MZ-E2

SERVICE MANUAL

Ver 1.0 2001.05
With SUPPLEMENT-1
(9-959-215-86)

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

Model Name Using Similer Mechanism	NEW
MD Mechanism Type	MT-MZE2-110
Optical Pick-up Type	KMS-200A

SPECIFICATIONS

System

Audio playing system
MiniDisc digital audio system
Laser diode properties
Material: GaAlAs
Wavelength: λ = 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.)
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
Frequency response
20 to 20,000 Hz $^{+1}_{-2}$ dB
Wow and Flutter
Below measurable limit

Output

	Jack Type	Rated Output	Maximum Output Level	Load Impedance
Headphones	Stereo mini-jack	—	5 mW + 5 mW	16 ohm

General

Power requirements
- LIP-10 Rechargeable Battery (Lithium-ion Battery Pack, supplied)
- Three size AA (R6) batteries (not supplied)
- Sony AC Power Adaptor (supplied) connected at the DC IN 6V jack: 120 V AC, 60 Hz (US model)
  240 V AC, 50 Hz (UK and Australian models)

Battery operation time
120 minutes of consecutive playback with fully charged LIP-10
Dimensions
Approx. 106.8 × 18.5 × 74 mm (w/h/d) (4 1/4 × 3/4 × 3 in.)
Mass Approx. 205 g (7.2 oz) incl. rechargeable battery

— Continued on next page —

9-959-215-12
2001E0200-1
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Sony Corporation
Personal Audio Company
Shinagawa Tec Service Manual Production Group

PORTABLE MINIDISC PLAYER

SONY

Accessories

Optional
- LIP-10 Lithium-ion Battery Pack
- ACP-MZ60A AC Power Adaptor/Battery Charger
- CPM-MZE2K Car Mount Kit
- CPA-8 Car Connecting Pack
- MDR-D55, MDR-D77 Stereo Headphones
- SRS-58 Sony Active Speakers
- CK-MD4 MiniDisc Carrying Case
- CK-MD10 MiniDisc Filing Box

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

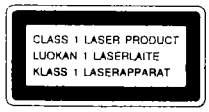
US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

Design and specifications are subject to change without notice.

Note

This appliance conforms with EEC Directive 89/336/EEC regarding interference suppression.

For Customers in Europe

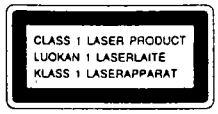


This MiniDisc Recorder is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

For Customers in Canada

This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

For Customers in the United Kingdom



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

The built-in battery should be replaced by qualified personnel only.

For Customers in Australia

If the supply cord of AC power adaptor is damaged the AC power adaptor must be returned to the manufacturer or his agent for the cord to be replaced.

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

"MD WALKMAN" is a trademark of Sony Corporation.

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.

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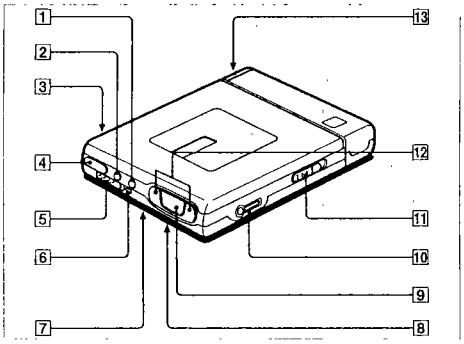
SECTION 1
GENERAL

This section is extracted from instruction manual.

Looking at the controls

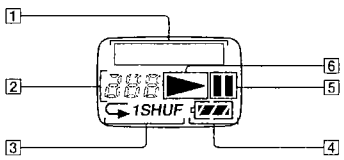
See pages in ( ) for more details.

The player



1 **II (pause) button (14)**
2 **■ (stop) button (8, 14)**
3 **DC IN 6 V jack (7, 9, 10, 12, 20)**
Connect the supplied AC power adaptor here.
4 **VOL (volume) +/– button (8, 13)**
5 **HOLD (17)**
Slide to lock the controls of the player.
6 **OPR (operate)/CHG (charge) lamp (10)**
Lights up while the player is operating or flashes while charging the rechargeable battery.
7 **AVLS (Automatic Volume Limiter System) (18)**
Slide to ON to limit the maximum volume
8 **BASS BOOST (17)**
Select to emphasize low frequency (bass) sounds.
9 **► (play) button (8, 13)**
10 **∩ (headphones, remote) jack (8, 13)**
11 **OPEN (8, 13)**
Slide here to open the lid and insert or remove an MD.
12 **I◄◄/►►I (search, AMS) buttons (14)**
13 **Rechargeable battery compartment (10)**

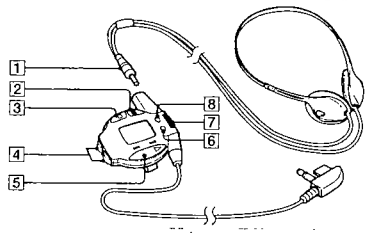
The display window



1 **Character information display (13, 19)**
Displays the disc and track names, elapsed time of the track, etc.
2 **Track number indication (13, 19)**
3 **Play mode indication (16)**
Shows the play modes of the MD.
4 **Battery indication (11, 12)**
Shows battery condition
5 **Pause indication**
6 **Operation indication (13)**
Lights up while playing the MD. Flashes while searching or finding the beginning of a track.

⇨Looking at the controls

The remote controller



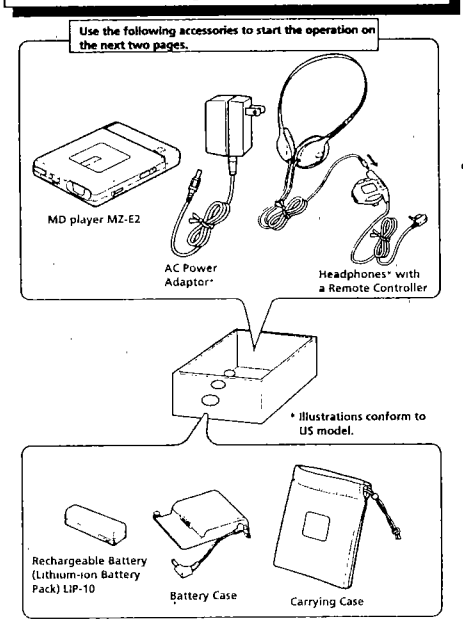
1 **Microplug (6)**
2 **II (pause) button (14)**
3 **■ (stop) button (8, 14)**
4 **VOL(volume) +/– buttons (8, 13)**
5 **► (play)/I◄◄/►►I (search, AMS) button (14)**
While the player isn't operating, press ► to play. While playing, press the I◄◄ side to find the beginning of the current or preceding tracks or search backward, or press the ►►I side to find the beginning of the succeeding tracks or search forward
6 **PLAY MODE (16)**
Each time you press here the player plays the MD in different play modes. normal play, all repeat, single repeat, or shuffle repeat
7 **HOLD (17)**
Slide to lock the controls of the remote controller
8 **DISPLAY (18)**
Press to display the current play mode, the track name, or the disc name

Let's Start!

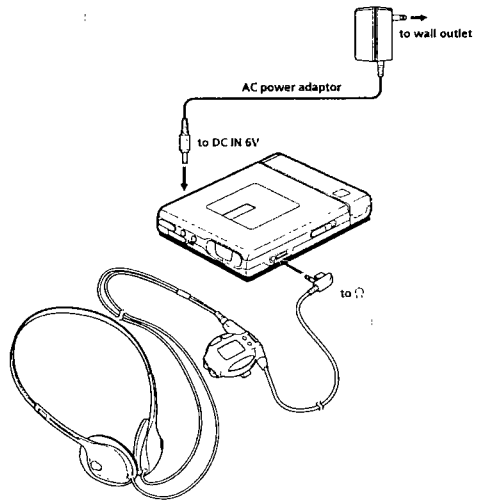
Start playing a MiniDisc (MD) using your MD player and the supplied accessories.

Unpacking

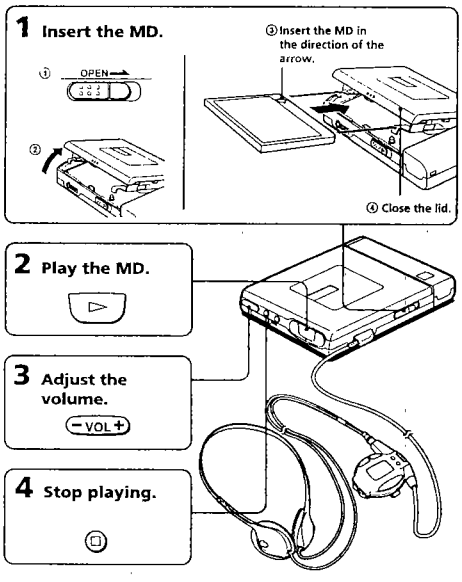
Use the following accessories to start the operation on the next two pages.



Getting started



Listening to an MD



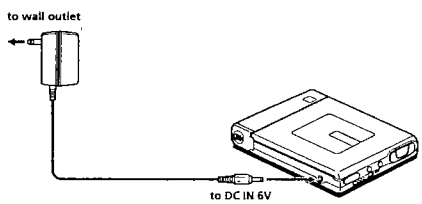
- When you have stopped playing the MD partway through, press ► to resume playing from the point where the MD stopped.
- If you have opened the lid after you stopped playing it partway, the player will play from the first track when you press ►.

Choosing power sources

The player is operable on AC, rechargeable battery, and dry battery power.

Using on AC power

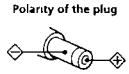
Connect the supplied AC power adaptor to the DC IN 6V jack of the player and the wall outlet.



Note on the AC power adaptor

Use the supplied AC power adaptor only. Do not use any other AC power adaptor.

Polarity of the plug



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:

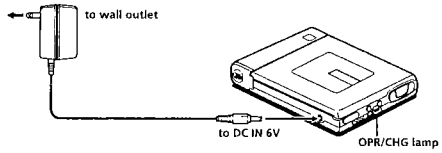
- Install the ⊕ and ⊖ poles of the batteries correctly.
- Do not install new and used batteries or different kinds of batteries together.
- Do not try to recharge the batteries.
- When the player is not to be used for a long time, be sure to remove the batteries.
- If a battery leak should develop, carefully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

⇨Choosing power sources

Using on the rechargeable battery

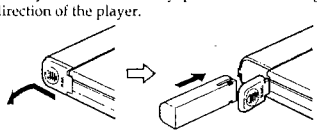
Before using the supplied rechargeable battery for the first time, you must charge it. The battery can be recharged about 300 times.

1 Connect the supplied AC power adaptor.



2 Open the battery compartment lid and insert the battery.

When you insert the battery, place its end with a groove in the direction of the player.



The OPR/CHG lamp flashes and charging begins. When charging is over, the lamp goes out.
Charging a completely discharged battery takes:
about 3 hours for 80% charging, or
about 5 hours for 100% charging.
Charging goes on while you are using the player.

3 Disconnect the AC power adaptor.

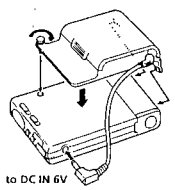
As long as the player is connected to the AC power, the power will be supplied from AC.

⇨Choosing power sources

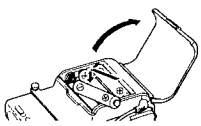
Using on dry batteries

1 Mount the battery case.

Fitting the hooks of the battery case to the side of the player, attach the case with a screw (supplied). Then, connect the plug to the DC IN 6V jack

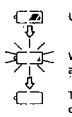


2 Install three size AA (R6) alkaline batteries.



☞ When to replace the batteries

You can check the battery condition with the battery indication displayed while using the player



Used batteries

Weak batteries. Replace all the batteries.

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

☞ Battery life*

Batteries	Playback
Rechargeable battery**	Approx. 2 hours
Size AA (R6) alkaline batteries	Approx. 4 hours
Rechargeable and size AA (R6) batteries	Approx. 7.5 hours

* The battery life may be diminished due to operating condition and the temperature of the location

** If the rechargeable battery capacity becomes half the normal life, replace it with a new one.

Notes on recharging

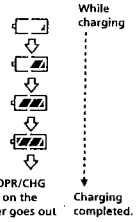
- Be sure to use the supplied AC power adaptor.
- When you use the battery for the first time or after a long period of disuse, the battery life may be diminished. In this case, charge and discharge the battery several times. The battery life will be restored.

Notes on the rechargeable battery

- To charge the battery, use only the player or the specified charger.
- Do not disassemble or short-circuit the battery.
- Do not leave the battery at high temperature for an extended period of time.
- Keep the battery away from the fire.
- Do not expose the battery to water.
- Do not drop the battery or subject it to mechanical schock.

☞ You can check the charging condition in the display on a remote controller.

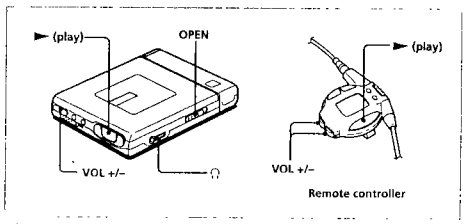
Connect the remote controller to the player. While charging, the battery indication appears in the display as follows.



☞ Battery charging tips

- **You can charge the battery at any time.**
  The rechargeable battery does not need discharging before recharging. You can recharge a half-charged battery. However, the rechargeable battery discharges little by little even while it is not in use. We recommend that you charge it before every use.
- **Keep a few spare batteries.**
  To avoid power shortage, prepare a few rechargeable batteries LIP-10 (not supplied).
- **To ensure the maximum number of chargings and dischargings,** we recommend storing the battery in a cool place and charging it under temperatures ranging from 50° to 86°F (10° to 30°C).
  When the battery is not to be used for a long time, be sure to remove it from the player.

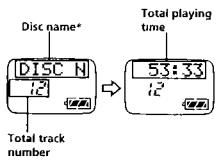
Playing an MD



1 Connect the headphones at ∩.

2 Insert an MD.

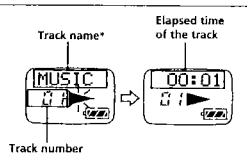
Slide OPEN to open the lid, insert an MD with the label side up and the arrow pointing toward the opening, and close the lid. **Once you open the lid, the player will start playing from the beginning of the first track.**



* No indication appears with MDs that have not been electronically labeled

3 Press ►.

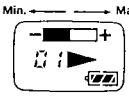
The player will play from the beginning of the first track.



* No indication appears with MDs that have not been electronically labeled.

⇨Playing an MD

4 Adjust the volume by pressing the + side or the − side of VOL +/− button.



Note

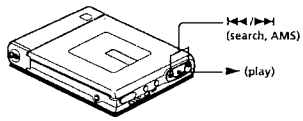
If you cannot increase the volume, the AVLS switch on the player is set to ON. Set the switch to OFF. When you try to increase the volume while the switch is set to ON, the volume indication flashes and you cannot increase the volume to the maximum. (See *Useful tips on playing an MD* on page 18.)

To	Press	Beep on the headphones (when operating on the remote controller)
pause/release pause	II	----- (continuous short beep)
stop	■	— (one long beep)
search while listening	keep pressing I◄◄ / ►►I	(none)
quickly search without listening	II (pause) and keep pressing I◄◄ / ►►I	(none)
find the beginning of the current or preceding tracks (AMS)	slightly press I◄◄	--- (three short beeps)
find the beginning of the next or succeeding tracks (AMS)	slightly press ►►I	-- (two short beeps)
eject the MD	after ■ (stop), slide OPEN and open the lid	(none)

Playing specific tracks

You can find a specific track before playing an MD and start playing from that track. For this operation, only the controls on the player can be used.

1 Press ►►I or I◄◄ on the player to find a specific track.



2 Press ► on the player.

Notes

- This player has a shock-resistant memory. However, if it is subject to continuous vibration, the sound may skip or mute while playing an MD. In this case, use the player in a stable place.
- Tracks that are very short, such as a brief narration or introduction, may cause the sound to skip while being played.

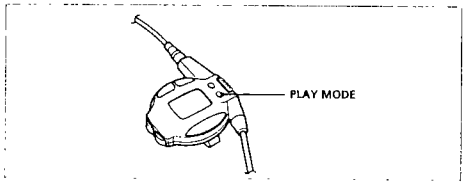
☞ You can resume playing from the point the MD stopped (Resume function).

If you stop playing partway and do not eject the MD nor open the lid, the player will resume playing from the point where the MD stopped.

Once you open the lid, the player will start playing from the beginning of the first track when you press ►.

Playing tracks repeatedly

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

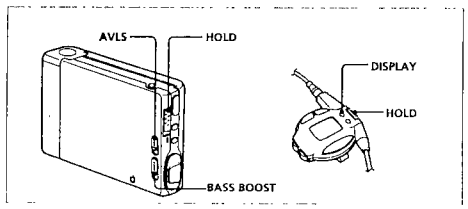


Press PLAY MODE on the remote controller while the MD is playing.

Each time you press PLAY MODE, the play mode indication changes as follows.

To play	Indication
all the tracks once (normal play)	(none)
all the tracks repeatedly (all repeat)	↻
a single track repeatedly (single repeat)	↻1
all the tracks in random order repeatedly (shuffle repeat)	↻ SHUF

Useful tips on playing an MD



Locking the controls (Hold function)

To prevent the buttons from being accidentally operated while you are walking, use the Hold function.

Slide HOLD in the direction of the arrow.

On the player, slide HOLD to lock the controls of the player.
On the remote controller, slide HOLD to lock the controls of the remote controller.

Emphasizing the bass (Bass Boost feature)

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

While the MD is playing, set BASS BOOST to MID (middle) or MAX (maximum).

To emphasize the bass slightly, set to MID. To emphasize the bass strongly, set to MAX. For normal play, set to NORM.

Note

If the volume is too high, the sound may crack or distort. If this happens, turn down the volume.

⇨ Useful tips on playing an MD

Adjusting the sound to an appropriate level (AVLS function)

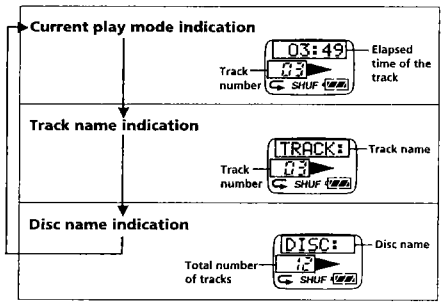
The AVLS (Automatic Volume Limiter System) function allows you to limit the maximum volume of the player without degrading the sound quality.
Hearing experts advise against continuous, loud and extended play. Use the AVLS function to avoid excessive pressure to your ears.

Set AVLS on the player to ON.
The volume is kept at a moderate level without degradation of the sound quality, even if you attempt to turn the volume up higher.

Displaying disc and track names

If you are playing a premastered or recorded MD that has been electronically labeled, you can display information on the MD while it is playing.

While the MD is playing, press DISPLAY.
Each time you press the button, the display changes as follows.



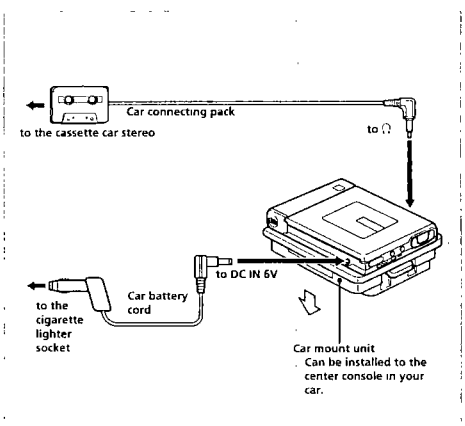
Notes
- No character information appears with MDs that have not been electronically labeled
- This player does not label or copy any character information such as disc names and track names.

Using in a car

Hooking up a car stereo system

You can listen to MDs with your car stereo system using the following equipment.

–Car Mount Kit CPM-MZE2K (not supplied, contents: Car mount unit, Car connecting pack, Car battery cord)
Refer to the operating manual of the equipment for more details.



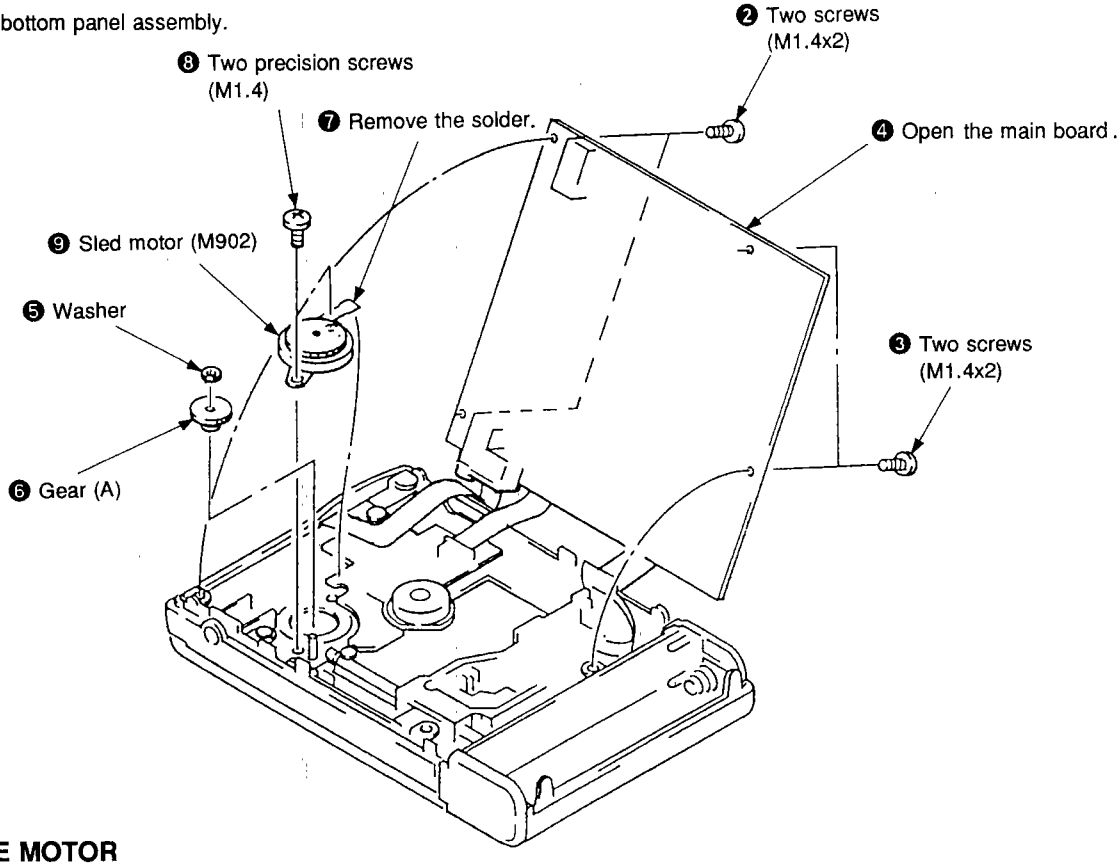
Note
Do not put the player on a dashboard or leave it in a car parked in direct sunlight since the temperature may rise excessively.

SECTION 2
DISASSEMBLY

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

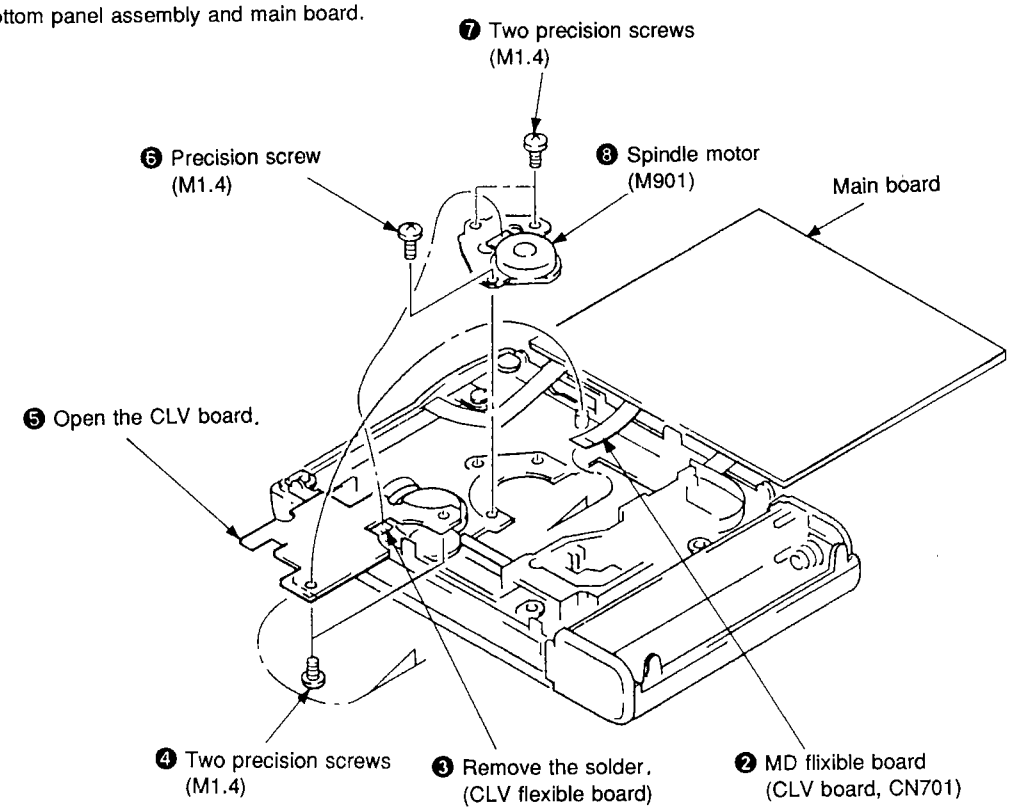
2-1. MIAN BOARD AND SLED MOTOR

❶ Remove the bottom panel assembly.



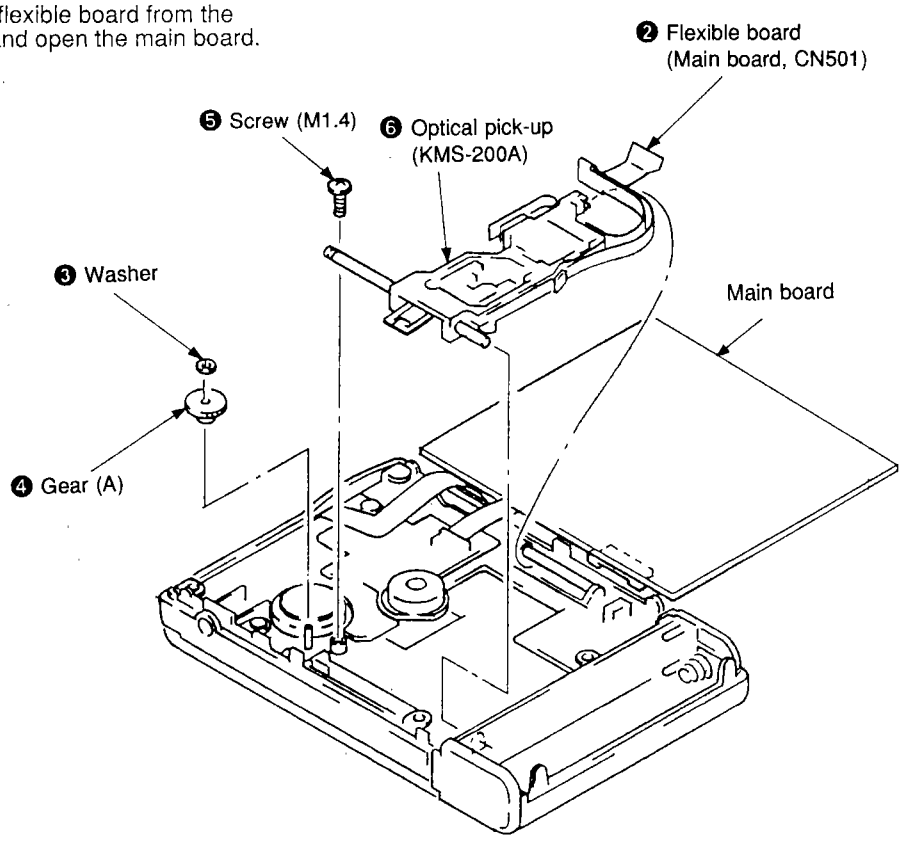
2-2. SPINDLE MOTOR

❶ Remove the bottom panel assembly and main board.



2-3. OPTICAL PICK-UP (KMS-200A)

❶ Remove the optical pick-up flexible board from the CN501 on the main board, and open the main board.



SECTION 3
TEST MODE

OUTLINE

This unit uses an EVR (electric variable resistor) instead of the convertional semi-fixed resistor as its adjusting device. The EVR is controlled by the main microprocessor (IC805). The main microprocessor reads the data written in the EEPROM (IC804) and the EVR D-A converts this data to produce the adjusting voltage. Therefore, when adjusting this unit, this adjustment data written in the EEPROM must be rewritten. It can be rewritten by setting the unit into the test mode.

SETTING THE TEST MODE

Method 1 : Short-circuit the soldering bridge of JP801 (TEST) of the main board (connect Pin ⑱ of IC803 to GND) and supply the power. (If the test mode is not set, turn on and off the power four to five times.)

Method 2 : Set the HOLD switch of the unit to "HOLD" and supply the power while pressing the ► key and ■ key of this unit and ■ key of the headphone remote controller.

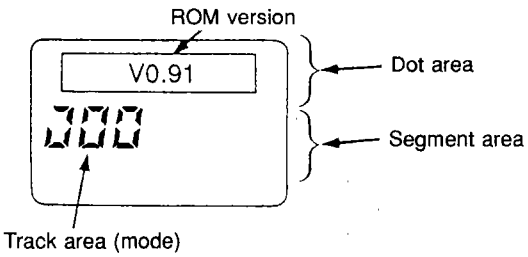
RELEASING THE TEST MODE

When set using method 1 : Turn off the power and open the soldering bridge of JP801 (TEST) of the main board.

When set using method 2 : Turn off the power.

TEST MODE OPERATIONS

When the test mode is set, the LCD of the headphone remote controller will display the following.



- Dot area : Repeats the following.
  ↳→ROM version displaying→All light up→All go off→↲
- Segment area : Repeats the following.
  ↳→Mode 000 displaying→All light up→All go off→↲
- While the ❚❚ key is pressed, the display will be preserved and therefore can be checked.
- As a 1 kHz, 0 dB signal will be output from the headphone output, the audio system can be checked.

TEST MODE STRUCTURE

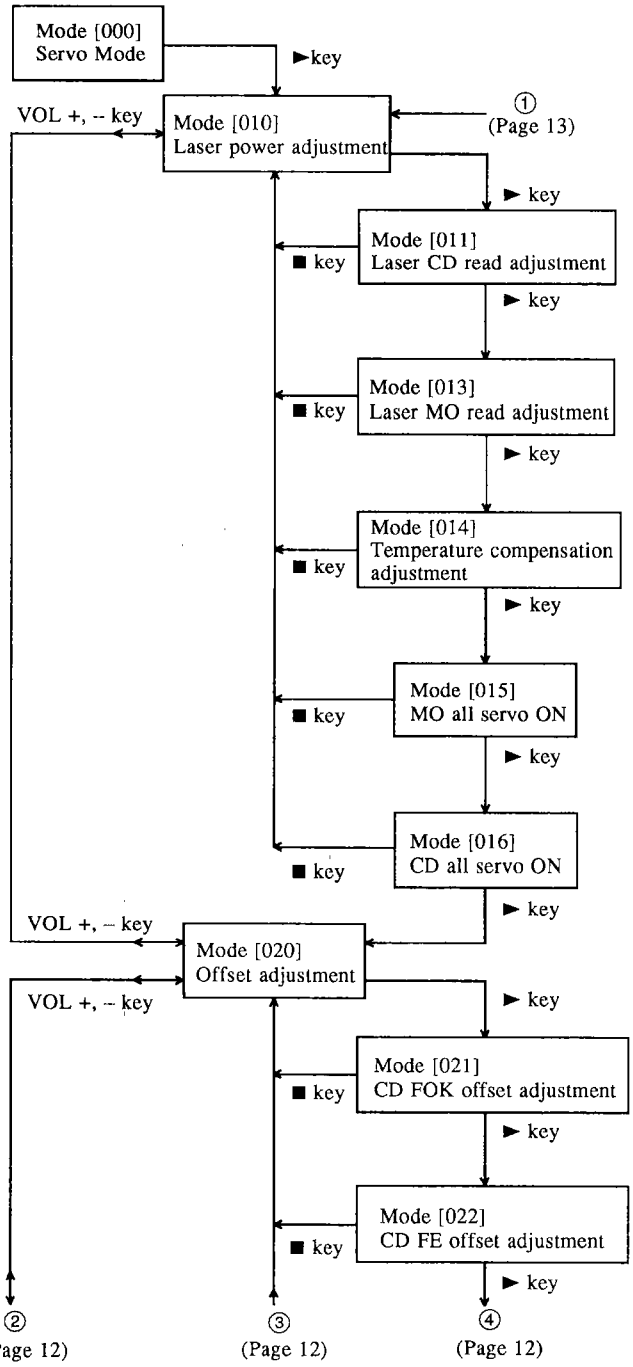
The test mode of this unit is made up of the following three modes.

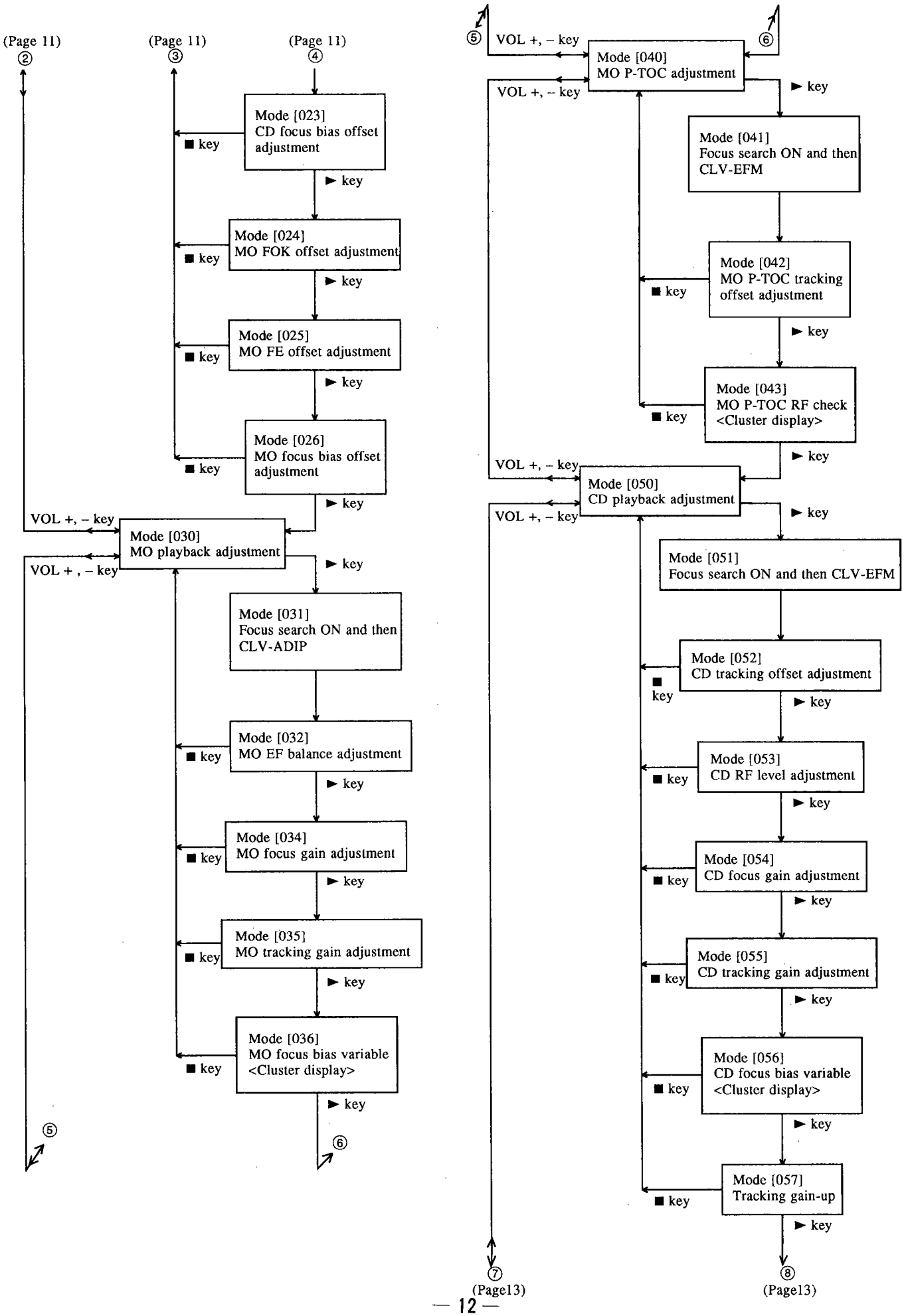
- Servo mode (0XX displayed at mode)
- Audio mode (1XX displayed at mode)
- Power mode (3XX displayed at mode)

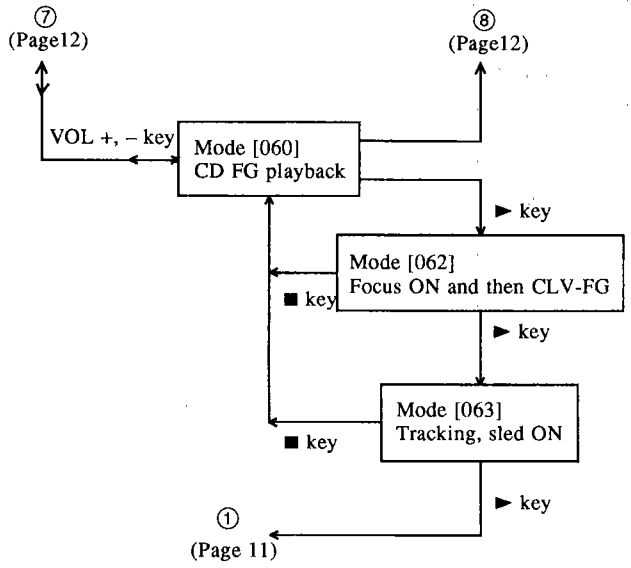
SERVO MODE

- When the test mode is set and the mode displayed is set to 000 using the VOL +, – key, the servo mode will be set and displayed as "Test Mode Operations".
- When the ►►I or I◄◄ key is pressed, the optical pick-up will move to the external or internal periphery.
- To set other modes, press the VOL +, – key.

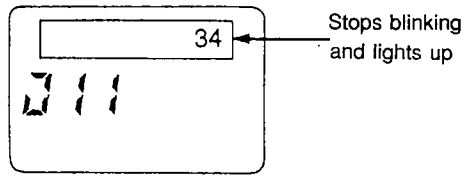
• Structure of Servo Mode




(Page 11)
②
(Page 11)
③
(Page 11)
④
Mode [023]
CD focus bias offset adjustment
■ key
► key
Mode [024]
MO FOK offset adjustment
Mode [025]
MO FE offset adjustment
Mode [026]
MO focus bias offset adjustment
VOL +, – key
Mode [030]
MO playback adjustment
VOL + , – key
Mode [031]
Focus search ON and then CLV-ADIP
Mode [032]
MO EF balance adjustment
Mode [034]
MO focus gain adjustment
Mode [035]
MO tracking gain adjustment
Mode [036]
MO focus bias variable
<Cluster display>
⑤
⑥
⑤
VOL +, – key
Mode [040]
MO P-TOC adjustment
⑥
Mode [041]
Focus search ON and then CLV-EFM
Mode [042]
MO P-TOC tracking offset adjustment
Mode [043]
MO P-TOC RF check
<Cluster display>
Mode [050]
CD playback adjustment
Mode [051]
Focus search ON and then CLV-EFM
Mode [052]
CD tracking offset adjustment
Mode [053]
CD RF level adjustment
Mode [054]
CD focus gain adjustment
Mode [055]
CD tracking gain adjustment
Mode [056]
CD focus bias variable
<Cluster display>
Mode [057]
Tracking gain-up
⑦
(Page13)
⑧
(Page13)

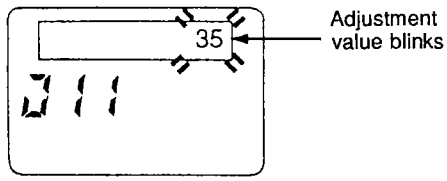


3. Press the II key. The adjustment data written in the EEPROM will be rewritten.
(The adjustment value will lights up.)



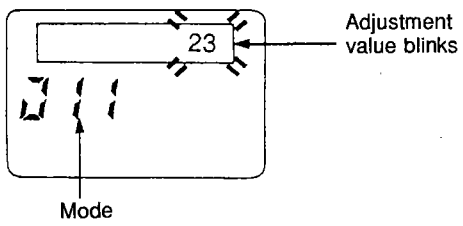
Note : The adjustment data will not be rewritten if the II key is not pressed and the original data will remain.

4. Press the VOL +, – key again and set the adjustment mode again.

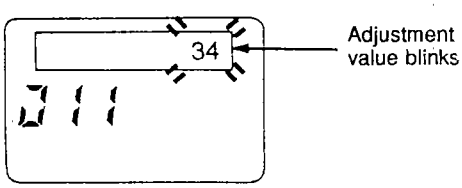


- **Adjustment Method**

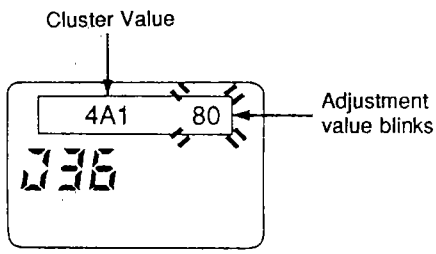
1. Press the VOL +, – key and ► key, and set the adjustment mode.
(The values written in the EEPROM will be displayed blinking.)



2. Press the VOL +, – key and change the adjustment value.
(The adjustment value changes and blinks.)



- **Cluster Display**

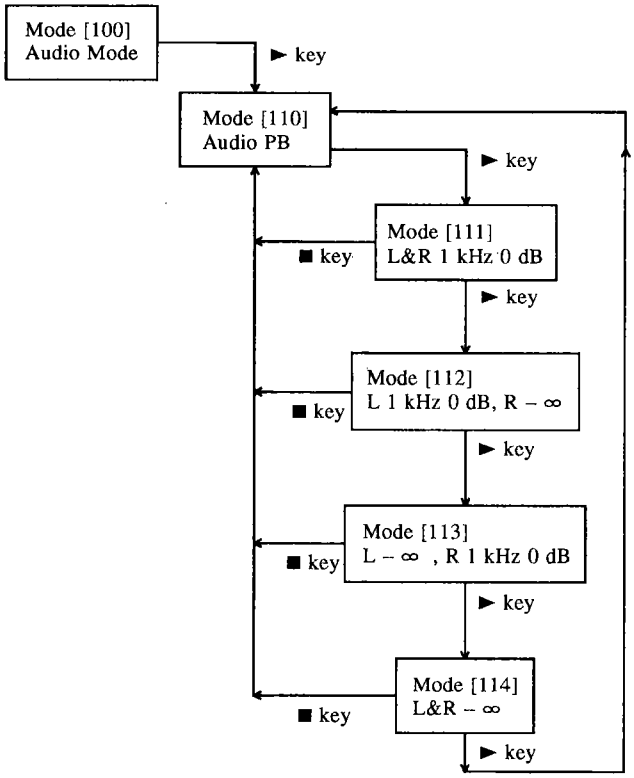


Mode No.	Mode	Dot Area Display
036	MO playback focus bias variable	<Cluster Value> <Adjustment Value>
043	MO P-TOC RF check	<Cluster Value> <Adjustment Value>
056	CD palyback focus bias variable	<Cluster Value> <Adjustment Value>

AUDIO MODE

- To set the audio mode, set the test mode and set the mode display to 100 using the VOL +, – key.
- To set other modes, press the VOL +, – key.

• Audio Mode Structure

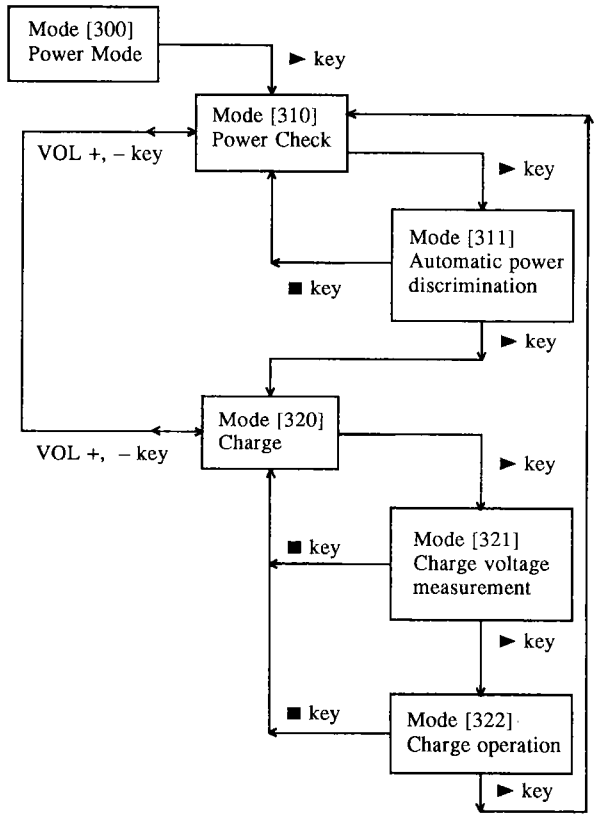


- When the II key is pressed when the mode number is [111], [112], or [113], the buzzer (3 kHz) will sound for approximately 1 second. (When the buzzer sounds, it indicates that the Lch and Rch can be muted. The channels can also be switched even if the II key is not pressed.)
- When the VOL +, – key is pressed when the mode number is [111], [112], or [113], the headphones output volume will move up and down. When the I◄◄ or ►►I key is pressed, the headphones output volume will become minimum and maximum.

POWER MODE

- To set the power mode, set the test mode and set the mode display to 300 using the VOL +, – key.
- To set other modes, press the VOL +, – key.

• Power Mode Structure



- OPR/CHG LED will light up in mode number [322].

OTHER DISPLAYS

- During the test mode, the displays shown for the detection switch of the disc are as follows.

	Segment Area Display
Disc low reflectance rate detection	⊂
Disc present/absent detection	SHUF

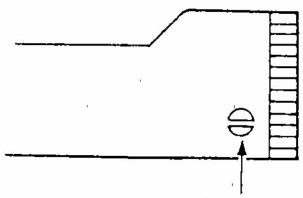
SECTION 4
ELECTRICAL ADJUSTMENTS

LASER DIODE EMISSION CHECKING PRECAUTIONS

When checking the laser diode emission during adjustments, never check it from directly above as this can be blinding.

MINI DISC DEVICE (KMS-200A) USING PRECAUTIONS

As the laser diode in the optical pick-up is easily damaged by static electricity, make a solder bridge on the laser tap of the flexible board when using it. Also carry out thorough anti-static electricity measures. Handle the flexible board carefully as it damages easily.

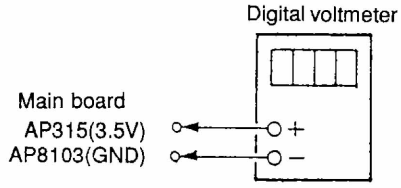


ADJUSTING PRECAUTIONS

1) To perform adjustments, set the test mode.
2) After completing adjustments, exit the test mode.
3) Use the following jigs and measurement tools.
   - CD test disc TDYS-1 (Parts No. : 4-963-646-01)
   - SONY MO disc avilable on the market.
   - LPM-8001 laser power meter (Parts No. : J-2501-046-A)
   - MDPE-1 error rate counter (Parts No. : J-2501-047-A)
   - Oscilloscope (Above 40 MHz band. Measure after calibrating the probe.)
   - Digital voltmeter
   - Thermometer
4) Unless specified otherwise, supply a power of DC6V to the DC IN 6V jack.
5) Positions of switch and knob
   - HOLD switch...OFF (Opposite ➘)
   - AVLS switch...OFF
   - BASS BOOST switch...NORM

3.5V VOLTAGE ADJUSTMENT

Connection :

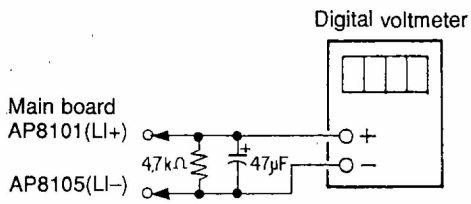


Adjusting Method :

1. Set the power mode of the test mode (Mode display : 300).
2. Press the ► key and set the power check mode (Mode display : 310).
3. Press the ► key and set the automatic power discrimination mode (Mode display : 311).
4. Adjust RV901 of the main board so that the voltage of AP315 (3.5V) becomes 3.5 ± 0.05V.
5. Release the test mode.

CHARGE VOLTAGE ADJUSTMENT

Connection :

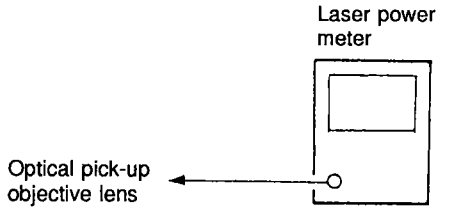


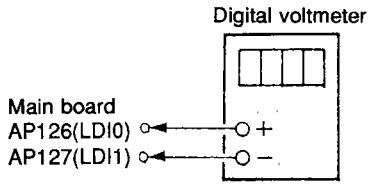
Adjusting Method :

1. Set the power mode of the test mode (Mode display : 300).
2. Press the ► key and VOL + key, and set the charge mode (Mode display : 320).
3. Check that the OPR/CHG LED (D905) is off.
4. Press the ► key (twice), and set the charge operation mode (Mode display : 322).
5. Check that the OPR/CHG LED (D905) is lit.
6. Adjust RV902 of the main board so that the voltage between AP8101 (LI+) and AP8105 (LI–) becomes 4.25 ± 0.05V.
7. Release the test mode.

LASER POWER ADJUSTMENT

Connection :



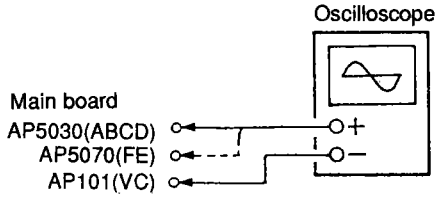


Adjusting method :

1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and set the laser power adjustment mode (Mode display : 010).
3. Press the I◄◄ key and move the optical pick-up to the inner-most periphery.
4. Open the lid and set the laser power meter above the optical pick-up objective lens.
5. Press the ► key and set the laser CD read adjustment mode (Mode display : 011).
6. Check that the laser power meter reads 0.4 ± 0.1 mW.
7. Press the ► key and set the laser MO read adjustment mode (Mode display : 013).
8. Press the VOL +, – key so that the laser power meter reads 0.85 ± 0.05 mW.
9. Press the II key and fix the adjustment data.
10. Check that the voltage between AP126 (LDI0) and AP127 (LDI1) is below 350 mV.
11. Press the ► key and set the temperature compensation adjustment mode (Mode display : 014).
12. Measure the temperature of the periphery of the main board using the thermometer.
13. Press the VOL +, – key so that the value measured shown at the LCD segment of the headphone remote controller becomes the measured value ± 1.
14. Press the II key and fix the adjustment data.
15. Release the test mode.

OFFSET ADJUSTEMNT

Connection :

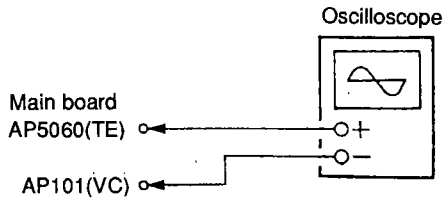


Adjusting Method :

1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and VOL +, and set the offset adjustment mode (Mode display : 020).
3. Press the ► key and set the CD FOK offset adjustment mode (Mode display : 021).
4. Press the VOL +, – key so that the voltage between AP5030 (ABCD) and AP101 (VC) becomes 0 ± 50 mV.
5. Press the II key and fix the adjustment data.
6. Press the ► key and set the CD FE offset adjustment mode (Mode display : 022).
7. Press the VOL +, – key so that the voltage between AP5070 (FE) and AP101 (VC) becomes 0 ± 50 mV.
8. Press the II key and fix the adjustment data.
9. Press the ► key and set the CD focus bias offset adjustment mode (Mode display : 023).
10. Press the VOL +, – key so that the voltage between AP5070 (FE) and AP101 (VC) becomes 0 ± 50 mV.
11. Press the II key and fix the adjustment data.
12. Press the ► key and set the MO FOK offset adjustment mode (Mode display : 024).
13. Press the VOL +, – key so that the voltage between AP5030 (ABCD) and AP101 (VC) becomes 0 ± 50 mV.
14. Press the II key and fix the adjustment data.
15. Press the ► key and set the MO FE offset adjustment mode (Mode display : 025).
16. Press the VOL +, – key so that the voltage between AP5070 (FE) and AP101 (VC) becomes 0 ± 50 mV.
17. Press the II key and fix the adjustment data.
18. Press the ► key and set the MO focus bias offset adjustment mode (Mode display : 026).
19. Press the VOL +, – key so that the voltage between AP5070 (FE) and AP101 (VC) becomes 150 ± 50 mV.
20. Press the II key and fix the adjustment data.
21. Release the test mode.

MO TRAVERSE ADJUSTMENT

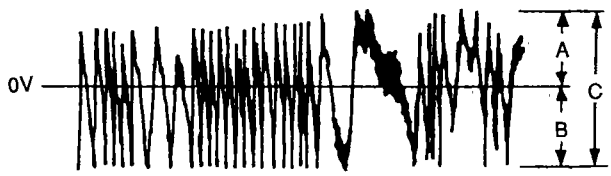
Connection :



Adjusting Method :

1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and VOL + key (twice), and set the MO playback adjustment mode (Mode display : 030).
3. Press the ►►I or I◄◄ key and move the optical pick-up near the center.
4. Insert a MO disc. (Any available on the market.)
5. Press the ► key and after the focus search turns on, set the CLV ADIP mode (Mode display : 031). (After the focus is turned on, the MO EF balance adjustment mode is set (Mode display : 032).)
6. Press the VOL +, – key so that the traverse waveform of AP5060 (TE) becomes symmetrical in respect to 0V.

(Traverse Waveform)

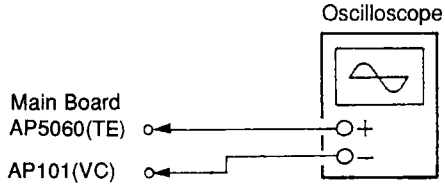


Specification : A=B, C≧2.0 Vp-p

7. Press the II key and fix the adjustment data.
8. Check that this traverse level is above 2.0 Vp-p.
9. Press the ■ key.
10. Release the test mode.

MO P-TOC TRAVERSE ADJUSTMENT

Connection :



Adjusting Method :

1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and VOL + key (three times), and set the MO P-TOC adjustment mode (Mode display : 040).
3. Insert a MO disc. (Any available on the market.)
4. Press the ► key and after the focus search turns on, set the CLV EFM mode (Mode display : 041). (After the focus is turned on, the MO P-TOC tracking offset adjustment mode is set (Mode display : 042).)
5. Press the VOL +, – key so that the traverse waveform of AP5060 (TE) becomes symmetrical in respect to 0V.

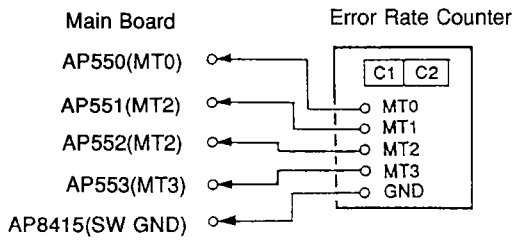
(Traverse Waveform)

Specification : A=B, C≧2.0 Vp-p

6. Press the II key and fix the adjustment data.
7. Check that the traverse level is above 2.0 Vp-p.
8. Press the ■ key.
9. Relese the test mode.

MO ERROR RATE CHECK

Connection :

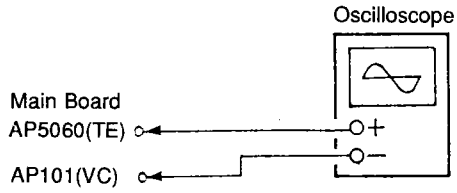


Checking Method :

1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and VOL + key (twice), and set the MO playback adjustment mode (Mode display : 030).
3. Press the ►►I or I◄◄ key and move the optical pick-up near the center.
4. Insert a PTDM-1 disc that has been continuously recorded.
5. Press the ► key (three times), and set the MO focus bias variable mode (Mode display : 036).
6. Check that the error rate (C1) shown on the error rate counter is below 100 and there is no compensation (C2).
7. Press the ■ key.
8. Release the test mode.

CD TRAVERSE ADJUSTMENT

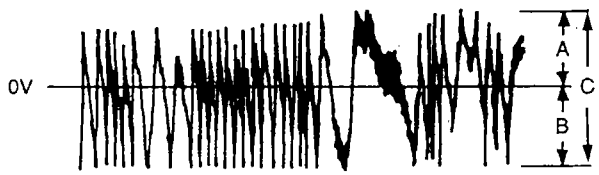
Connection :



Adjusting Method :

1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and VOL + key (four times), and set the CD playback adjustment mode (Mode display : 050).
3. Press the ►►I or I◄◄ key and move the optical pick-up near the center.
4. Insert the CD test disc (TDYS-1).
5. Press the ► key and after the focus search turns on, set the CLV EFM mode (Mode display : 051). (After the focus is turned on, the CD tracking offset adjustment mode will be set (Mode display : 052).)
6. Press the VOL +, – key so that the traverse waveform of AP5060 (TE) becomes symmetrical in respect to 0V.

(Traverse Waveform)

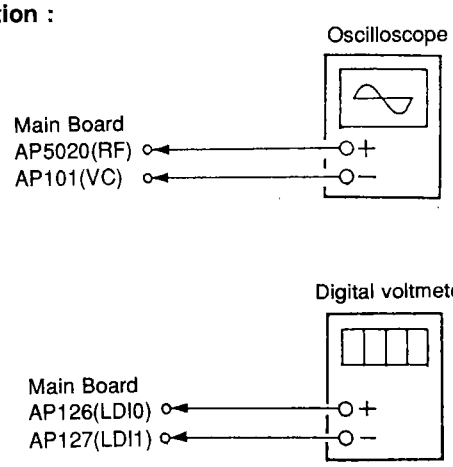


Specification : A=B, C≧2.0 Vp-p

7. Press the ■■ key and fix the adjustment data.
8. Check that this traverse level is above 2.0 Vp-p.
9. Press the ■■ key.
10. Relese the test mode.

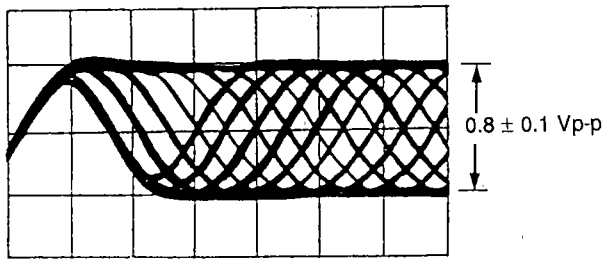
CD RF LEVEL ADJUSTMENT

Connection :



Adjusting Method :

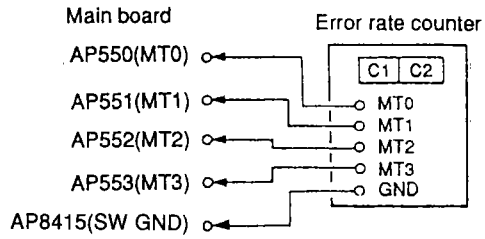
1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and VOL + key (four times), and set the CD playback adjustment mode (Mode display : 050).
3. Press the ►►I or I◄◄ key and move the optical pick-up near the center.
4. Insert the CD test disc (TDYS-1).
5. Press the ► key (twice), and set the CD RF level adjustment mode (Mode display : 053).
6. Press the VOL +, – key so that RF level of AP5020 (RF) becomes 0.8 ± 0.1 Vp-p.



7. Press the ■■ key and fix the adjustment data.
8. Check that the voltage between AP126 (LDI0) and AP127 (LDI1) is below 300mV.
9. Press the ■ key.
10. Relese the test mode.

CD ERROR RATE CHECK

Connection :

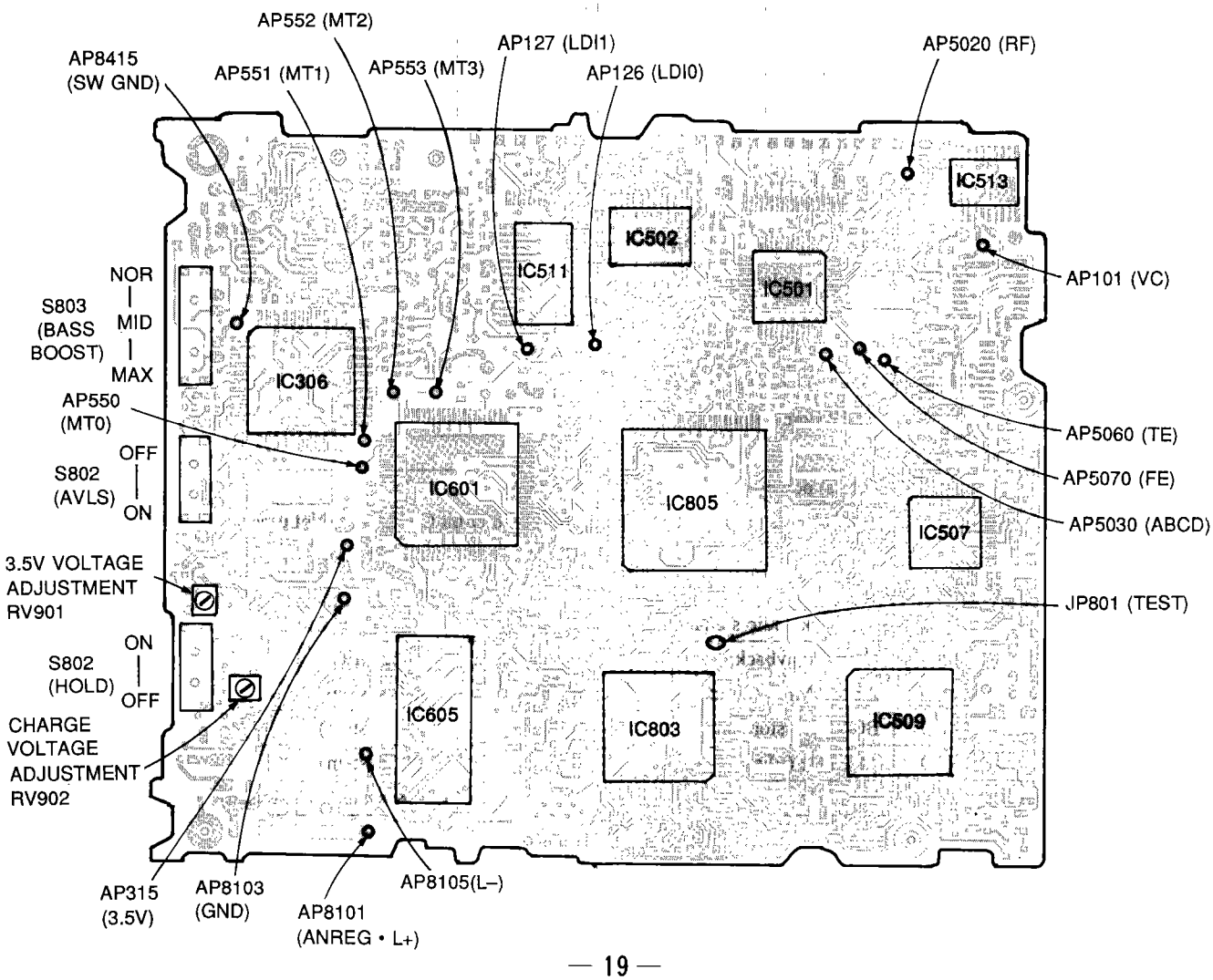


Checking Method :

1. Set the servo mode of the test mode (Mode display : 000).
2. Press the ► key and VOL + key (four times), and set the CD playback adjustment mode (Mode display : 050).
3. Press the ►►I or I◄◄ key and move the optical pick-up near the center.
4. Insert the CD test disc (TDYS-1).
5. Press the ► key (five times) and set the CD focus bias variable mode (Mode display : 056).
6. Check that the error rate (C1) shown on the error rate counter is below 100 and there is no compensation (C2).
7. Press the ■ key.
8. Release the test mode.

ADJUSTING/CONNECTING POINTS

Main Board [Side A]



SECTION 5
DIAGRAMS

5-1. IC PIN FUNCTIONS

IC601 EFM/ACIR ENCODER/DECODER (CXD2525R-1)

* (3) represents state output and (A) represents analog output in I/O column.

Pin No.	Signal Name	I/O	Function
1	MDP	O (3)	Spindle motor servo control
2	MDS	O (3)	Spindle motor servo control
3	EFMI	I	Playback EFM input
4	ASY	O	Playback EFM full swing output (Not used)
5	LOCK	O	Spindle servo (CLV) lock monitor. "H": Lock
6	VCOO	O	EFM decoder analog PLL oscillation output (196 Fs=8.6436 MHz) (Not used)
7	VCOI	I	EFM decoder analog PLL oscillation input (196 Fs=8.6436 MHz) (Not used)
8	TEST	I	Test pin. Normally GND
9	PDO	O (3)	EFM decoder analog PLL phase comparison output (Not used)
10	VSS	–	Digital GND
11	EFMO	O	EFM output during recording (Not used)
12	ATER	O	ADIP CRC flag output. "H": Error
13	CNIN	I	Track jump number count signal input (Connected to GND)
14	SENS	O (3)	Internal status output for serial bus address
15	SYPL	I	SQSY, ADSY, DQSY polarity switching input. Active high when "H"
16	FILO	O (A)	Digital PLL master PLL filter output
17	FILI	I	Digital PLL master PLL filter input
18	PCO	O (3)	Digital PLL master PLL phase comparison output
19	AVSS	–	Analog GND
20	CLTV	I	Digital PLL master PLL VCO control voltage input
21	AVDD	–	Analog power supply 3.1V
22	XRST	I	System reset input. Active low
23	REC	I	"L": Decoder, "H": Encoder (Connected to GND)
24	SORS	I	Test pin. Normally GND
25	SCLK	I	Serial bus clock input
26	XLAT	I	Serial bus latch input
27	SWDT	I	Serial bus write data input
28	SRDT	O (3)	Serial bus read data output
29	ADSY	O	ADIP sync output
30	SQSY	O	Subcode Q sync output
31	VDD	–	Digital power supply 3.1V
32	DQSY	O	Subcode Q sync (SCOR) output of digital in U-bit CD format (Not used)
33	MQSY	O	Open
34	DTI	I	Recording audio signal input
35	DTO	O (3)	Playback audio signal output
36	C2PO	O	C2PO: Playback, D. In-VFLAG: Digital REC, 0: Analog REC
37	BCK	O	2.8224 MHz output (MCLK system)
38	XBCK	O	BCK inversion output (MCLK system)
39	LRCK	O	44.1 kHz (=Fs) (MCLK system)
40	WDCK	O	88.2 kHz (MCLK system) (Not used)

Pin No.	Signal Name	I/O	Function
41	FS4	O	176.4 kHz (MCLK system)
42	GTOP	O	"H": Releases sync protection window (INPUT EFM SYNC monitor output) (Not used)
43	XUGFS	O	"L": Unguarded frame sync (INPUT EFM SYNC monitor output) (Not used)
44	XPLCK	O	EFM decoder PLL clock output (98 Fs=4.3218 MHz) (Not used)
45	GFS	O	"H": Frame sync OK (INPUT EFM SYNC monitor output)
46	EPDO	O (3)	EFM encoder external PLL phase comparison output Frequency: Low → "H" (Not used)
47	RFCK	O	7.35 kHz output (MCLK system) (Not used)
48	EVCI	I	EFM encoder external PLL oscillation input (196 Fs=8.6436 MHz) (Connected to GND)
49	EVCO	O	EFM encoder external PLL oscillation output (196 Fs=8.6436 MHz) (Not used)
50	VSS	–	Digital GND
51	MCLK	O	22.579 MHz output
52	XTAI	I	Crystal oscillation input (512 Fs=22.5792 MHz)
53	XTAO	O	Crystal oscillation output (512 Fs=22.5792 MHz) (Not used)
54	XTSL	I	Connected to GND
55	MVCI	I	Digital in PLL oscillation input (512 Fs=22.5792 MHz) (Connected to GND)
56	MVCO	O	Digital in PLL oscillation output (512 Fs=22.5792 MHz) (Not used)
57	EMPH	O	Fixed at "open"
58	DIPD	O (3)	Digital in PLL phase comparison output Frequency: Low → "H" (Not used)
59	RAOF	O	RAM overflow output (decoder monitor output) (Not used)
60	MT3	O	Correction status monitor output during playback
61	MT2	O	Correction status monitor output during playback
62	MT1	O	Correction status monitor output during playback
63	MT0	O	Correction status monitor output during playback
64	WFCK	O	7.35 kHz (EFM decoder PLL system during playback, EFM encoder PLL system during recording) (Not used)
65	DIN	I	Digital audio input (Connected to GND)
66	MD2	I	Digital audio out ON/OFF. "H": ON (Connected to GND)
67	DOUT	O	Digital audio output (Not used)
68	DIDT	O	Audio data output for digital audio input
69	DODT	I	16-bit data input for digital audio output (Connected to GND)
70	DOVF	I	Validity flag input for digital audio (Not used)
71	VDD	–	Digital power supply 3.1V
72	SBOCK	I	Fixed at "L" (Connected to GND)
73	SBODT	O	Fixed at "open" (Not used)
74	SBICK	I	Fixed at "L" (Connected to GND)
75	SBIDT	I	Fixed at "L" (Connected to GND)
76	FMCK	I	ADIP read clock input (6.3 kHz) (TTL Schmidt input)
77	FMDT	I	ADIP data input (TTL schmidt input)
78	ADFG	I	ADIP carrier signal input (20.05 kHz) (TTL schmidt input)
79	FSW	O (3)	Spindle motor output filter switching output. "Z": CLV-P, "L": Others
80	MON	O	Spindle motor ON/OFF control output. "H": ON

Note:
- XUGFS is a Frame Sync (negative pulse) created from EFM signal. This signal has not been sync protected.
- As for XPLCK, PLL is adjusted so that EFM PLL clock inversion and falling edge coincide with its changing point.
- GFS becomes "H" when Frame Sync coincides with insertion protection timing.
- C2PO represents data error status.
- RAOF is generated when 32 kRAM exceeds ± 4F jitter margin.

IC602 SHOCK PROOF MEMORY CONTROLLER (CXD2526AR)

Pin No.	Signal Name	I/O	Function
1	A16	O	SRAM address bus A16 when RMSL="H", WFOVF when "L" (Note) (Not used)
2	A17	O	SRAM address bus A17 when RMSL="H", WDTM when "L" (Note) (Not used)
3	A18	O	SRAM address bus A18 when RMSL="H", ZERO when "L" (Note) (Not used)
4	A19	O	SRAM address bus A19 when RMSL="H", MDTSC when "L" (Note) (Not used)
5	A20	O	SRAM address bus A20 when RMSL="H", CMPSY when "L" (Note) (Not used)
6	LRCK	I	LRCK input from EFM encoder/decoder
7	BCK	I	BCK input from EFM encoder/decoder
8	C2PO	I	C2PO input from EFM decoder
9	DATA	I/O	Input/output data from decoder during playback and to encoder during recording
10	VSS	–	GND
11	TEST	I	Test pin. Normally GND
12	XRST	I	Reset input. "L": Reset
13	MIN	I	Monitor signal input for external input. Inputs a desired monitor signal
14	SRDT	(HiZ) O	Microprocessor serial data output. "Hi-z" when CXD2526AR read register is not selected
15	SWDT	I	Microprocessor serial data input
16	XSLT	I	Microprocessor serial data latch signal input
17	SCK	I	Microprocessor serial data shift clock input
18	SCTX	I	Data output enable signal input during recording mode (Connected to GND)
19	RCPB	I	"L": Playback mode, "H": Recording mode (Connected to GND)
20	WRMN	I	"H": Write mode, "L": Monitor mode
21	SUB MAIN	I	"H": Records input signal according to SDCT, "L": Records according to DCT
22	XINT	O	Interruption request output. "L" when interruption status occurs
23	MDSY	O	Input data MD sync detection signal
24	MEMFUL	O	"H" when main data area becomes full with data (Connected to 3.1V)
25	MEMEMP	O	"H" when main data area is empty (Connected to 3.1V)
26	UNDER	O	"H" when RMS < THUND (Connected to 3.1V)
27	OVER	O	"H" when RMS ≧ THOVR (Connected to 3.1V)
28	ERWR	O	"H" when data which C2PO is effective is written into RAM (Connected to 3.1V)
29	BTOV4	O	"H" when BCT ≧ 400 (Hex) (Connected to 3.1V)
30	TXST	O	"H" during data transfer (Connected to 3.1V)
31	VDD	–	System power supply 3.1V
32	BUSY	I/O	"H": RAM access (Connected to 3.1V)
33	ZZ2	I	Test signal. Fixed at "L" (Connected to 3.1V)
34	ZZ1	I	Test signal. Fixed at "L" (Connected to 3.1V)
35	ZZ0	I	Test signal. Fixed at "L" (Connected to 3.1V)
36	XALT	O	Data ready or latch signal to CXD2531BR
37	ADTI	I	Data input from CXD2531BR
38	ADTO	O	Data output to CXD2531BR
39	ACK	O	Data input/output clock output to CXD2531BR
40	AC2	O	Output data C2PO output to CXD2531BR
41	XRQ	I	Data request input signal from CXD2531BR
42	SDCK	I	External sub data I/F shift clock input (Connected to GND)
43	SBDT	I/O	External sub data I/F data output during playback mode, data input during recording mode (Connected to GND)

Pin No.	Signal Name	I/O	Function
44	XWT	O	External sub data I/F wait signal. Clock for reading a new data should not be transferred when "L" (Not used)
45	SRDY	O	External sub data I/F access enable signal. Ignores clock for sub data R/W when "H" (Not used)
46	MCK	O	128 fs output (Not used)
47	F256	O	256 fs output (Not used)
48	XTLO	O	System clock output (22.5792 MHz) (Not used)
49	XTLI	I	System clock input (22.5792 MHz)
50	VSS	–	GND
51	TEST	I	Test pin. Normally GND
52	RMSL	I	External RAM select signal. "H": SRAM, "L": DRAM (Connected to GND)
53	ERR	I/O	EXTC2R="H": C2PO input (Not used)
54	D7	O	SRAM data bus D7 when RMSL="H", Test signal when "L" (Not used)
55	D4	I/O	RAM data bus D4 when RMSL="H", Test signal when "L" (Not used)
56	D0	I/O	RAM data bus D0
57	D1	I/O	RAM data bus D1
58	D3	I/O	RAM data bus D3
59	D2	I/O	RAM data bus D2
60	XCAS	I/O	RMSL="L": DRAM $\overline{CAS}$ output, "H": Data bus D6
61	XOE	O	RAM output enable
62	A10	O	RAM address bus A10 (Not used)
63	XWE	O	RAM write enable
64	XRAS	I/O	DRAM $\overline{RAS}$ output when RMSL="L", Data bus D5 when "H"
65	A11	O	RAM address bus A11 (Not used)
66	A9	O	RAM address bus A9
67	A0	O	RAM address bus A0
68	A1	O	RAM address bus A1
69	A2	O	RAM address bus A2
70	A3	O	RAM address bus A3
71	VDD	O	System power supply 3.1V
72	A8	O	RAM address bus A8
73	A7	O	RAM address bus A7
74	A6	O	RAM address bus A6
75	A5	O	RAM address bus A5
76	A4	O	RAM address bus A4
77	A12	O	RAM address bus A12 when RMSL="H", CS output when "L" (Not used)
78	A13	O	RAM address bus A13 when RMSL="H", SYOK output when "L" (Not used)
79	A14	O	SRAM address bus A14 when RMSL="H", WFFUL when "L" (Note) (Not used)
80	A15	O	SRAM address bus A16 when RMSL="H", RFEMP when "L" (Note) (Not used)

Note: WFOVF: "H" When write FIFO becomes overflow.
WDTM: Outputs window timing within DI block.
ZERO: Outputs "H" when BCT=0.
MDTSC: "H" when input data header selector becomes 00 to IF, "L" when others.
CMPSY: Insertion sync timing
WFFUL: "H" when write FIFO becomes full.
RFEMP: "H" when read FIFO becomes empty.

IC803 SUB SYSTEM CONTROL (MB89133A-PFM-170)

Pin No.	Signal Name	I/O	Function
1	AVCC	–	3.7V
2	$\overline{\text{RST}}$	I	Reset signal
3	MODE0	I	Mode setting (Connected to GND)
4	MODE1	I	
5	X0	I	System clock (4.19 MHz)
6	X1	O	
7	VCC	–	3.1V
8	X0A	I	Time clock (32.768 kHz)
9	X1A	O	
10	CE	–	Open
11	$\overline{\text{MRST}}$	O	Reset signal to main microprocessor
12		O	Not used
13	PCONT	O	DC-DC converter ON/OFF control. "H": ON
14	CHG	O	Charge ON/OFF control. "H": ON
15		O	Not used
16	BATCHK	O	Battery voltage check switch ON/OFF control. "H": ON
17	PMUTE	O	Not used
18	$\overline{\text{TEST}}$	I	Test mode setting. "L": Test mode
19	VSS	–	GND
20	3.5V	I	External power supply present/absent detection. "H": Present
21	OP/$\overline{\text{CL}}$	I	OPEN/CLOSE switch input. "H": Open
22	$\overline{\text{PACK IN}}$	I	Disc present/absent detection. "H": Present
23	AVLSPB	I	Not used
24	CLOCK	I	CLOCK SET key input (Connected to 3.1V)
25	AVLSI	I	Headphone remote controller AVLS switch input
26	$\overline{\text{5010}}$	I	Fixed at "H" in this unit
27	$\overline{\text{4.5V}}$	I	External power supply 4.5V present/absent detection. "L": Present
28		O	Not used
29	$\overline{\text{BOOST}}$	I	BASS BOOST key input (Connected to 3.1V)
30	$\overline{\text{PLAY}}$	I	PLAY key input
31	$\overline{\text{RECKEY}}$	I	REC key input (Connected to 3.1V)
32	$\overline{\text{HOLD}}$	I	HOLD switch input. "L": ON
33	POK	O	Laser power OK signal output
34		O	Not used
35	BEEP	O	Headphone buzzer output
36	WP2	I	Key wake-up input
37	WP1	I	Wake-up input for power supply and disc detecting
38	SLVREQ	I	Request signal from main microprocessor
39	KEYON	O	Key of remote controller reception switch. "H": ON
40	SDO1	I	Serial data from main microprocessor
41	SDI1	O	Serial data to main microprocessor
42	SCK1	I	Serial clock from main microprocessor
43	AVSS	–	GND
44	AVR	–	Reference voltage
45	KEY0	I	Unit key input (A/D input)
46	KEY1	I	Headphones remote controller key input (A/D input)
47	BATMNT	I	Rithium ion battery – terminal voltage input (A/D input)
48	UNREG	I	Power supply voltage input (A/D input)

IC805 MAIN SYSTEM CONTROL (CXP81848-603R)

Pin No.	Signal Name	I/O	Function	Connection
1	TX	O	Data output enable signal during REC. "L": Active (Not used)	
2	REC	O	"H": REC mode, "L": PLAY mode (Not used)	
3	RFSW0	O	"H": High reflectance disc "L": Low reflectance disc	CXA1861R
4	RFSW1	O	"H": PIT area "L": GROOVE area	
5	MODON	O	High frequency module ON/OFF control. "H": ON	CXD8498N
6	AGCTCI	O	RF AGC amplifier time constant control "L" when WRITE ⟷ READ laser power switching (approx. 30 msec) and when focus search (until focus is successful)	CXD8498N
7	SDIO4	O	Serial data to EVR (IC314) and EEPROM	
8 to 10			Not used	
11	INSL	O	Digital input/analog input switching. "H": Digital input (Not used)	CXD2531BR
12			Not used	
13	DB7	I/O	Data BIT7 to LCD driver and BUSY check (Not used)	
14 to 20	DB6 to DB0	O	Data BIT6 to BIT0 to LCD driver (Not used)	
21	DSP-E	O	Enable signal to LCD driver (Not used)	
22	DSP-RW	O	READ/WRITE signal to LCD driver (Not used)	
23	DSP-RS	O	Display register select signal to LCD driver (Not used)	
24	ASYMUTE	O	ASY reference voltage muting during track jump (MO disc only) (Not used)	
25	LDON	O	Laser ON signal. 'H": ON	
26	LOAD	O	Load signal to EVR (IC506)	
27	SLVREQ	O	Request signal to sub-microprocessor	MB89133A
28			Not used	
29	$\overline{\text{XSHKEN}}$	O	Enable signal to REC shock detection IC	CXD8948N
30	$\overline{\text{LAT}}$	O	Latch signal to REC shock detection IC	CXD8948N
31	$\overline{\text{STCONT}}$	O	Stepping motor control. "L": ON (Not used)	
32	ADIPCONT	O	Servo system power supply ON/OFF control. "L": ON	
33	RECCONT	O	REC driver control. "L": ON (Not used)	
34	RECLED	O	REC LED control. "L": ON (Not used)	
35	OPR/CHG-LED	O	OPR/CHG LED control. "L": ON	
36	DTCONT	O	Dead time control (Not used)	MPC1718FU
37	MP		Connected to GND	
38	$\overline{\text{MRST}}$	I	Reset signal from sub-microprocessor	MB89133A
39	VSS	–	GND	
40	X1	I	System clock (12 MHz)	
41	X2	O		
42	$\overline{\text{CSO}}$		Connected to 3.1V	
43	SDI1	I	Serial data from sub-microprocessor	MB89133A
44	SDO1	O	Serial data to sub-microprocessor	MB89133A
45	SCK1	O	Serial clock to sub-microprocessor	MB89133A

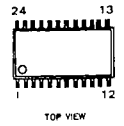
SW0	SW1	
H	H	PREMASTER
L	H	PTOC
L	L	MO

Pin No.	Signal Name	I/O	Function	Connection
46	OUTSEL	O	REC monitor signal switching (Not used)	
47	DBB1	O	DBB (dynamic bass boost) control (Not used)	
48	DBB2	O		
49			Not used	
50	AVSS	–	GND	
51	AVREF	–	3.1V	
52	AVDD	–		
53	SHOCK	I	Shock detection signal during REC (Not used)	
54	SENSEO	I	SENSE signal	CXD2525R-1, CXD8498N
55	FOK	I	Focus OK signal	CXA1861R
56	$\overline{\text{JACDET}}$	I	LINE IN jack detection signal. "L": Jack insertion (Not used)	
57			Not used	
58	TEMPMNI	I	Temperature detection (A/D input)	
59	OUTLS	I	Pick-up outer periphery detection (A/D input) (Not used)	
60			Not used	
61	FGIN	I	Spindle FG input	
62	TOK	I	Tracking OK signal	CXD8498N
63	$\overline{\text{MIC DET}}$	I	MIC jack detection signal. "L": Jack insertion	
64	DIN/$\overline{\text{AIN}}$	I	Digital in/analog in detection. "H": Digital in (Not used)	
65	PROTECT	I	Disc write protect switch input. "H": Write protect (Not used)	
66	REFLCT	I	Disc reflectance detection switch input. "H": Low reflectance disc	
67	$\overline{\text{5010}}$/5011	I	Fixed at GND in this unit	
68	INTSW	I	Stepping motor initial position detection switch input (Not used)	
69	SPMUTE	O	Spindle motor mute signal. "H": Mute	
70	AMUTE	O	Audio mute signal. "H": Mute	
71	DEEMP	O	Audio de-emphasis control. "H": De-emphasis on	
72			Not used	
73	SLMUTE	O	Sled motor mute signal. "H": Mute (PWM output)	
74	FGSV	O	FG servo (PWM output)	
75	DQSY	I	Subcode Q sync of digital in U-bit CD format (Not used)	
76	DATASY	I	ADIP sync/subcode Q sync	CXD2525R-1
77	SDI2	I	Serial data	CXD2525R-1, CXD2526AR
78	SDO2	O	Serial data	CXD2525R-1, CXD2526AR, CXD2531BR, CXD8498N
79	SCK2	I/O	Serial clock	CXD2525R-1, CXD2526AR, CXD2531BR, CXD8498N
80	$\overline{\text{INT}}$	I	Interruption request from shock proof memory controller	CXD2526AR
81	SCK3	O	Serial clock to EVR (IC506, IC513, IC514)	
82	SDO3	O	Serial data to EVR (IC506, IC513, IC514)	
83	CSSV	O	Enable signal to EVR (IC513, IC514)	
84	XT1	I	Not used	
85	XT2	O		

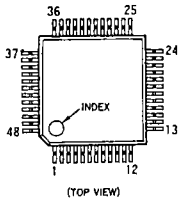
Pin No.	Signal Name	I/O	Function	Connection
86	VSS	–	GND	
87	VDD	–	3.1V	
88	NC	–	Not used	
89	CSAU	O	Chip select signal to EVR (IC314)	
90	CSNV	O	Chip select signal to EEPROM	
91	$\overline{RST}$	O	Reset signal	
92	AGC	O	Audio AGC ON/OFF control. "H": ON (Not used)	
93			Not used	
94	SCK4	O	Serial clock to EVR (IC314) and EEPROM	
95	ST1 SOU	O	Stepping motor signal (Not used)	
96	ST2 SOU	O		
97	PDAD	O	A/D converter power down detect during playback. "H": Power down (Not used)	
98	PDDA	O	D/A converter power down detect during recording. "H": Power down (Not used)	
99	SUB MAIN	O	"H": Sub data, "L": Main data	CXD2526AR
100	WRTMON	O	"H": Write mode, "L": Monitor mode	CXD2526AR

5-2. SEMICONDUCTOR LEAD LAYOUTS

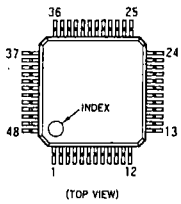
CXA1380N
CXA8027N



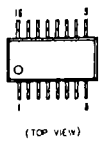
CXA1602R
MB89133A-PFM-170



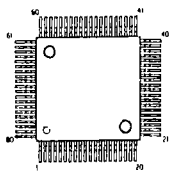
CXA1861R



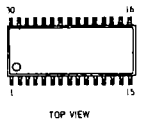
CXA8029N-TLM
MB88347ATFV-EF



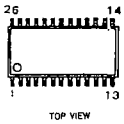
CXD2525R-1
CXD2526AR
CXD2531BR



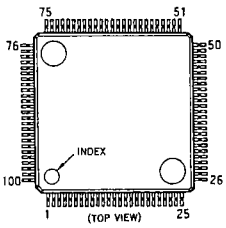
CXD8498N-ELL2000



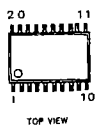
CXK41V4400ATM-10



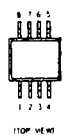
CXP81848-603R



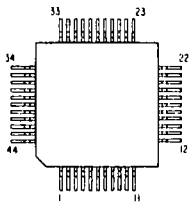
DS1267-50
DS1267E-10



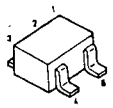
MB3776APNF-G-SNY-ER
RS5RJ3720B



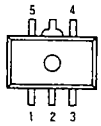
MPC1718FU
SM5853AF



NJM2107F
S-80725SL-AN
S-80745SL-A9
TC7S08FU
TC7S66FU

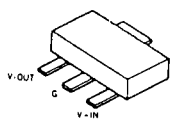


S-2900AUT

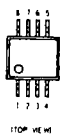


1. CONT
2. Vss
3. ON/OFF
4. V_{IN}
5. V_{OUT}

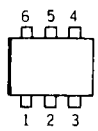
S-80230AG-GA-S



TC4W53FU
TC7W04FU
TLV2362IPW-ELM1500

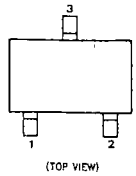


TK11900MTL



(Top view)

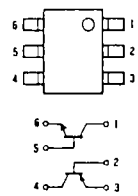
XC61AN1102MR
XC61AN1902MR
XC62AP3102MR



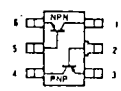
1 : GND
2 : OUT
3 : IN

DTA144EE
DTC114YE
DTC143TE
DTC144EE
2SC4617R

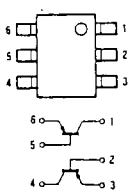
UMD2



UMZ1



XN4404



5-3. BLOCK DIAGRAM

2SC4684

MA110
MA2S082
MA2S111
MA2S728
MA8068

2SD1615A-GP
2SD1963-Q,R

RB110C
SB20-03P

2SK2035

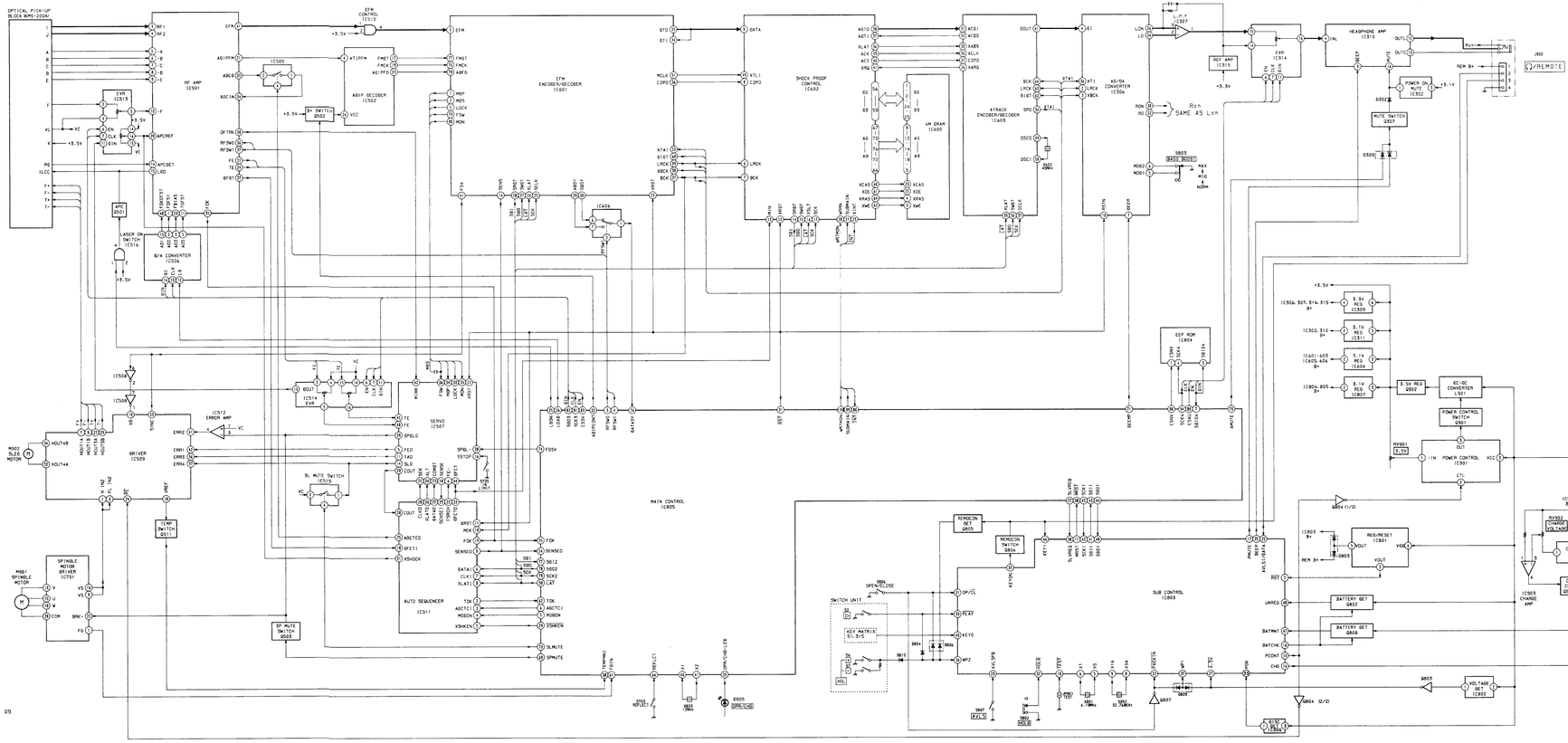
RB715F
RB717F

CL-181UR-C

SB007T03Q
SB01-05CP

DA221

DAN222



5-4. PRINTED WIRING BOARDS

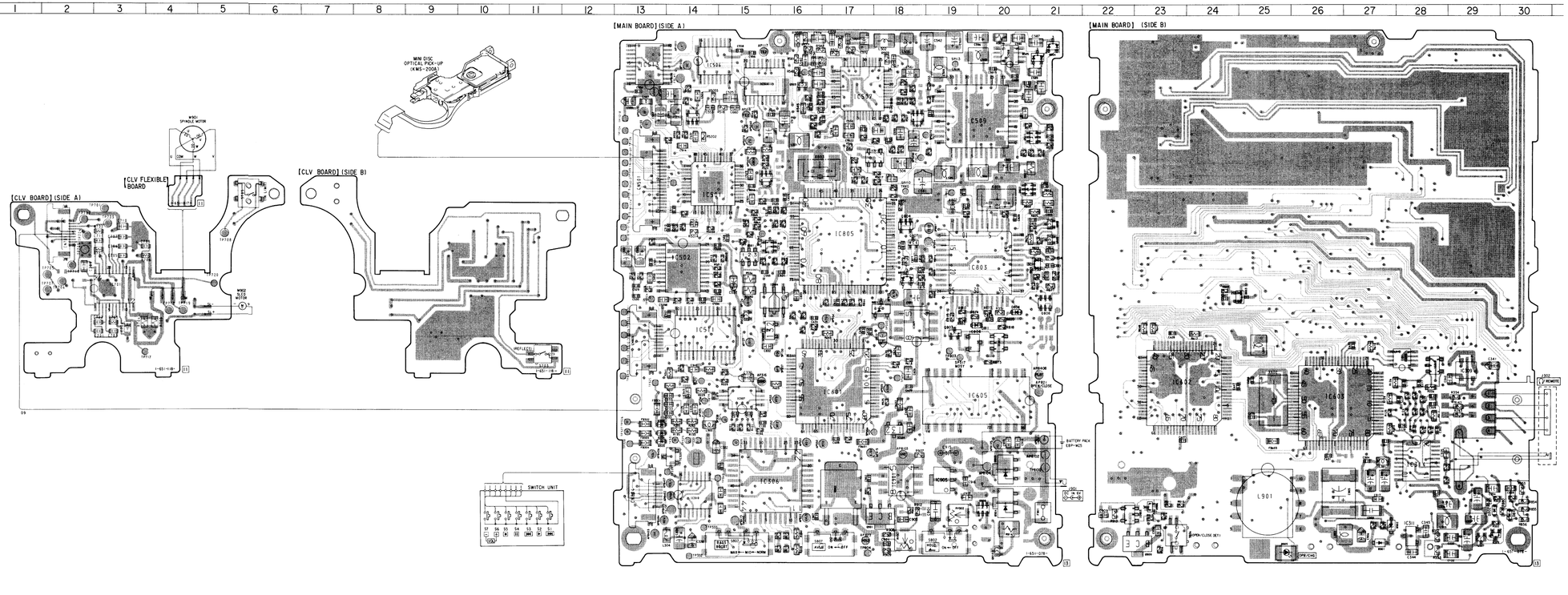
• See page 28, 29 for Semiconductor Lead Layouts.

• **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D302	J-29	IC513	A-13
D303	I-13	IC514	B-15
D304	I-13	IC515	C-18
D305	H-13	IC516	E-16
D309	K-29	IC601	H-17
D504	A-21	IC602	H-23
D505	A-20	IC603	H-26
D801	F-18	IC604	I-18
D803	F-25	IC605	H-20
D804	F-20	IC606	G-28
D806	E-21	IC701	F-3
D809	E-18	IC801	F-18
D810	J-30	IC802	G-20
D811	G-20	IC803	E-20
D901	K-27	IC804	F-16
D902	J-28	IC805	E-17
D903	I-20	IC806	G-20
D904	J-20	IC807	G-15
D905	K-25	IC901	I-18
D906	J-23	IC903	J-23
		IC905	I-19
IC306	I-15		
IC307	H-15	Q307	K-29
IC309	G-29	Q501	E-15
IC310	J-14	Q502	F-15
IC311	J-28	Q503	B-16
IC314	I-28	Q511	C-20
IC315	G-28	Q802	D-20
IC320	I-14	Q803	G-19
IC501	D-14	Q804	D-18
IC502	E-14	Q805	E-21
IC505	D-15	Q806	E-21
IC506	A-14	Q807	E-18
IC507	B-17	Q808	F-21
IC508	A-20	Q901	J-17
IC509	C-20	Q902	J-17
IC510	B-14	Q908	J-20
IC511	G-14	Q909	K-23
IC512	C-18	Q910	K-20

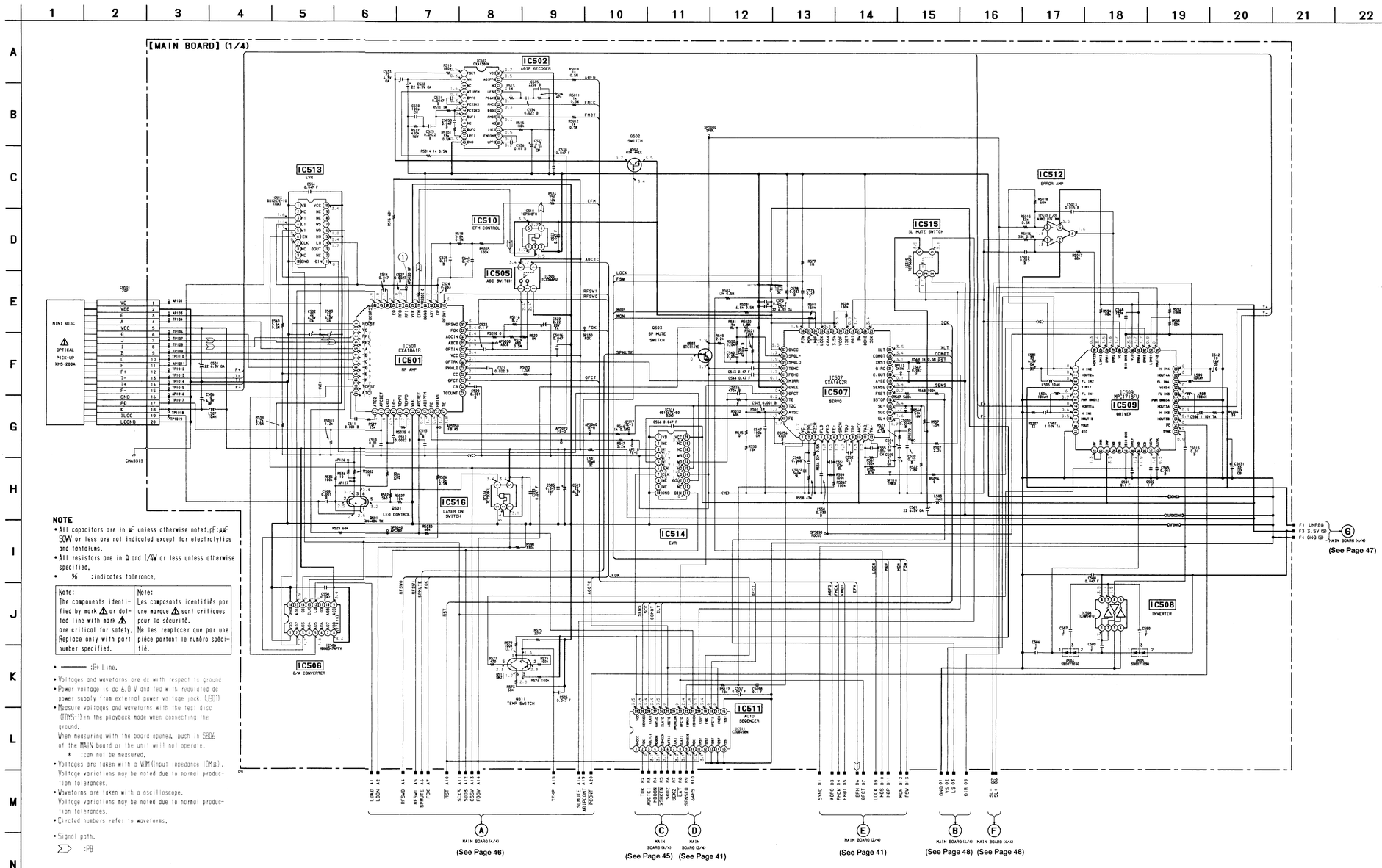
Note:

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



5-5. SCHEMATIC DIAGRAM — RF/SERVO SECTION —

• See page 50 to 54 for IC Block Diagrams.



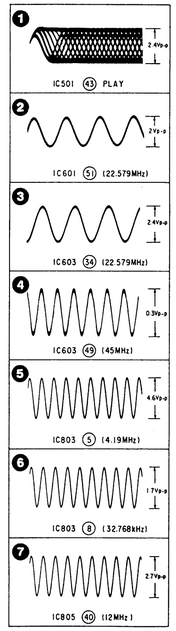
NOTE

- All capacitors are in μF unless otherwise noted. pF: μF 50W 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.

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.

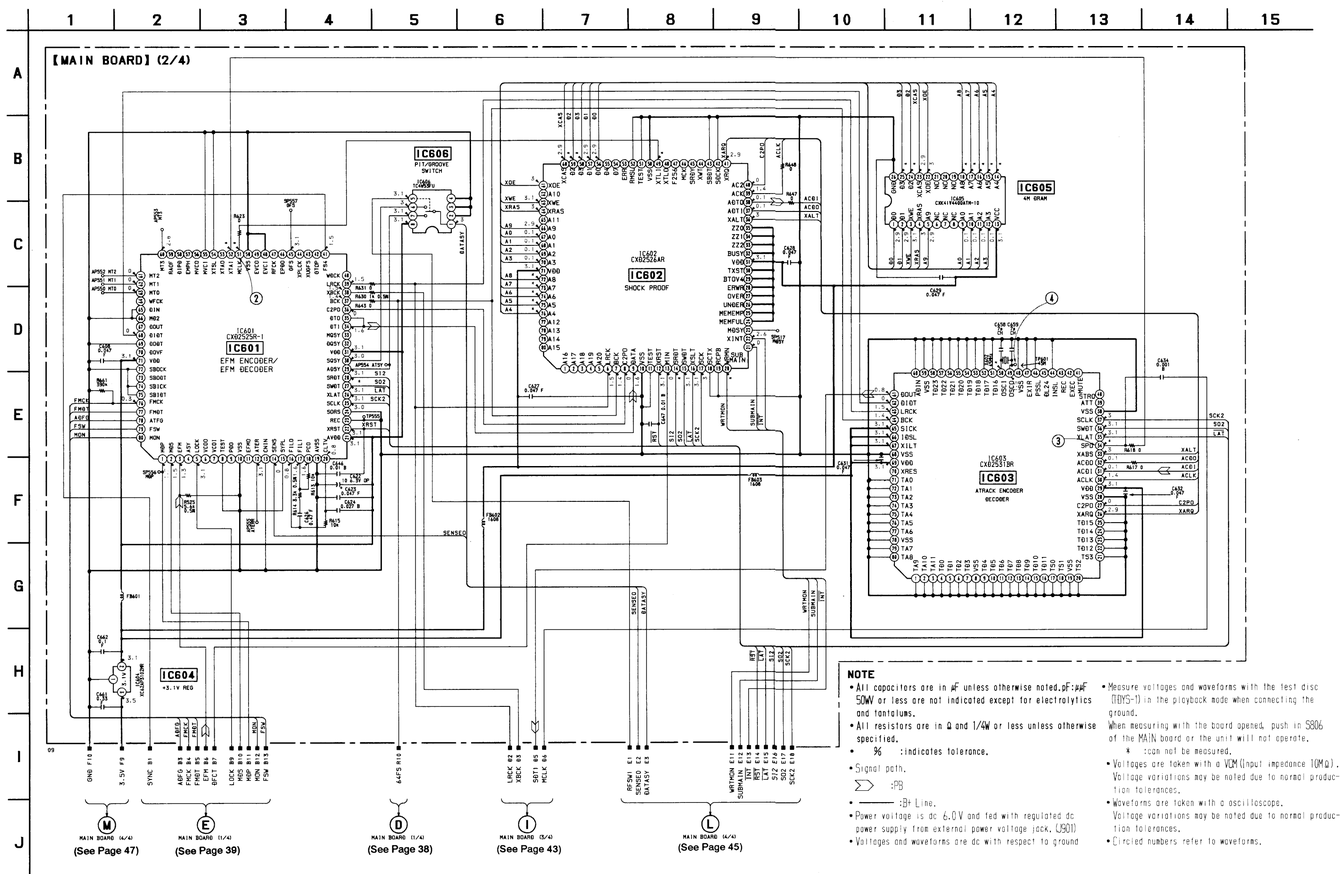
- ——— : DH Line.
- Voltages and waveforms are dc with respect to ground
- Power voltage is dc 6.0 V and fed with regulated dc power supply from external power voltage jack. (CN01)
- Measure voltages and waveforms with the test disc (TDYS-1) in the playback mode when connecting the ground.
  When measuring with the board opened, push in S886 of the MAIN board or the unit will not operate.
  × : can not be measured.
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ≫ : PB

• **Waveforms.**



5-6. SCHEMATIC DIAGRAM — PROCESS SECTION —

- Refer to page 33 for printed Wiring Boards.
- See page 20 to 23 for IC Pin Functions.
- See page 40 for Waveforms.
- See page 50 to 54 for IC Block Diagrams.

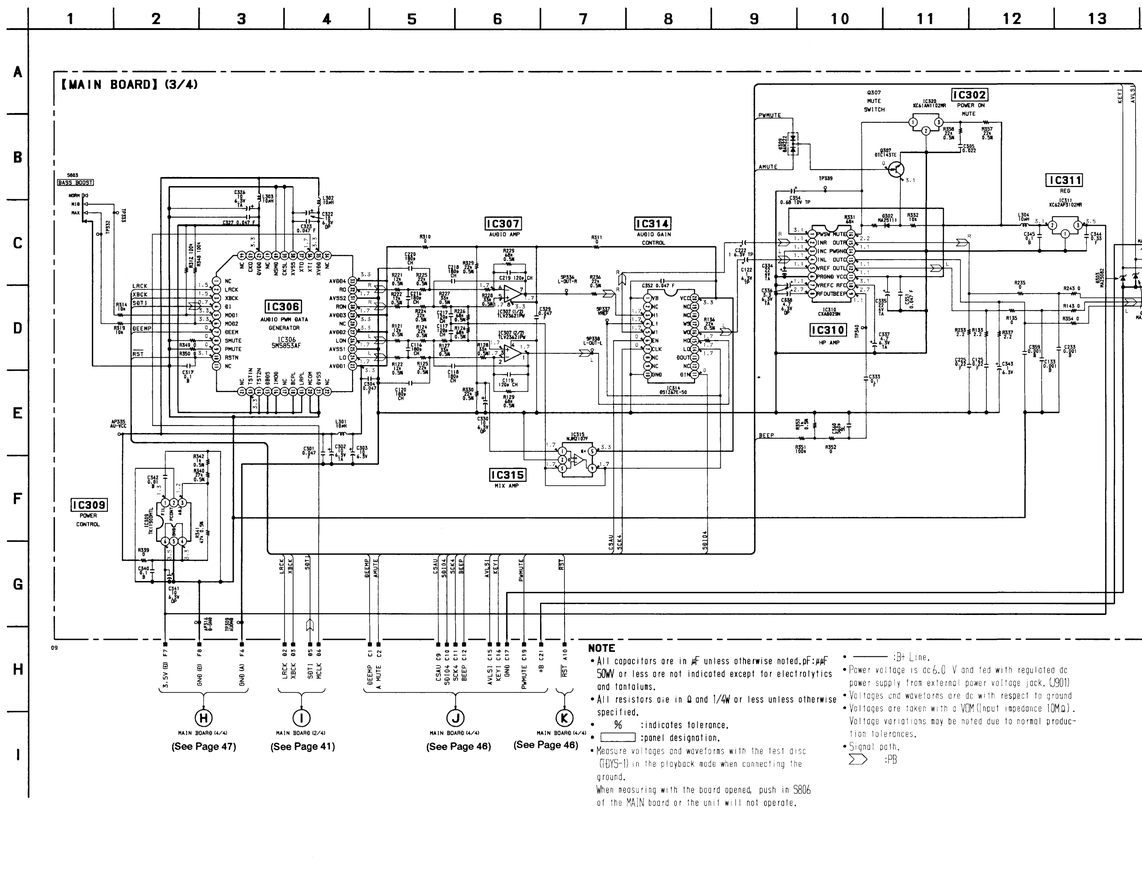


NOTE

- 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.
- Signal path.
  ⋙ :PB
- ——— :B+ Line.
- Power voltage is dc 6.0V and fed with regulated dc power supply from external power voltage jack. (J901)
- Voltages and waveforms are dc with respect to ground
- Measure voltages and waveforms with the test disc (TDYS-1) in the playback mode when connecting the ground.
  When measuring with the board opened, push in S806 of the MAIN board or the unit will not operate.
  ※ can not be measured.
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

5-7. SCHEMATIC DIAGRAM — AUDIO SECTION —

- Refer to page 33 for printed Wiring Boards.
- See page 50 to 54 for IC Block Diagrams.

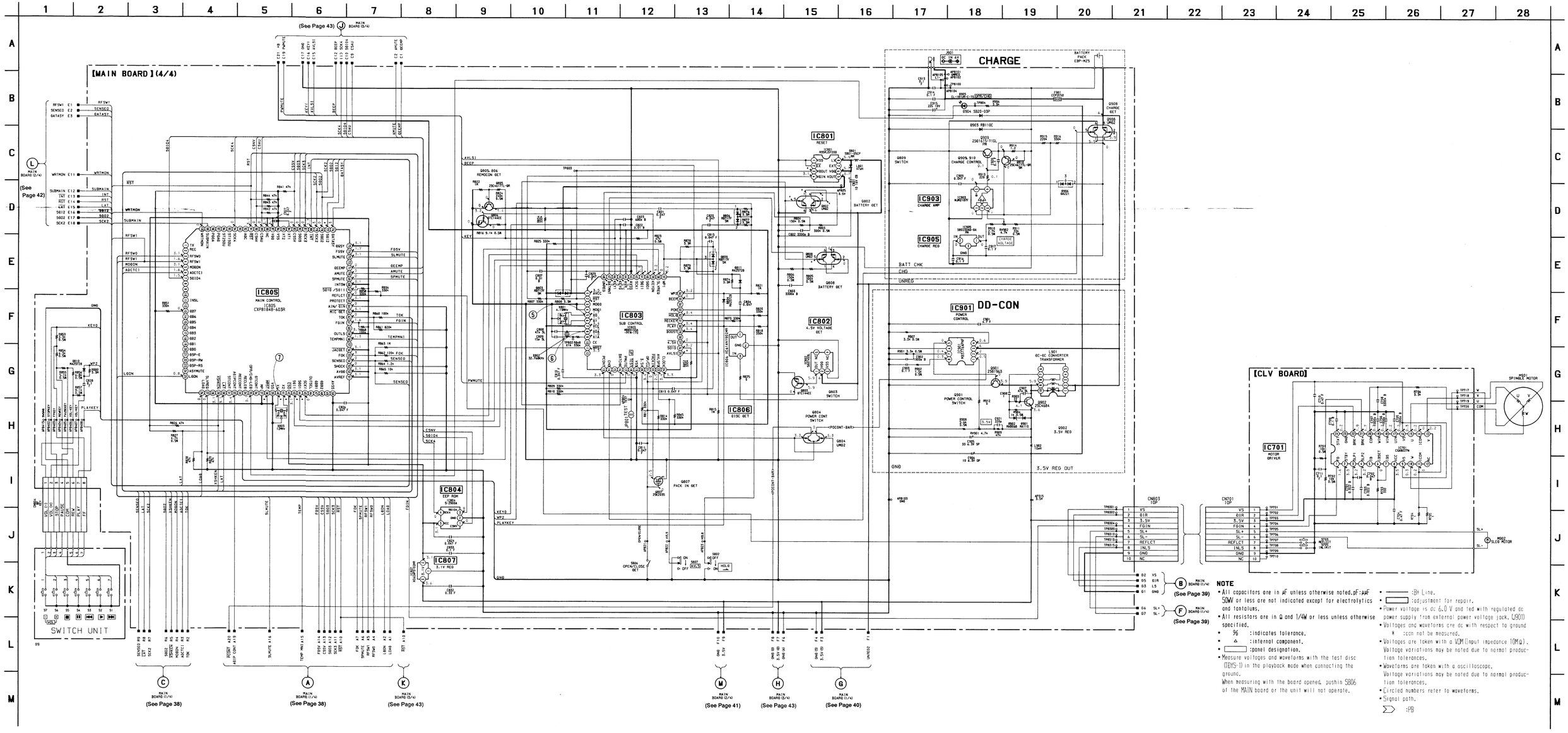


NOTE

- 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.
- Measure voltages and waveforms with the test disc (TDYS-1) in the playback mode when connecting the ground.
  When measuring with the board opened, push in S806 of the MAIN board or the unit will not operate.
- ——— :B+ Line.
- Power voltage is dc 6.0 V and fed with regulated dc power supply from external power voltage jack. (J901)
- Voltages and waveforms are dc with respect to ground
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⋙ :PB

5-8. SCHEMATIC DIAGRAM
— MICRO COMPUTER/MD SECTION —

- Refer to page 33 for printed Wiring Boards.
- See page 24 to 27 for IC Pin Functions.
- See page 40 for Waveforms.
- See page 50 to 54 for IC Block Diagrams.



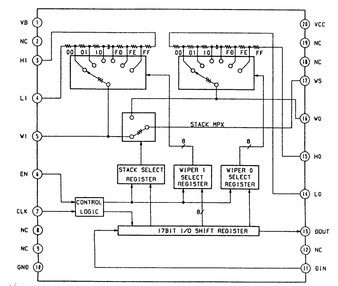
NOTE

- 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.
- Δ : internal component.
- ▭ : panel designation.
- Measure voltages and waveforms with the test disc (TDYS-1) in the playback mode when connecting the ground.
  When measuring with the board opened, push in S806 of the MAIN board or the unit will not operate.

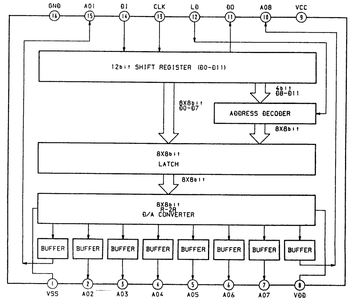
- ▬ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 6.0 V and fed with regulated dc power supply from external power voltage jack. (J901)
- Voltages and waveforms are dc with respect to ground
  * : can not be measured.
- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : PB

5-9. IC BLOCK DIAGRAMS

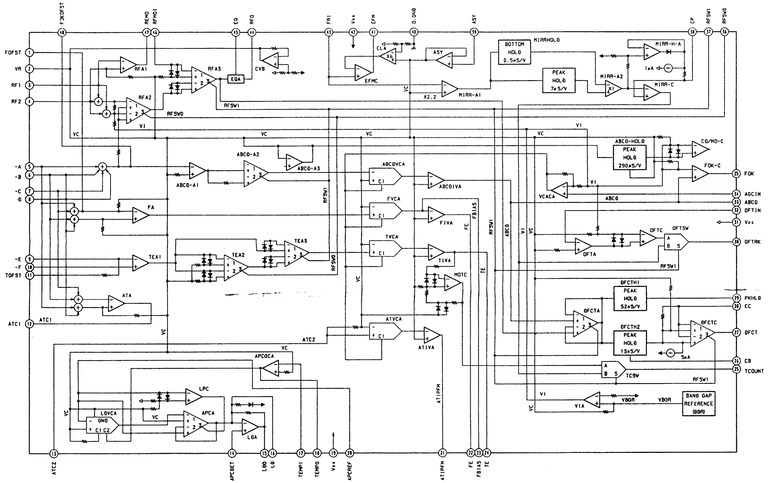
IC314, IC514 DS1267-50
IC513 DS1267E-10



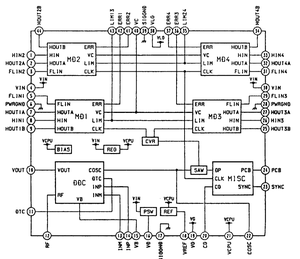
IC506 MB883447ATFV-EF



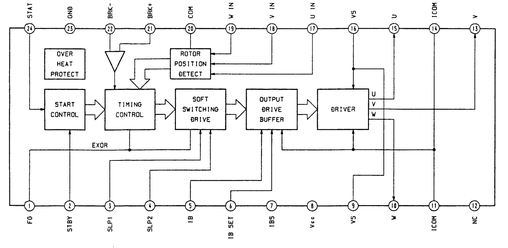
IC501 CXA1861R



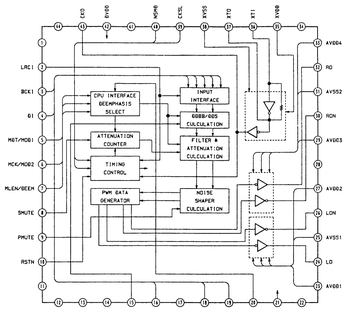
IC509 MPC1718FU



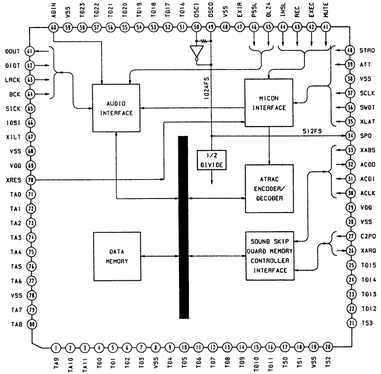
IC701 CXA8027N



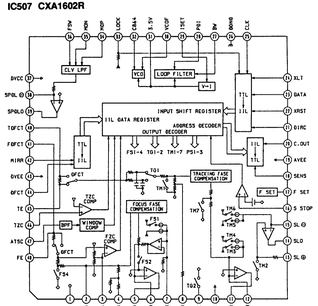
IC306 SM5853AF



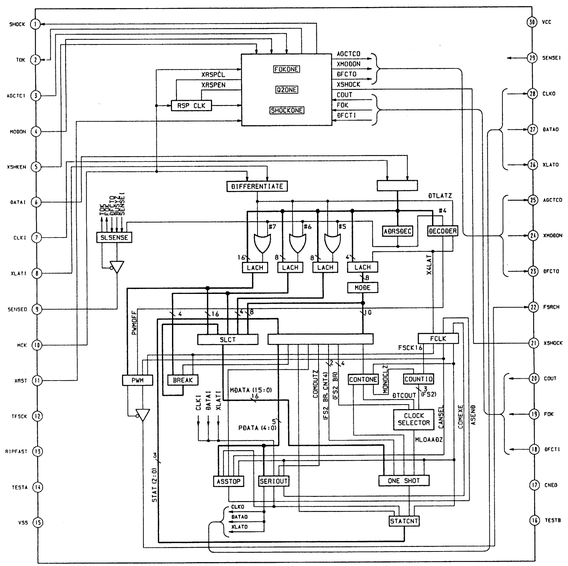
IC603 CXD2531BR



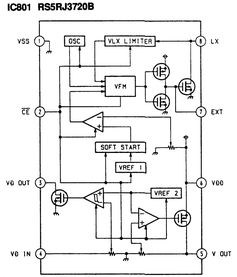
IC507 CXA1602R



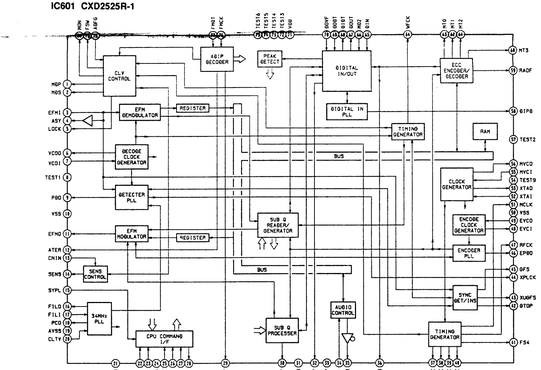
IC511 CXD8498N-ELL2000



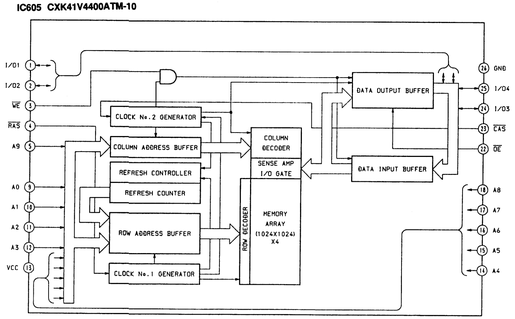
IC801 RS5RJ3720B



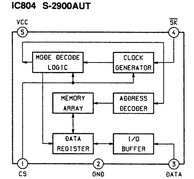
IC601 CXD2525R-1



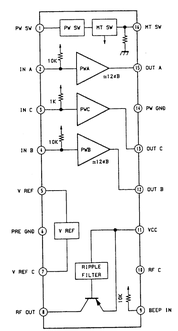
IC605 CXK41V4400ATM-10



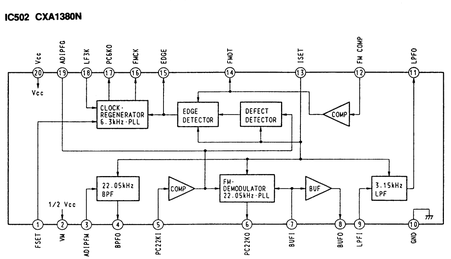
IC804 S-2900AUT



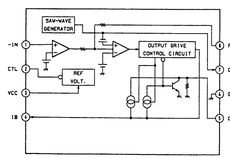
IC310 CXA8029N-TLM



IC502 CXA1380N



IC901 MB3776APNF-G-BND-EF

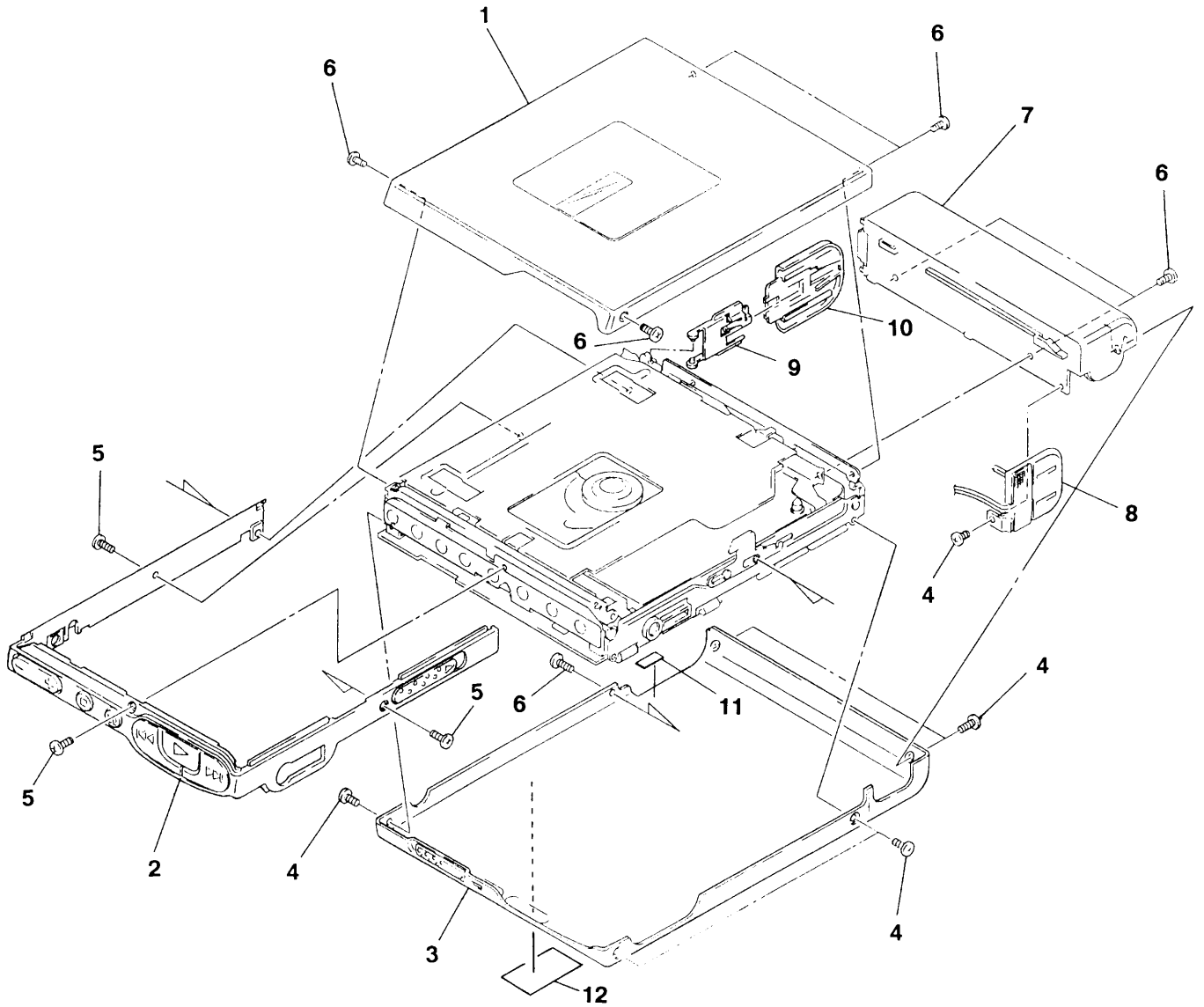


SECTION 6
EXPLODED VIEWS

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

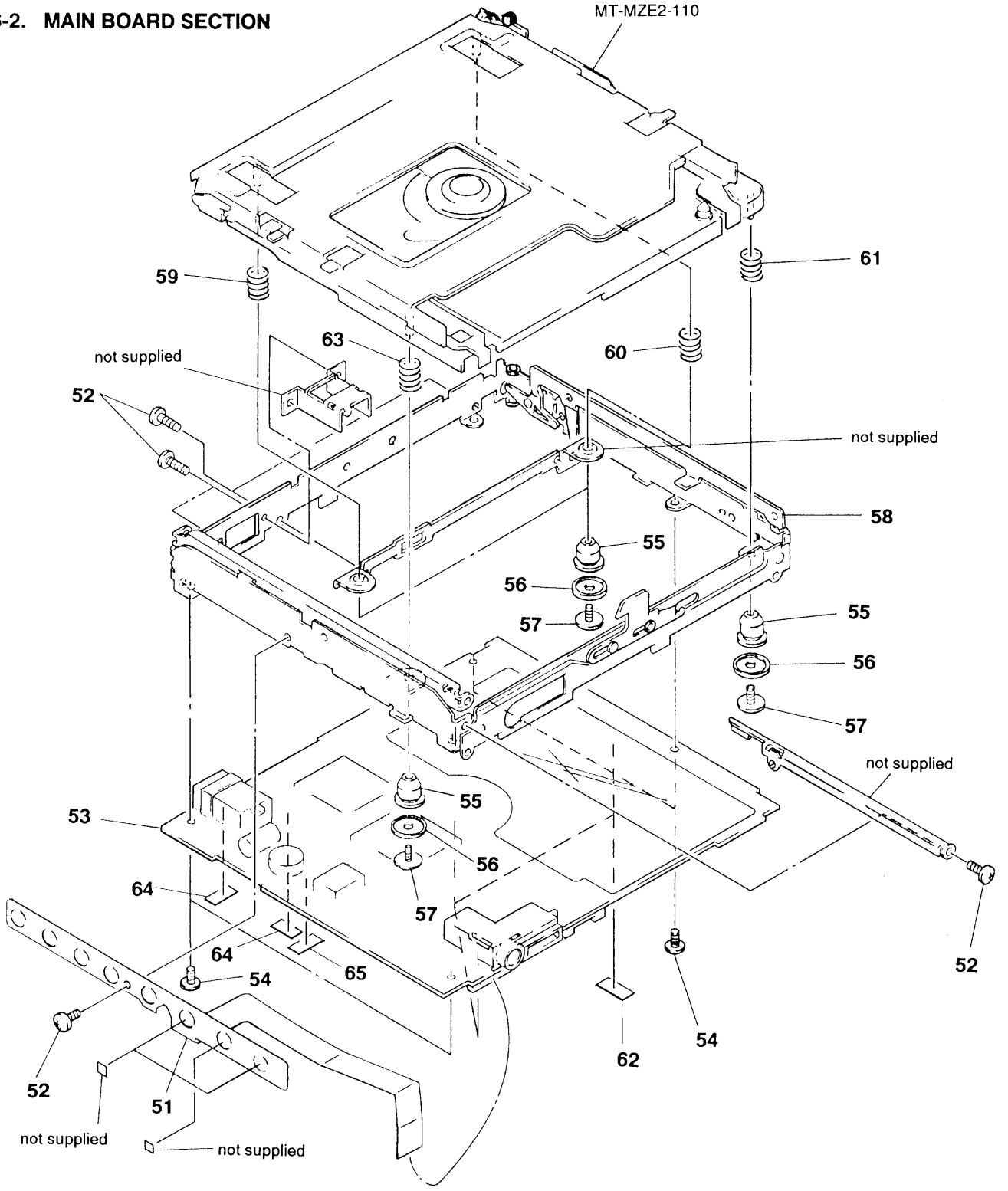
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

6-1. CABINET SECTION



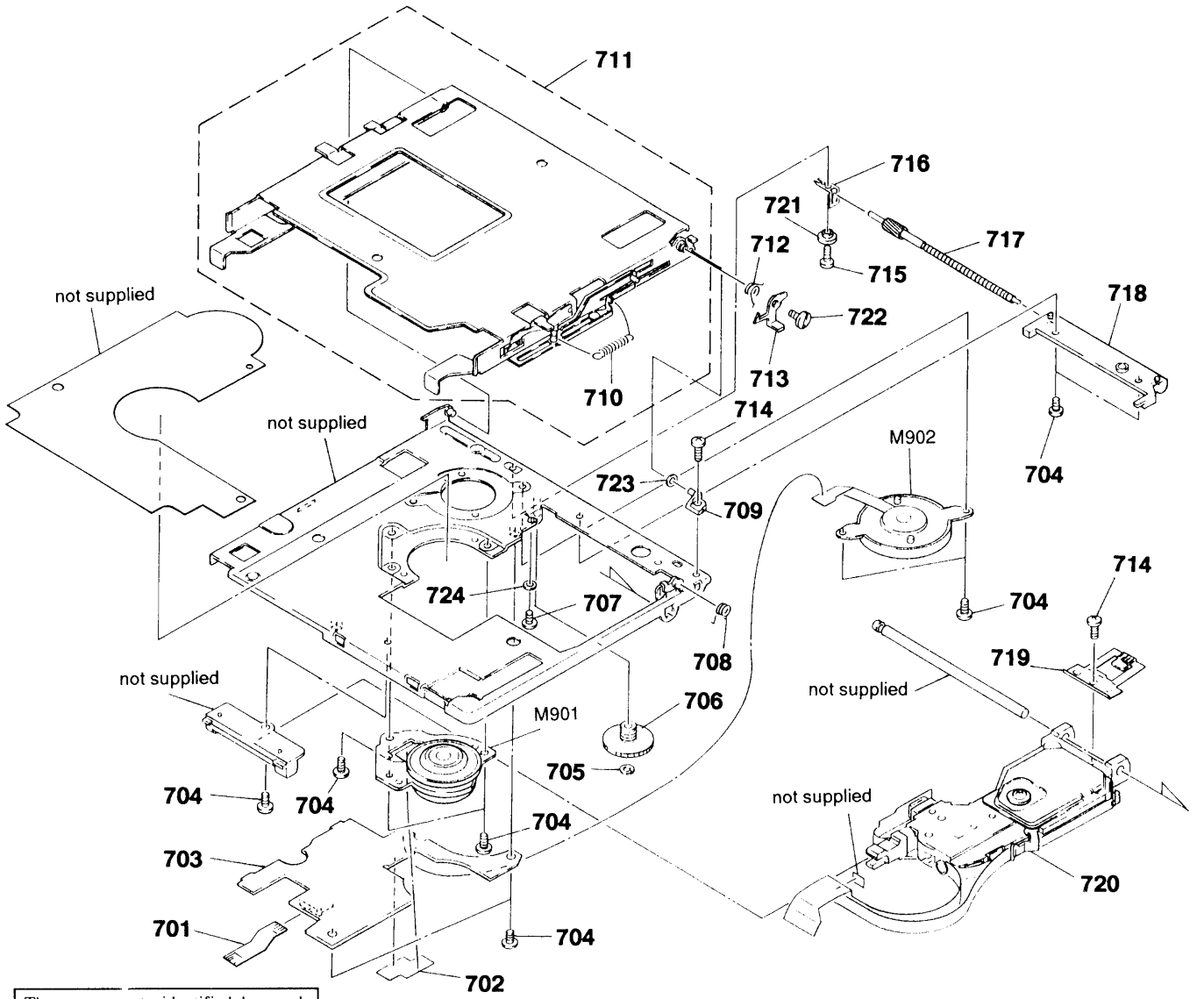
Ref. No.	Part No.	Description	Remark
1	X-4944-513-2	PANEL (E:G) ASSY, UPPER	
2	X-4944-440-1	ORNAMENT ASSY, REEL	
3	X-4944-516-3	PANEL (E:G) ASSY, BOTTOM	
4	3-363-220-51	SCREW (M1.4)	
5	4-963-883-11	SCREW (M1.4), PRECISION PAN	
6	3-363-220-91	SCREW (M1.4)	
7	X-4944-446-1	CASE ASSY, BATTERY	
8	1-537-679-11	TERMINAL BOARD, BATTERY	
9	X-4944-447-1	PLATE ASSY, LID, BATTERY CASE	
10	4-963-875-01	LID, BATTERY CASE	
11	4-017-441-01	CUSHION (B)	
12	4-927-563-01	LABEL, X-RAY APPROVAL (US)	

6-2. MAIN BOARD SECTION



Ref. No.	Part No.	Description	Remark
51	1-467-519-11	SWITCH UNIT	
52	4-963-883-11	SCREW (M1.4), PRECISION PAN	
53	A-3269-005-A	MAIN BOARD, COMPLETE (EXCEPT E, JE)	
53	A-3276-239-A	MAIN BOARD, COMPLETE (E, JE)	
54	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK	
55	4-963-909-01	DAMPER	
56	4-963-882-01	STOPPER (DAMPER)	
57	4-963-924-01	SCREW (DAMPER)	
58	X-4944-443-1	CHASSIS ASSY, INNER	
59	4-963-878-01	SPRING (MD3), COMPRESSION	
60	4-963-877-01	SPRING (MD2), COMPRESSION	
61	4-963-876-01	SPRING (MD1), COMPRESSION	
62	4-017-441-01	CUSHION (B)	
63	4-963-879-02	SPRING (MD4), COMPRESSION	
* 64	4-965-590-02	CUSHION	
* 65	4-965-424-01	GUIDE, SHAFT	

6-3. MECHANISM SECTION (MT-MZE2-110)



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
701	1-651-650-11	MD FLEXIBLE BOARD	
702	1-651-017-11	CLV FLEXIBLE BOARD	
703	A-3276-236-A	CLV BOARD, COMPLETE	
704	4-963-883-31	SCREW (M1.4), PRECISION PAN	
705	4-965-893-01	WASHER, GEAR (A) STOPPER	
706	4-964-065-01	GEAR (A)	
707	4-964-918-01	SCREW (M1.4X2)	
708	4-964-071-01	SPRING, TORSION	
709	4-964-062-01	GUIDE, HOLDER	
710	4-965-534-01	SPRING (POWER TENSION), TENSION	
711	X-4944-466-1	HOLDER ASSY	
712	4-964-072-01	SPRING, TORSION	
713	4-964-058-01	LEVER, LOCK	
714	3-704-197-03	SCREW (M1.4X1.6), LOCKING	
715	3-704-197-33	SCREW (M1.4X3.0), LOCKING	
716	4-964-059-01	SPRING, THRUST	
717	A-3300-317-A	SCREW BLOCK ASSY, LEAD	
718	4-964-063-02	BRACKET, LEAD	
719	4-964-061-01	SPRING (OUTSERT), RACK	
⚠720	8-583-008-01	OPTICAL PICK-UP KMS-200A	
721	4-964-919-01	SHAFT (COLLAR)	
722	4-964-649-01	SCREW (M1.2X1.5)	
723	3-354-407-01	WASHER	
724	4-965-865-01	WASHER (LUMILER)	
M901	1-698-313-11	MOTOR (SPINDLE)	
M902	1-698-315-11	MOTOR, DC (SLED)	

CLV **MAIN**

SECTION 7
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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts color Cabinet's color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

- 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
- CND : Canadian model
- AUS : Australian model
- JE : Tourist model

Ref. No.	Part No.	Description			Remark
	A-3276-236-A	CLV BOARD, COMPLETE			
		**********			
	1-651-017-11	PC BOARD, 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	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C706	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C707	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C708	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C709	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C710	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C711	1-164-360-11	CERAMIC CHIP	0.1uF		16V
		< CONNECTOR >			
* CN701	1-573-350-11	CONNECTOR, FFC/FPC 10P			
		< IC >			
IC701	8-759-098-52	IC CXA8027N-ELL2000			
		< 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	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
		< SWITCH >			
S703	1-692-848-21	SWITCH, PUSH (1 KEY) (REFLECT)			
S705	1-572-467-31	SWITCH, PUSH (1 KEY) (INLIMIT)			

****

Ref. No.	Part No.	Description			Remark
	A-3269-005-A	MAIN BOARD, COMPLETE (EXCEPT E, JE)			
		**********			
	A-3276-239-A	MAIN BOARD, COMPLETE (E, JE)			
		**********			
		< CAPACITOR >			
C116	1-164-880-11	CERAMIC CHIP	180PF	5%	16V
C117	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C118	1-164-880-11	CERAMIC CHIP	180PF	5%	16V
C119	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C120	1-164-880-11	CERAMIC CHIP	180PF	5%	16V
C122	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C125	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C133	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C216	1-164-880-11	CERAMIC CHIP	180PF	5%	16V
C217	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C218	1-164-880-11	CERAMIC CHIP	180PF	5%	16V
C219	1-164-876-11	CERAMIC CHIP	120PF	5%	16V
C220	1-164-880-11	CERAMIC CHIP	180PF	5%	16V
C222	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C225	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C233	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C301	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C302	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C303	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C304	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C305	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C317	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C322	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C323	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C326	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C327	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C329	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C330	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C333	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C334	1-104-847-11	TANTAL. CHIP	22uF	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	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C338	1-107-812-11	TANTAL. CHIP	4.7uF	20%	6.3V
C340	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C341	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V

Ref.No.	Part No.	Description			Remark
C342	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C343	1-135-337-11	TANTAL. CHIP	1uF	20%	6.3V
C344	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C345	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C351	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C352	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C354	1-107-816-11	TANTAL. CHIP	0.68uF	20%	10V
C359	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C360	1-164-363-11	CERAMIC CHIP	560PF	5%	50V
C501	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C502	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C503	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C504	1-107-811-11	TANTAL. CHIP	47uF	20%	4V
C505	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C506	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C508	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C509	1-107-811-11	TANTAL. CHIP	47uF	20%	4V
C510	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C511	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C512	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C513	1-107-820-11	CERAMIC CHIP	0.1uF		16V
C514	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C519	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C520	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C521	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C522	1-135-191-21	TANTAL. CHIP	0.22uF	10%	20V
C523	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C524	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C525	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C526	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C527	1-162-979-11	CERAMIC CHIP	0.0027uF	10%	50V
C529	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	16V
C530	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C531	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C532	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C533	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C534	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C535	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C536	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C537	1-107-812-11	TANTAL. CHIP	4.7uF	20%	6.3V
C538	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C539	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C540	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C541	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C542	1-104-813-11	TANTAL. CHIP	10uF	20%	16V
C543	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C544	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C545	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C547	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C548	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C549	1-164-490-11	CERAMIC CHIP	0.068uF		16V
C550	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C551	1-164-916-11	CERAMIC CHIP	82PF	5%	16V
C552	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C553	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C554	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C555	1-164-874-11	CERAMIC CHIP	100PF	5%	16V
C556	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C557	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C558	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C561	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C565	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C567	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C570	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C572	1-104-929-11	TANTAL. CHIP	22uF	20%	6.3V
C574	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C578	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C581	1-135-246-11	TANTAL. CHIP	33uF	20%	6.3V
C582	1-135-208-11	TANTAL. CHIP	1uF	10%	10V
C586	1-164-346-11	CERAMIC CHIP	1uF		16V
C587	1-164-346-11	CERAMIC CHIP	1uF		16V
C588	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C589	1-164-346-11	CERAMIC CHIP	1uF		16V
C590	1-164-346-11	CERAMIC CHIP	1uF		16V
C591	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C592	1-164-346-11	CERAMIC CHIP	1uF		16V
C593	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C596	1-135-208-11	TANTAL. CHIP	1uF	10%	10V
C608	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C622	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C623	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C624	1-104-700-11	CERAMIC CHIP	0.027uF	10%	16V
C626	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C627	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C628	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C629	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C631	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C632	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C634	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C646	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C647	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C658	1-164-847-11	CERAMIC CHIP	7PF	0.5PF	16V
C659	1-164-847-11	CERAMIC CHIP	7PF	0.5PF	16V
C660	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C661	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C662	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C801	1-104-813-11	TANTAL. CHIP	10uF	20%	16V
C802	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C803	1-164-940-11	CERAMIC CHIP	0.0033uF	10%	16V
C807	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V

MAIN

Ref. No.	Part No.	Description			Remark
C808	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C809	1-164-898-11	CERAMIC CHIP	15PF	5%	16V
C810	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C811	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C813	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C815	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C820	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C821	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C822	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C823	1-164-936-11	CERAMIC CHIP	680PF	10%	16V
C824	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C826	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C827	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C828	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C829	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C832	1-165-112-11	CERAMIC CHIP	0.33uF		16V
C833	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C834	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C901	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C902	1-164-937-11	CERAMIC CHIP	0.001uF	10%	16V
C903	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C905	1-107-833-11	ELECT CHIP	33uF	20%	6.3V
C906	1-107-813-11	TANTAL. CHIP	10uF	20%	6.3V
C907	1-164-910-11	CERAMIC CHIP	47PF	5%	16V
C908	1-135-091-00	TANTALUM CHIP	1uF	20%	16V
C909	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C913	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C914	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C915	1-126-923-11	ELECT	220uF	20%	10V
C916	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C917	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C920	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C921	1-164-933-11	CERAMIC CHIP	220PF	10%	16V
C5013	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C5014	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C5015	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5016	1-164-949-11	CERAMIC CHIP	0.047uF		16V
C5022	1-164-363-11	CERAMIC CHIP	560PF	5%	50V
C5026	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C5030	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C5031	1-107-814-11	TANTAL. CHIP	33uF	20%	10V
C5056	1-164-935-11	CERAMIC CHIP	470PF	10%	16V
C5059	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C5098	1-164-360-11	CERAMIC CHIP	0.1uF		16V
		< CONNECTOR >			
CN501	1-573-929-11	CONNECTOR, FFC/FPC (ZIF) 20P			
* CN803	1-573-919-11	CONNECTOR, FFC/FPC (ZIF) 10P			
CN804	1-691-346-11	CONNECTOR, FFC/FPC 8P			

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D302	8-719-046-90	DIODE MA2S111	
D303	8-719-046-88	DIODE MA2S082	
D304	8-719-046-88	DIODE MA2S082	
D305	8-719-046-88	DIODE MA2S082	
D309	8-719-989-03	DIODE DAN222	
D504	8-719-023-69	DIODE SB007T03Q	
D505	8-719-023-69	DIODE SB007T03Q	
D801	8-719-938-72	DIODE SB01-05CP	
D803	8-719-989-08	DIODE RB717F	
D804	8-719-046-84	DIODE MA2S728	
D806	8-719-989-08	DIODE RB717F	
D809	8-719-989-08	DIODE RB717F	
D810	8-719-046-84	DIODE MA2S728	
D811	8-719-046-84	DIODE MA2S728	
D901	8-719-404-46	DIODE MA110	
D902	8-719-017-58	DIODE MA8068	
D903	8-719-975-33	DIODE RB110C	
D904	8-719-974-51	DIODE SB20-03P	
D905	8-719-033-72	DIODE CL-181UR-C (OPR/CHG)	
D906	8-719-989-00	DIODE DA221	
		< IC LINK >	
F901	1-533-282-21	LINK, IC (2A)	
		< FERRITE BEAD >	
FB301	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB302	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB303	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB304	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB601	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB602	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB603	1-414-228-11	INDUCTOR, FERRITE BEAD	
		< IC >	
IC306	8-759-097-96	IC SM5853AF	
IC307	8-759-252-90	IC TLV2362IPW-ELM1500	
IC309	8-759-252-41	IC TK11900MTL	
IC310	8-759-159-75	IC CXA8029N-TLM	
IC311	8-759-255-94	IC XC62AP3102MR	
IC314	8-759-255-51	IC DS1267E-50	
IC315	8-759-710-79	IC NJM2107F	
IC320	8-759-173-00	IC XC61AN1102MR	
IC501	8-752-068-49	IC CXA1861R	
IC502	8-752-064-33	IC CXA1380N	
IC505	8-759-082-60	IC TC7S66FU	
IC506	8-759-252-31	IC MB88347APFV-EF	
IC507	8-752-055-94	IC CXA1602R	
IC508	8-759-082-57	IC TC7W04FU	
IC509	8-759-084-72	IC MPC1718FU	

Ref.No.	Part No.	Description	Remark
IC510	8-759-058-61	IC TC7S08FU	
IC511	8-759-252-38	IC CXD8498N-ELL2000	
IC512	8-759-710-79	IC NJM2107F	
IC513	8-759-255-49	IC DS1267E-10	
IC514	8-759-255-51	IC DS1267E-50	
IC515	8-759-082-60	IC TC7S66FU	
IC516	8-759-058-61	IC TC7S08FU	
IC601	8-752-364-98	IC CXD2525R-1	
IC602	8-752-363-57	IC CXD2526AR	
IC603	8-752-365-90	IC CXD2531BR	
IC604	8-759-255-94	IC XC62AP3102MR	
IC605	8-752-362-58	IC CXK41V4400ATM-10	
IC606	8-759-082-61	IC TC4W53FU	
IC801	8-759-252-27	IC RS5RJ3720B	
IC802	8-759-252-54	IC S-80745SL-A9	
IC803	8-759-267-57	IC MB89133A-PFM-170	
IC804	8-759-252-57	IC S-2900AUT	
IC805	8-752-852-81	IC CXP81848-603R	
IC806	8-759-259-06	IC XC61AN1902MR	
IC807	8-759-255-94	IC XC62AP3102MR	
IC901	8-759-097-95	IC MB3776APNF-G-SNY-ER	
IC903	8-759-710-79	IC NJM2107F	
IC905	8-759-510-16	IC S-80230AG-GA-S	
		< JACK >	
J302	1-764-453-11	JACK (Ω)/REMOTE)	
J901	1-691-099-31	JACK, DC(POLARITY UNIFIED TYPE)(DC IN 6V)	
		< COIL >	
L301	1-412-006-31	INDUCTOR CHIP 10uH	
L302	1-412-006-31	INDUCTOR CHIP 10uH	
L303	1-412-029-11	INDUCTOR CHIP 10uH	
L304	1-412-006-31	INDUCTOR CHIP 10uH	
L501	1-412-029-11	INDUCTOR CHIP 10uH	
L502	1-412-029-11	INDUCTOR CHIP 10uH	
L503	1-412-029-11	INDUCTOR CHIP 10uH	
L505	1-414-410-21	INDUCTOR (SMALL TYPE) 10.0uH	
L506	1-414-203-11	INDUCTOR 100uH	
L507	1-412-991-11	INDUCTOR 10uH	
L508	1-414-203-11	INDUCTOR 100uH	
L509	1-414-203-11	INDUCTOR 100uH	
L801	1-412-031-11	INDUCTOR CHIP 47uH	
L901	1-423-954-11	TRANSFORMER, DC-DC CONVERTER	
L902	1-412-029-11	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q307	8-729-929-24	TRANSISTOR DTC143TE	
Q501	8-729-422-39	TRANSISTOR XN4404	
Q502	8-729-928-27	TRANSISTOR DTA144EE	
Q503	8-729-928-85	TRANSISTOR DTC114YE	
Q511	8-729-927-59	TRANSISTOR UMZ1	
Q802	8-729-930-00	TRANSISTOR UMD2	
Q803	8-729-928-81	TRANSISTOR DTC144EE	
Q804	8-729-927-74	TRANSISTOR UMG2	
Q805	8-729-927-99	TRANSISTOR 2SC4617TL-QR	
Q806	8-729-928-81	TRANSISTOR DTC144EE	
Q807	8-729-024-46	TRANSISTOR 2SK2035	
Q808	8-729-930-00	TRANSISTOR UMD2	
Q901	8-729-923-36	TRANSISTOR 2SD1963-Q.R	
Q902	8-729-024-96	TRANSISTOR 2SC4684	
Q908	8-729-930-00	TRANSISTOR UMD2	
Q909	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q910	8-729-927-99	TRANSISTOR 2SC4617TL-QR	
		< RESISTOR >	
R121	1-208-709-11	METAL CHIP 12K 0.50% 1/16W	
R122	1-208-709-11	METAL CHIP 12K 0.50% 1/16W	
R124	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R125	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R126	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R127	1-208-719-11	METAL CHIP 33K 0.50% 1/16W	
R128	1-208-719-11	METAL CHIP 33K 0.50% 1/16W	
R129	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R133	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R135	1-216-864-11	METAL CHIP 0 5% 1/16W	
R136	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R143	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R221	1-208-709-11	METAL CHIP 12K 0.50% 1/16W	
R222	1-208-709-11	METAL CHIP 12K 0.50% 1/16W	
R224	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R225	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R226	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R227	1-208-719-11	METAL CHIP 33K 0.50% 1/16W	
R228	1-208-719-11	METAL CHIP 33K 0.50% 1/16W	
R229	1-218-736-11	METAL CHIP 68K 0.50% 1/16W	
R233	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R235	1-216-864-11	METAL CHIP 0 5% 1/16W	
R236	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R243	1-218-990-11	METAL GLAZE 0 5% 1/16W	
R310	1-216-864-11	METAL CHIP 0 5% 1/16W	
R311	1-216-864-11	METAL CHIP 0 5% 1/16W	
R312	1-218-977-11	METAL GLAZE 100K 5% 1/16W	
R314	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R319	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R329	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R330	1-208-715-11	METAL CHIP 22K 0.50% 1/16W	
R331	1-218-975-11	METAL GLAZE 68K 5% 1/16W	
R332	1-218-965-11	METAL GLAZE 10K 5% 1/16W	
R337	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R339	1-216-864-11	METAL CHIP 0 5% 1/16W	
R340	1-208-717-11	METAL CHIP 27K 0.50% 1/16W	

MAIN

Ref.No.	Part No.	Description				Remark
R341	1-218-732-11	METAL CHIP	47K	0.50%	1/16W	
R342	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R348	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R349	1-216-864-11	METAL CHIP	0	5%	1/16W	
R350	1-216-864-11	METAL CHIP	0	5%	1/16W	
R351	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R352	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R353	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R354	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R357	1-208-715-11	METAL CHIP	22K	0.50%	1/16W	
R358	1-208-715-11	METAL CHIP	22K	0.50%	1/16W	
R501	1-218-979-11	METAL GLAZE	150K	5%	1/16W	
R502	1-218-950-11	METAL GLAZE	560	5%	1/16W	
R506	1-218-976-11	METAL GLAZE	82K	5%	1/16W	
R507	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R510	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R511	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R512	1-220-214-11	METAL GLAZE	430K	5%	1/16W	
R513	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R514	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R515	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R516	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R518	1-208-701-11	METAL CHIP	5.6K	0.50%	1/16W	
R519	1-208-679-11	METAL CHIP	680	0.50%	1/16W	
R520	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R521	1-208-715-11	METAL CHIP	22K	0.50%	1/16W	
R522	1-218-956-11	METAL GLAZE	1.8K	5%	1/16W	
R524	1-220-181-11	METAL GLAZE	750	5%	1/16W	
R525	1-208-701-11	METAL CHIP	5.6K	0.50%	1/16W	
R526	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R527	1-218-967-11	METAL GLAZE	15K	5%	1/16W	
R529	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R533	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R535	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R536	1-216-001-00	METAL CHIP	10	5%	1/10W	
R539	1-208-699-11	METAL CHIP	4.7K	0.50%	1/16W	
R540	1-208-701-11	METAL CHIP	5.6K	0.50%	1/16W	
R545	1-216-864-11	METAL CHIP	0	5%	1/16W	
R546	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R547	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R549	1-218-957-11	METAL GLAZE	2.2K	5%	1/16W	
R550	1-218-978-11	METAL GLAZE	120K	5%	1/16W	
R551	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R553	1-218-968-11	METAL GLAZE	18K	5%	1/16W	
R556	1-208-715-11	METAL CHIP	22K	0.50%	1/16W	
R557	1-220-398-11	METAL GLAZE	1.5M	5%	1/16W	
R558	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R559	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R561	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R566	1-220-203-11	METAL GLAZE	51K	5%	1/16W	
R567	1-218-986-11	METAL GLAZE	560K	5%	1/16W	
R568	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R569	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R571	1-218-949-11	METAL GLAZE	470	5%	1/16W	
R572	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R573	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R574	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R575	1-218-981-11	METAL GLAZE	220K	5%	1/16W	
R576	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R577	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R578	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R581	1-218-967-11	METAL GLAZE	15K	5%	1/16W	
R582	1-208-709-11	METAL CHIP	12K	0.50%	1/16W	
R590	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R592	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R593	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R594	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R613	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R614	1-208-695-11	METAL CHIP	3.3K	0.50%	1/16W	
R615	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R617	1-216-864-11	METAL CHIP	0	5%	1/16W	
R618	1-216-864-11	METAL CHIP	0	5%	1/16W	
R623	1-216-864-11	METAL CHIP	0	5%	1/16W	
R630	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R631	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R643	1-216-864-11	METAL CHIP	0	5%	1/16W	
R647	1-216-864-11	METAL CHIP	0	5%	1/16W	
R648	1-216-864-11	METAL CHIP	0	5%	1/16W	
R661	1-218-984-11	METAL GLAZE	390K	5%	1/16W	
R803	1-218-751-11	METAL CHIP	300K	0.50%	1/16W	
R804	1-218-744-11	METAL CHIP	150K	0.50%	1/16W	
R805	1-218-751-11	METAL CHIP	300K	0.50%	1/16W	
R806	1-218-744-11	METAL CHIP	150K	0.50%	1/16W	
R807	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R808	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R809	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R810	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R812	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R814	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R815	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R816	1-208-706-11	METAL CHIP	9.1K	0.50%	1/16W	
R818	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R820	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R821	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R822	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R823	1-218-732-11	METAL CHIP	47K	0.50%	1/16W	
R824	1-218-749-11	METAL CHIP	240K	0.50%	1/16W	
R825	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R826	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R827	1-208-699-11	METAL CHIP	4.7K	0.50%	1/16W	

Ref. No.	Part No.	Description				Remark
R828	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R829	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R834	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R836	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R841	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R842	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R843	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R844	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R845	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R848	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R851	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R852	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R853	1-208-695-11	METAL CHIP	3.3K	0.50%	1/16W	
R854	1-208-698-11	METAL CHIP	4.3K	0.50%	1/16W	
R855	1-208-700-11	METAL CHIP	5.1K	0.50%	1/16W	
R856	1-208-703-11	METAL CHIP	6.8K	0.50%	1/16W	
R857	1-208-706-11	METAL CHIP	9.1K	0.50%	1/16W	
R858	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R860	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R861	1-218-988-11	METAL GLAZE	820K	5%	1/16W	
R862	1-218-978-11	METAL GLAZE	120K	5%	1/16W	
R863	1-218-989-11	METAL GLAZE	1M	5%	1/16W	
R864	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	
R865	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R868	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R873	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R874	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R875	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R876	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R877	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R878	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R879	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R880	1-202-974-11	METAL GLAZE	3.3M	5%	1/16W	
R901	1-208-695-11	METAL CHIP	3.3K	0.50%	1/16W	
R902	1-208-687-11	METAL CHIP	1.5K	0.50%	1/16W	
R903	1-218-933-11	METAL GLAZE	22	5%	1/16W	
R904	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R906	1-218-960-11	METAL GLAZE	3.9K	5%	1/16W	
R907	1-208-695-11	METAL CHIP	3.3K	0.50%	1/16W	
R908	1-208-701-11	METAL CHIP	5.6K	0.50%	1/16W	
R909	1-218-973-11	METAL GLAZE	47K	5%	1/16W	
R910	1-208-693-11	METAL CHIP	2.7K	0.50%	1/16W	
R911	1-208-715-11	METAL CHIP	22K	0.50%	1/16W	
R912	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R913	1-218-945-11	METAL GLAZE	220	5%	1/16W	
R914	1-220-227-11	METAL GLAZE	1.2	10%	1/4W	
R915	1-218-981-11	METAL GLAZE	220K	5%	1/16W	
R916	1-218-983-11	METAL GLAZE	330K	5%	1/16W	
R5001	1-218-954-11	METAL GLAZE	1.2K	5%	1/16W	
R5010	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R5011	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R5012	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R5014	1-208-683-11	METAL CHIP	1K	0.50%	1/16W	
R5015	1-208-719-11	METAL CHIP	33K	0.50%	1/16W	
R5016	1-208-719-11	METAL CHIP	33K	0.50%	1/16W	
R5017	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R5018	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R5020	1-216-860-11	METAL GLAZE	1.8M	5%	1/16W	
R5021	1-218-981-11	METAL GLAZE	220K	5%	1/16W	
R5027	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R5030	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R5032	1-218-975-11	METAL GLAZE	68K	5%	1/16W	
R5039	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R5055	1-218-977-11	METAL GLAZE	100K	5%	1/16W	
R5056	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R5067	1-218-980-11	METAL GLAZE	180K	5%	1/16W	
R5081	1-208-703-11	METAL CHIP	6.8K	0.50%	1/16W	
R5082	1-216-001-00	METAL CHIP	10	5%	1/10W	
R5095	1-220-398-11	METAL GLAZE	1.5M	5%	1/16W	
R5101	1-208-719-11	METAL CHIP	33K	0.50%	1/16W	
R5116	1-216-796-11	METAL GLAZE	8.2	5%	1/16W	
R5117	1-218-965-11	METAL GLAZE	10K	5%	1/16W	
R5200	1-216-864-11	METAL CHIP	0	5%	1/16W	
R5202	1-218-990-11	METAL GLAZE	0	5%	1/16W	
R5206	1-216-013-00	METAL CHIP	33	5%	1/10W	
R5207	1-216-013-00	METAL CHIP	33	5%	1/10W	

< VARIABLE RESISTOR >

RV901	1-238-089-11	RES, ADJ, CERMET	4.7K
RV902	1-238-089-11	RES, ADJ, CERMET	4.7K

< SWITCH >

S802	1-571-275-31	SWITCH, SLIDE (HOLD →)
S803	1-571-506-41	SWITCH, SLIDE (BASS BOOST)
S806	1-692-377-31	SWITCH, PUSH (1 KEY) (OPEN/CLOSE DET)
S807	1-571-275-31	SWITCH, SLIDE (ALVS)

< VIBRATOR >

X602	1-760-173-11	VIBRATOR, CRYSTAL (45MHz)
X801	1-760-172-11	VIBRATOR, CERAMIC (4.19MHz)
X802	1-760-206-11	VIBRATOR, CRYSTAL (32.768kHz)
X803	1-760-174-11	VIBRATOR, CERAMIC (12MHz)

****

MISCELLANEOUS

****

8	1-537-679-11	TERMINAL BOARD, BATTERY
51	1-467-519-11	SWITCH UNIT
⚠720	8-583-008-01	OPTICAL PICK-UP KMS-200A
M901	1-698-313-11	MOTOR (SPINDLE)

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
M902	1-698-315-11	MOTOR, DC (SLED)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
⚠	1-467-510-21	ADAPTOR, AC (AC-MZ60) (US, CND)	
⚠	1-467-511-11	ADAPTOR, AC (AC-MZ60) (AEP)	
⚠	1-467-512-11	ADAPTOR, AC (AC-MZ60) (UK)	
⚠	1-467-513-21	ADAPTOR, AC (AC-MZ60) (AUS)	
⚠	1-467-514-11	ADAPTOR, AC (AC-MZ60) (E, JE)	
	1-467-520-11	REMOTE CONTROL UNIT (RM-MZE2MP)	
	1-528-500-21	BATTERY, LITHIUM ION (LIP-10)	
	1-528-506-11	BATTERY CASE (EBP-MZE2)	
⚠	1-569-007-11	ADAPTER, CONVERSION 2P (E, JE)	
	3-758-091-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SPANISH) (EXCEPT US)	
	3-758-091-21	MANUAL, INSTRUCTION (ENGLISH) (US, UK, AUS)	
	3-758-091-41	MANUAL, INSTRUCTION (HUNGARIAN, SWEDISH, ITALIAN, PORTUGUESE) (AEP)	
	3-758-091-51	MANUAL, INSTRUCTION (JAPANESE, KOREAN) (JE)	
	4-963-881-01	CASE, CARRYING	
	4-964-926-01	CUSHION, MAIN	
	4-964-927-01	CASE, ACCESSORY	
*	4-966-820-01	INDIVIDUAL CARTON (US)	
*	4-966-822-01	INDIVIDUAL CARTON (EXCEPT US)	
*	4-966-973-01	FRAME, INNER	
*	4-966-974-01	CUSHION, ADAPTOR (US)	
*	4-966-975-01	CUSHION, ADAPTOR (EXCEPT US)	
	8-953-009-90	HEADPHONE MDR-014MP SET (US)	
	8-953-537-94	HEADPHONE MDR-E741MP/K2 SET (EXCEPT US)	

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-E2

SONY

SERVICE MANUAL

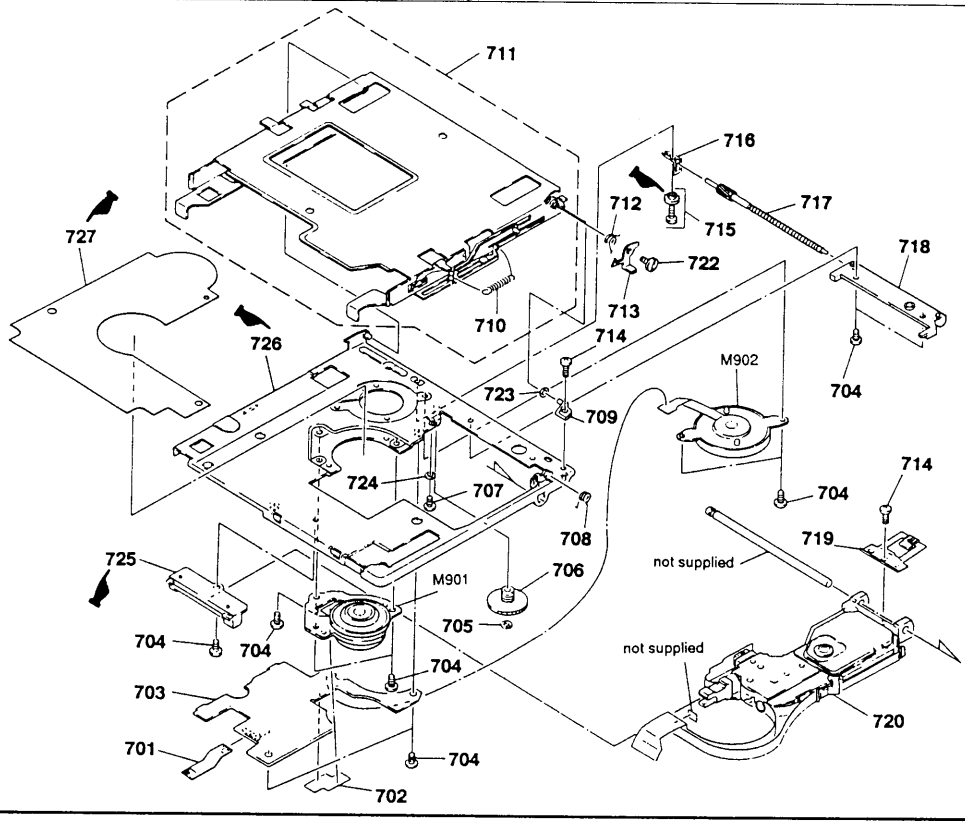
1994.10

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

SUPPLEMENT-1

Revise your service manual as shown below due to parts supply classification has been changed.

☛: indicates revised portion.

Page	CORRECT			REVISED	
	Ref. No.	Part No.	Description	Part No.	Description
	715	3-704-197-33	SCREW (M1.4X3.0), LOCKING	4-967-083-01	SCREW (consisting collar shaft) ☛
	721	4-964-919-01	SHAFT (COLLAR)	See Ref No. 715 ☛	
	725	NOT SUPPLIED		A-3300-316-A ☛	BRACKET BLOCK ASSY, SUB ☛
	726	NOT SUPPLIED		X-4944-465-1 ☛	CHASSIS ASSY ☛
	727	NOT SUPPLIED		4-965-205-01 ☛	COVER, MD ☛
57					

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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
1.0	2001.05	Correction of electrical adjustment. Addition of accessory. PDF registration.
	1994.10	SUPPLEMENT-1
	1994.03	New.