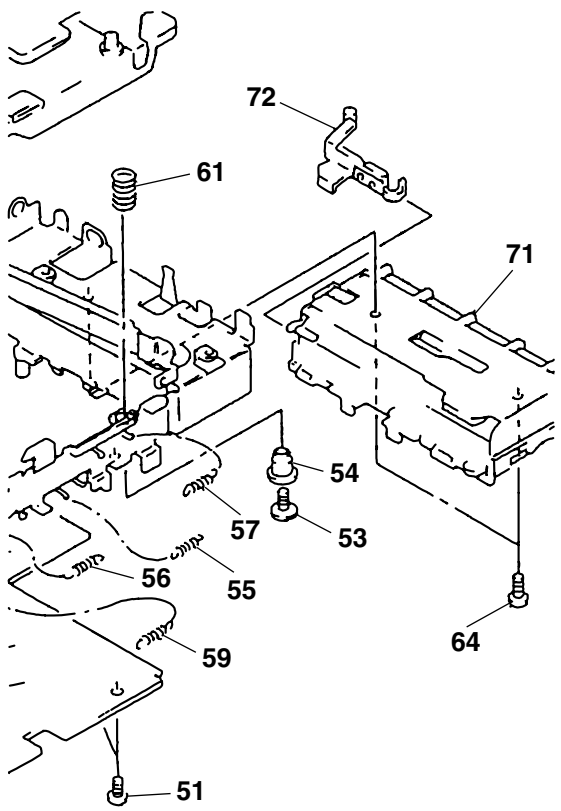
File this Supplement with the Service Manual.

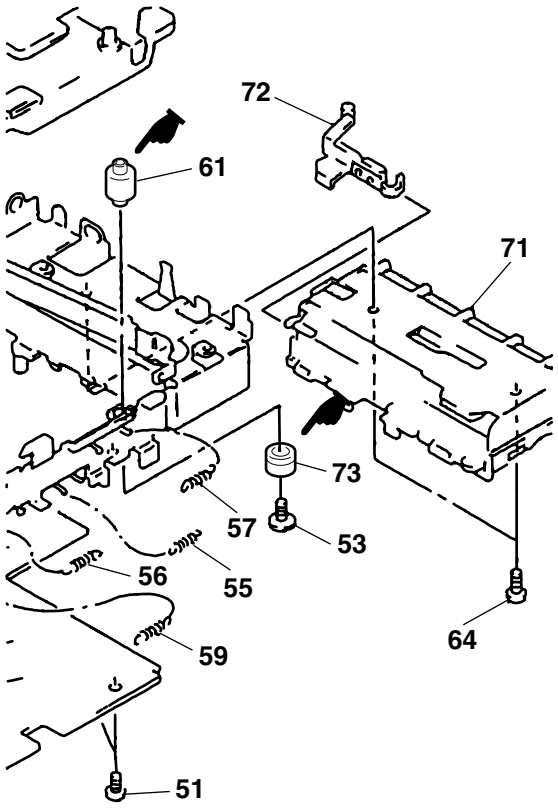
Subject : CHANGE OF EXPLODED VIEWS

(SPM-97011)

☛ : **Changed portion**

		Before change			After change		
Page	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
75	61	4-963-911-01	SPRING (MD1), COMPRESSION		4-977-765-01	SPACER (A)	
	73		————————		4-977-766-01	SPACER (B)	





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1996.02

US Model
Canadian Model
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E Model
Australian Model
Tourist Model

CORRECTION-1

Correct your service manual as shown below.

☛ : **indicates corrected portion.**

Page	INCORRECT			CORRECT	
	Ref.No.	Part No.	Description	Part No.	Description
74	1	4-963-883-31	SCREW (M1.4), PRECISION PAN	4-963-883-21 ☛	SCREW (M1.4), PRECISION PAN
75	70	4-963-883-31	SCREW (M1.4), PRECISION PAN	4-963-883-21 ☛	SCREW (M1.4), PRECISION PAN

(SPM-96005)

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Consumer A&V Products Company
Personal A&V Products Div.

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SERVICE MANUAL

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

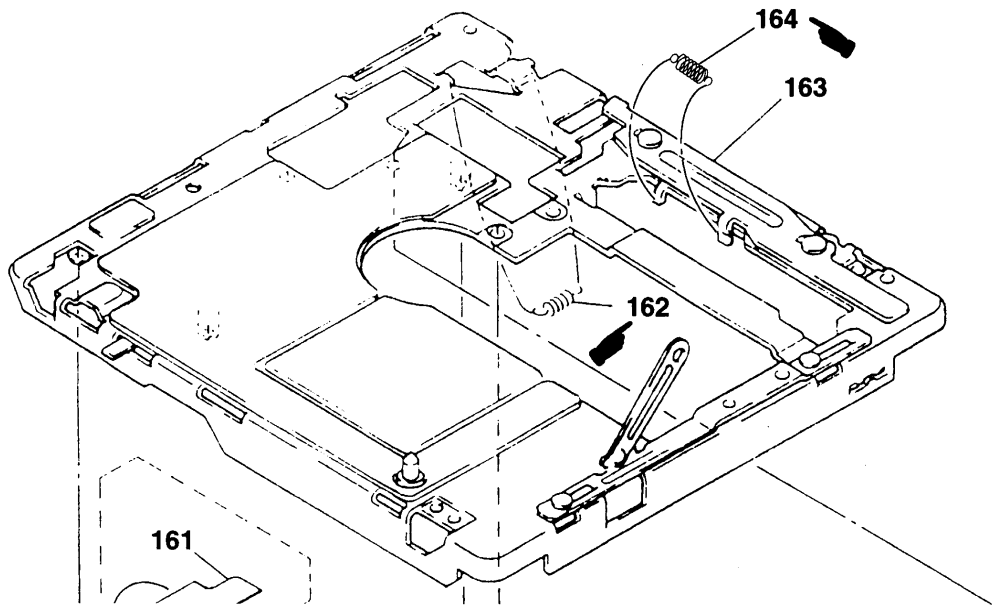
CORRECTION -2

File this Correction with the Service Manual.

☛ : corrected portion.

Page 77

7-4. MECHANISM SECTION-2 (MT-MZR3-109)



	INCORRECT		CORRECT	
Ref. No.	Part No.	Description	Part No.	Description
162	4-963-900-01	SPRING (LOCK), TENSION	4-974-743-01	SPRING (EJECT), TENSION
164		————	4-963-900-01	SPRING (LOCK), TENSION

9-960-080-92

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REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.1	2001.04	Correction 3 : Correction for electrical adjustment.
1.0	1995.09	New