JVC

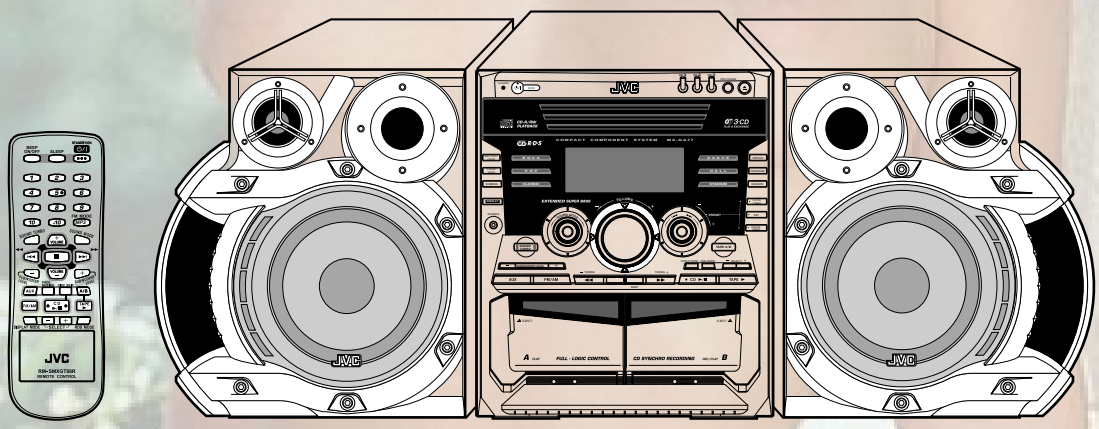
# SERVICE MANUAL

## COMPACT COMPONENT SYSTEM

# MX-GA77

**Area suffix**

B ---------- U.K.
E ---- Continental Europe
EN ----- Northern Europe
EV ------- Eastern Europe



SP-MXGA77 CA-MXGA77 SP-MXGA77

COMPACT disc DIGITAL AUDIO

R·D·S

## Contents

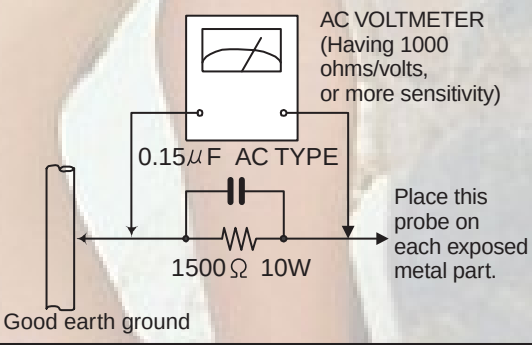




No.22083
Jul. 2003

## Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer`s warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.).
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Voltage measured any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).




## Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

**⚠ CAUTION**

**Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

In regard with component parts appearing on the silk-screen printed side (parts side) of the PWB diagrams, the parts that are printed over with black such as the resistor (▬), diode (▬) and ICP (●) or identified by the "⚠" mark nearby are critical for safety.

(This regulation does not correspond to J and C version.)

## *Safety precautions* (U.K only)

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits.
2. Any unauthorised design alterations or additions will void the manufacturer's guarantee ; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.
3. Essential safety critical components are identified by ( ⚠ ) on the Parts List and by shading on the schematics, and must never be replaced by parts other than those listed in the manual. Please note however that many electrical and mechanical parts in the product have special safety related characteristics. These characteristics are often not evident from visual inspection. Parts other than specified by the manufacturer may not have the same safety characteristics as the recommended replacement parts shown in the Parts List of the Service Manual and may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

## *Warning*

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⚠ ***CAUTION*** **Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of preforming repair of this system.**

# Important for laser products

**1.CLASS 1 LASER PRODUCT**

**2.DANGER :** Invisible laser radiation when open and inter lock failed or defeated. Avoid direct exposure to beam.

**3.CAUTION :** There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.

**4.CAUTION :** The compact disc player uses invisible laserradiation and is equipped with safety switches whichprevent emission of radiation when the drawer is open and the safety interlocks have failed or are de feated. It is dangerous to defeat the safety switches.

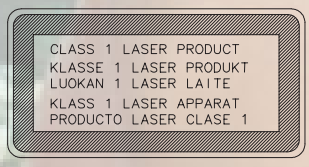
**5.CAUTION :** If safety switches malfunction, the laser is able to function.

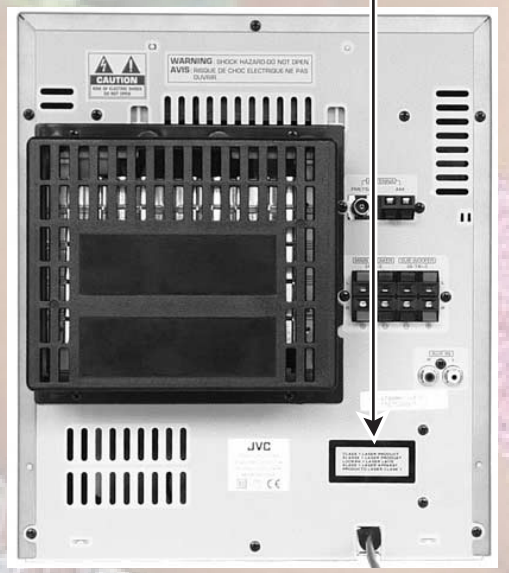
**6.CAUTION :** Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

⚠ ***CAUTION*** **Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.**

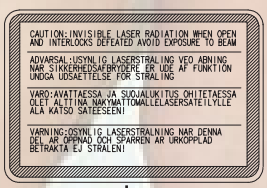
## REPRODUCTION AND POSITION OF LABELS

CLASS 1
LASER PRODUCT




WARNING LABEL




# Preventing static electricity

## 1. Grounding to prevent damage by static electricity

Electrostatic discharge (ESD), which occurs when static electricity stored in the body, fabric, etc. is discharged, can destroy the laser diode in the traverse unit (optical pickup). Take care to prevent this when performing repairs.

## 2. About the earth processing for the destruction prevention by static electricity

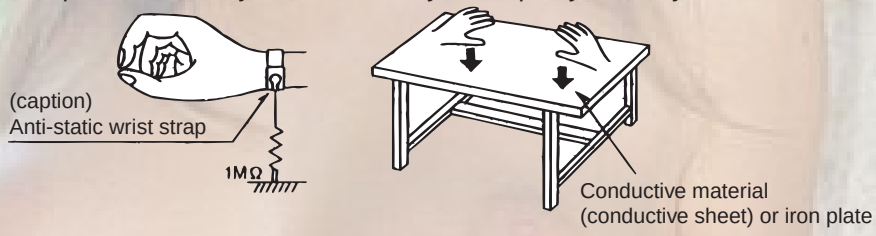
In the equipment which uses optical pick-up (laser diode), optical pick-up is destroyed by the static electricity of the work environment.
Be careful to use proper grounding in the area where repairs are being performed.

### 2-1 Ground the workbench

Ground the workbench by laying conductive material (such as a conductive sheet) or an iron plate over it before placing the traverse unit (optical pickup) on it.

### 2-2 Ground yourself

Use an anti-static wrist strap to release any static electricity built up in your body.




## 3. Handling the optical pickup

1. In order to maintain quality during transport and before installation, both sides of the laser diode on the replacement optical pickup are shorted. After replacement, return the shorted parts to their original condition. (Refer to the text.)

2. Do not use a tester to check the condition of the laser diode in the optical pickup. The tester's internal power source can easily destroy the laser diode.

## 4. Handling the traverse unit (optical pickup)

1. Do not subject the traverse unit (optical pickup) to strong shocks, as it is a sensitive, complex unit.

2. Cut off the shorted part of the flexible cable using nippers, etc. after replacing the optical pickup. For specific details, refer to the replacement procedure in the text. Remove the anti-static pin when replacing the traverse unit. Be careful not to take too long a time when attaching it to the connector.

3. Handle the flexible cable carefully as it may break when subjected to strong force.

4. It is not possible to adjust the semi-fixed resistor that adjusts the laser power. Do not turn it

## Attention when CD mechanism assembly is decomposed

***Please refer to "Disassembly method" in the text for pick-up and how to detach the CD mechanism assembly.**

1. Remove the CD changer unit.
2. Remove the CD changer mechanism.
3. Solder is put up before the card wire is removed from the pickup unit connector on the CD mechanism assembly.
   (When the card wire is removed without putting up solder, the CD pick-up assembly might destroy.)
4. Please remove solder after connecting the card wire with the pickup unit connector when you install picking up in the substrate.

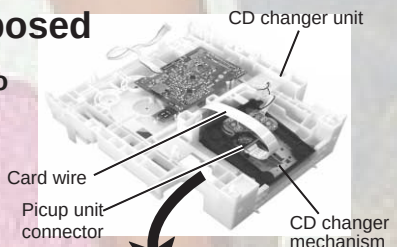



Fig.1

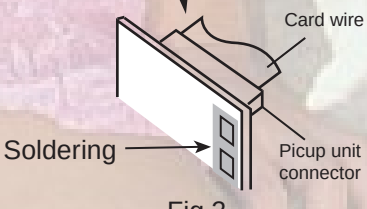



Fig.2

# Disassembly method

## ■Removing the metal cover (See Fig.1)

1. Remove the three screws **A** attaching the metal cover on the back of the body.
2. Remove the six screws **B** attaching the metal cover on both sides of the body.
3. Remove the metal cover from the body by lifting the rear part of the cover.

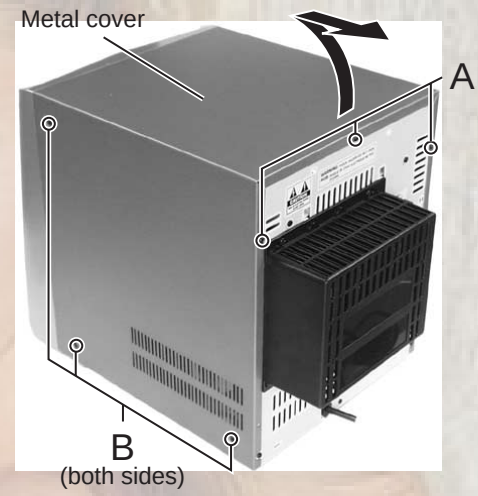



Fig.1

ONE POINT

**■How to eject the CD tray manually (see fig.2)**

Turn the loading pulley gear at the bottom of the CD changer unit as shown in Fig.2 and draw the CD tray toward the front.

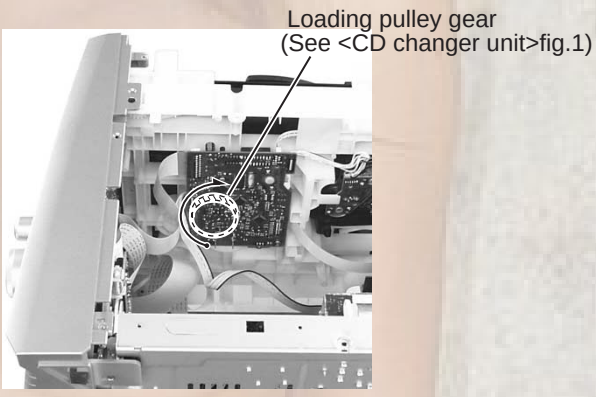



Fig.2

## ■Removing the CD tray fitting (See Fig. 3)

・ Prior to performing the following procedure, eject the CD tray.

1. After drawing the lower part of the tray fitting toward the front, remove the five claws. Then, while moving the tray fitting upward, remove it.

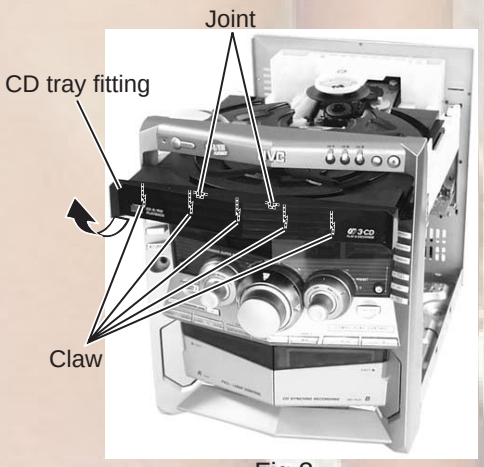



Fig.3

## ■Removing the CD changer unit (See Fig.4 to 7)

・ Prior to performing the following procedure, remove the metal cover and CD tray fitting.

1. Remove the card wire attached to CD changer unit on the adhesion tape.
2. Disconnect the card wire from the connector CW105 on the CD board.
3. Disconnect the harness from the connector CW104 on the main board.
4. Remove the two screws **C** attaching the CD changer unit to the rear panel.
5. Remove the two screws **D** attaching the CD changer unit to both sides of the front panel assembly.
6. Draw the CD changer unit upward from behind while pulling the rear panel outward.

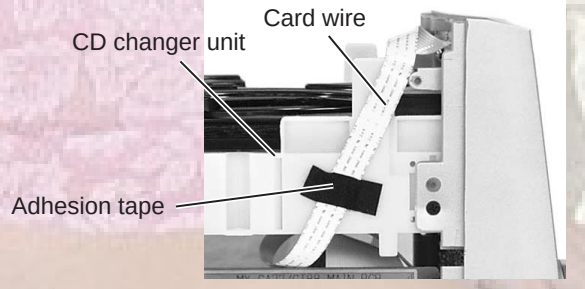



Fig.4

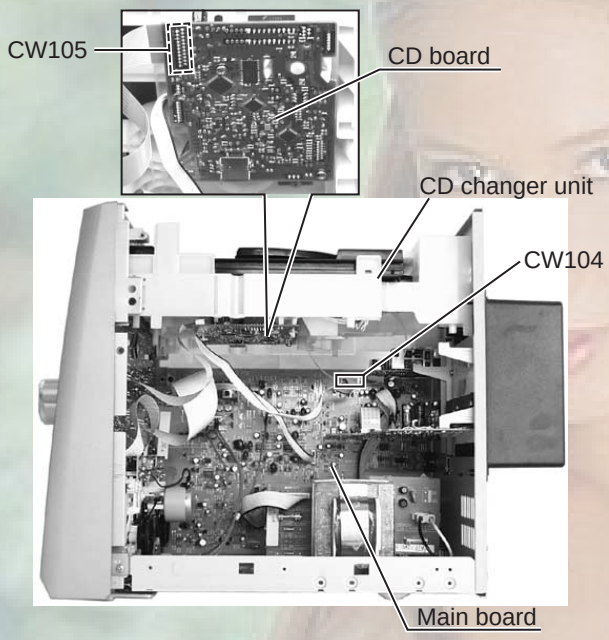



Fig.5

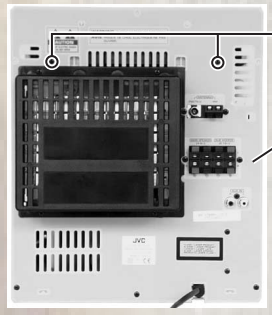



Fig.6

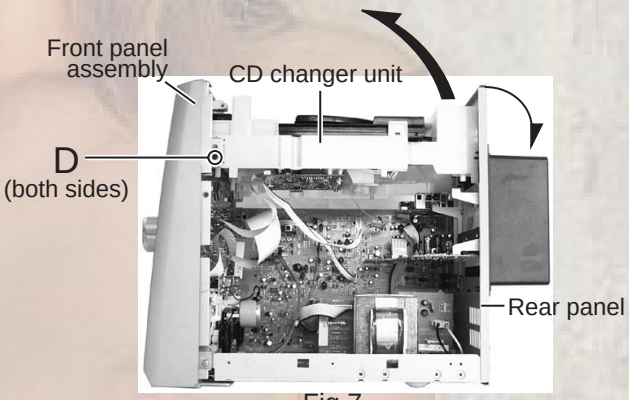



Fig.7

## ■Removing the front panel assembly (See Fig.8 to 10)

・ Prior to performing the following procedure, remove the metal cover and CD changer unit.

1. Disconnect the card wire from the connector CW101 on the main board.
2. Disconnect the harness from the connector CW108, CW109 and CW110 on the main board.
3. Remove the screw **E** fixiing the lug wire.
4. Remove the two screws **F** attaching the front panel assembly to both sides of the body.
5. Remove the screw **G** attaching the main board to the front panel assembly.
6. Remove the screw **H** attaching the front panel assembly to bottom of the body.
7. Release the two joints1 and two joints2, and detach the front panel assembly toward the front.

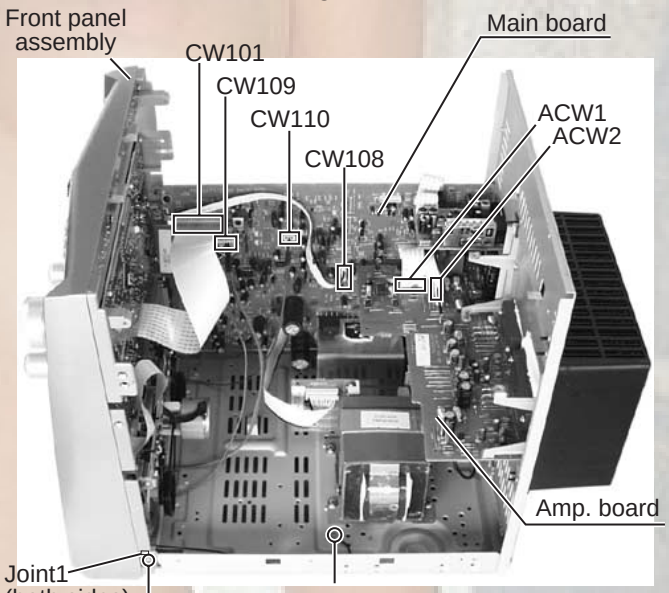



Fig.8

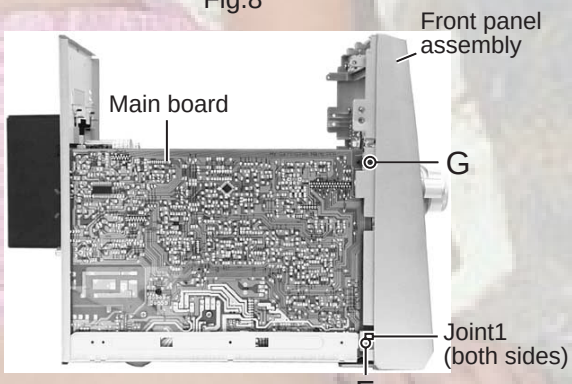



Fig.9

## ■Removing the heat sink & amp. board (See Fig.8, 11 and 12)

- Prior to performing the following procedure, remove the metal cover and CD changer unit.

1. Disconnect the card wire from the connector ACW1 and the harness from the connector ACW2 on the amp. board.
2. Remove the four screws **I** attaching the heat sink cover to the rear panel. Remove the heat sink cover.
3. Remove the four screws **J** attaching the heat sink and two screws **K** attaching the speaker terminal to the rear panel.
4. After moving the heat sink upward, remove the claws. Then pull out the heat sink & amp. board inward.

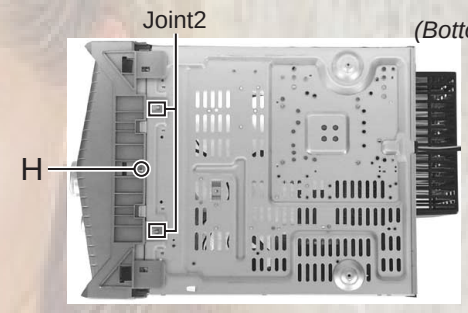



Fig.10

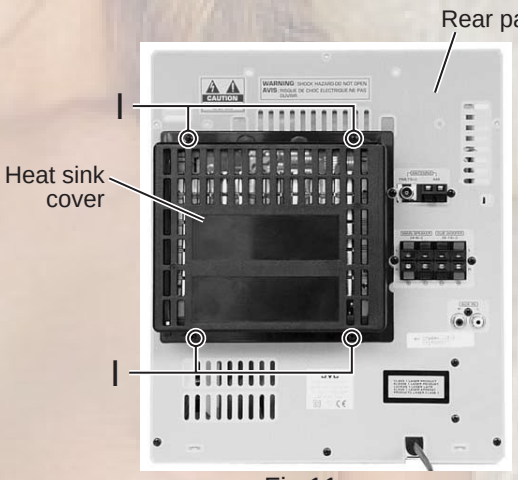



Fig.11

## ■Removing the tuner board (See Fig.12 and 13)

- Prior to performing the following procedure, remove the metal cover.

1. Disconnect the card wire from the connector CON01 on the tuner board.
2. Remove the two screws **L** attaching the tuner board to the rear panel.

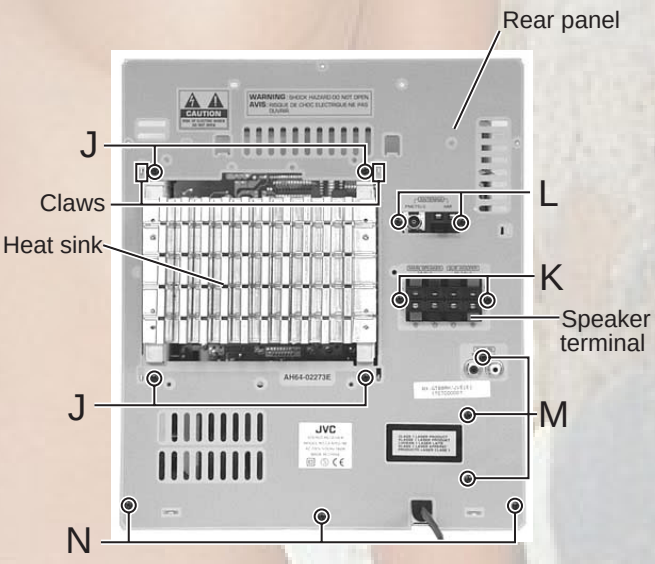



Fig.12

## ■Removing the rear panel (See Fig.12)

- Prior to performing the following procedure, remove the metal cover, CD changer unit, heat sink & amp. board and tuner board.

1. Remove the three screws **M** and three screws **N** attaching the rear panel.

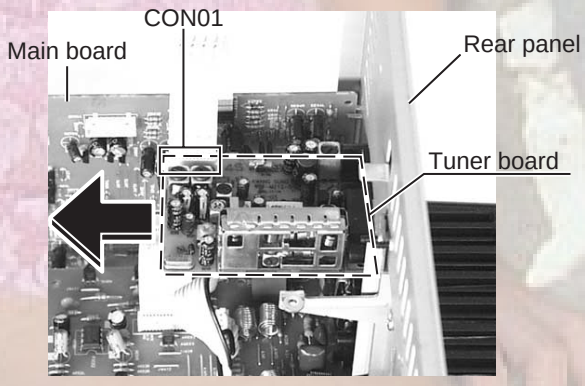



Fig.13

## ■Removing the main board (See Fig. 14)

・Prior to performing the following procedure, remove the metal cover, CD changer unit and rear panel.

1. Disconnect the card wire from the connector CW101, and the harness from the connector CW108, CW109, CW110 and CW11, and the power cord from the connector PW103 on the main board.
2. Disconnect the harness from the connector PCW1 on the fuse board.
3. Remove the screw **G** attaching the main board to the front panel assembly. (See Fig.9)
4. Remove the two screws **O** attaching the heat sink to the bottom chassis.

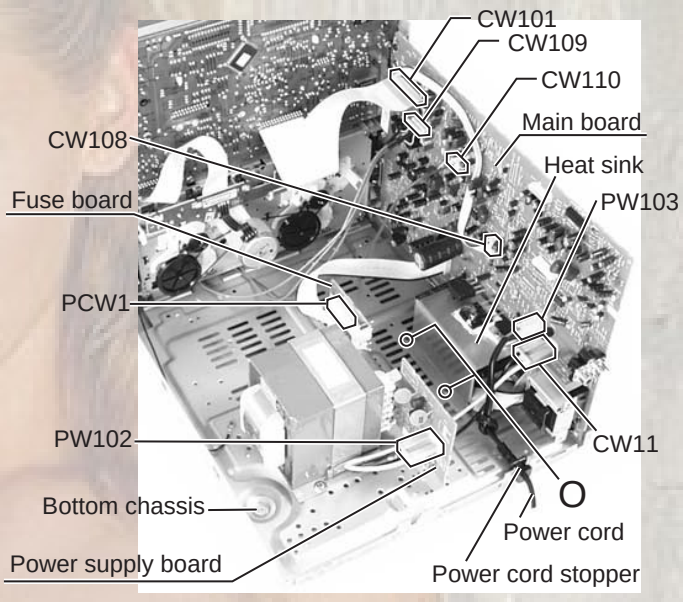



Fig.14

## ■Removing the power cord (See Fig. 14)

・Prior to performing the following procedure, remove the metal cover, CD changer unit and rear panel.

1. Disconnect the power cord from the connector PW103 on the main board and pull up the power cord stopper upward.

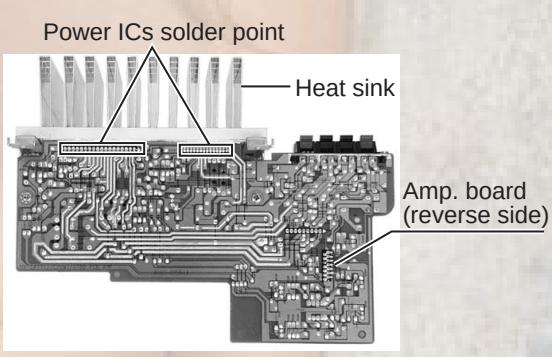



Fig.15

## ■Removing the power ICs (See Fig.15 and 16)

・Prior to performing the following procedure, remove the metal cover, CD changer unit and heat sink & amp. board.

1. Unsolder the power ICs solder points.
2. Remove the four screws **P** attaching the power ICs to the heat sink.

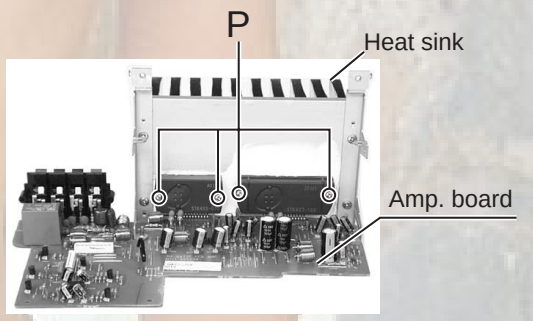



Fig.16

## ■Removing the power transformer (See Fig .17)

・Prior to performing the following procedure, remove the metal cover, CD changer unit and heat sink & amp. board.

1. Disconnect the harness from the connector PW102 on the power supply board.
2. Disconnect the harness from the connector PCW1 on the fuse board.
3. Remove the four screws **Q** attaching the power transformer on the bottom chassis.

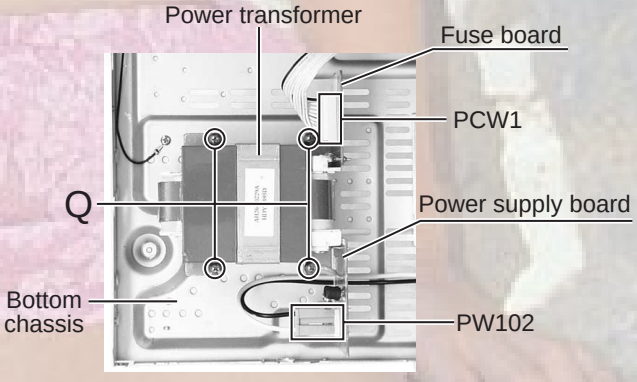



Fig.17

## <Front panel assembly>

- Prior to performing the following procedure, remove the front panel assembly.

### ■ Removing the CD switch board (See Fig.1)

1. Disconnect the card wire from the connector UCW03 on the CD switch board.
2. Remove the five screws **A** attaching the CD switch board.

### ■ Removing the front board (See Fig.1 and 2)

1. Pull out the sound mode knob, volume knob, and preset knob from the front side of front panel assembly.
2. Disconnect the card wire from the connector UCW02 on the front board and the connector on the mecha. board.
3. Remove the fifteen screws **B** attaching the front board.
4. Disconnect the card wire from the connector UCW01 on the front board.

*Front panel assembly (inner side)*

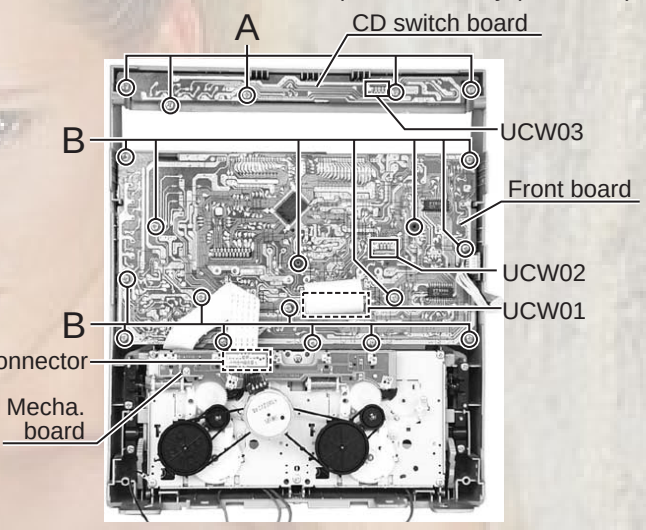



Fig.1


Fig.2

### ■ Removing the headphone jack board (See Fig.3)

- Prior to performing the following procedure remove the front board.

1. You can pull out the headphone jack board.

### ■ Removing the cassette mechanism assembly (See Fig.3)

1. Disconnect the card wire from the connector on the mecha. board.
2. Remove the six screws **C** attaching the cassette mechanism assembly.

*Front panel assembly (inner side)*

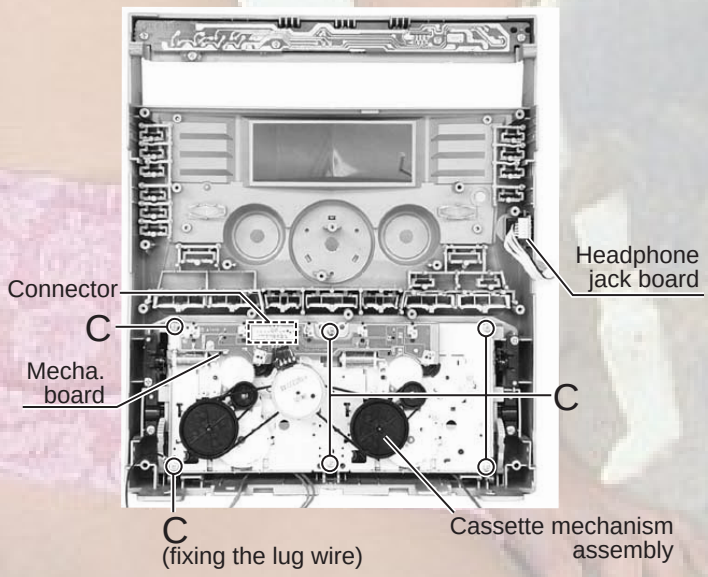



Fig.3

## <CD changer unit>

・ Prior to performing the following procedure, remove the CD changer unit.

## ■Removing the CD tray (See Fig.1 and 2)

1. Turn the black loading pulley gear on the under side of the CD changer unit in the direction of the arrow and draw the CD tray toward the front until it stops.

2. Disconnect the card wire from connector CW103 on the CD board.

3. Push down the two tray stoppers marked **a** and pull out the CD tray.

*CD changer uint (reverse side)*

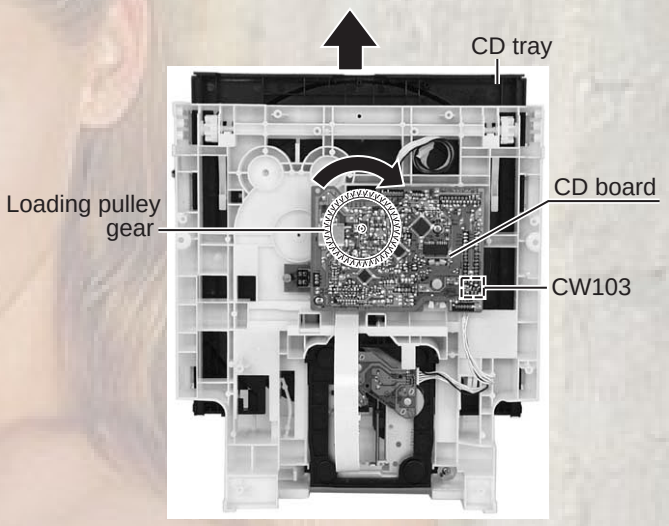



Fig.1

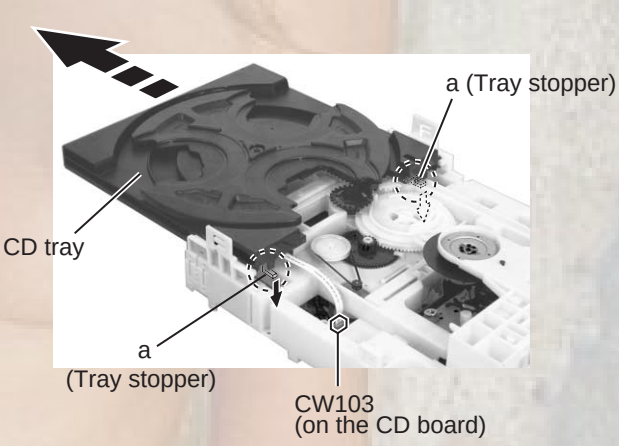



Fig.2

## ■Reinstall the CD tray (See Fig.3 and 4)

1. Align the gear-cam with the gear-tray as shown fig.3, then mount the CD tray.

2. When assembling the CD tray, take extreme care not engage with gear - synchro.

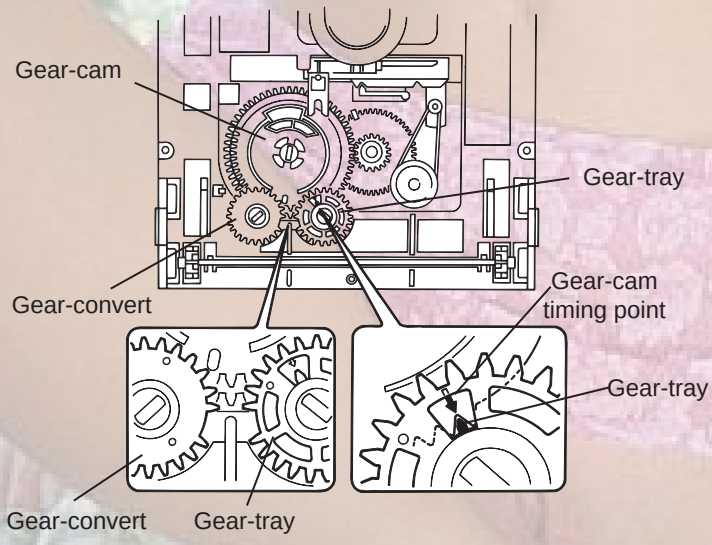



Fig.3

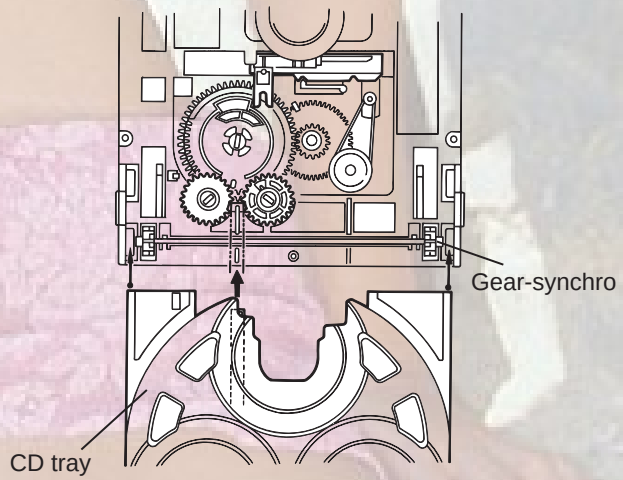



Fig.4

## ■Removing the sensor board (See Fig.5)

- Prior to performing the following procedure, remove the CD tray.

1. Remove the screw **A** attaching the sensor board on the CD tray.
2. Remove the sensor board releasing the two tabs **a**.
3. Disconnect the harness from the connector CW1 on the sensor board.

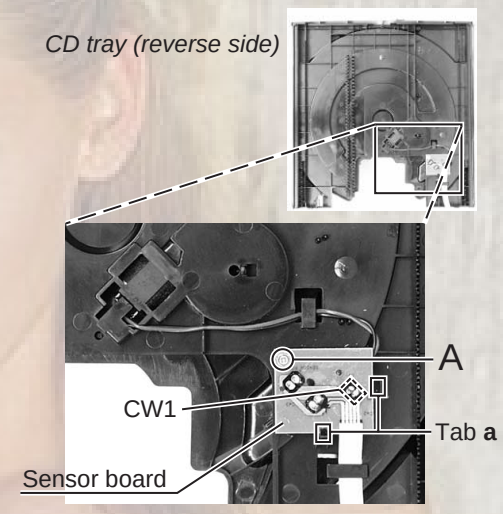



Fig.5

## ■Removing the turn tray motor (See Fig.6 and 7)

- Prior to performing the following procedure, remove the CD tray and sensor board.

1. Remove the screw **B** attaching the turn tray. Detach the turn tray from the base tray.
2. Pull outward the tab **b** attaching the turn tray motor on the base tray and detach the turn tray motor.

*Introductory notes:*
*Base tray + Turn tray = CD tray*

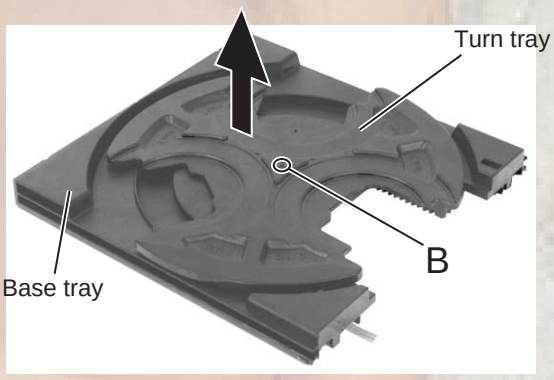



Fig.6

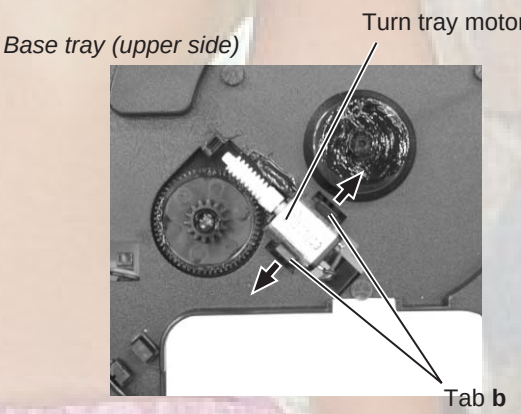



Fig.7

## ■Removing the belt, the CD board and the switch board (See Fig.8 and 9)

・ Prior to performing the following procedure, remove the CD tray.

1. Detach the belt from the pulley on the upper side of the CD changer unit (Do not stain the belt with grease).

2. Disconnect the card wire from the pickup unit connector on the under side of the CD changer unit.

**Attention** : Solder is put up before the card wire is removed from the pick-up unit connector on the CD mechanism assembly.
(When the card wire is removed without putting up solder, the CD pick-up unit assembly might destroy.)

3. Disconnect the motor wire harness from connector on the CD board.

4. Remove the screw **C** attaching the switch board and release the two tabs **e** attaching the switch board outward and detach the switch board.

5. Remove the two screws **D** attaching the CD board. First release the two tabs **f** and two tabs **g** attaching the motor, then release the CD board.

※If the tabs **f** and **g** are hard to release, it is recommendable to unsolder the two soldered parts on the motor terminal of the CD board.

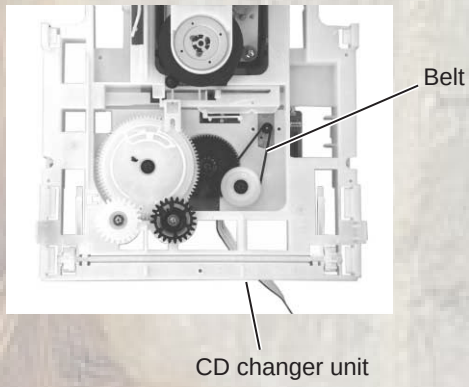



Fig.8

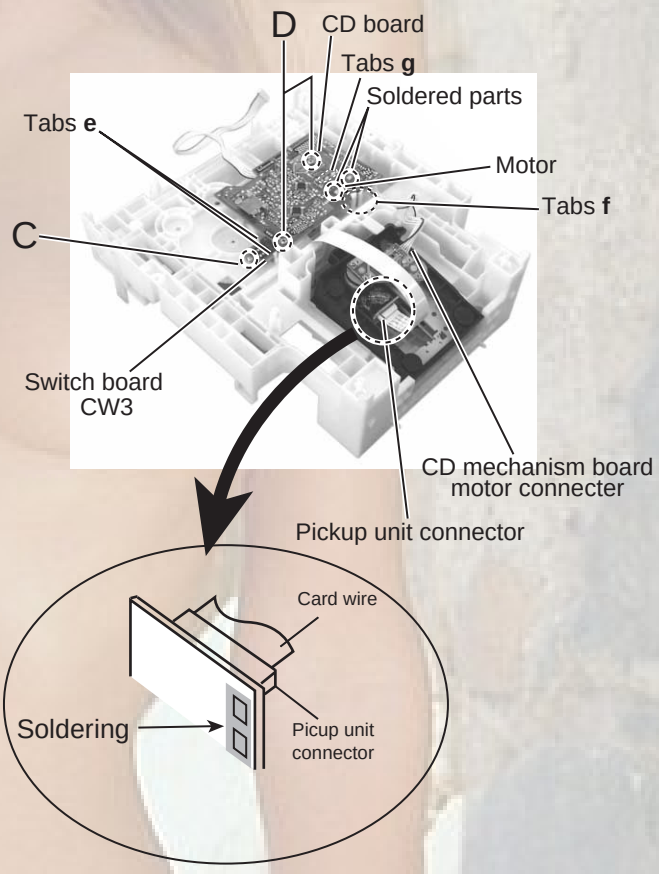



Fig.9

## ■ Removing the CD mechanism holder assembly (mechanism included) (See Fig.10 to 13)

1. Disconnect the harness from connector on the CD mechanism board in the CD mechanism assembly on the under side of the CD changer unit. Disconnect the card wire from the pickup unit connector.

   **Attention** : Solder is put up before the card wire is removed from the pick-up unit connector on the CD mechanism assembly. (Refer to Fig.9)
   (When the card wire is removed without putting up solder, the CD pick-up unit assembly might destroy.)

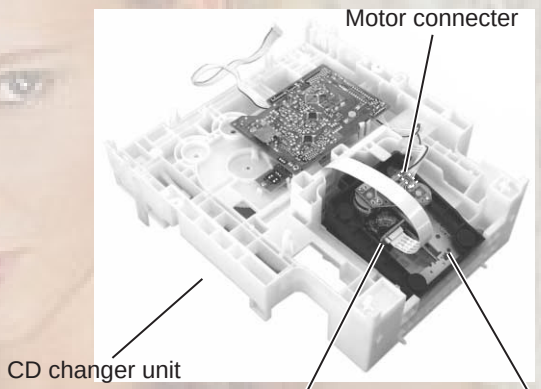



Fig.10

2. Remove the screw **E** attaching the shaft on the right side of the CD mechanism holder assembly. Pull outward the stopper fixing the shaft on the left side and remove the CD mechanism holder assembly from behind in the direction of the arrow **y**.

3. Turn the CD mechanism holder assembly half around the lift up slide shaft **h** of the CD mechanism holder assembly until the turn table is reversed, and pull out the CD mechanism holder assembly.

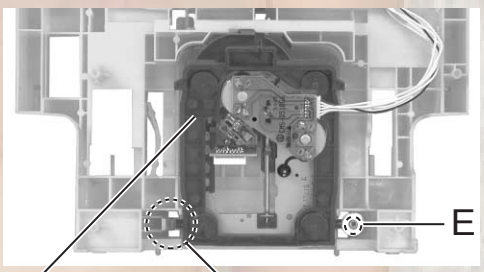



Fig.11

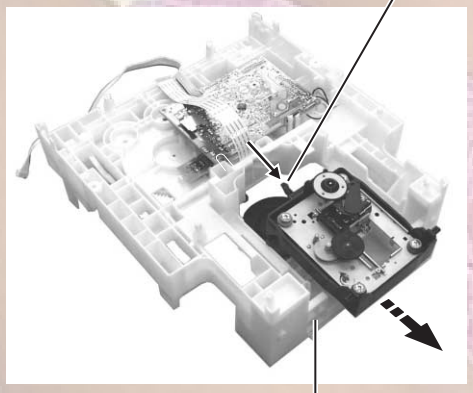



Fig.13

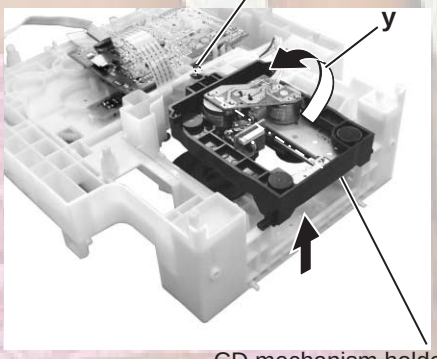



Fig.12

## <CD mechanism section>

- Removing the CD mechanism holder from the CD chager unit.
  (Refer to "Removing the CD mechanism holder assembly" )

### ■ Removing the pickup unit (See Fig.1)

1. Removing the cut washer on the feed gear sleeve and pull out the feed gear.
2. Remove the two screws **A** fixing the pickup shaft.
3. Removing the pickup unit.

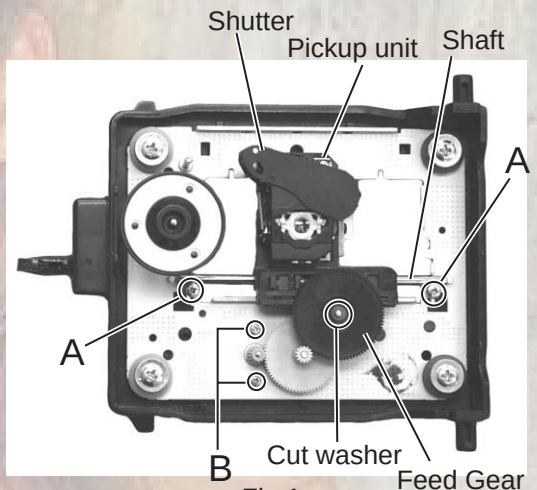



Fig.1

### ■ Removing the motor board (See Fig.2)

1. Unsolder the motor terminal on the motor board.
2. Remove the moter board.

### ■ Removing the feed motor (See Fig.1)

Remove the two motor fixing screws at **B** and removing the feed motor.

### ■ Removing the spindle motor

The spindle motor cannot be removed as a single unit.
When removing the spindle motor, change the chasis and turntable together as aunit.

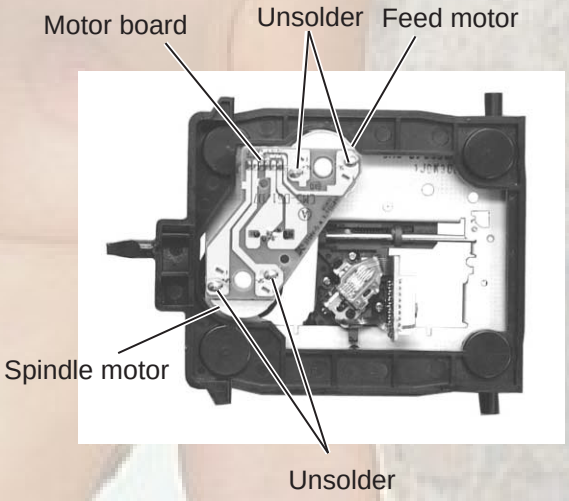



Fig.2

## <Cassette mechanism section>

· Prior to performing the following procedure, remove the cassette mechanism assembly.

### ■Removing the R/P head.

**(See Fig.1 and 2)**

1. Remove the screw **A** on the right side of the R/P head.
2. Remove the screw **B** on the left side of the R/P head.

### ■Remove the erase head. (See Fig.1)

1. Remove the screw **C** fixing the erase head.

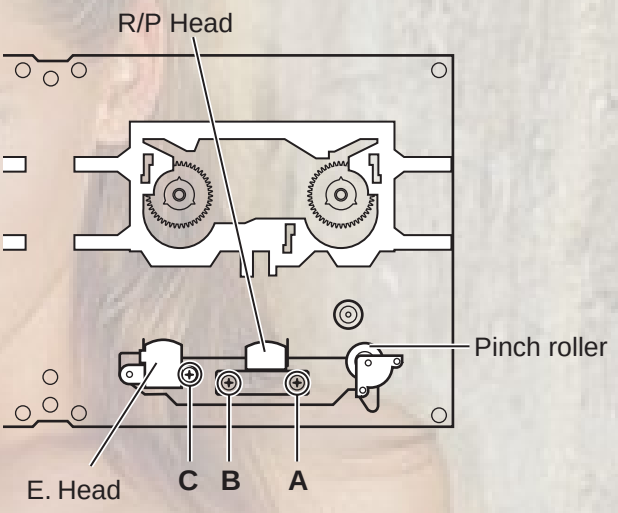



Fig.1

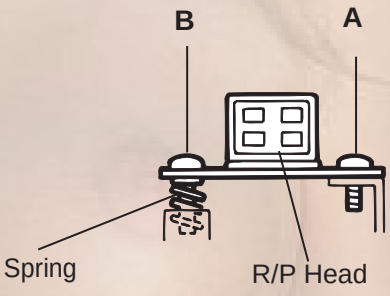



Fig.2

### ■Remove the pinch roller. (See Fig.3)

1. Pull out the pinch roller stopper.
2. Pull out the pinch roller.

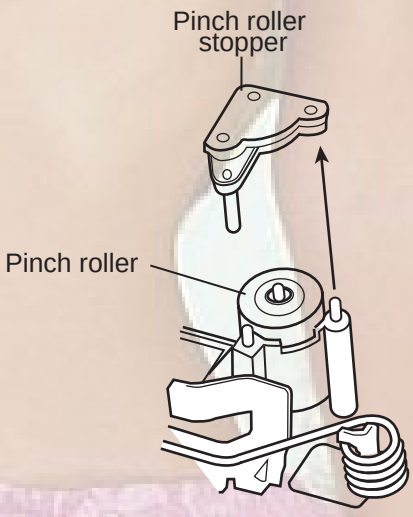



Fig.3

## ■Removing the motor (See Fig. 4 to 6)

1. Slide the plastic cover in the direction of the arrow, and remove the three claws. Then remove the plastic cover.

2. Remove the two screws **D** fixing the motor.
   Be careful to grease's splash when the drive belt comes off.

3. Unsolder the motor terminal.

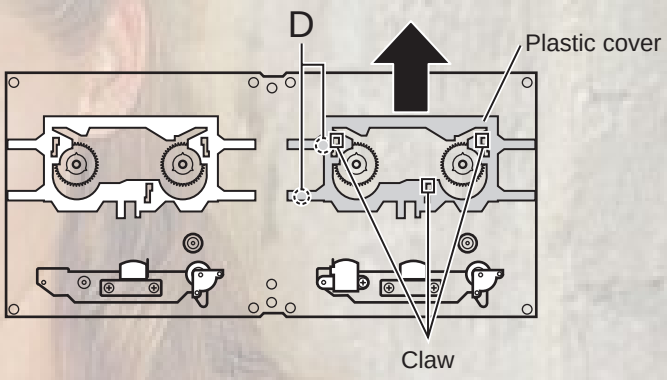



Fig.4

## ■Removing the mechanism board (See Fig. 5)

1. Unsolder the four solder parts **a** and the four solder parts **b.**

2. Remove the two screws **E** attaching the mecha. board.

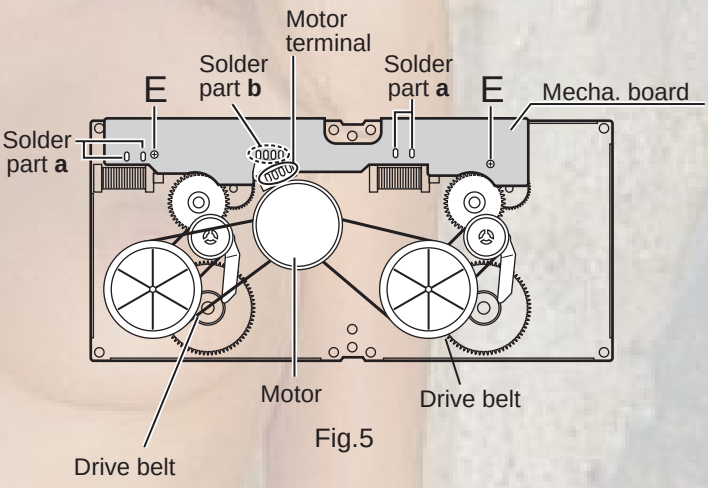



Fig.5

## ■Removing the flywheel (See Fig. 7 and 9)

1. Remove the cut-washer at **c** from the capstan shaft, then remove the flywheel.
   When reassembling the flywheel, be sure to use new washers as they cannot be reused.

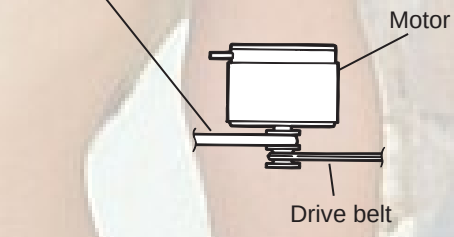



Fig.6

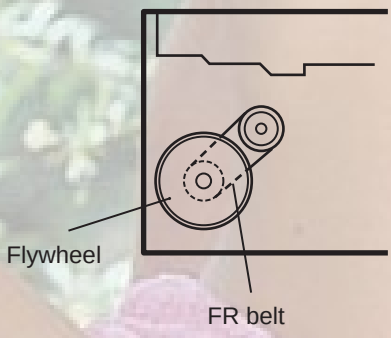



Fig.8

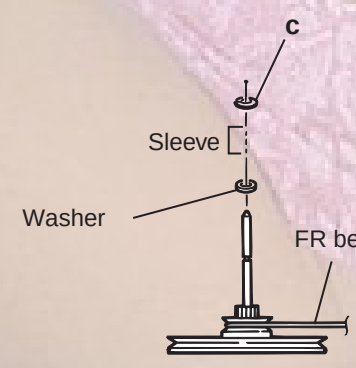



Fig.9

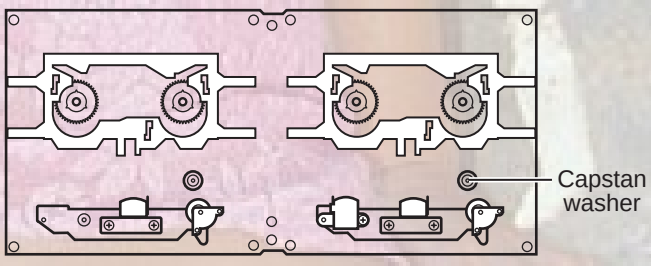



Fig.7

## < Speaker section >

● It is exchange in a unit.
Please do not decompose as much as possible.

### ■ Removing the side panel (See Fig. 1)

1. Remove the five screws **A** attaching the side panel and remove the side panel.

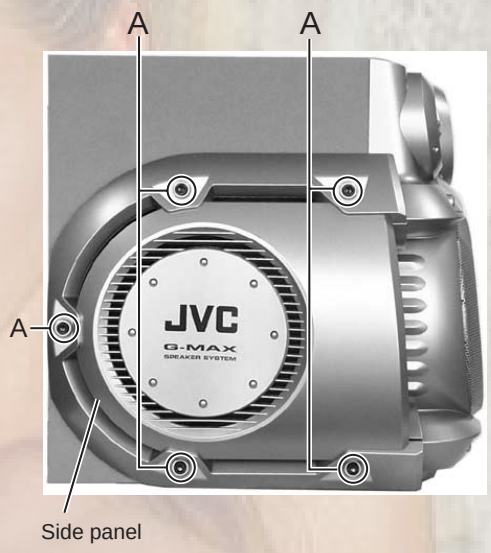



Fig.1

### ■ Removing the side speaker (See Fig. 2 and 3)

• Prior to performing the following procedure, remove the side panel.

1. Remove the four screws **B** attaching the side speaker.
2. Pull out the side speaker and remove the speaker cord from the speaker terminal.

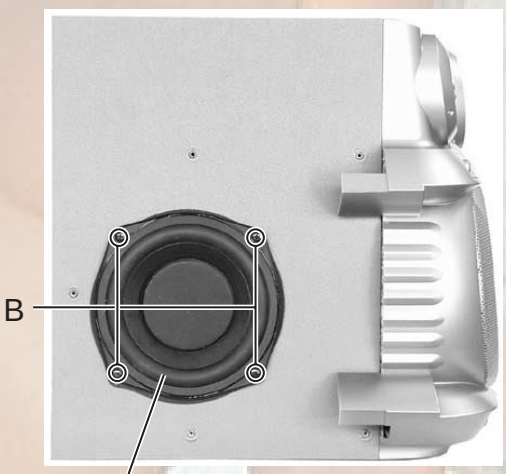
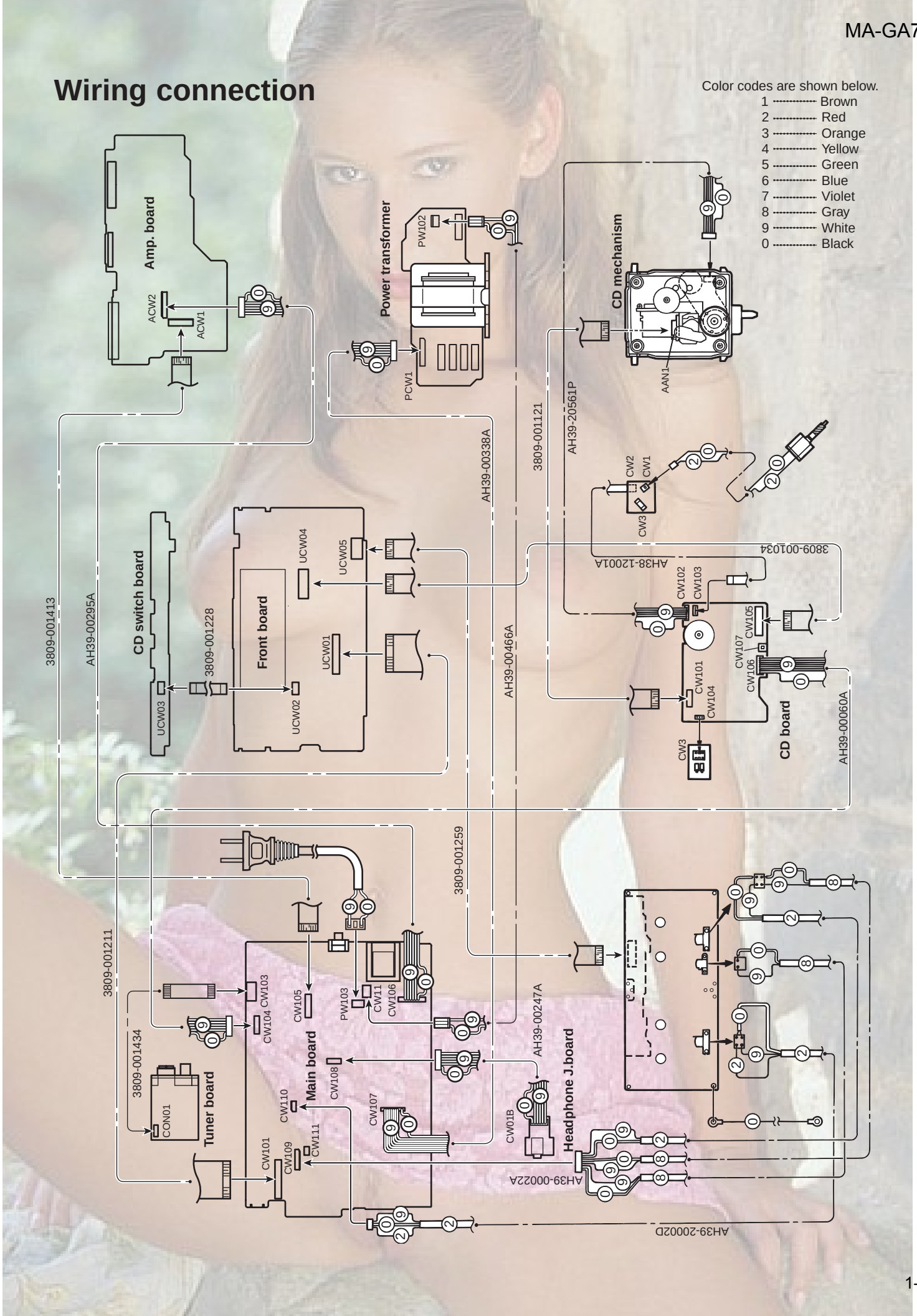



Fig.2

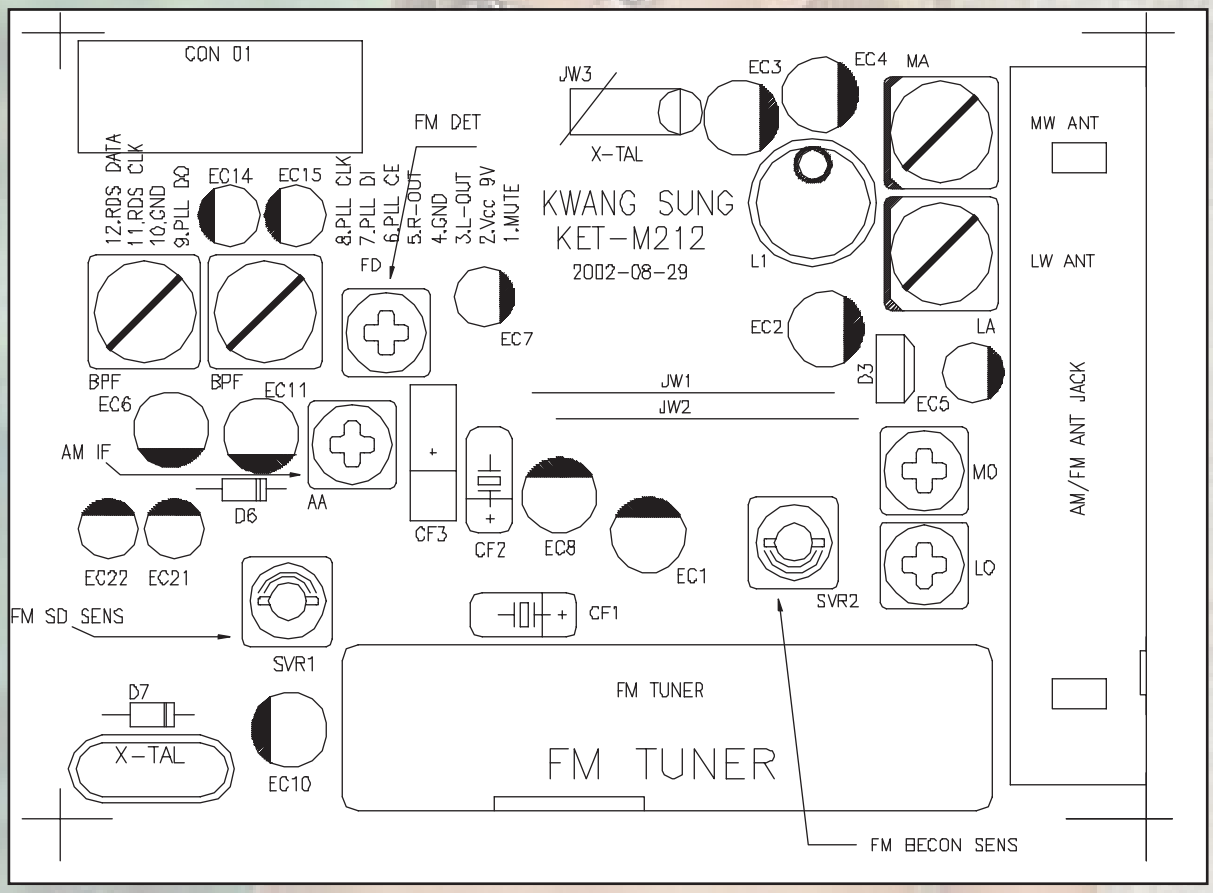

Fig.3

# Wiring connection



# Adjustment method

## 1. Tuner




* Adjustment Location of Tuner PCB

| ITEAM | AM(MW) OSC Adjustment | AM(MW) RF Adjustment |
|---|---|---|
| Received FREQ. | 522~1629 KHz | 594 KHz |
| Adjustment point | MO | MA |
| Output | 1~7.0 ±0.5V | Maximum Output(Fig.1) |

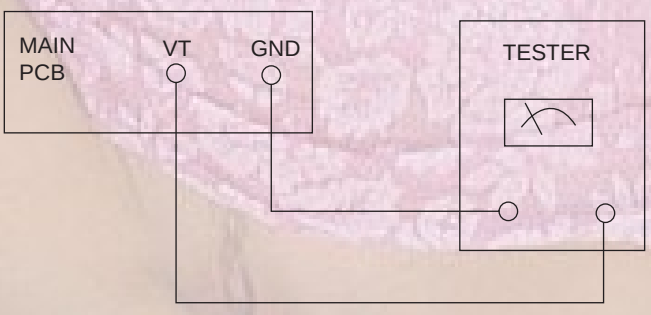



Fig.1 OSC Voltage

| FM THD Adjustment | |
|---|---|
| SSG FREQ. | 98 MHz |
| Adjustment point (FM DET) | FM DETECTOR COIL |
| Output | 60 dB |
| Minumum Distortion (0.4% below) (Fig.2) | |

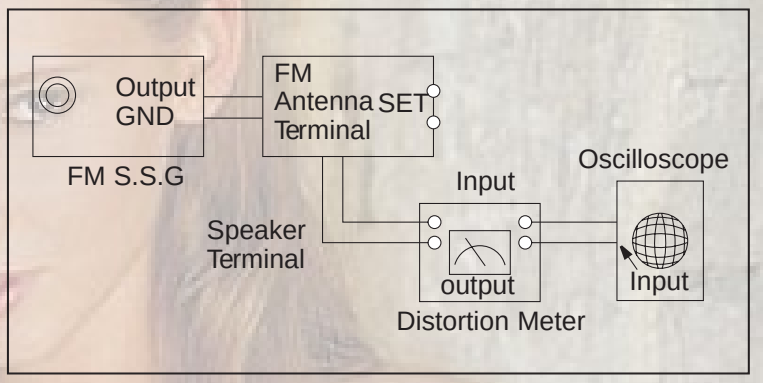



Fig.2 IF CENTER and THD Adjustment

| FM Search Level Adjustment | |
|---|---|
| SSG FREQ. | 98 MHz |
| Adjustment point (SVR1) | BEACON SENSITIVITY SEMI-VR(10KΩ) |
| Output | 28 dB( ± 2dB) |
| Adjust SVR1 (Fig.3) | |

*Adjust FM S.S.G level to 28dB

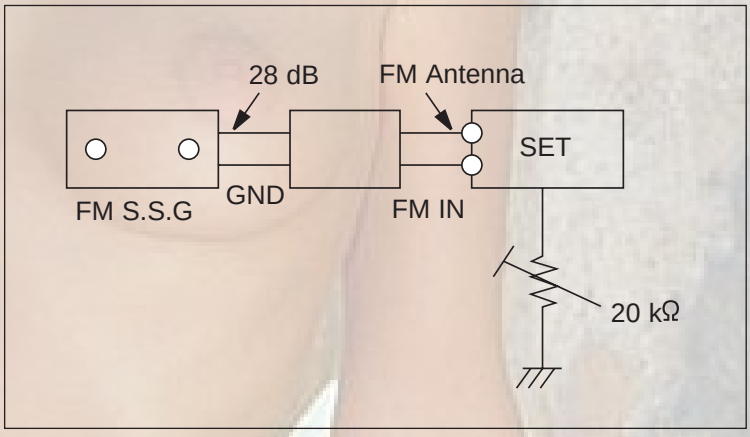



Fig.3 FM Auto Search Level Adjustment

| AM(MW) I.F Adjustment | |
|---|---|
| SSG FREQ. | 450 kHz |
| Frequency | 522 kHz |
| Adjustment point | AM IF |
| Maximum output (Fig.4) | |

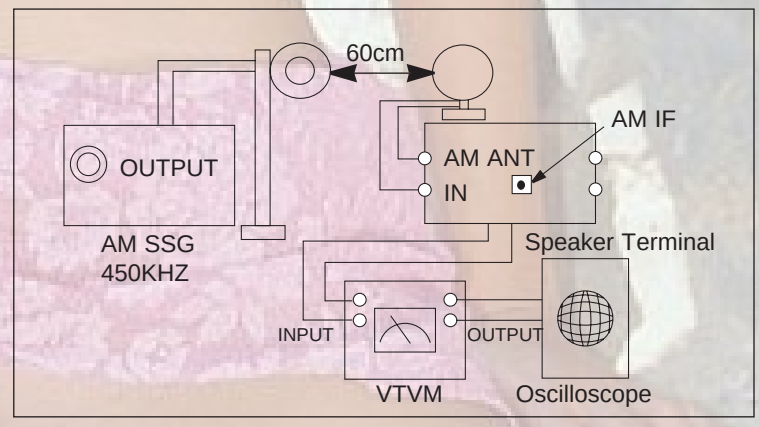



Fig.4 AM I.F Adjustment

## 2. Cassette Deck

### ■ To adjust tape speed

Notes

1) Measuring tape:
   i) VT-712/MTT-111(or equivalent)
   (Tapes recorded with 3kHz)
   ii) AC-225/MTT-5512(or equivalent)

2) Connect the cassette deck to the frequency counter as in fig.1.

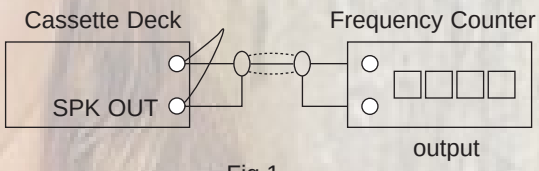


Fig.1

| Step | Item | Pre-Setup Condition | Pre-Setup | To Adjust | Standard | Remark |
|---|---|---|---|---|---|---|
| 1 | NOR SPEED Control | SPK OUT (connected to the frequency counter) | 1) Deck 1:VT-712<br>2) Press PLAY SW button<br>3) Deck 2:Same as above | Turn VSR1 to left and right (FRONT PCB) | 3KHz | ±1% range |

### ■ To adjust plabyback level/REC

Notes

1) Before the actual adjustment, clean the play/recording head.

2) Measuring tape :
   i) VT-703/MTT-114N(or equivalent 10kHz AZIMUTH control)
   ii) AC-225/MTT-5512(or equivalent)

3) The cassette deck is connections as shown in fig.2.

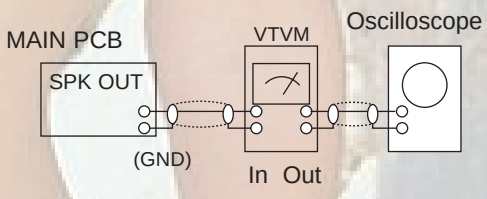


Fig.2

1. Adjust Deck 1 Play Level

| Step | Item | Pre-Setup Condition | Pre-Setup | To Adjust | Standard | Remark |
|---|---|---|---|---|---|---|
| 1 | AZIMUTH | SPK OUT (VTVM is connected to the scope) | After putting VT-703 into Deck 1<br>- Press FWD PLAY button. | Turn the control screw to as shownin Fig.3. | Max output and same phase (both channels) | After adjustment secure it with REGION LOCK. |

## 2. Adjust Deck 2 Play Level/REC BIAS

| Step | Item | Pre-Setup Condition | Pre-Setup | To Adjust | Standard | Remark |
|---|---|---|---|---|---|---|
| 1 | AZIMUTH | SPK OUT (VTVM is connected to the scope) | After putting VT-703 into Deck 2<br>1)Press FWD PLAY button. | Turn the control screw to as shown in Fig.3. | Max output and same phase (both channels) | After adjustment secure it with REGION LOCK. |
| 2 | Recording Bias Voltage | Fig.4 | After putting AC-225 into Deck 2<br>1)Press REC PLAY button.<br>2)TAPE PCB JCW3, connectted to VTVM | Turn JSR2L, JSR2R to the right and left | CHECK TO 7mV( ±0.5mV) | |

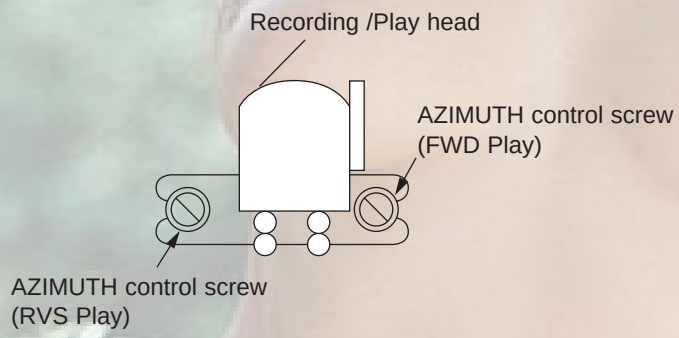



Fig.3

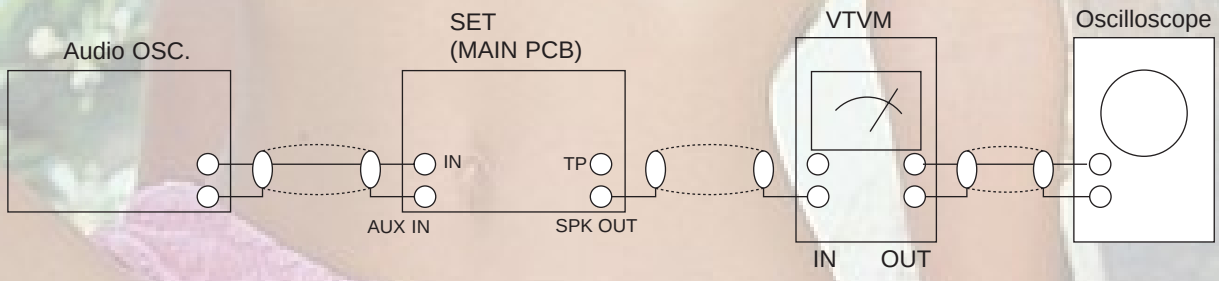



Fig.4

# Flow of functional operation until TOC read

Power ON → Play Key → RESET a CD LSI

Check Point
Confirm that the voltage at the pin17 of KB9226(IC101) is "L" → "H".

RESET a CD LSI → LIMIT SW ON

Confirm that the voltage at the pin33 of KB9226(IC101) is "H" → "L" → "H".

LIMIT SW ON → SET Default value of TE gain, TE balance

SET Default value of TE gain, TE balance → Automatic adjusting of focus bias

Automatic adjusting of focus bias → Automatic adjusting of FE offset

Automatic adjusting of FE offset → Automatic adjusting of TE offset

Automatic adjusting of TE offset → LASER power ON

LASER power ON → Confirm that the voltage at the pin37 of KB9226(IC101) is 3.5V.

LASER power ON → Detection of disk

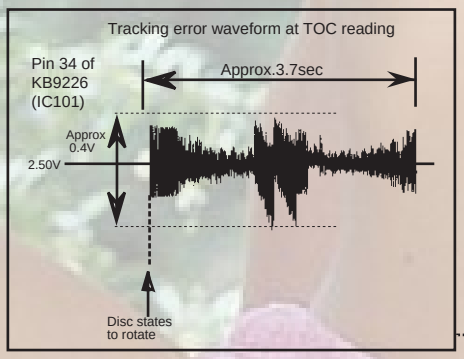
Detection of disk → Disc is rotated

Disc is rotated → Confirm that the signal from pin24 of KB9226(IC101) is 3.5V as a accelerated pulse during approx.1.96s.

Disc is rotated → Automatic adjusting of TE balance

Automatic adjusting of TE balance → Automatic adjusting of TE gain

Confirm the waveform of the Tracking error signal at the pin 34 of KB9226(IC101).




Automatic adjusting of TE gain → TOC reading

TOC reading → Confirm the eye-pattern at the pin2 of KB9226(IC101).

TOC reading → Play a disc

# Maintenance of laser pickup

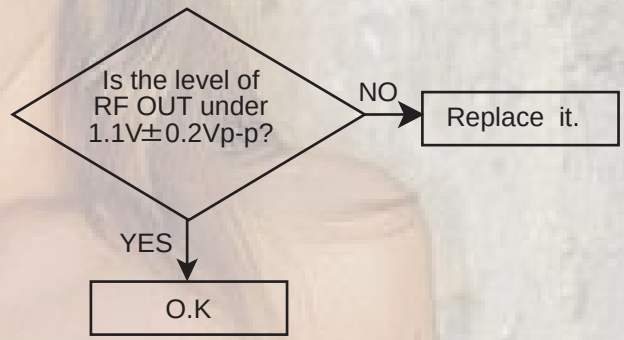
(1) Cleaning the pick up lens

Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

(2) Life of the laser diode

When the life of the laser diode has expired, the following symptoms will appear.

1. The level of RF output (EFM output : amplitude of eye pattern) will below.



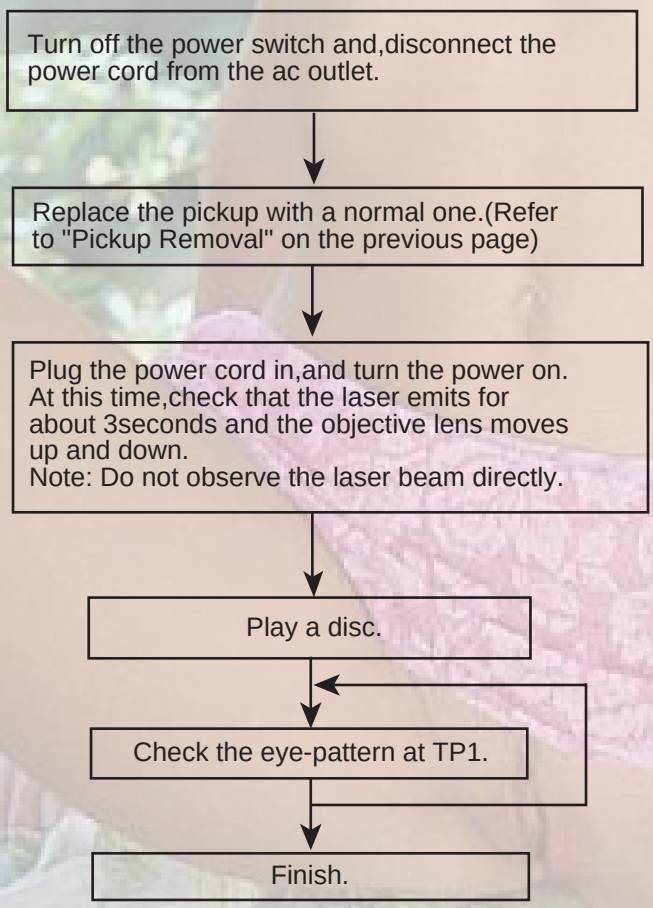

(3) Semi-fixed resistor on the APC PC board

The semi-fixed resistor on the APC printed circuit board which is attached to the pickup is used to adjust the laser power. Since this adjustment should be performed to match the characteristics of the whole optical block, do not touch the semi-fixed resistor.

If the laser power is lower than the specified value, the laser diode is almost worn out, and the laser pickup should be replaced.

If the semi-fixed resistor is adjusted while the pickup is functioning normally, the laser pickup may be damaged due to excessive current.

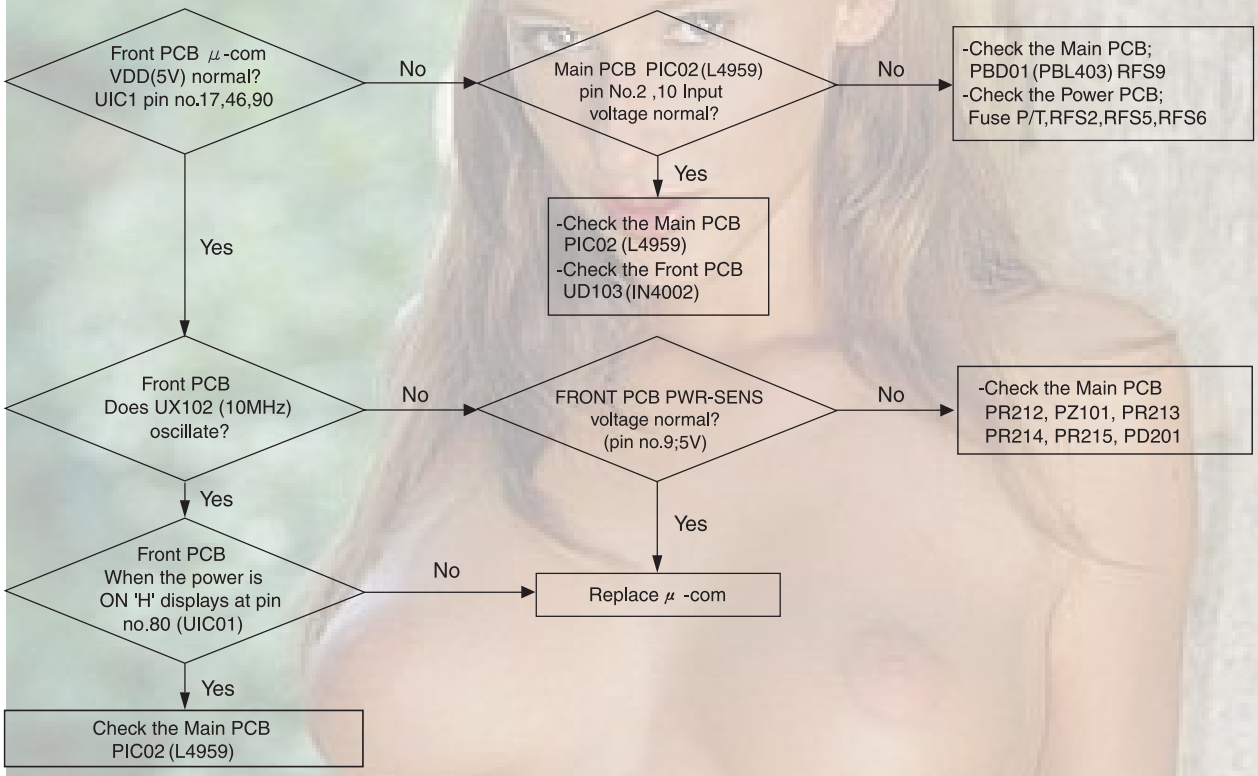
# Replacement of laser pickup



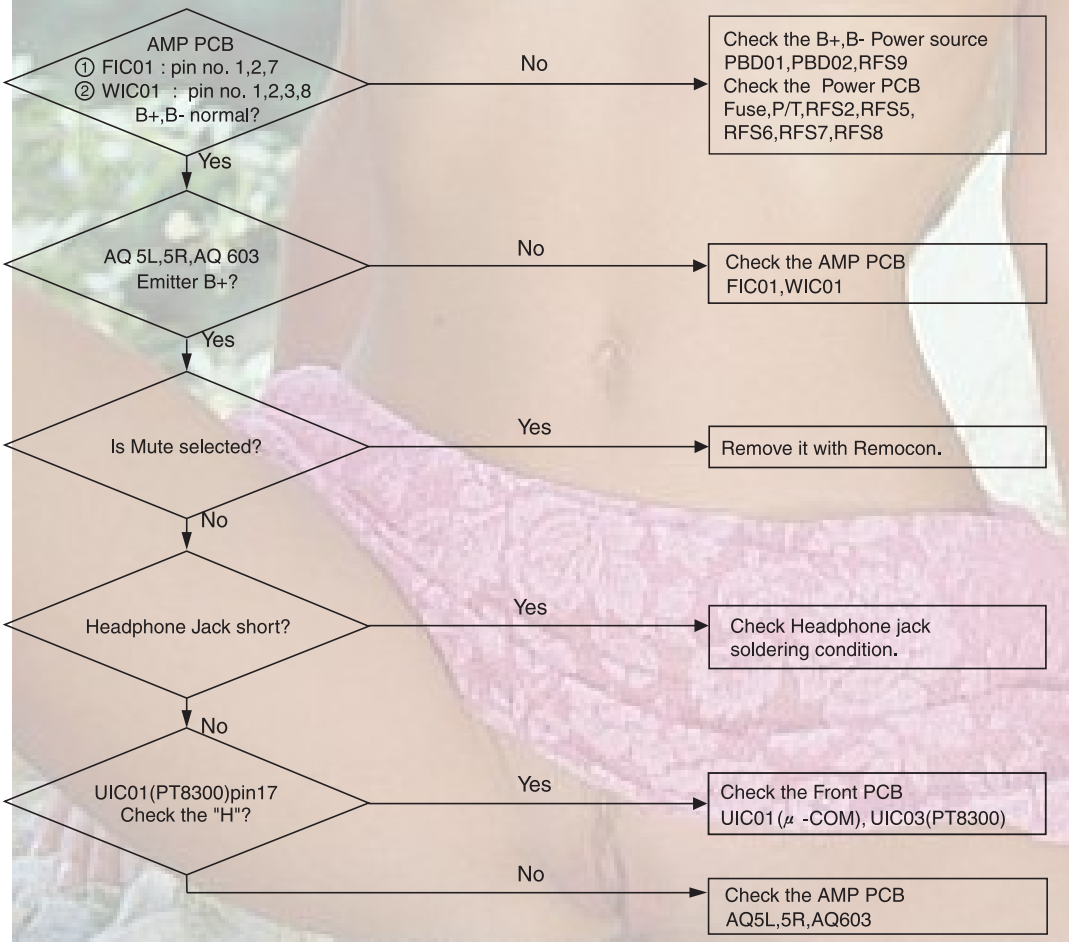
# Troubleshooting

## 1. Amplifier

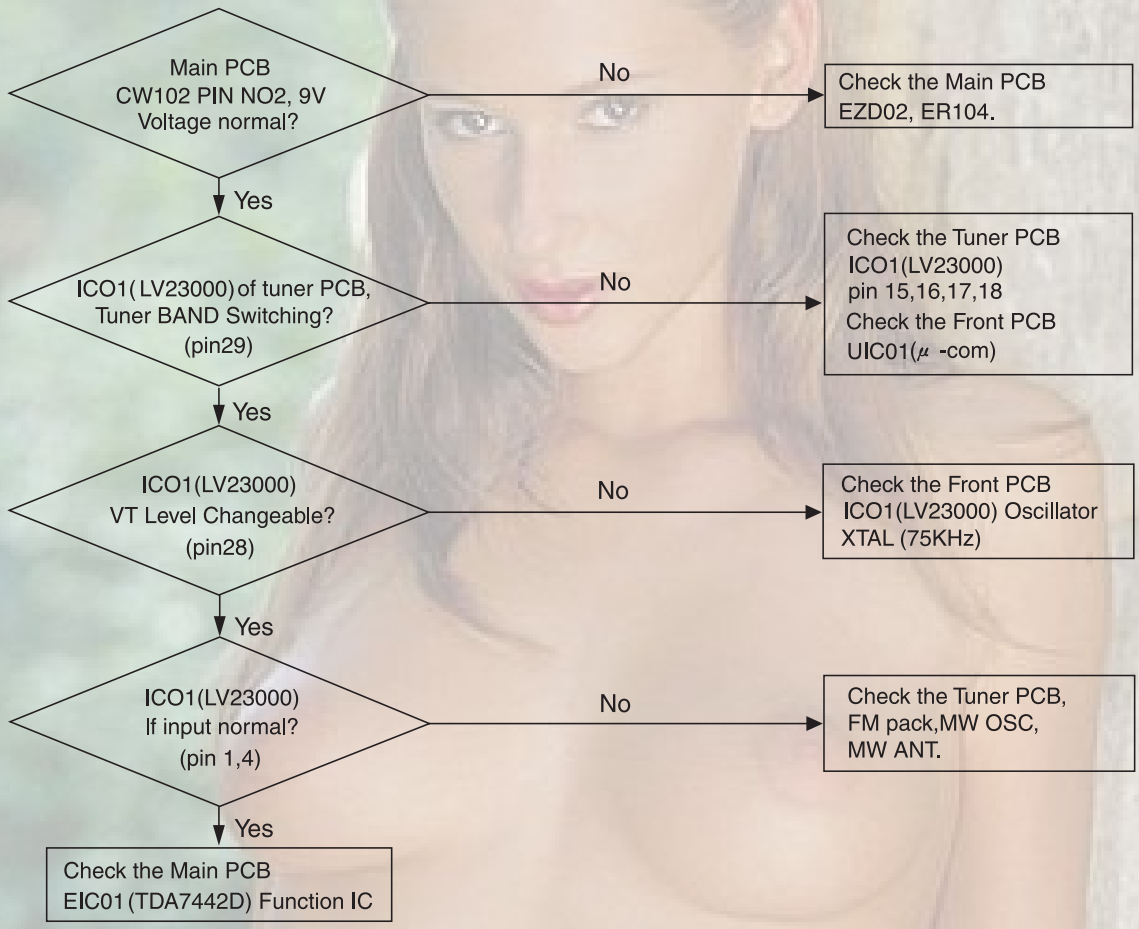
### Power malfunction



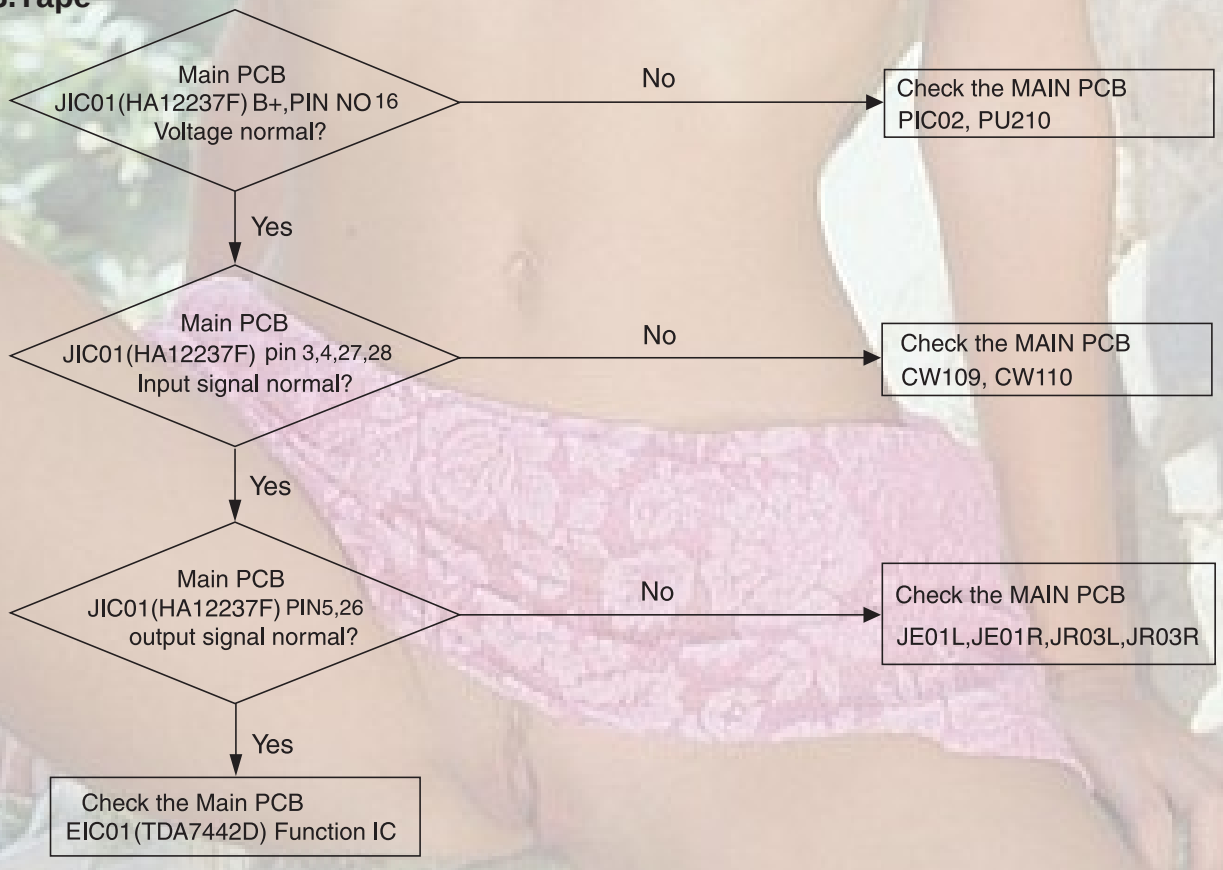

### No output



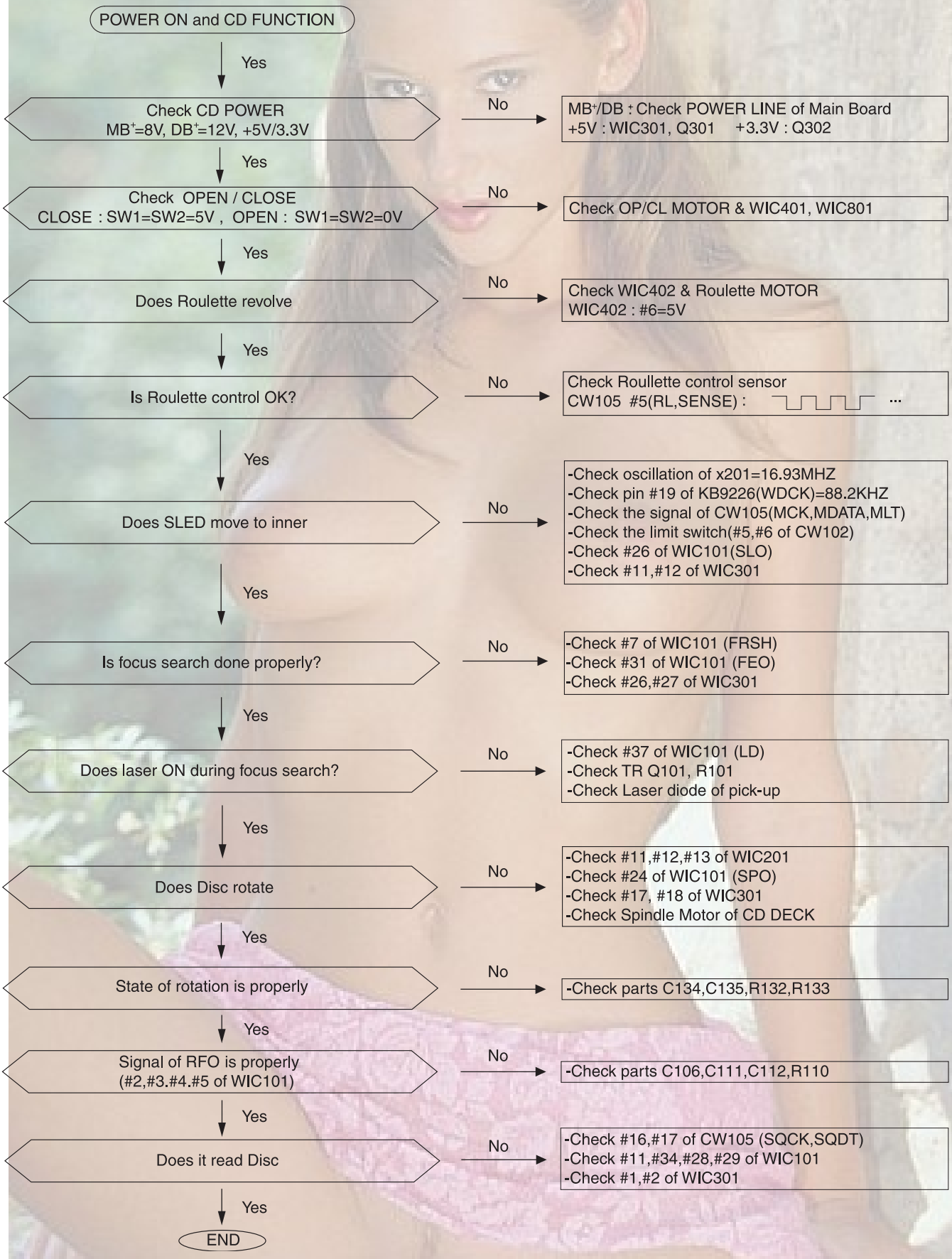
## 2.Tuner malfunction (FM/AM)



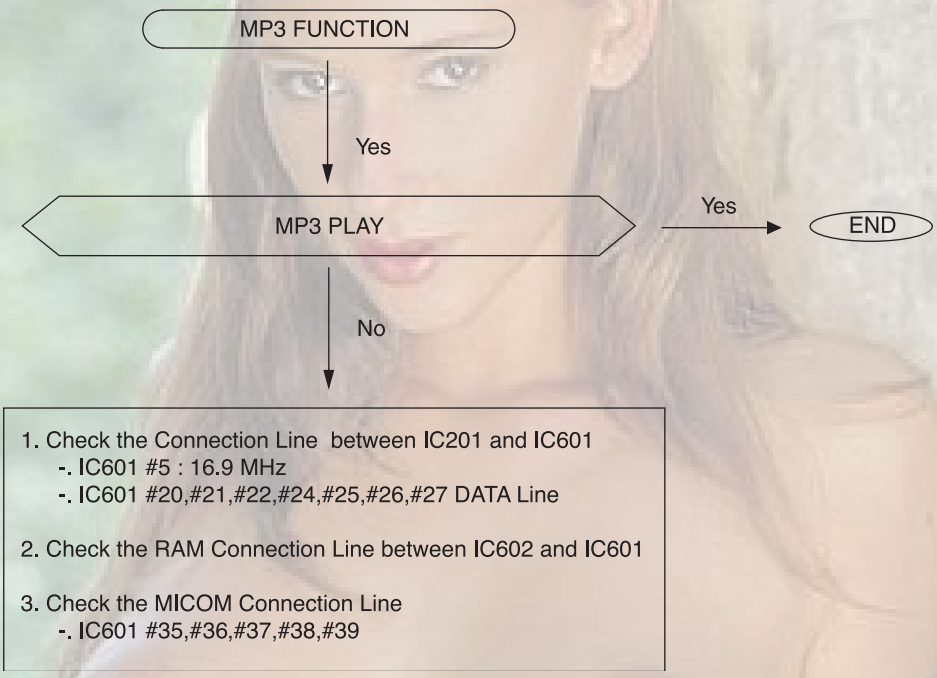

## 3.Tape



## 4.CD


POWER ON and CD FUNCTION
Yes
Check CD POWER
MB+=8V, DB+=12V, +5V/3.3V
No
MB+/DB+ : Check POWER LINE of Main Board
+5V : WIC301, Q301 +3.3V : Q302
Yes
Check OPEN / CLOSE
CLOSE : SW1=SW2=5V , OPEN : SW1=SW2=0V
No
Check OP/CL MOTOR & WIC401, WIC801
Yes
Does Roulette revolve
No
Check WIC402 & Roulette MOTOR
WIC402 : #6=5V
Yes
Is Roulette control OK?
No
Check Roullette control sensor
CW105 #5(RL,SENSE) :
Yes
Does SLED move to inner
No
-Check oscillation of x201=16.93MHZ
-Check pin #19 of KB9226(WDCK)=88.2KHZ
-Check the signal of CW105(MCK,MDATA,MLT)
-Check the limit switch(#5,#6 of CW102)
-Check #26 of WIC101(SLO)
-Check #11,#12 of WIC301
Yes
Is focus search done properly?
No
-Check #7 of WIC101 (FRSH)
-Check #31 of WIC101 (FEO)
-Check #26,#27 of WIC301
Yes
Does laser ON during focus search?
No
-Check #37 of WIC101 (LD)
-Check TR Q101, R101
-Check Laser diode of pick-up
Yes
Does Disc rotate
No
-Check #11,#12,#13 of WIC201
-Check #24 of WIC101 (SPO)
-Check #17, #18 of WIC301
-Check Spindle Motor of CD DECK
Yes
State of rotation is properly
No
-Check parts C134,C135,R132,R133
Yes
Signal of RFO is properly
(#2,#3.#4.#5 of WIC101)
No
-Check parts C106,C111,C112,R110
Yes
Does it read Disc
No
-Check #16,#17 of CW105 (SQCK,SQDT)
-Check #11,#34,#28,#29 of WIC101
-Check #1,#2 of WIC301
Yes
END

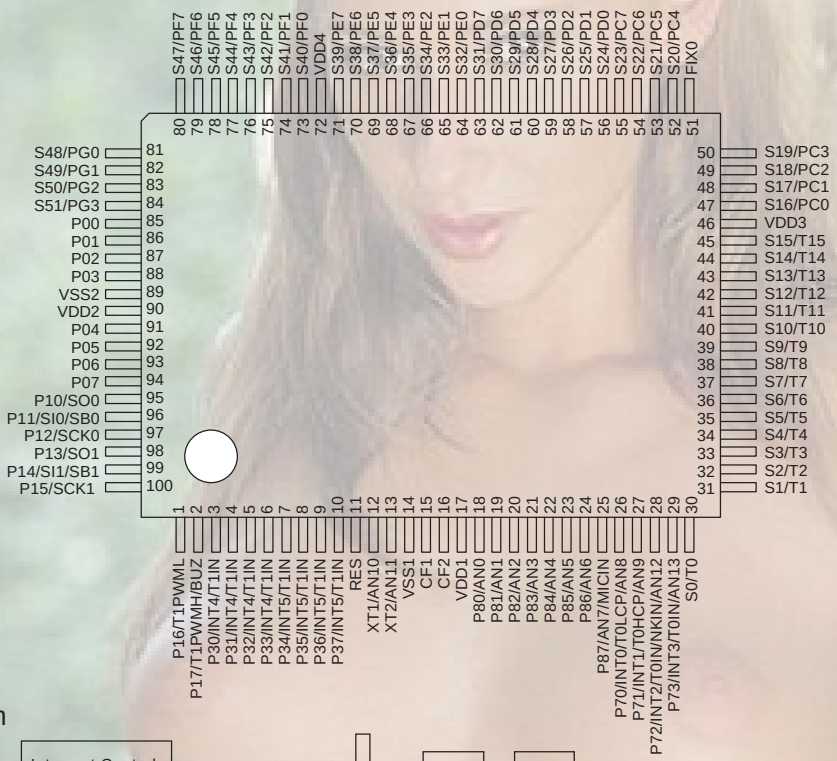
## 5.CD - MP3 parts



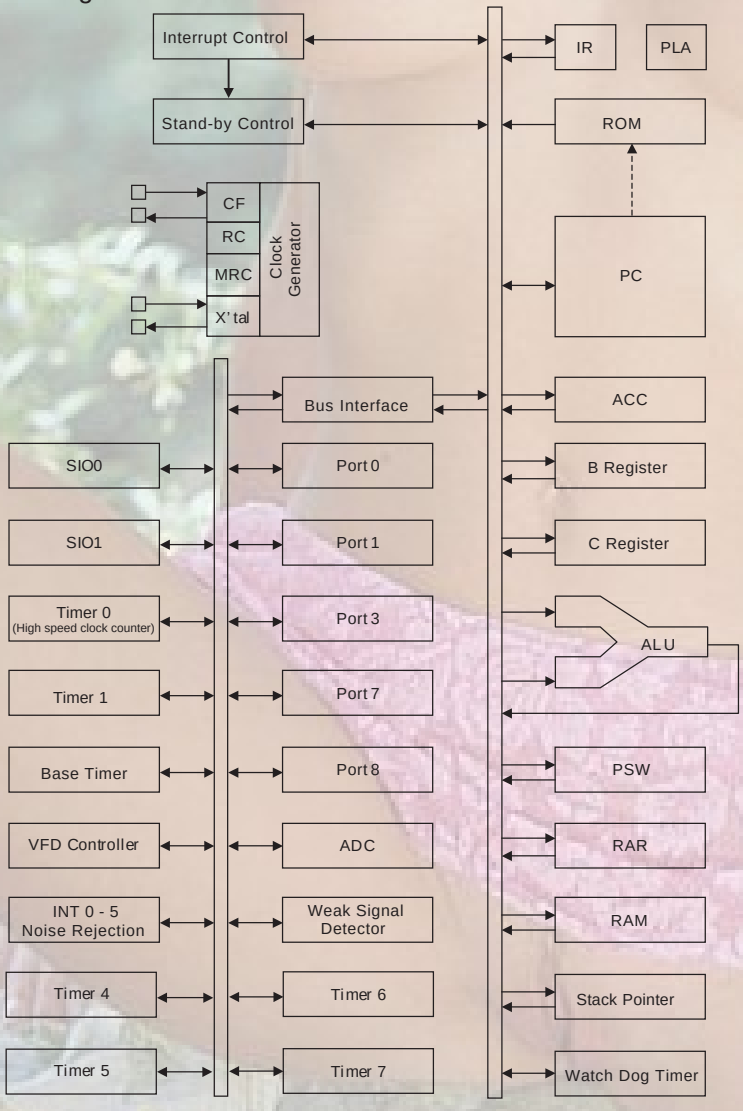
# Description of major ICs

## ■ LC876764 (UIC1) : Microcontroller

1.Pin layout




2.Block diagram



3. Pin function (1/2)

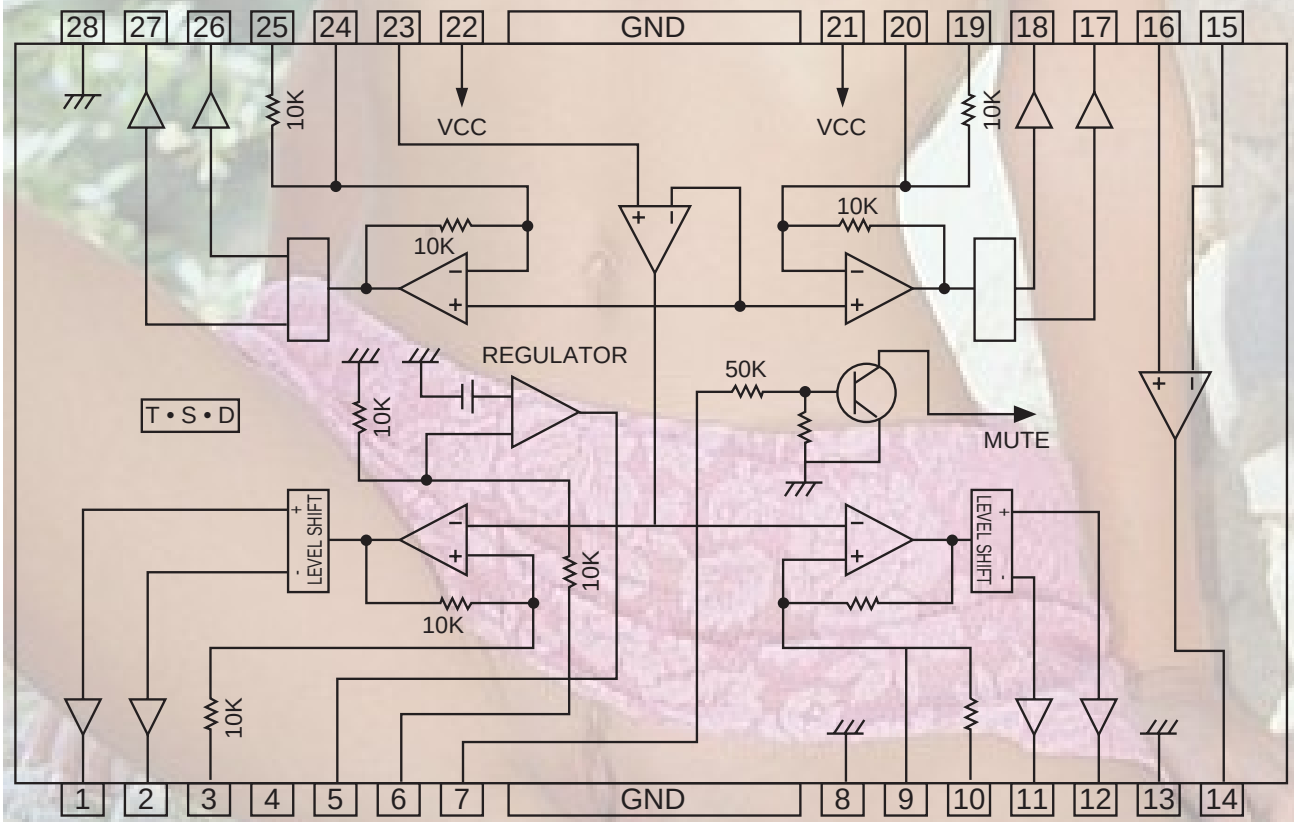
| Pin name | I/O | Function |
|---|---|---|
| VSS1, 2 | - | Power supply (-) |
| VDD1,2,3,4 | - | Power supply (+) |
| FIX0 | - | Test pin<br>Set as VSS with the user's option. (see Note 1) |
| PORT0<br>P00 to P07 | I/O | • 8bit input/output port<br>• Data direction programmable in nibble units<br>• Use of pull-up resistor can be specified in nibble units<br>• Input for HOLD release<br>• Input for port 0 interrupt |
| PORT1<br>P10 to P17 | I/O | • 15V withstand at N-channel open drain output<br>• 8bit input/output port<br>• Data direction programmable for each bit<br>• Use of pull-up resistor can be specified for each bit<br>• Other pin functions<br>P10: SIO0 data output<br>P11: SIO0 data input / bus input / output<br>P12: SIO0 clock input / output<br>P13: SIO1 data output<br>P14: SIO1 data input / bus input / output<br>P15: SIO1 clock input / output<br>P16: Timer 1 PWML output<br>P17: Timer 1 PWMH output / Buzzer output |
| PORT3<br>P30 to P37 | I/O | • 8bit input/output port<br>• Data direction can be specified for each bit<br>• Use of pull-up resistor can be specified for each bit<br>• 15V withstand at N-channel open drain output<br>• Other functions:<br>P30 to P33: INT4 input / HOLD release input / Timer 1 event input / Timer 0L capture input / Timer 0H capture input<br>P34 to P37: INT5 input / HOLD release input / Timer 1 event input / Timer 0L capture input / Timer 0H capture input |
| PORT7<br>P70 to P73 | I/O | • 4bit input/output port<br>• Data direction can be specified for each bit<br>• Use of pull-up resistor can be specified for each bit<br>• Other functions<br>P70: INT0 input / HOLD release input / Timer0L capture input / Output for watchdog timer<br>P71: INT1 input / HOLD release input / Timer0H capture input<br>P72: INT2 input / HOLD release input / Timer 0 event input / Timer0L capture input / High speed clock counter input<br>P73: INT3 input(noise rejection filter attached input) / Timer 0 event input / Timer 0H capture input<br>AD input port: AN8(P70), AN9(P71), AN12(P72), AN13(P73) |
| PORT8<br>P80 to P87 | I/O | • 8bit input/output port<br>• Input/output can be specified in a bit unit<br>• Other functions:<br>AD input port: AN0 to AN7<br>Weak signal detector input port: MICIN(P87) |
| S0/T0 to<br>S8/T8 | O | • Large current output for VFD display controller digit (can be used for segment) |
| S9/T9 to<br>S15/T15 | O | • Large current output for VFD display controller segment/digit |
| S16 to S23 | I/O | • Output for VFD display controller segment/digit<br>• Other functions:<br>High voltage input port: PC0 to PC7 |
| S24 to S31 | I/O | • Output for VFD display controller segment<br>• Other functions:<br>High voltage input port: PD0 to PD7 |

3. Pin function (2/2)

| Pin name | I/O | Function |
|---|---|---|
| S32 to S39 | I/O | • Output for VFD display controller segment<br>• Other functions<br>High voltage input port: PE0 to PE7 |
| S40 to S47 | I/O | • Output for VFD display controller segment<br>• Other functions:<br>High voltage input/output port: PF0 to PF7 |
| S48 to S51 | I/O | • Output for VFD display controller segment<br>• Other functions:<br>High voltage input/output port: PG0 to PG3 |
| $\overline{RES}$ | I | Reset terminal |
| XT1 | I | • Input for 32.768kHz crystal oscillation<br>• Other functions:<br>General purpose input port<br>When not in use, connect to VDD1.<br>AD input port: AN10 |
| XT2 | I/O | • Output for 32.768kHz crystal oscillation<br>• Other functions:<br>General purpose input port<br>When not in use, set to oscillation mode and leave open circuit. |
| CF1 | I | AD input port: AN11 |
| CF2 | O | Input terminal for ceramic oscillator<br>Output terminal for ceramic oscillator |

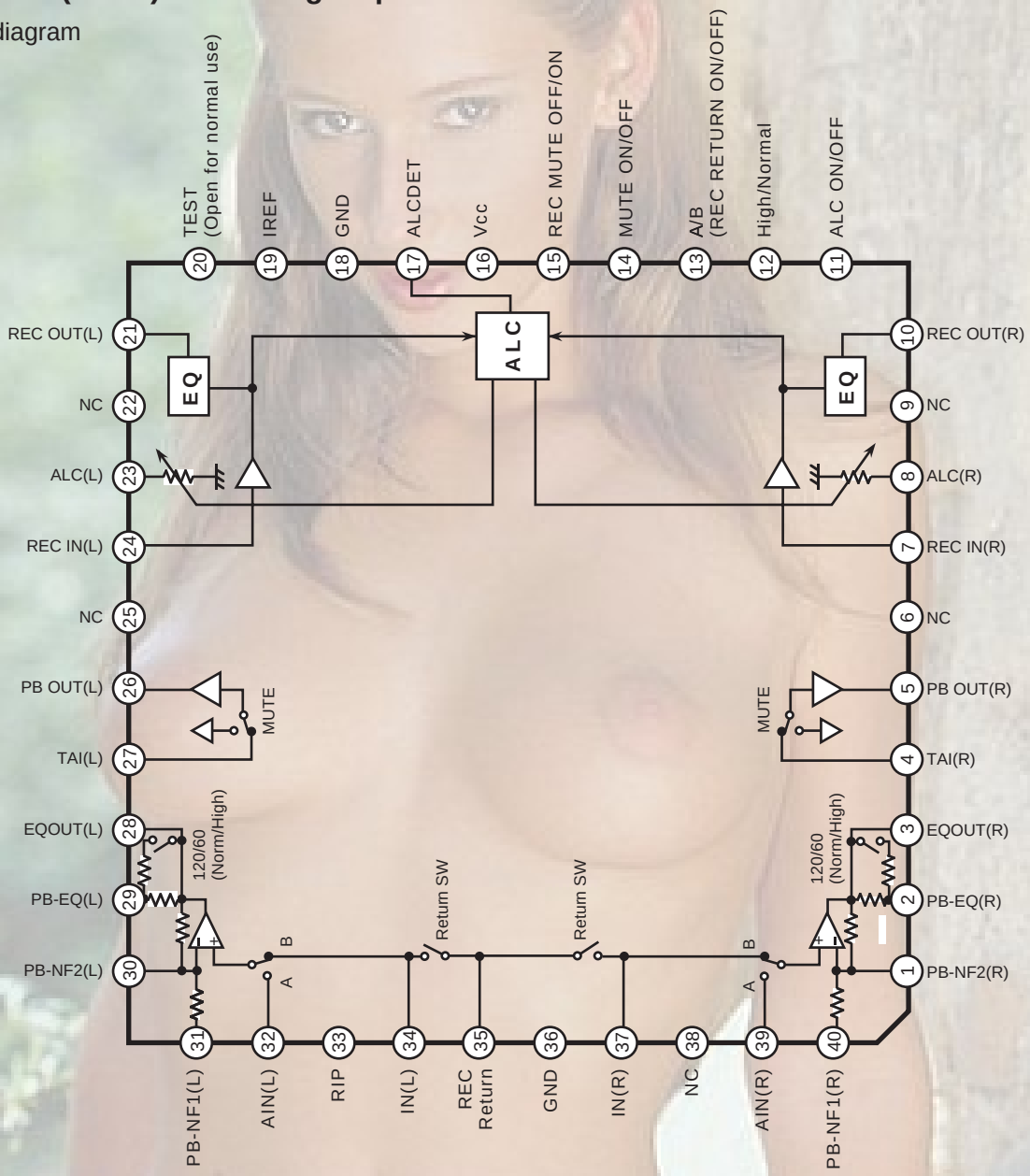
## ■ KA9258D (IC301) : 4-ch Motor driver

1.Block diagram



## ■ HA12237 (JIC01) : Audio signal processor

1. Block diagram




2. Pin function

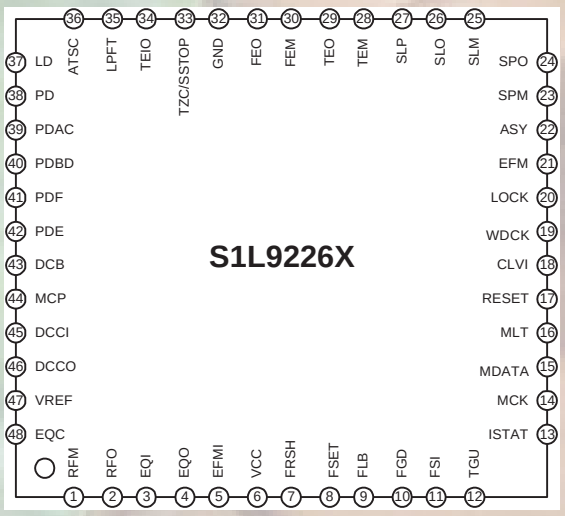
| Pin No. | Symbol | Function |
|---|---|---|
| 1 | PB-NF2(R) | PB EQ feed back |
| 2 | PB-EQ(R) | NAB output |
| 3 | EQOUT(R) | EQ output |
| 4 | TAI(R) | Tape input |
| 5 | PBOUT(R) | PB output |
| 6 | NC | NC pin |
| 7 | RECIN(R) | REC-EQ input |
| 8 | | |
| 9 | NC | NC pin |
| 10 | RECOUT(R) | REC output |
| 11 | ALC ON/OFF | Mode control input |
| 12 | High/Norm | Mode control input |
| 13 | A/B | Mode control input |
| 14 | MUTE ON/OFF | Mode control input |

| Pin No. | Symbol | Function |
|---|---|---|
| 15 | REC MUTE OFF/ON | Mode control input |
| 16 | Vcc | Vcc pin |
| 17 | | |
| 18 | GND | GND pin |
| 19 | IREF | Equalizer reference current input |
| 20 | Test mode | Test mode pin |
| 21 | RECOUT(L) | REC output |
| 22 | NC | NC pin |
| 23 | | |
| 24 | RECIN(L) | REC-EQ input |
| 25 | NC | NC pin |
| 26 | PBOUT(L) | PB output |

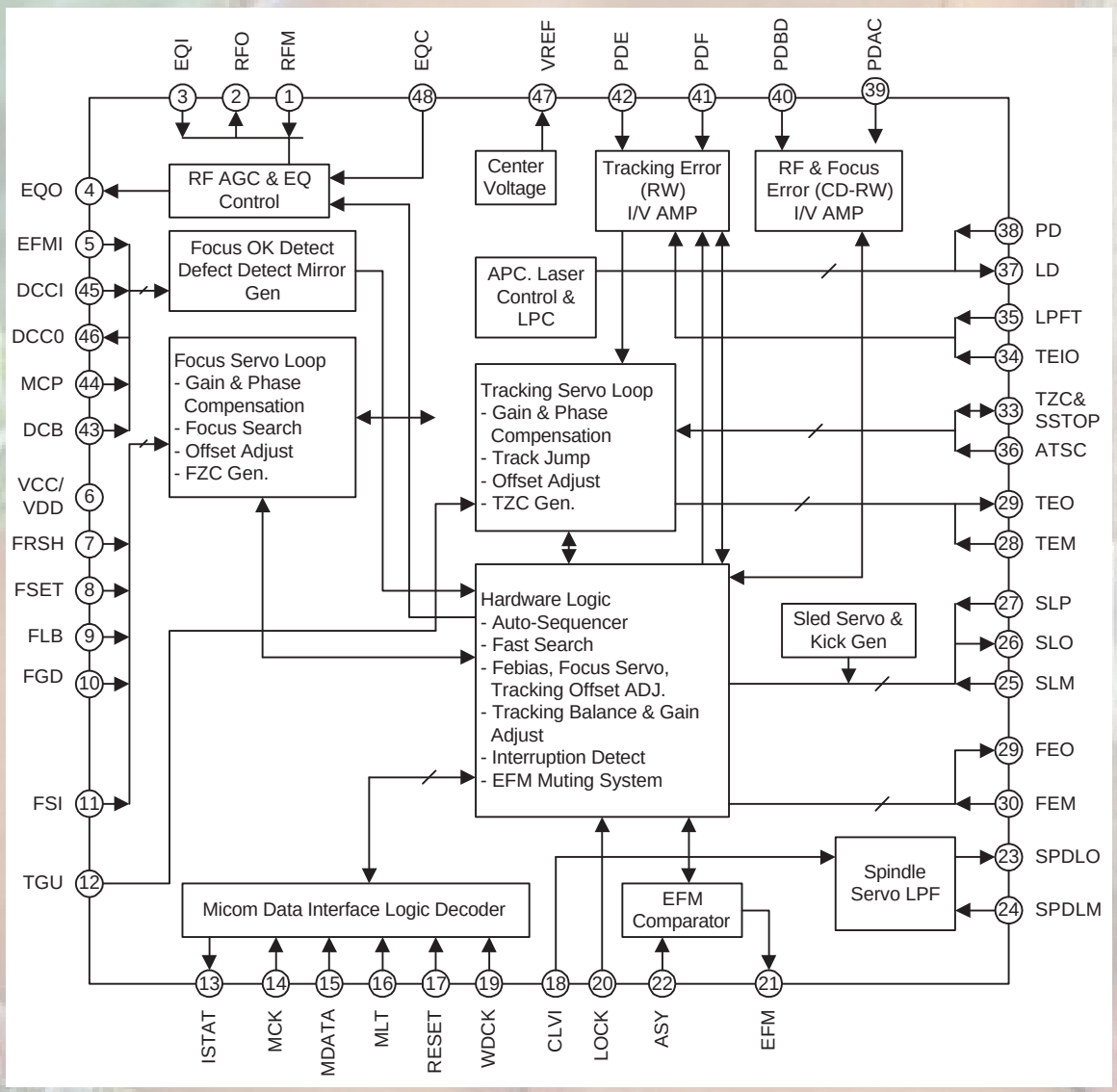
| Pin No. | Symbol | Function |
|---|---|---|
| 27 | TAI(L) | Tape input |
| 28 | EQOUT(L) | EQ output |
| 29 | PB-EQ(L) | NAB output |
| 30 | PB-NF2(L) | PB EQ feed back |
| 31 | PB-NF(L) | PB EQ feed back |
| 32 | AIN(L) | PB A deck input |
| 33 | RIP | Ripple filter |
| 34 | BIN(L) | PB B deck input |
| 35 | REC-RETURN | REC Return |
| 36 | GND | GND pin |
| 37 | BIN(R) | PB B deck input |
| 38 | NC | NC pin |
| 39 | AIN(R) | PB A deck input |
| 40 | PB-NF1(R) | PB EQ feed back |

## ■KB9226 (IC101) : RF amp. & servo signal processor

1. Pin layout




2. Block diagram

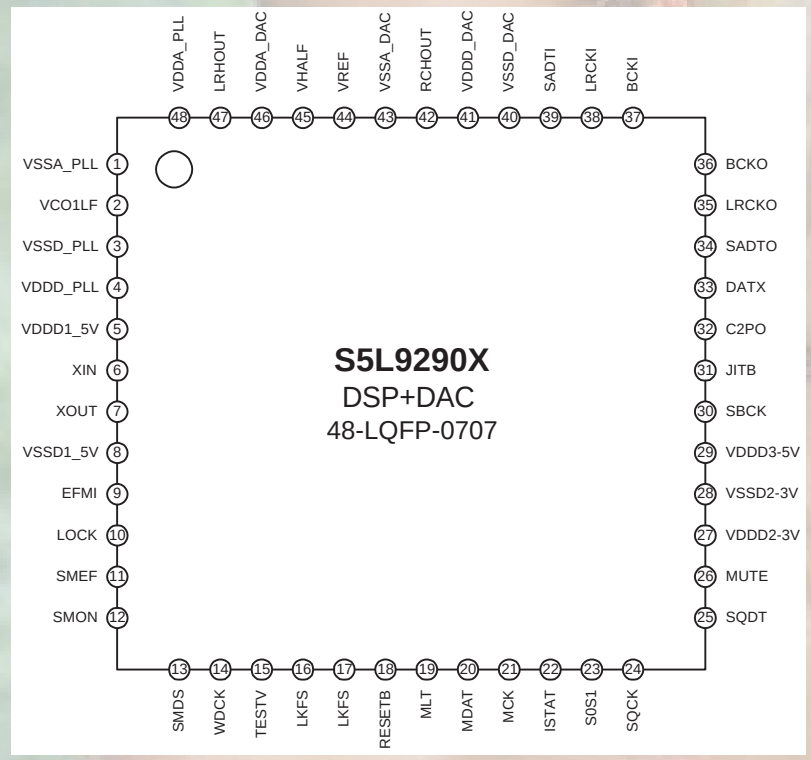


3. Pin function

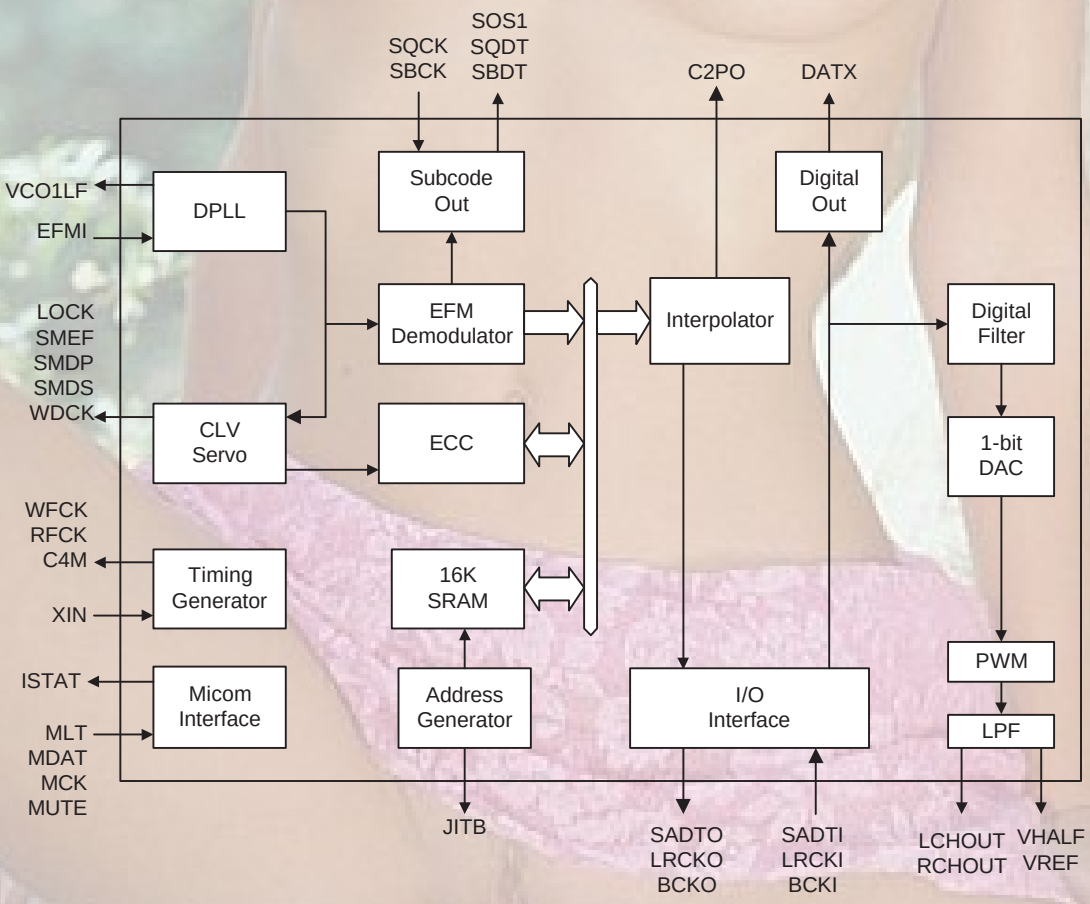
| Pin No. | Symbol | I/O | Function |
|---|---|---|---|
| 1 | RFM | I | RF summing amp. inverting input |
| 2 | RFO | O | RF summing amp. output |
| 3 | EQI | I | RFO DC eliminating input(use by MIRROR, FOK ,AGC & EQ terminal) |
| 4 | EQO | O | RF equalizer output |
| 5 | EFMI | I | EFM slice input. (input impedance 47K) |
| 6 | VCC | P | Main power supply |
| 7 | FRSH | I | Capcitor connection to focus search |
| 8 | FSET | I | Filter bias for focus,tracking,spindle |
| 9 | FLB | I | Capacitor connection to make focus loop rising band |
| 10 | FGD | I | Terminal to change the hign frequency gain of focus loop |
| 11 | FSI | I | Focus servo input |
| 12 | TGU | I | Connect the component to change the high frequency of tracking Loop |
| 13 | ISTAT | O | Internal status output |
| 14 | MCK | I | Micom clock |
| 15 | MDATA | I | Data input |
| 16 | MLT | I | Data latch input |
| 17 | RESET | I | Reset input |
| 18 | CLVI | I | Input the spindle control output from DSP |
| 19 | WDCK | I | 88.2KHz input terminal from DSP |
| 20 | LOCK | I | Sled run away inhibit pin (L: sled off & tracking gain up) |
| 21 | EFM | O | EFM output for RFO slice(to DSP) |
| 22 | ASY | I | Auto asymmetry control input |
| 23 | SPM | I | Spindle amp. inverting input |
| 24 | SPO | O | Spindle amp. output |
| 25 | SLM | I | Sled servo inverting input |
| 26 | SLO | O | Sled servo output |
| 27 | SLP | I | Sled servo noninverting input |
| 28 | TEM | I | Tracking servo amp.inverting input |
| 29 | TEO | O | Tracking servo amp. output |
| 30 | FEM | I | Focus servo amp. inverting input |
| 31 | FEO | O | Focus servo amp. output pin |
| 32 | GND | P | Main ground |
| 33 | TZC/ SSTOP | I | Tracking zero crossing input & Check the position of pick-up wherther inside or not |
| 34 | TEIO | B | Tracking error output & Tracking servo input |
| 35 | LPFT | I | Tracking error integration input (to automatic control) |
| 36 | ATSC | I | Anti-shock input |
| 37 | LD | O | APC amp. output |
| 38 | PD | I | APC amp. input |
| 39 | PDAC | I | Photo diode A & C RF I/V amp. inverting input |
| 40 | PDBD | I | Photo diode B & D RF I/V amp. inverting input |
| 41 | PDF | I | Photo diode F & tracking(F) I/V amp. inverting input |
| 42 | PDE | I | Photo diode E & tracking(E) I/V amp. inverting input |
| 43 | DCB | I | Capacitor connection to limit the defect detection |
| 44 | MCP | I | Capacitor connection to mirror hold |
| 45 | DCCI | O | Output pin to connect the component for defect detect |
| 46 | DCCO | I | Input pin to connect the component for defect detect |
| 47 | VREF | O | (VCC+GND)/2 Voltage reference output |
| 48 | EQC | I | AGC_equalize level control terminal & capacitor terminal to input in to VCA |

## ■ 5L9290 (IC201) : Digital signal processor for CDP

1. Pin layout




2. Block diagram

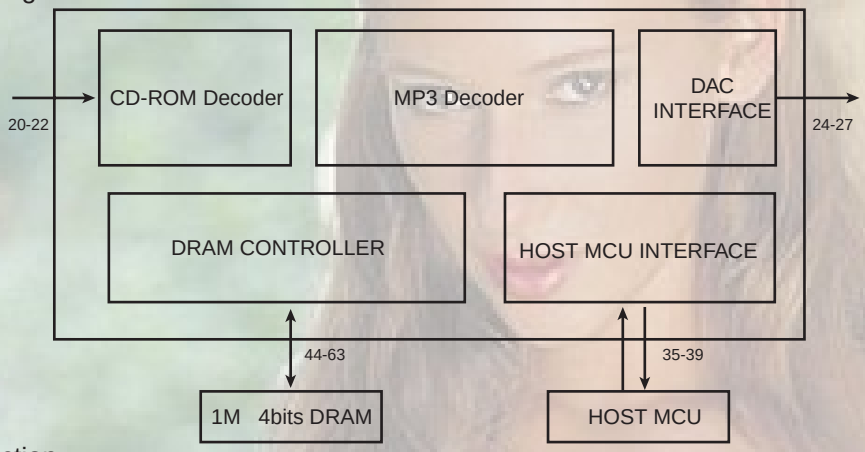


3. Pin function

| NO. | Symbol | I/O | Function |
|---|---|---|---|
| 1 | VSSA_PLL | - | Analog Ground for DPLL |
| 2 | VCO1LF | O | Pump out for VCO1 |
| 3 | VSSD_PLL | - | Digital Ground Separated Bulk Bias for DPLL |
| 4 | VDDD_PLL | - | Digital Power Separated Bulk Bias for DPLL (3V Power) |
| 5 | VDDD1-5V | - | Digital Power (5V Power, I/O PAD) |
| 6 | XIN | I | X'tal oscillator input (16.9344MHz) |
| 7 | XOUT | O | X'tal oscillator output |
| 8 | VSSD1 | - | Digital Ground (I/O PAD) |
| 9 | EFMI | I | EFM signal input |
| 10 | LOCK | O | CLV Servo locking status output |
| 11 | SMEF | O | LPF time constant control of the spindle servo error signal |
| 12 | SMDP | O | Phase control output for Spindle Motor drive |
| 13 | SMDS | O | Speed control output for Spindle Motor drive |
| 14 | WDCK | O | Word clock output (Normal Speed : 88.2KHz, Double Speed : 176.4KHz) |
| 15 | TESTV | I | Various Data/Clock Input |
| 16 | LKFS | O | The Lock status output of frame sync |
| 17 | C4M | O | 4.2336MHz clock output |
| 18 | RESETB | I | System Reset at 'L' |
| 19 | MLT | I | Latch signal input from Micom |
| 20 | MDAT | I | Serial data input from Micom |
| 21 | MCK | I | Serial data receiving clock input from Micom |
| 22 | ISTAT | O | The internal status output to Micom |
| 23 | S0S1 | O | Subcode sync signal(S0+S1) output |
| 24 | SQCK | I | Subcode-Q data transfering bit clock input |
| 25 | SQDT | O | Subcode-Q data serial output |
| 26 | MUTE | I | System mute at 'H' |
| 27 | VDDD2-3V | - | Digital Power (3V Power, Internal Logic) |
| 28 | VSSD2 | - | Digital Ground (Internal Logic) |
| 28 | VDDD3-5V | - | Digital Power (5V Power, I/O PAD) |
| 30 | SBCK | I | Subcode data transfering bit clock |
| 31 | JITB | O | Internal SRAM jitter margin status output |
| 32 | C2PO | O | C2 pointer output |
| 33 | DATX | O | Digital audio data output |
| 34 | SADTO | O | Serial audio data output (48 slot, MSB first) |
| 35 | LRCKO | O | Channel clock output |
| 36 | BCKO | O | Bit clock output |
| 37 | BCKI | I | Bit clock input |
| 38 | LRCKI | I | Channel clock input |
| 39 | SADTI | I | Serial audio data input (48 slot, MSB first) |
| 40 | VSSD_DAC | - | Digital Ground for DAC |
| 41 | VDDD_DAC | - | Digital Power for DAC (3V Power) |
| 42 | RCHOUT | O | Right-Channel audio output through DAC |
| 43 | VSSA_DAC | - | Analog Ground for DAC |
| 44 | VREF | O | Referance Voltage output for bypass |
| 45 | VHALF | O | Referance Voltage output for bypass |
| 46 | VDDA_DAC | - | Analog Power for DAC (3V Power) |
| 47 | LCHOUT | O | Left-Channel audio output through DAC |
| 48 | VDDA_PLL | - | Analog Power for PLL (3V Power) |

## ■ KS9274 (IC601) : CD-MP3 decoder

1.Block diagram

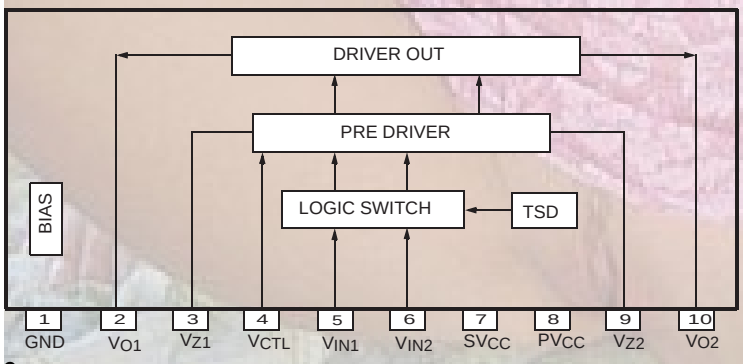



2.Pin function

| | | | |
|---|---|---|---|
| 5 | CLK | I | System clock input |
| 6 | RESETB | I | System reset actibe LOW |
| 10 | FILTER_0 | O | 820uF to GND940uF to GND |
| 14 | FILTER_1 | O | When "HIGH" PLL is bypassed, Tied to LOW in normal operation |
| 15 | PLL_BYPASS | I | |
| 20 | CD_DATA | I | |
| 21 | CD_LRCK | I | |
| 22 | CD_BCK | I | |
| 24 | ACLK | O | |
| 25 | BCLK | O | |
| 26 | LRCK | O | |
| 27 | ADAT | O | |
| 35 | MDAT | I | Write/Read data from MCU to CD-MP3 |
| 36 | MCK | I | Data strobe signal from MCU |
| 37 | MLAT | I | Micom command identifier from MCU to CD-MP3 |
| 38 | MDOUT | O | Data from CD-MP3 to MCU |
| 39 | MINT | O | Intertupt output to MCU |
| 44 | DDAT0 | | Data BUS |
| 45 | DDAT1 | | Data BUS |
| 46 | WEB | O | Wtite enable |
| 47 | RASB | O | Row address strobe |
| 50 | DDAT2 | | Data BUS |
| 51 | DDAT3 | | Data BUS |
| 52 | CASB | O | Colume address strobe |
| 53-62 | DA9-DA0 | O | Address output |
| 63 | OEB | O | Control output to make data output to "High-Z" at DRAM |

## ■ KA3082 (IC401, IC402) : DC motor driver

1.Pin layout

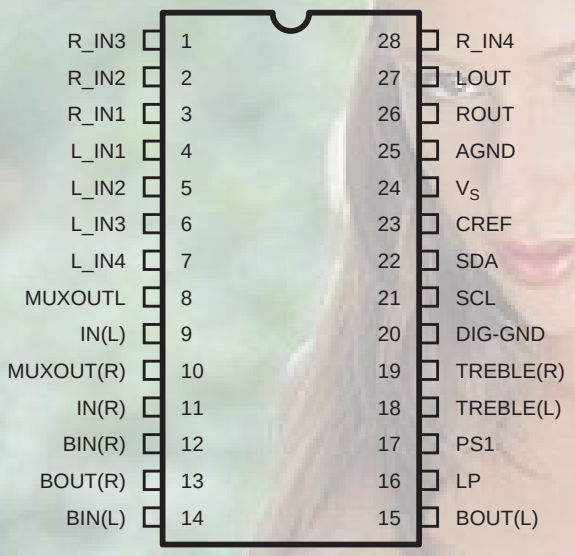



2.Pin function

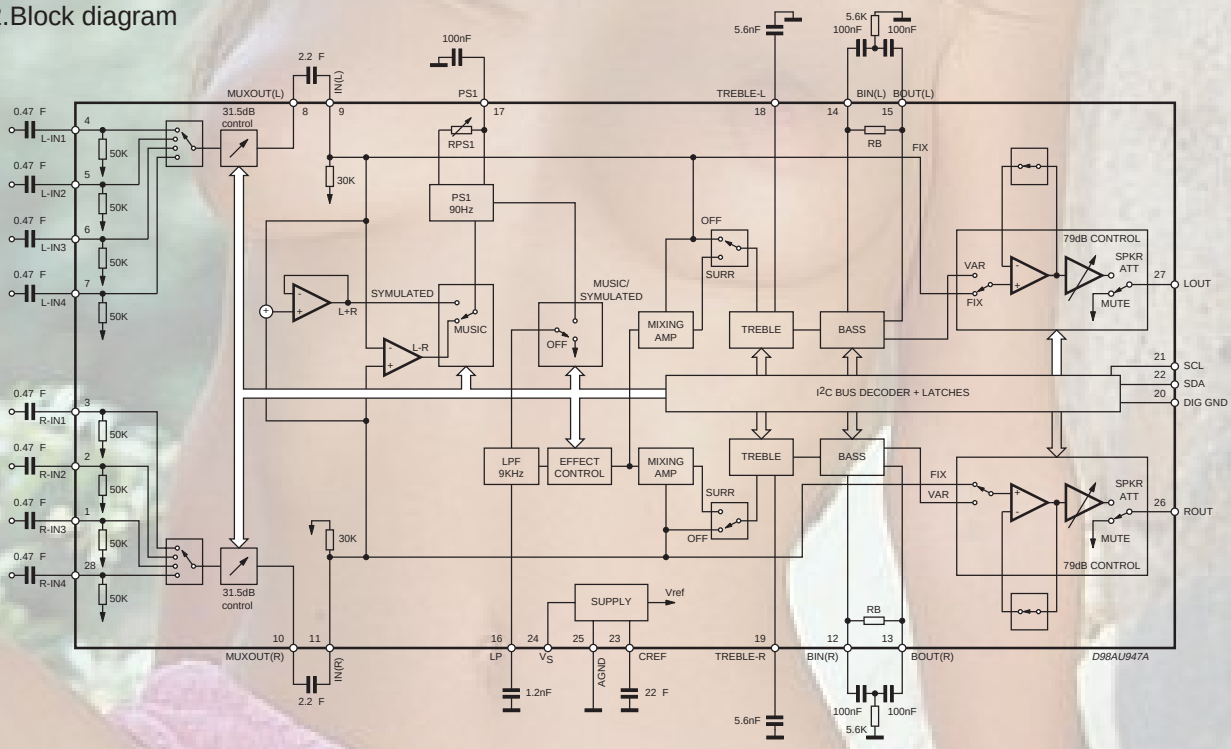
| Pin No. | Symbol | I/O | Function |
|---|---|---|---|
| 1 | GND | - | Ground |
| 2 | VO1 | O | Output 1 |
| 3 | VZ1 | - | Phase compensation |
| 4 | VCTL | I | Motor speed control |
| 5 | VIN1 | I | Input 1 |
| 6 | VIN2 | I | Input 2 |
| 7 | SVCC | - | Supply voltage (Signal) |
| 8 | PVCC | - | Supply voltage (Power) |
| 9 | VZ2 | - | Phase compensation |
| 10 | VO2 | O | Output 2 |

## ■ TDA7442D (EIC01) : Audio processor

1.Pin layout

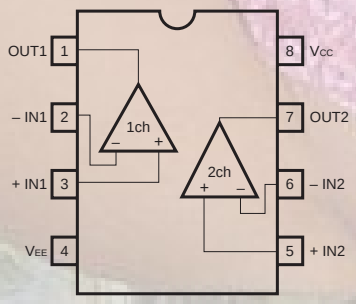



2.Block diagram



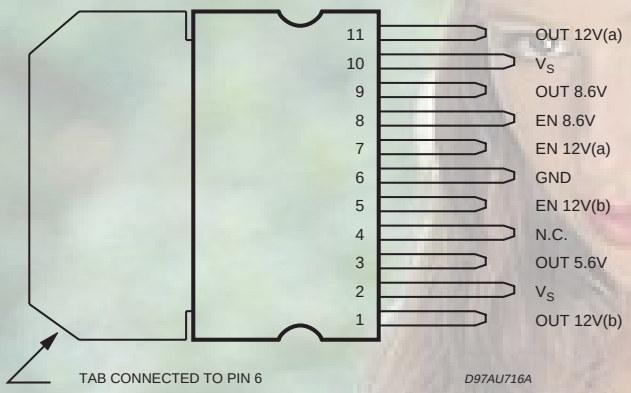

## ■ BA4560 (FIC02) : Dual op amp.

1.Pin layout

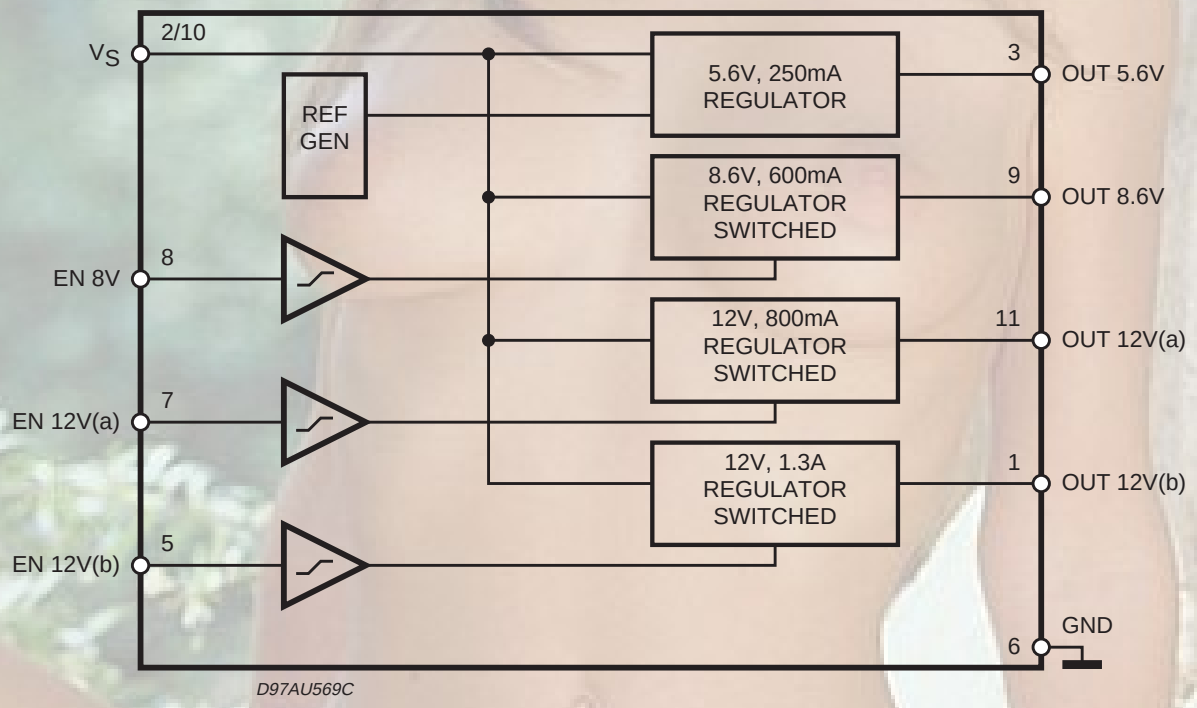


## ■ L4959 (PIC02) : Voltage regulator

1.Pin layout




2.Block diagram

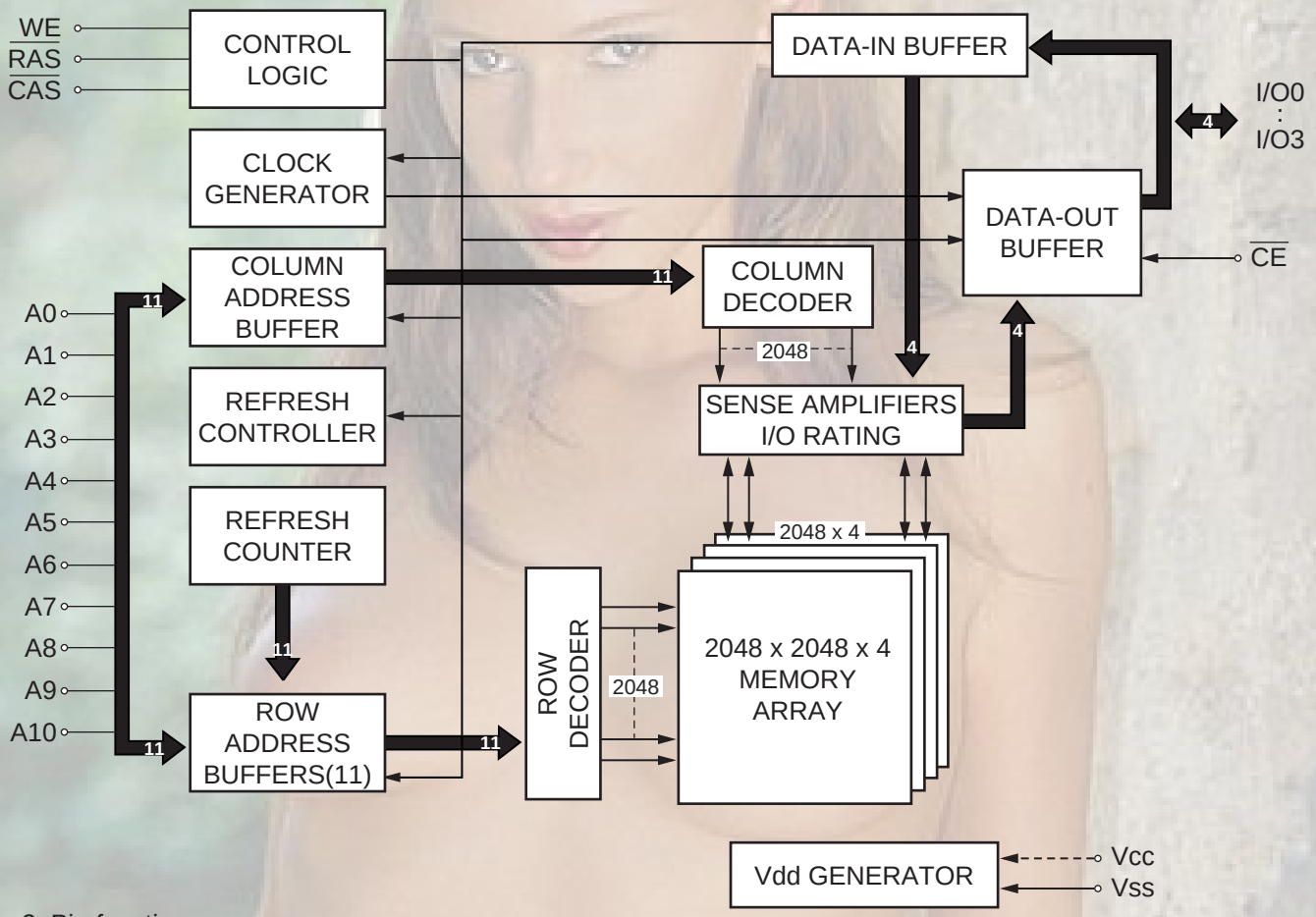



3.Pin function

| Pin | Pins | Description |
|---|---|---|
| 1 | OUT 12V (b) | 12V/1.3A SWITCHED OUTPUT VOLTAGE |
| 2 | $V_S$ | Supply Voltage |
| 3 | OUT 5.6V | 5.6V/250mA OUTPUT VOLTAGE |
| 4 | N.C. | not connected |
| 5 | EN 12V (b) | Enable 12V/1.3A SWITCHED OUTPUT VOLTAGE |
| 6 | GND | Ground |
| 7 | EN 12V (a) | Enable 12V/0.8A SWITCHED OUTPUT VOLTAGE |
| 8 | EN 8.6V | Enable 8.6V/0.6A SWITCHED OUTPUT VOLTAGE |
| 9 | OUT 8.6 | 8.6V/0.6A SWITCHED OUTPUT VOLTAGE |
| 10 | $V_S$ | Supply Voltage |
| 11 | OUT 12V (a) | 12V/0.8A SWITCHED OUTPUT VOLTAGE |

## ■ M11L1644 (IC602) : DRAM

1. Block diagram

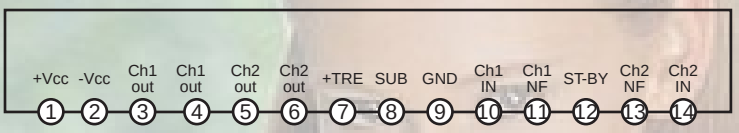



2. Pin function

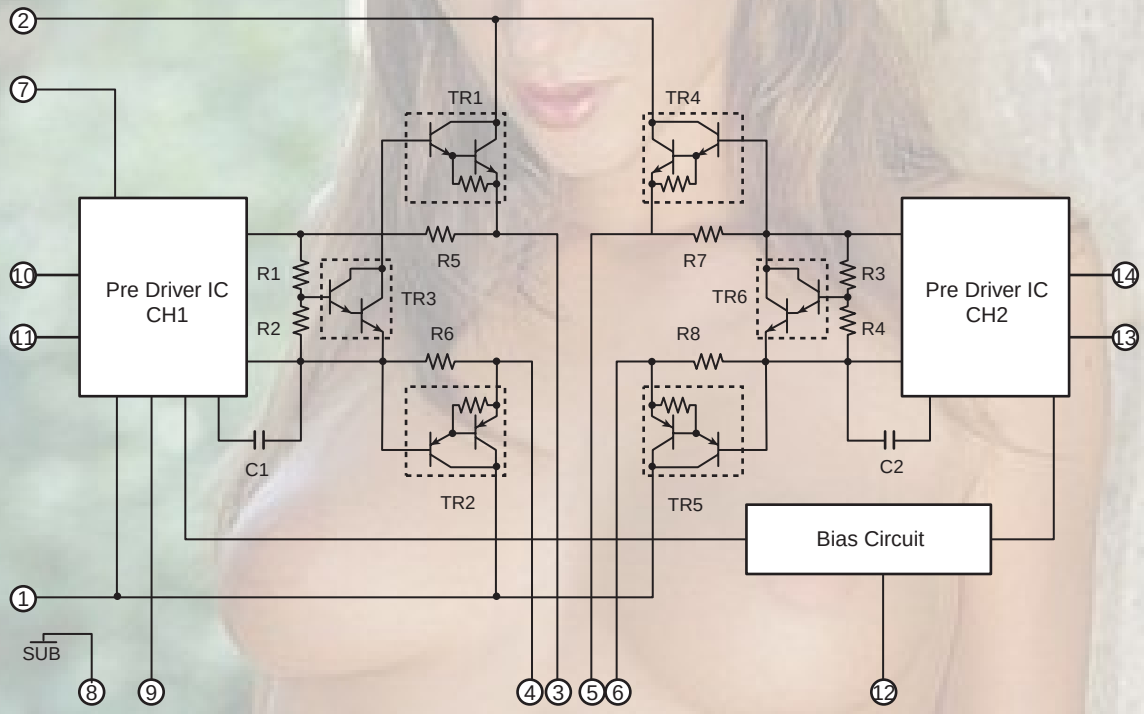
| Pin No. | Symbol | I/O | Function |
|---|---|---|---|
| 3~11, 14~19, 7 | A0~A10 | I | Address Input<br>Row Address : A0~A10<br>Column Address : A0~A10 |
| 5 | RAS | I | Row Address Strobe |
| 21 | CAS | I | Column Address Strobe |
| 4 | WE | I | Write Enable |
| 20 | OE | I | Output Enable |
| 2, 3,22, 23 | I/O0~I/O3 | I/O | Data Input/ Ountput |
| 1, 12 | Vcc | | Power (5V or 3.3V) |
| 13, 24 | Vss | | Ground |
| 6 | NC | - | No Connect |

## ■ STK403-070 (FIC01) : Power amp.

1.Pin layout

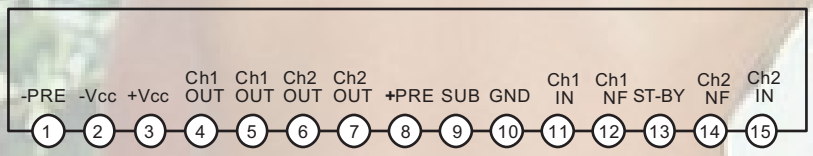



2.Block diagram

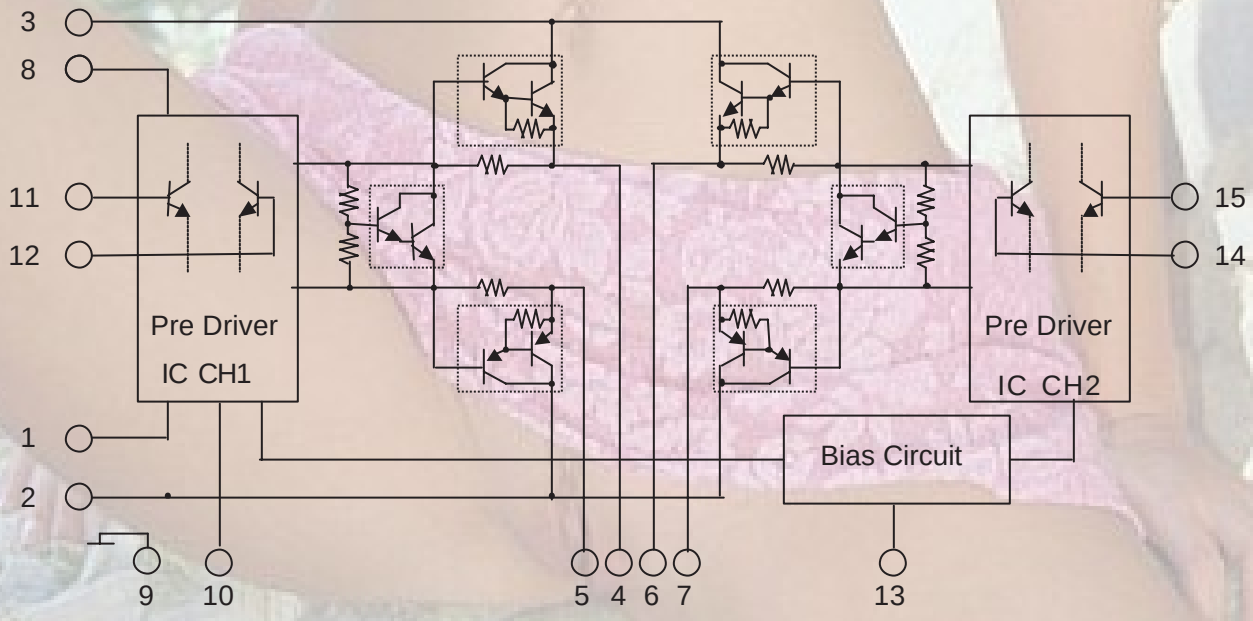



## ■ STK403-100 (WIC01) : Power amp.

1.Pin layout

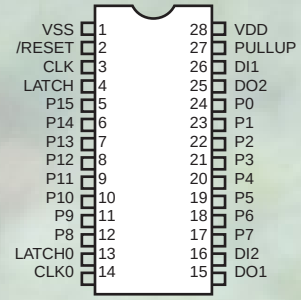



2.Block diagram

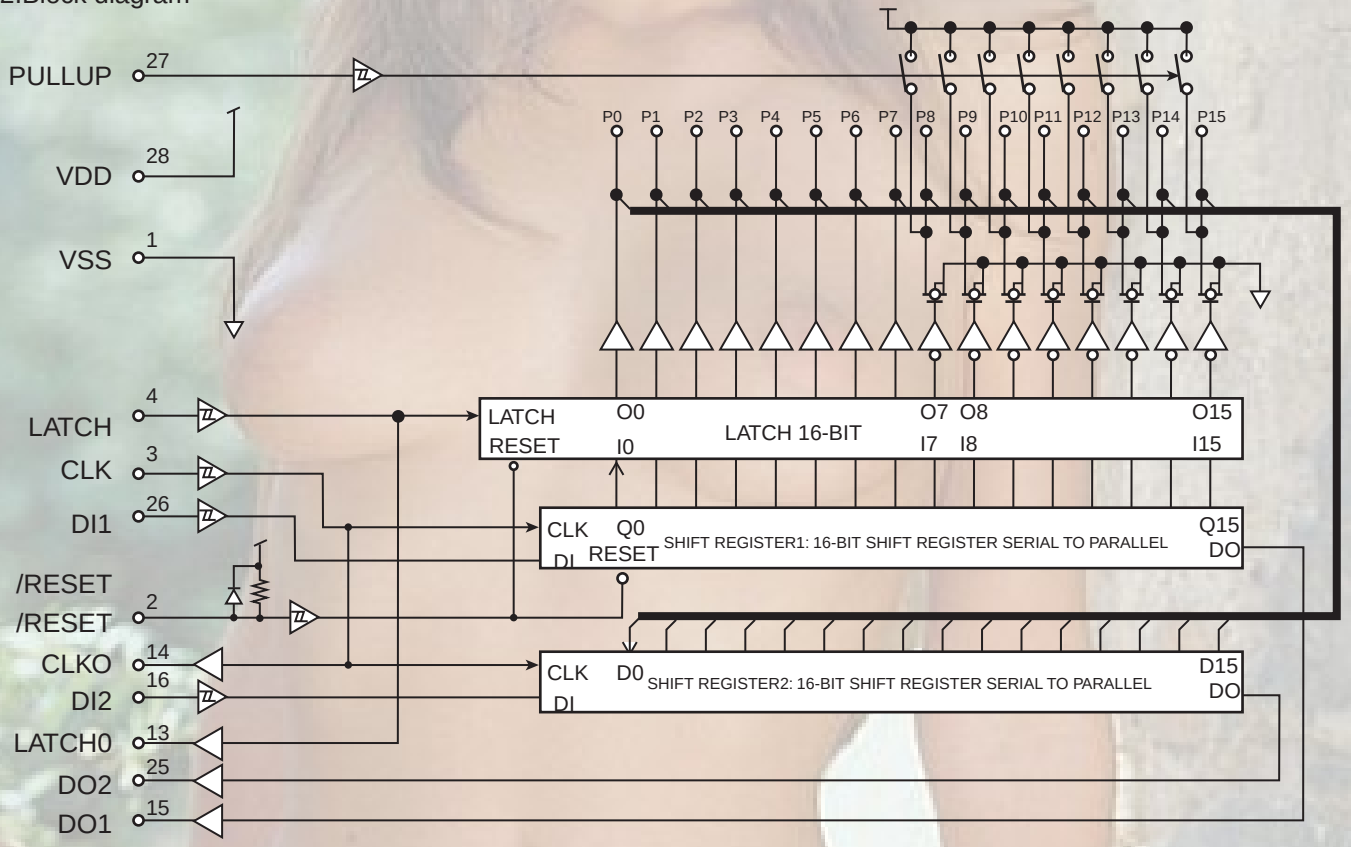


## ■ PT8300 (UIC03, UIC04) : DRAM

1.Pin layout




2.Block diagram

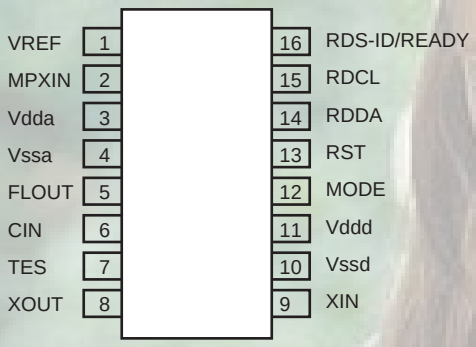



3. Pin function

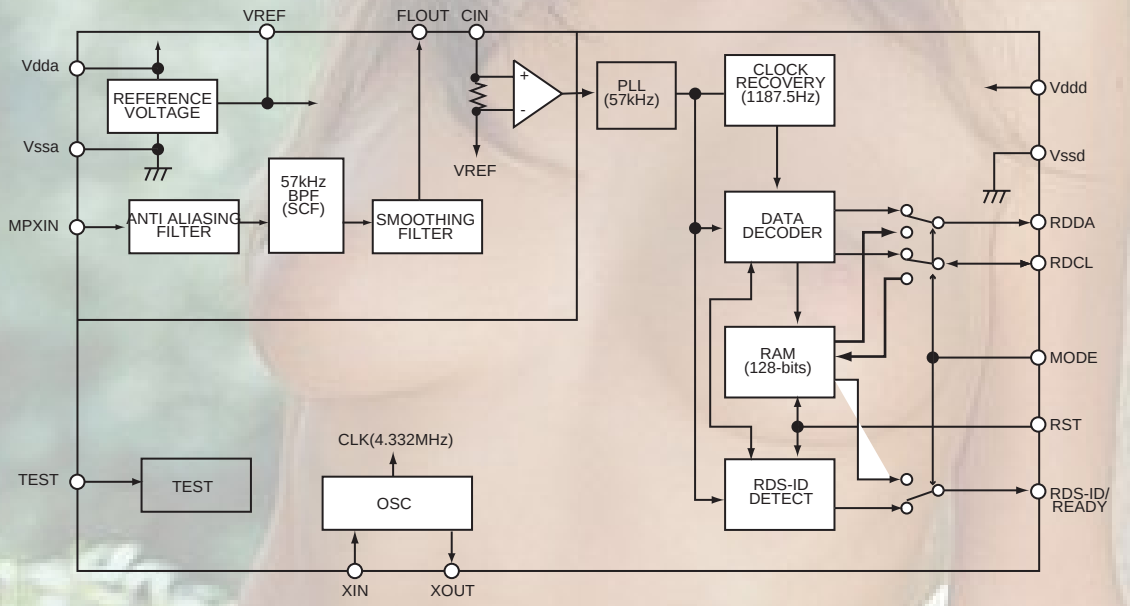
| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | VSS | - | Ground |
| 2 | /RESET | I | Reset pin |
| 3 | CLK | I | Clock input pin |
| 4 | LATCH | I | Latch input pin |
| 5-12 | P15~P8 | I/O | Parallel data I/O pins |
| 13 | LATCHO | O | Latch output pin |
| 14 | CLKO | O | Clock output pin |
| 15,25 | DO1, DO2 | O | Serial data output pins |
| 26,17 | DI1, DI2 | I | Serial data input pins |
| 17-24 | P7~P0 | O | Parallel data output pin |
| 27 | PULLUP | I | P8 to P15 control pin for internal pull-up resistor |
| | | | When P8 to P15 are in the output state, the PULLUP pin must be connected to VDD. |
| | | | When P8 to P15 are in the input state, the PULLUP pin must be connected to VSS. |
| 28 | VDD | - | Power supply pin |

## ■ LA72723(IC03) : RDS demodulation

1. Pin layout




2. Block Diagram

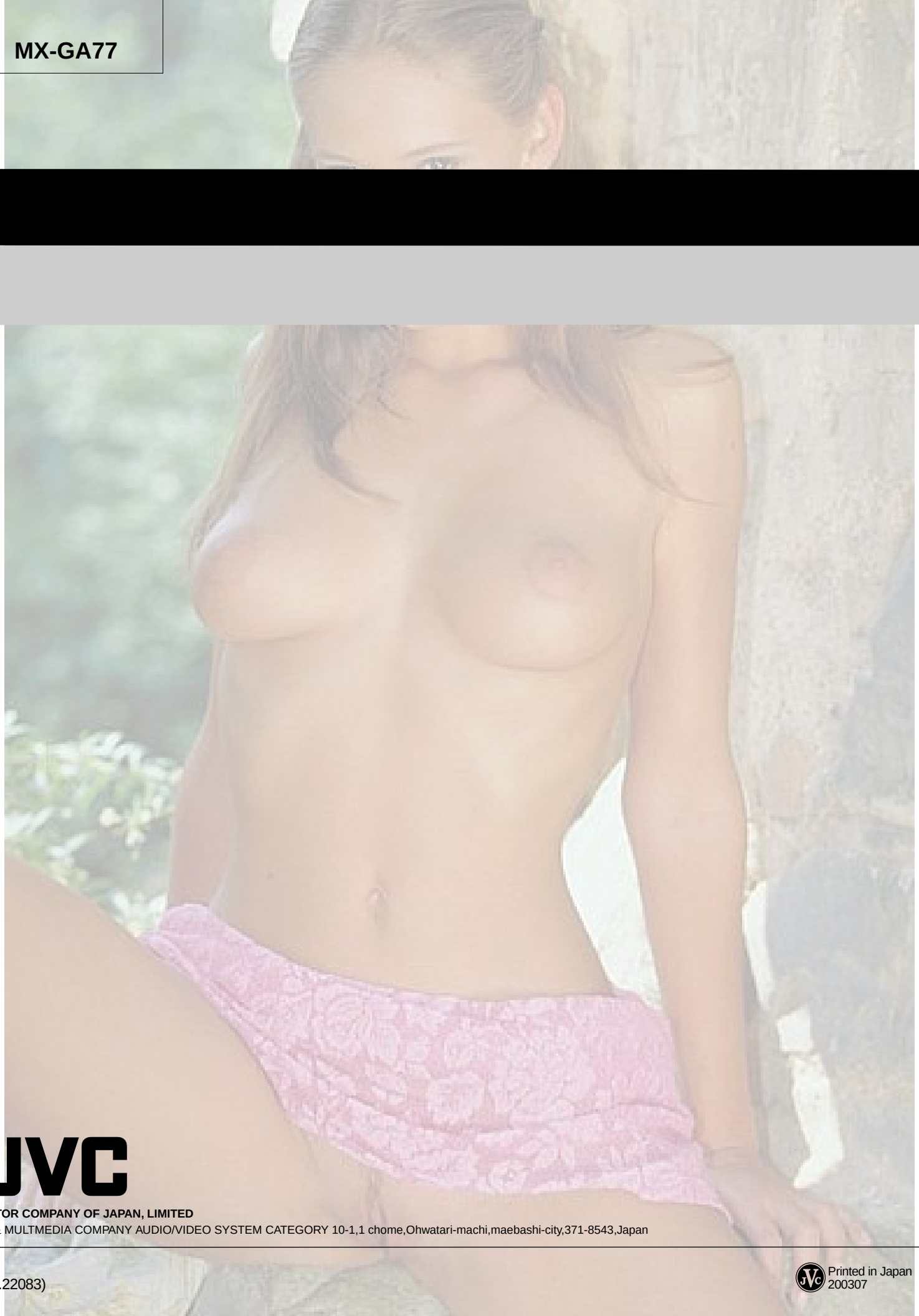



3. Pin functions

| Pin No. | Symbol | I/O | Function |
|---|---|---|---|
| 1 | VREF | O | Reference voltage output (Vdda/2) |
| 2 | MPXIN | I | Baseband (multiplexed) signal input |
| 3 | Vdda | — | Analog power supply (+5V) |
| 4 | Vssa | — | Analog ground |
| 5 | FLOUT | O | Subcarrier input (filter output) |
| 6 | CIN | I | Subcarrier input (comparator input) |
| 7 | TEST | I | Test input |
| 8 | XOUT | O | Crystal oscillator output (4.332MHz) |
| 9 | XIN | I | Crystal oscillator input (exeternal reference input) |
| 10 | Vssd | — | Digtal ground |
| 11 | Vddd | — | Digtal power supply |
| 12 | MODE | I | Read mode setting (0:master,1:slave) |
| 13 | RST | I | RDS-ID/RAM reset (positive polarity) |
| 14 | RDDA | O | RDS data output |
| 15 | RDCL | I/O | RDS clock output (master mode)/RDS clock input (slave mode) |
| 16 | RDS-ID READY | O | RDS-ID/READY output (negative polarity) |

< MEMO >

**MX-GA77**



JVC

**VICTOR COMPANY OF JAPAN, LIMITED**
AV & MULTMEDIA COMPANY AUDIO/VIDEO SYSTEM CATEGORY 10-1,1 chome,Ohwatari-machi,maebashi-city,371-8543,Japan

(No.22083)

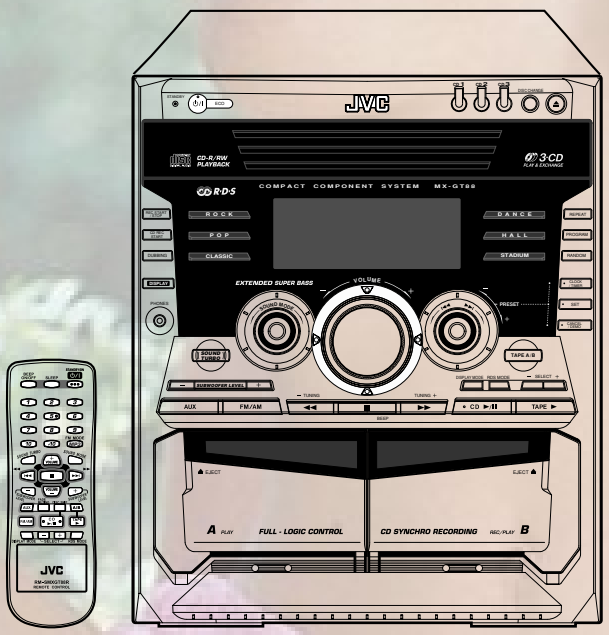
Printed in Japan
200307

JVC

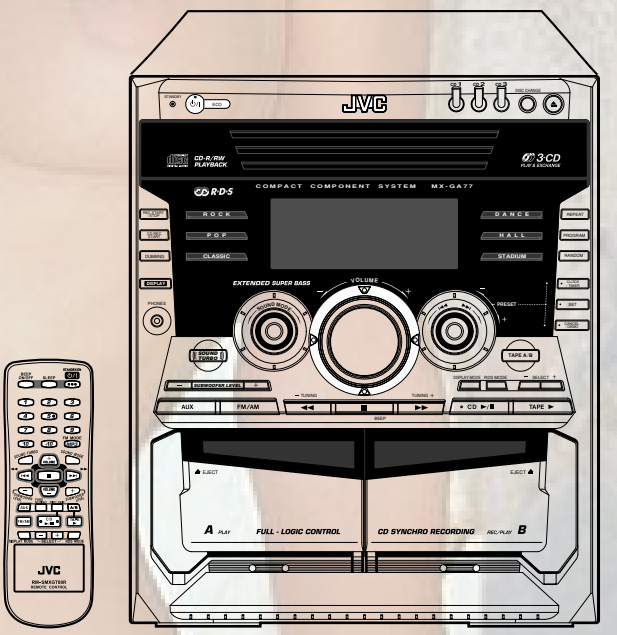
## COMPACT COMPONENT SYSTEM

# CA-MXGT88
# CA-MXGA77

CA-MXGT88




CA-MXGA77




COMPACT disc DIGITAL AUDIO

R·D·S

COMPACT disc DIGITAL AUDIO

R·D·S

## *INSTRUCTIONS*

**For Customer Use:**

Enter below the Model No. and Serial No. which are located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No. _____

Serial No. _____

LVT1010-003B
[B]

# Warnings, Cautions and Others

**IMPORTANT for the U.K.**

**DO NOT** cut off the mains plug from this equipment. If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.

**BE SURE** to replace the fuse only with an identical approved type, as originally fitted.

If nonetheless the mains plug is cut off ensure to remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.

If this product is not supplied fitted with a mains plug then follow the instructions given below:

**IMPORTANT:**

**DO NOT** make any connection to the terminal which is marked with the letter E or by the safety earth symbol or coloured green or green-and-yellow.

The wires in the mains lead on this product are coloured in accordance with the following code:

Blue : Neutral
Brown : Live

As these colours may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

**IF IN DOUBT - CONSULT A COMPETENT ELECTRICIAN.**

**Caution — ⏻/I switch!**

Disconnect the mains plug to shut the power off completely. The ⏻/I switch in any position does not disconnect the mains line. The power can be remote controlled.

**CAUTION**

To reduce the risk of electrical shocks, fire, etc.:

1. Do not remove screws, covers or cabinet.
2. Do not expose this appliance to rain or moisture.

## IMPORTANT FOR LASER PRODUCTS

**REPRODUCTION OF LABELS**

① CLASSIFICATION LABEL, PLACED ON EXTERIOR SURFACE

CLASS 1
LASER PRODUCT

② WARNING LABEL, PLACED INSIDE THE UNIT

| | | | |
|---|---|---|---|
| **CAUTION:** Invisible laser radiation when open and interlock failed or defeated. AVOID DIRECT EXPOSURE TO BEAM. (e) | **VARNING:** Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen. (s) | **ADVARSEL:** Usynlig laserstråling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling (d) | **VARO:** Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (f) |

1. CLASS 1 LASER PRODUCT
2. **CAUTION**: Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.
3. **CAUTION**: Do not open the top cover. There are no user serviceable parts inside the Unit; leave all servicing to qualified service personnel.

**CAUTION**

- Do not block the ventilation openings or holes. (If the ventilation openings or holes are blocked by a newspaper or cloth, etc., the heat may not be able to get out.)
- Do not place any naked flame sources, such as lighted candles, on the apparatus.
- When discarding batteries, environmental problems must be considered and local rules or laws governing the disposal of these batteries must be followed strictly.
- Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

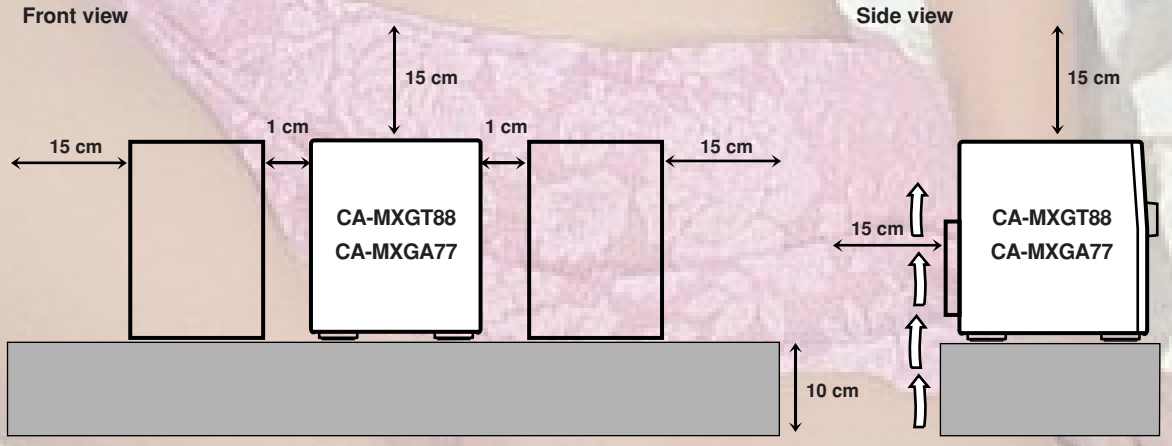
**Caution: Proper Ventilation**

To avoid risk of electric shock and fire, and to prevent damage, locate the apparatus as follows:

1 Front:
No obstructions and open spacing.

2 Sides/ Top/ Back:
No obstructions should be placed in the areas shown by the dimensions below.

3 Bottom:
Place on the level surface. Maintain an adequate air path for ventilation by placing on a stand with a height of 10 cm or more.



## SAFETY INSTRUCTIONS
## "SOME DOS AND DON'TS ON THE SAFE USE OF EQUIPMENT"

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured.

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Do read the operating instructions before you attempt to use the equipment.

Do ensure that all electrical connections (including the mains plug, extension leads and interconnections between pieces of equipment) are properly made and in accordance with the manufacturer's instructions. Switch off and withdraw the mains plug when making or changing connections.

Do consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.

Do be careful with glass panels or doors on equipment.

☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

DON'T continue to operate the equipment if you are in any doubt about it working normally, or if it is damaged in any way–switch off, withdraw the mains plug and consult your dealer.

DON'T remove any fixed cover as this may expose dangerous voltages.

DON'T leave equipment switched on when it is unattended unless it is specifically stated that it is designed for unattended operation or has a standby mode.
Switch off using the  switch on the equipment and make sure that your family know how to do this.

Special arrangements may need to be made for infirm or handicapped people.

DON'T use equipment such as personal stereos or radios so that you are distracted from the requirements of traffic safety. It is illegal to watch television whilst driving.

DON'T listen to headphones at high volume as such use can permanently damage your hearing.

DON'T obstruct the ventilation of the equipment, for example with curtains or soft furnishings.

Overheating will cause damage and shorten the life of the equipment.

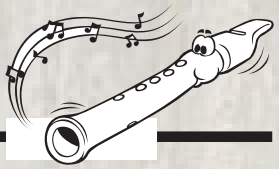
DON'T use makeshift stands and NEVER fix legs with wood screws — to ensure complete safety always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.

DON'T allow electrical equipment to be exposed to rain or moisture.

ABOVE ALL

- — NEVER let anyone, especially children, push anything into holes, slots or any other opening in the case -this could result in a fatal electrical shock.;
- — NEVER guess or take chances with electrical equipment of any kind
- — it is better to be safe than sorry!

# Introduction



**We would like to thank you for purchasing one of our JVC products. Before operating this unit, read this manual carefully and thoroughly to obtain the best possible performance from your unit, and retain this manual for future reference.**

## About This Manual

This manual is organized as follows:

- **The manual mainly explains operations using the buttons and controls on the unit. You can also use the buttons on the remote control if they have the same or similar names (or marks) as those on the unit. If operation using the remote control is different from that using the unit, it is then explained.**
- Basic and common information that is the same for many functions is grouped in one place, and is not repeated in each procedure. For instance, we do not repeat the information about turning on/off the unit, setting the volume, changing the sound effects, and others, which are explained in the section "Common Operations" on pages 9 to 11.
- The following marks are used in this manual:

STOP! Gives you warnings and cautions to prevent damage or risk of fire/electric shock. Also gives you information which is not good for obtaining the best possible performance from the unit.

notes Gives you information and hints you had better know.

## Precautions

### Installation

- Do not grasp the control knobs when moving or carrying the unit.
- Install in a place which is level, dry and neither too hot nor too cold—between 5°C and 35°C.
- Install the unit in a location with adequate ventilation to prevent internal heat built-up in the unit.
- Leave sufficient distance between the unit and the TV.
- Keep the speakers away from the TV to avoid interference with TV.

STOP! DO NOT install the unit in a location near heat sources, or in a place subject to direct sunlight, excessive dust or vibration.

### Power sources

- When unplugging from the wall outlet, always pull the plug, not the AC power cord.

STOP! DO NOT handle the AC power cord with wet hands.

### Moisture condensation

Moisture may condense on the lens inside the unit in the following cases:

- After starting heating in the room
- In a damp room
- If the unit is brought directly from a cold to a warm place

Should this occur, the unit may malfunction. In this case, leave the unit turned on for a few hours until the moisture evaporates, unplug the AC power cord, and then plug it in again.

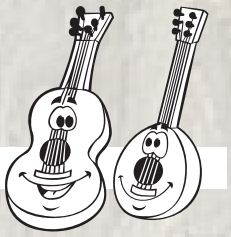
### Others

- Should any metallic object or liquid fall into the unit, unplug the unit and consult your dealer before operating any further.
- If you are not going to operate the unit for an extended period of time, unplug the AC power cord from the wall outlet.

STOP! DO NOT disassemble the unit since there are no user serviceable parts inside.

If anything goes wrong, unplug the AC power cord and consult your dealer.

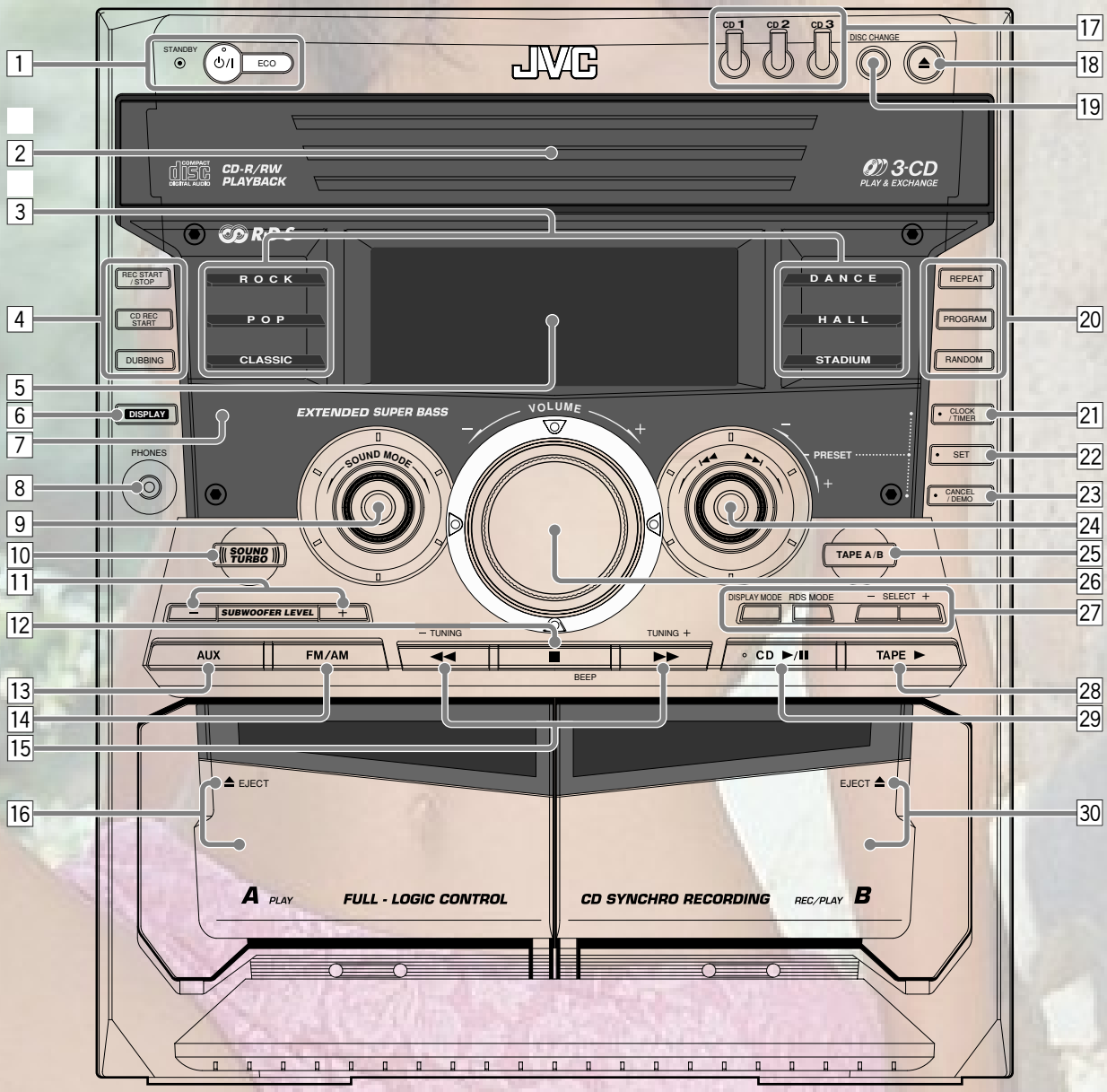
# Contents



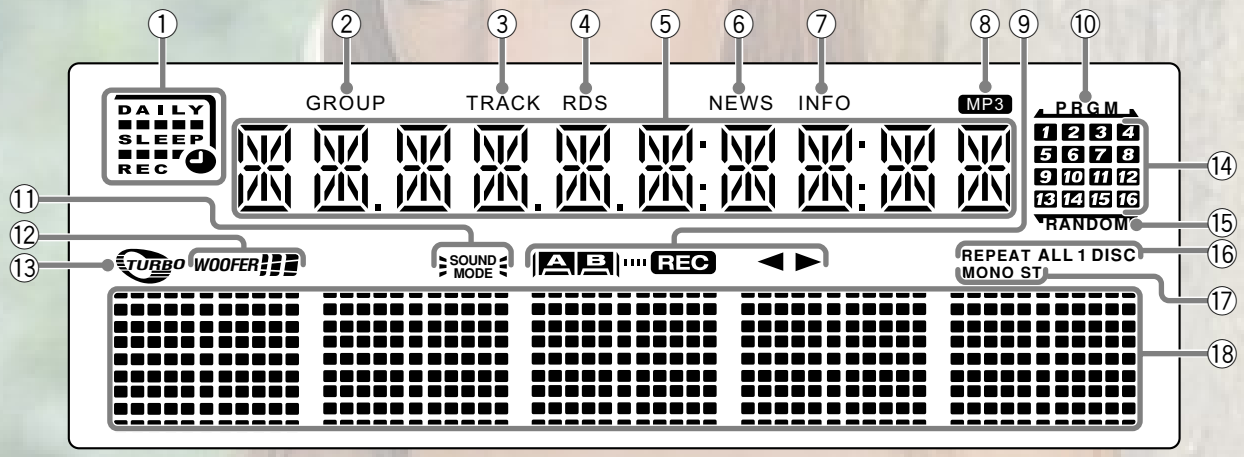
# Location of the Buttons and Controls

Become familiar with the buttons and controls on your unit.

## Front Panel



## Display Window




See pages in the parentheses for details.

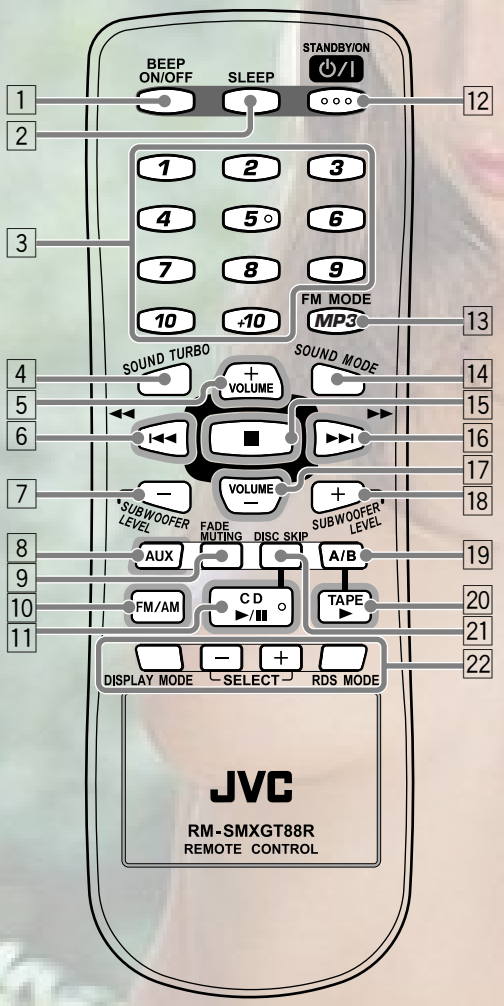
### Front Panel

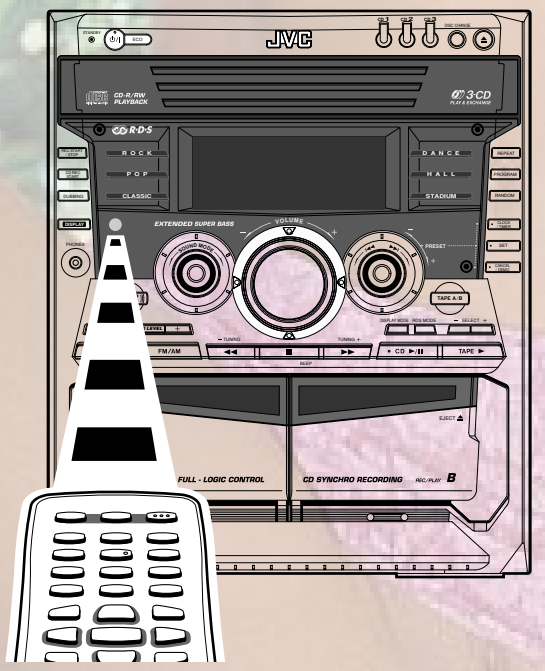
1 ⏻/I (standby/on) button and STANDBY lamp (9, 26, 27)
ECO button (9)
2 Carrousel
3 Sound mode lamps (11)
4 REC START/STOP button (23)
CD REC START button (24)
DUBBING button (24)
5 Display window
6 DISPLAY button (9)
7 Remote sensor
8 PHONES jack (10)
9 SOUND MODE control (11)
10 SOUND TURBO button (10)
11 SUBWOOFER LEVEL +/– buttons (10)
12 ■ (stop) button (15 – 17, 20 – 24)
BEEP button (11)
13 AUX button (9)
*Pressing this button also turns on the unit.*
14 FM/AM button (9, 12)
*Pressing this button also turns on the unit.*
15 TUNING +/– buttons (12)
◄◄/►► (fast rewind/fast forward) buttons (17, 22)
16 Deck A cassette holder (22, 24)
*Pressing the* ▲ EJECT *portion opens the holder.*
17 Disc number buttons and lamps (CD1, CD2, and CD3) (16, 17, 20, 21, 24)
*Pressing one of these buttons also turns on the unit.*
18 ▲ (Carrousel open/close) button (15 – 17, 19 – 21)
*Pressing this button also turns on the unit.*
19 DISC CHANGE button (15, 17)
20 REPEAT button (15, 17, 21)
PROGRAM (MP3 Resume on/off) button (19, 20)
RANDOM button (21)
21 CLOCK/TIMER button (9, 25 – 28)
22 SET button (9, 12, 20, 25 – 28)
23 CANCEL/DEMO button (8, 9, 20, 25 – 28)
24 PRESET +/– control (12)
I◄◄/►►I (reverse search/forward search) control (9, 17 – 21, 25 – 27)
25 TAPE A/B button (22)
26 VOLUME control (10)
27 RDS operation buttons (13, 14)
• DISPLAY MODE, RDS MODE, and SELECT +/– buttons
28 TAPE ► (play) button (9, 22, 24)
*Pressing this button also turns on the unit.*
29 CD ►/II (play/pause) button (9, 15 – 17, 20)
*Pressing this button also turns on the unit.*
30 Deck B cassette holder (22 – 24, 27)
*Pressing the* EJECT ▲ *portion opens the holder.*

### Display window

① Timer indicators
• DAILY (daily timer), SLEEP (sleep timer), REC (recording timer), and ◕ (timer) indicators
② GROUP indicator
③ TRACK indicator
④ RDS indicator
⑤ Main display
• Shows the source name, frequency, etc.
⑥ NEWS indicator
⑦ INFO indicator
⑧ MP3 indicator
⑨ Tape operation indicators
• A/B (operating deck), REC (recording), and ◄ ► (tape running) indicators
⑩ PRGM (program) indicator
⑪ SOUND MODE indicator
⑫ WOOFER indicator
⑬ TURBO indicator
⑭ CD track number indicators
⑮ RANDOM indicator
⑯ REPEAT mode indicators
• REPEAT, 1, 1 DISC, ALL DISC indicators
⑰ Tuner operation indicators
• MONO and ST (stereo) indicators
⑱ Volume level, Subwoofer level and Sound Mode pattern indicators

## Remote Control



When using the remote control, point it at the remote sensor on the front panel.

## Remote Control

1 BEEP ON/OFF button (11)
2 SLEEP button (28)
3 Number buttons (12, 18)
4 SOUND TURBO button (10)
5 VOLUME + button (10)
6 I◄◄/◄◄ (reverse search/fast rewind) button (12, 17 – 19, 21, 22)
7 SUBWOOFER LEVEL – button (10)
8 AUX button (9)
*Pressing this button also turns on the unit.*
9 FADE MUTING button (10)
10 FM/AM button (9, 12)
*Pressing this button also turns on the unit.*
11 CD ►/II (play/pause) button (9, 15 – 17, 20)
*Pressing this button also turns on the unit.*
12 ⏻/I STANDBY/ON button (9)
13 FM MODE button (12)
MP3 button (19)
14 SOUND MODE button (11)
15 ■ (stop) button (15 – 17, 20 – 24)
16 ►►I/►► (forward search/fast forward) button (12, 17 – 19, 21, 22)
17 VOLUME – button (10)
18 SUBWOOFER LEVEL + button (10)
19 A/B button (22)
20 TAPE ► (play) button (9, 22)
*Pressing this button also turns on the unit.*
21 DISC SKIP button (15, 17)
22 RDS operation buttons (13, 14)
- DISPLAY MODE, SELECT +/–, and RDS MODE buttons

# Getting Started

Continued

## Unpacking

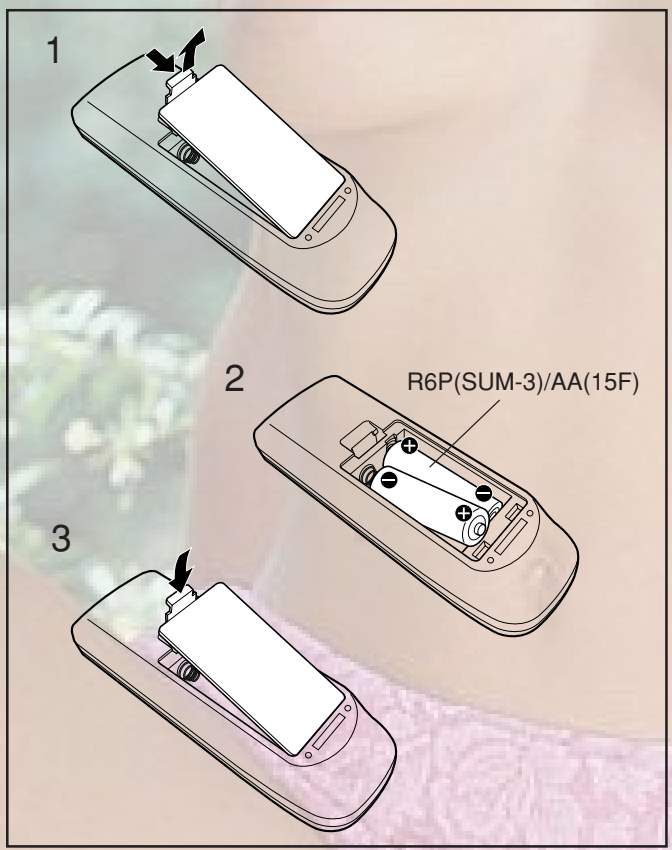
After unpacking, check to be sure that you have all the following items.
The number in the parentheses indicates the quantity of the pieces supplied.

- AM (MW) loop antenna (1)
- FM antenna (1)
- Remote control (1)
- Batteries (2)

If any is missing, consult your dealer immediately.

## Putting the Batteries into the Remote Control

Insert the batteries—R6P(SUM-3)/AA(15F)—into the remote control, by matching the polarity (+ and –) on the batteries with the + and – markings on the battery compartment.
When the remote control can no longer operate the unit, replace both batteries at the same time.

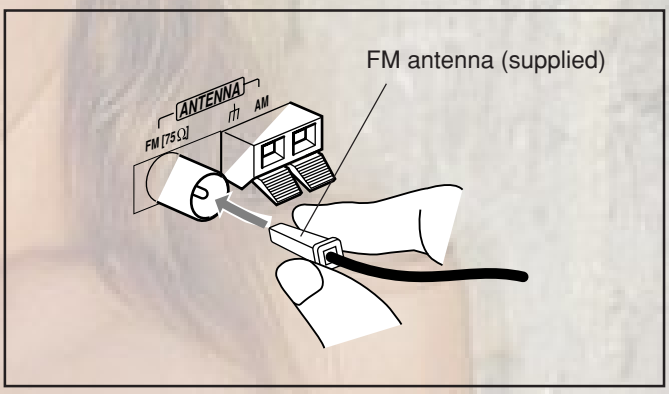



STOP!

- DO NOT use an old battery together with a new one.
- DO NOT use different types of batteries together.
- DO NOT expose batteries to heat or flame.
- DO NOT leave the batteries in the battery compartment when you are not going to use the remote control for an extended period of time. Otherwise, it will be damaged from battery leakage.

## Connecting Antennas

### FM antenna




**1 Attach the FM antenna to the FM [75 Ω] coaxial terminal.**

**2 Extend the FM antenna.**

**3 Fasten it up in the position which gives you the best reception, then fix it on the wall, etc.**

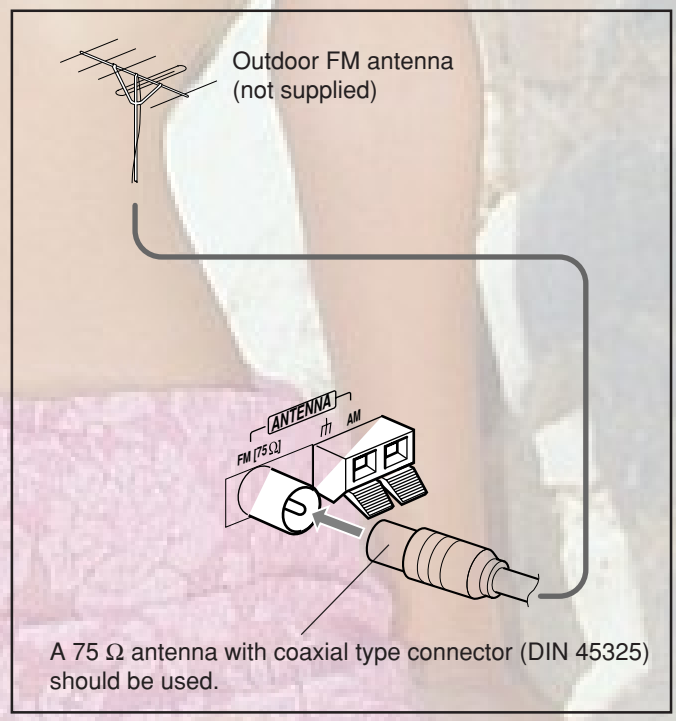
notes

**About the supplied FM antenna**

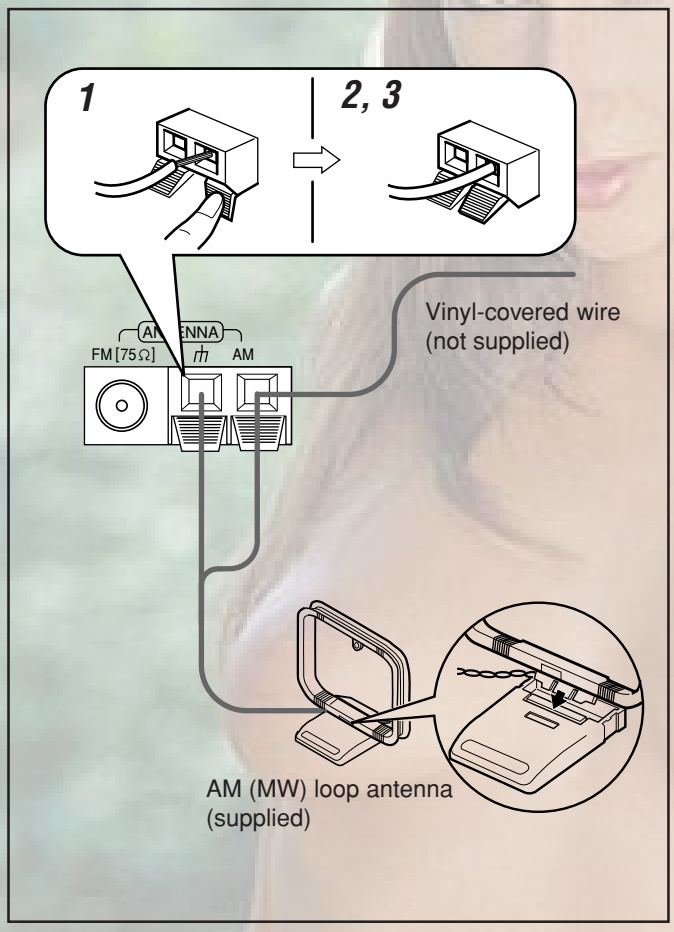
The FM antenna supplied with this unit can be used as temporary measure. If reception is poor, you can connect an outdoor FM antenna.

### To connect an outdoor FM antenna

Before connecting it, disconnect the supplied FM antenna.



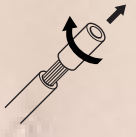
## AM (MW) antenna




**1 Press and hold the clamp of the AM terminal on the rear of the unit.**

**2 Insert the end of the AM (MW) loop antenna cord into the terminal.**

- If the AM (MW) loop antenna wire is covered with vinyl, remove the vinyl by twisting it as shown in the diagram.



**3 Release the finger from the clamp.**

**4 Turn the AM (MW) loop antenna until you have the best reception.**

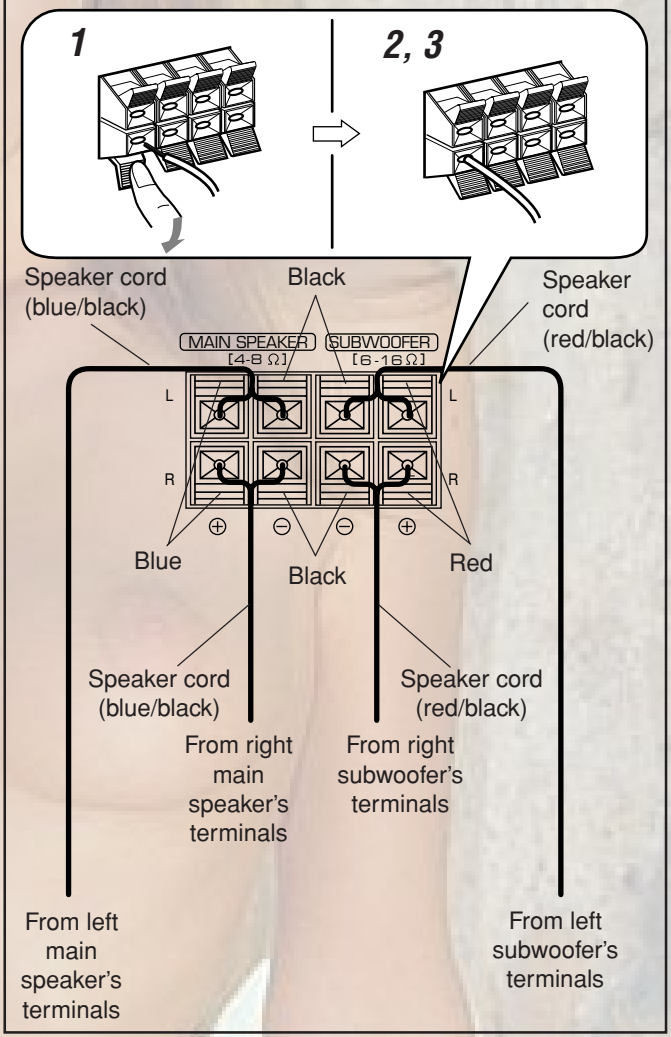
### To connect an outdoor AM (MW) antenna

When reception is poor, connect a single vinyl-covered wire to the AM terminal and extend it horizontally. (The AM (MW) loop antenna must remain connected.)

**For better reception of both FM and AM (MW)**

- Make sure the antenna conductors do not touch any other terminals and connecting cords.
- Keep the antennas away from metallic parts of the unit, connecting cords, and the AC power cord.

## Connecting Speakers

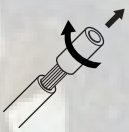



**1 Press and hold the clamp of the speaker terminal on the rear of the unit.**

**2 Insert the end of the speaker cord into the terminal.**

Match the colors (polarity): Blue (+) to blue (+) and black (–) to black (–); red (+) to red (+) and black (–) to black (–).

- If the wire is covered with vinyl, remove the vinyl by twisting it as shown in the diagram.



**3 Release the finger from the clamp.**

**IMPORTANT:**

- Use only speakers with the same speaker impedance as indicated by the speaker terminals on the rear of the unit.
- DO NOT connect more than one speaker to one speaker terminal.

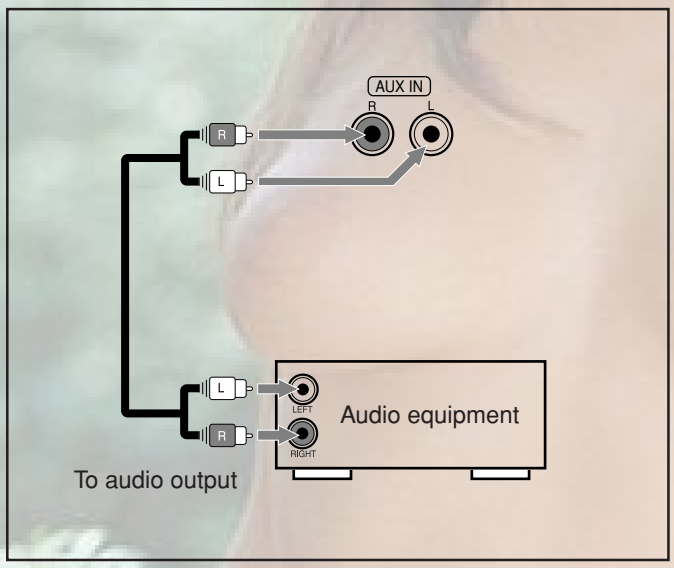
## Connecting Other Equipment

You can connect audio equipment—used only as a playback device.

- DO NOT connect any equipment while the power is on.
- DO NOT plug in any equipment until all connections are complete.

### To connect audio equipment

Be sure that the plugs of the audio cords are color coded: White plugs and jacks are for left audio signals, and red ones for right audio signals.




**For playing the other equipment through this unit,** connect between the audio output jacks on the other equipment and AUX IN jacks by using audio cords (not supplied).

**NOW you are ready to plug in the unit and other connected equipment.**

## Canceling the Display Demonstration

When connecting the AC power cord into a wall outlet, the unit automatically starts the display demonstration.

### On the unit ONLY:

**To cancel the display demonstration,** press CANCEL/DEMO while the display demonstration is shown on the display.


**When you press other buttons**

The display demonstration stops temporarily. It will start automatically again (if no operation is done for 2 minutes) until you cancel it.

### To start the display demonstration manually

Press and hold CANCEL/DEMO again for more than 2 seconds.

# Common Operations

## Turning On or Off the Power

**To turn on the unit,** press ⏻/I so that the STANDBY lamp goes off.


POWER ON

**To turn off the unit (on standby),** press ⏻/I again so that the STANDBY lamp lights up.


A little power is always consumed even while the unit is on standby.
**To switch off the power supply completely,** unplug the AC power cord from the AC outlet.

**When you unplug the AC power cord or if a power failure occurs**
The clock is reset to "– – : – –" soon, while the tuner preset stations (see page 12) will be erased in a few days.

## Saving the Power Consumption While on Standby—ECO Mode

You can save the power consumption while the unit is turned off (on standby).

**To activate the ECO mode,** press ECO while the unit is turned off (on standby). The display illumination (including the display demonstration) disappears.


**To deactivate the ECO mode,** press ECO again. The display illumination appears.
- Turning on the unit also deactivates the ECO mode.

**About the ECO mode**
While the ECO mode is activated, the display demonstration is canceled temporarily.

## Setting the Clock

Before operating the unit any further, first set the clock built in this unit. You can set the clock whether the unit is on or off.

**On the unit ONLY:**

### 1 Press CLOCK/TIMER.


0:00

The hour digits start flashing on the display.

### 2 Turn the I◄◄/►►I control to adjust the hour, then press SET.

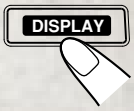

7:00

The minute digits start flashing on the display.
- If you want to correct the hour after pressing SET, press CANCEL/DEMO. The hour digits start flashing again.

### 3 Turn the I◄◄/►►I control to adjust the minute, then press SET.


CLOCK OK

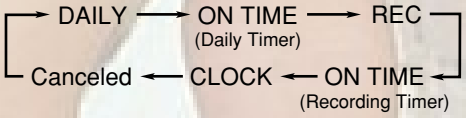
### To check the clock time




Press DISPLAY while playing any source.
- Each time you press the button, the source indication and the clock time alternate on the display.

### To adjust the clock again

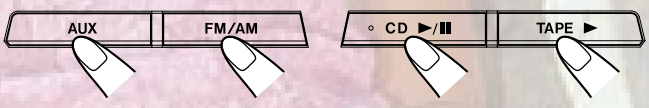
If you have adjusted the clock before, you need to press CLOCK/TIMER repeatedly until "CLOCK" is selected.
- Each time you press the button, the clock/timer setting modes change as follows:




**If there is a power failure**
The clock loses the setting and is reset to "– – : – –." You need to set the clock again.

## Selecting the Sources

**To listen to the radio,** press FM/AM. (See page 12.)
**To play back CDs,** press CD ►/II. (See pages 15 – 21.)
**To play back tapes,** press TAPE ►. (See page 22.)
**To select the external equipment as the source,** press AUX.



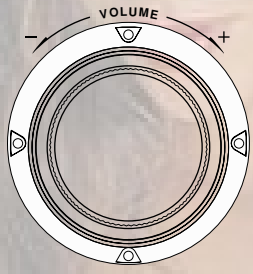

When you press the play button for a particular source (AUX, FM/AM, CD ►/II, and TAPE ►), the unit turns on (and the unit starts playing the source if it is ready—COMPU PLAY CONTROL).

## Adjusting the Volume

You can adjust the volume level only while the unit is turned on.
This function only affects the playback sound, not your recording.

**Turn the VOLUME control clockwise to increase the volume or counterclockwise to decrease it.**

- The volume level can be adjusted in 32 steps (VOL MIN, VOL 1 — VOL 30, and VOL MAX).





When using the remote control, press VOLUME + to increase the volume or press VOLUME – to decrease it.

**For private listening**

Connect a pair of headphones to the PHONES jack. No sound comes out of the speakers. Be sure to turn down the volume before connecting or putting on headphones.

DO NOT turn off (on standby) the unit with the volume set to an extremely high level; otherwise, a sudden blast of sound can damage your hearing, speakers and/or headphones when you turn on the unit or start playing any source next time. REMEMBER you cannot adjust the volume level while the unit is on standby.

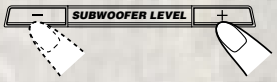
### To turn down the volume level temporarily

Press FADE MUTING on the remote control.
The volume level gradually decreases to "VOL MIN."
**To restore the sound,** press the button again.


## Reinforcing the Bass Sound

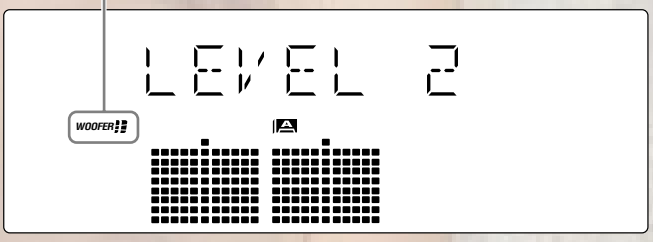
This function only affects the playback sound, not your recording.

**Press SUBWOOFER LEVEL + to increase the subwoofer sound or SUBWOOFER LEVEL – to decrease it.**




- The subwoofer level can be adjusted in 3 steps (LEVEL 1 — LEVEL 3).
  If you press SUBWOOFER LEVEL + to increase the level up to LEVEL 3, "MAX LEVEL" appears on the display.

WOOFER indicator also shows the current subwoofer level.



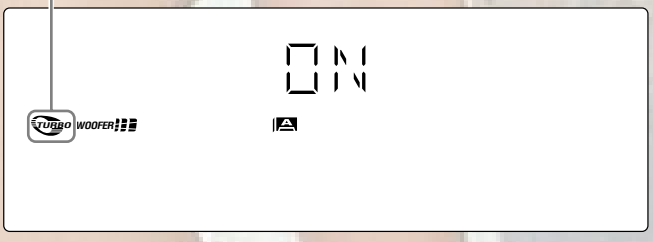

## Enjoying the Heavy Sound

You can enjoy the heavy sound by using the sound turbo. The function boosts the low and high frequency sound.
This function only affects the playback sound, not your recording.

**Press SOUND TURBO.**
The TURBO indicator lights up on the display.

- Each time you press SOUND TURBO, the sound turbo turns on and off alternately.


TURBO indicator

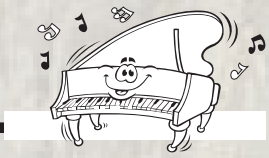



**When you turn off the sound turbo**

The subwoofer level is set to LEVEL 1.

**When the sound turbo is on**

Turning the SOUND MODE control (or pressing SOUND MODE on the remote control) cancels the sound turbo.

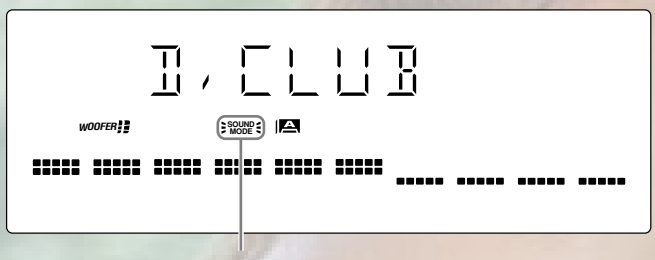


## Selecting the Sound Modes

This function only affects the playback sound, not your recording.

You can select one of the 6 preset sound modes (3 surround modes and 3 SEA—Sound Effect Amplifier—modes).

**To select the sound modes,** turn the SOUND MODE control until the sound mode you want appears on the display.


SOUND MODE indicator also lights up on the display

- As you turn the control, the sound modes change as follows:

D.CLUB ↔ HALL ↔ STADIUM ↔ ROCK
(Dance CLUB)

OFF (Canceled) ↔ CLASSIC ↔ POP

**Surround modes*:**

**D.CLUB** : Increases resonance and bass.
**HALL** : Adds depth and brilliance to the sound.
**STADIUM**: Adds clarity and spreads the sound, like in an outdoor stadium.

**SEA (Sound Effect Amplifier) modes:**

**ROCK** : Boosts low and high frequency. Good for acoustic music.
**POP** : Good for vocal music.
**CLASSIC** : Good for classical music.

**OFF** : Cancels the sound mode.

* Surround elements are added to the SEA elements to create being-there feeling in your room.
When one of these modes is selected, the SOUND MODE indicator lights up as SOUND MODE.

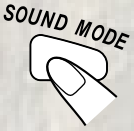
While one of the SEA modes (SEA elements without surround elements) is selected, the SOUND MODE indicator lights up as SOUND MODE.

- The corresponding sound mode lamp also flashes.


notes

**When the sound mode is set to OFF**
All sound mode indicators do not flash but light up.

When using the remote control, press SOUND MODE to select the sound mode.




- Each time you press the button, the sound modes change as follows:

D.CLUB → HALL → STADIUM → ROCK
(Dance CLUB)

OFF (Canceled) ← CLASSIC ← POP

notes

**When the sound mode is activated**
Pressing SOUND TURBO cancels the sound mode (set to OFF).

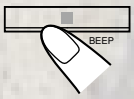
## Turning On or Off the Key-touch Tone

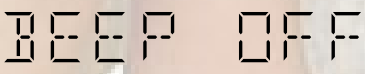
If you do not want the key-touch tone to beep each time you press a button or turn a control, you can deactivate it.

- You can turn on or off the key-touch tone as follows:
  –When the unit is off:
  You can turn on or off the key-touch tone by operating the unit.
  –When the unit is on:
  You can turn on or off the key-touch tone by operating the unit or the remote control.

### On the unit:

**Press and hold BEEP for more than 2 seconds.**




- Each time you press and hold the button, the key-touch tone turns on and off alternately.

### On the remote control:

**Press BEEP ON/OFF when the unit is on.**


- Each time you press the button, the key-touch tone turns on and off alternately.

# Listening to the Radio

## Tuning in to a Station—Auto Search

**1 Press FM/AM.**


The unit automatically turns on and tunes in to the previously tuned station (either FM or AM—MW).

- Each time you press the button, the band alternates between FM and AM (MW).

**2 Start searching for stations.**

**On the unit:**

**Press and hold TUNING + or TUNING – for more than 1 second.**


**On the remote control:**

**Press and hold ⏮/◀◀ or ▶▶⏭/▶▶ for more than 1 second.**

The unit starts searching for stations and stops when a station of sufficient signal strength is tuned in to.
If a program is broadcast in stereo, the ST (stereo) indicator lights up.

**To stop during searching,** press TUNING + or TUNING – (or ⏮/◀◀ or ▶▶⏭/▶▶ on the remote control).

**When you press TUNING + or TUNING – (or ⏮/◀◀ or ▶▶⏭/▶▶ on the remote control) briefly and repeatedly**

The frequency changes step by step.

### To change the FM reception mode


When an FM stereo broadcast is hard to receive or noisy, press FM MODE on the remote control so that "MONO" appears and the MONO indicator also lights up on the display. Reception improves.

**To restore the stereo effect,** press FM MODE again so that "STEREO" appears on the display.
In this stereo mode, you can hear stereo sounds when a program is broadcast in stereo.

## Presetting Stations

**You can preset 30 FM and 15 AM (MW) stations.**
In some cases, test frequencies have been already memorized for the tuner since the factory examined the tuner preset function before shipment. This is not a malfunction. You can preset the stations you want into memory by following the presetting method.

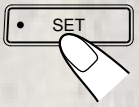
- There is a time limit in doing the following steps. If the setting is canceled before you finish, start from step ***2*** again.

**On the unit ONLY:**

**1 Tune in to the station you want to preset (in this example, of FM 87.50).**

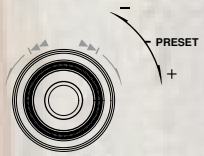
- See "Tuning in to a Station—Auto Search."

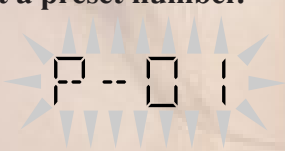

**2 Press SET.**



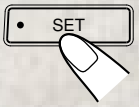


**3 Turn the PRESET +/– control to select a preset number.**




**4 Press SET again.**





The tuned station in step ***1*** is stored in the preset number selected in step ***3***.

- Storing a new station on a used number erases the previously stored one.

**When you unplug the AC power cord or if a power failure occurs**

The preset stations will be erased in a few days. If this happens, preset the stations again.

## Tuning in to a Preset Station

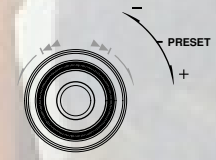
**1 Press FM/AM.**


- See "Tuning in to a Station—Auto Search," step ***1*** for details.

**2 Select a preset number.**

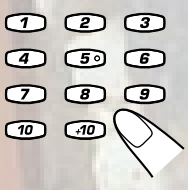
**On the unit:**

**Turn the PRESET +/– control.**




**On the remote control:**

**Press the number buttons.**




Ex.: For preset number 5, press 5.
For preset number 15, press +10 then 5.
For preset number 20, press +10, then 10.
For preset number 25, press +10, +10, then 5.
For preset number 30, press +10, +10, then 10.

# Receiving FM Stations with RDS

RDS (Radio Data System) allows FM stations to send an additional signal along with their regular program signals. For example, the stations send their station names, as well as information about what type of program they broadcast, such as sports or music, etc.

When tuned to an FM station which provides the RDS service, the RDS indicator lights up on the display.

With the unit, you can receive the following types of RDS signals.

**PS (Program Service):**
Shows commonly known station names.

**RT (Radio Text):**
Shows text messages the station sends.

**CT (Clock Time):**
Shows clock time the station sends.

**PTY (Program Type):**
Shows types of broadcast programs.

**Enhanced Other Networks:**
Provides the information about the types of the programs sent by other RDS stations.

**More about RDS**
- Some FM stations do not provide RDS signals.
- RDS services may vary among FM RDS stations. For details on RDS services in your area, check with local radio stations.
- RDS may not work correctly if the received station is not transmitting the signals properly or if the signal strength is weak.

## Changing the RDS Information

You can see RDS information on the display while listening to an FM station.

**Press DISPLAY MODE.**


- Each time you press the button, the display changes as follows:

PS NAME (Program Service name) → RT (Radio Text) → CT (Clock Time) → Station frequency (or preset channel no.) →

**About characters shown on the display**
When the display shows PS name, RT or CT signals:
- The display cannot differentiate upper case and lower case letters and always uses upper case letters.
- Some special characters and marks may not be displayed correctly.

**If no PS name, RT, or CT signals are sent by a station**
"NO PS," "NO RT," or "NO CT" appears on the display.

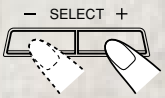
## Searching for Programs by PTY Codes (PTY Search)

One of the advantages of RDS is that you can locate a particular kind of program by specifying PTY codes.
- For details on the PTY codes, see "Additional Information" on page 30.

**To search for a program using PTY codes**
- PTY Search is applicable only to preset FM RDS stations. If not yet done, see "Presetting Stations" on page 12.
- There is a time limit in doing the following steps. If the setting is canceled before you finish, start from step ***1*** again.

### *1* Press RDS MODE while listening to an FM station.


### *2* Press SELECT + or SELECT – until the PTY code you want appears on the display.





- Each time you press the button, PTY codes change as follows:

NEWS ⇄ AFFAIRS ⇄ INFO ⇄ SPORT ⇄
EDUCATE ⇄ DRAMA ⇄ CULTURE ⇄
SCIENCE ⇄ VARIED ⇄ POP M ⇄ ROCK M ⇄
M.O.R. M ⇄ LIGHT M ⇄ CLASSICS ⇄
OTHER M ⇄ WEATHER ⇄ FINANCE ⇄
CHILDREN ⇄ SOCIAL ⇄ RELIGION ⇄
PHONE IN ⇄ TRAVEL ⇄ LEISURE ⇄ JAZZ ⇄
COUNTRY ⇄ NATION M ⇄ OLDIES ⇄
FOLK M ⇄ DOCUMENT ⇄ (back to the beginning)

### *3* Press RDS MODE again while the PTY code selected in the previous step is still on the display.


The preset FM stations appear on the display with their preset numbers.
The unit searches 30 preset FM stations, stops when it finds the one you have selected and tunes in that station.
- If no program is found, the unit returns to the last received station.

**To stop during searching**
Press SELECT + or SELECT –.

**To check the PTY,** press RDS MODE once so that the current PTY code appears.
- "NO PTY" appears if no signal is sent.

## Switching Temporarily to a Program Type of Your Choice

The Enhanced Other Networks function allows the unit to switch temporarily to a broadcast program of your choice (NEWS or INFO) from a different station.

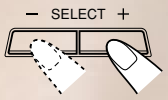
**To activate the Enhanced Other Networks function**
Enhanced Other Networks function is applicable only to preset FM RDS stations. If not yet done, see "Presetting Stations" on page 12.

- There is a time limit in doing the following steps. If the setting is canceled before you finish, start from step ***1*** again.

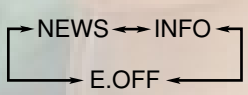
### *1* Press and hold RDS MODE for more than 1 second.


"E.SELECT" appears on the display.

### *2* Press SELECT + or SELECT – to select the data type.




- Each time you press the button, the data type of the Enhanced Other Networks changes as follows:




**NEWS**: News
**INFO**: Program the purpose of which is to impart advice in the widest sense.
**E.OFF**: The function is canceled.

The data type indicator (NEWS or INFO) you have selected also lights up on the display.
Now, the function is activated. See "How the Enhanced Other Networks function actually works."

**To cancel the function,** repeat from step ***1*** and select "E.OFF" in step ***2***.
The data type indicator (NEWS or INFO) goes off.

**How the Enhanced Other Networks function actually works:**

**CASE 1**

**If there is no station broadcasting the program you have selected**
The unit continues tuning in to the current station.

⬇

When a station starts broadcasting the program you have selected, the unit automatically switches to the station. The selected data type indicator starts flashing on the display.

⬇

When the program is over, the unit goes back to the previously tuned station, but the Enhanced Other Networks function still remains activated.

**CASE 2**

**If there is a station broadcasting the program you have selected**
The unit tunes in to the program. The selected data type indicator starts flashing.

⬇

When the program is over, the unit goes back to the previously tuned station, but the Enhanced Other Networks function still remains activated.

**CASE 3**

**If the FM station you are listening to is broadcasting the program you have selected**
The unit continues to receive the station but the selected data type indicator starts flashing.

⬇

When the program is over, the indicator stops flashing, but the Enhanced Other Networks function still remains activated.

**More about the Enhanced Other Networks function**

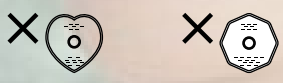
- Enhanced Other Networks data sent from some stations may not be compatible with this unit. In this case, the Enhanced Other Networks function may not work correctly.
- While listening to a program tuned in by this function, the station does not change even if another network station starts broadcasting a program of the same Enhanced Other Networks data.
- If the stations alternate intermittently between the station tuned by this function and the currently tuned station, cancel this function by following the procedure in the left column.
- The Enhanced Other Networks function is canceled when you change the source to CD, TAPE or AUX.
- The Enhanced Other Networks function is temporarily canceled when you change the band to AM (MW).

# Playing Back CDs

This unit has been designed to playback the following CDs:
- Audio CD
- CD-R (CD-Recordable)
- CD-RW (CD-ReWritable)
- MP3 disc (MP3 files recorded on a CD-R or CD-RW)*

**When playing a CD-R or CD-RW**
- User-edited CD-Rs (CD-Recordable) and CD-RWs (CD-ReWritable) can be played back when they are already "finalized."
- Before playing back CD-Rs or CD-RWs, read their instructions or cautions carefully.
- Some CD-Rs or CD-RWs may not be played back on this unit because of their disc characteristics, damage or stain on them, or if the player's lens is dirty.

**Important notices:**
- In general, you will have the best performance by keeping your CDs and the mechanism clean.
  - Store CDs in their cases, and keep them in cabinets or on shelves.
  - Keep the unit's carrousel closed when not in use.
- Continuous use of irregular shaped discs (heart-shape, octagonal, etc.) can damage the disc rotating mechanism.



- CD-RWs may require a longer readout time since the reflectance of CD-RWs is lower than for regular CDs.

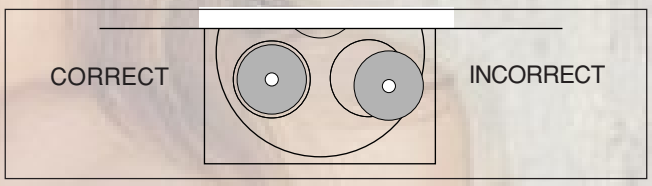
***For MP3 discs**
- This unit manages files and folders on MP3 discs as "tracks" and "albums."
- Playback order of the MP3 files (tracks) recorded on a disc are determined by the writing (or encoding) application; therefore, playback order may be different from the one you have intended while recording the files and the folders.
- This unit show the file name—Available characters: 0–9, A–Z, _ (underscore)—on the display when the file (tracks) starts play; however some file names are not shown correctly.

**More about MP3 discs**
- MP3 discs (either CD-R or CD-RW) require a longer readout time. (It varies due to the complexity of the recording configuration.)
- When making an MP3 disc, select ISO 9660 Level 1 or Level 2 as the disc format.
- This unit does not support multisession recording.
- This unit can play MP3 files only with the following file extensions— ".MP3," ".Mp3," ".mP3," and ".mp3."
- Non-MP3 files are ignored. If non-MP3 files are recorded together with MP3 files, this unit will take a longer time to scan the disc. It may also cause the unit to malfunction.
- Some MP3 discs may not be played back because of their disc characteristics or recording conditions.

## Loading CDs

**1 Press ⏏.**
The unit automatically turns on and the carrousel comes out.

**2 Place one or two discs correctly on the front recesses of the disc tray, with its label side up.**




- When using a CD single (8 cm), place it on the inner recess of the disc tray.

**3 If you wish to load a third disc, press DISC CHANGE on the unit or DISC SKIP on the remote control.**
The disc tray rotates by 120°.


**4 Press ⏏ again.**
The carrousel closes.

## Playing Back CDs—All Disc and One Disc

You can play all loaded CDs continuously—All Disc play, or one selected disc—One Disc play.

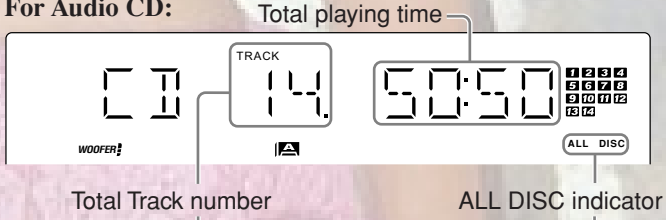
### All Disc play

**On the unit ONLY:**

**1 Load CDs.**
- If the current playing source is not the CD player, press CD ▶/II, then ■ before going to the next step.

**2 Press REPEAT repeatedly so that the ALL DISC indicator lights up on the display.**


**For Audio CD:**




**For MP3 disc:**

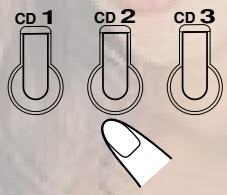

GROUP indicator appears when the MP3 playback mode is the ALBUM mode. See also page 19.

• Each time you press the button, the indication on the display changes as follows:

ALL DISC (initial setting) → 1 DISC → REPEAT 1* → REPEAT ALL DISC* ← REPEAT 1 DISC* ←

* See page 21.

### 3 Press one of the disc number buttons (CD1, CD2 or CD3) for the disc you want to start to play from.

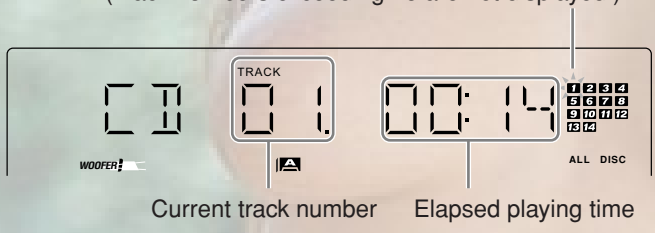



CD play starts from the first track of the selected disc.

• Pressing CD ▶/II instead of the disc number buttons starts playing back if a CD is on the tray.

**For Audio CD:**

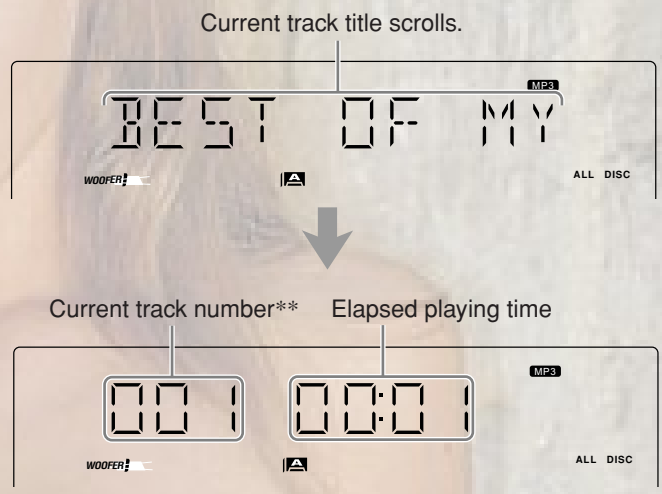
Track number of the currently playing disc flashes (Track numbers exceeding 16 are not displayed.)




**For MP3 disc:**

**• When the MP3 playback mode is the ALBUM mode** (See also page 19.)


**• When the MP3 playback mode is the TRACK mode** (See also page 19.)




** In the TRACK mode, the unit manage only files (tracks) on the MP3 disc. Folders (albums) are not recognized.

**To stop during play,** press ■.

• For MP3 disc, this unit can store the number of the track that you have stopped playback. By pressing CD ▶/II, you can start playback again from the beginning of the same track—Resume play (see also page 19).

**To remove the disc,** press ⏏.

**CD playback sequence**

When 3 CDs are loaded on the disc trays, they are played in one of the following sequences.

• When CD1 is pressed : CD1 ⇨ CD2 ⇨ CD3 (then stops)
• When CD2 is pressed : CD2 ⇨ CD3 ⇨ CD1 (then stops)
• When CD3 is pressed : CD3 ⇨ CD1 ⇨ CD2 (then stops)

* When only 2 CDs are loaded, they are played in the same order, but the disc tray without a CD is skipped.

**About the disc number lamps (CD1, CD2, and CD3)**

• Each disc number lamp corresponds to the disc tray of the same number.
• The disc number lamp flashes while the corresponding CD is being played.
• The disc number lamp goes off when the unit has detected that there is no CD on the corresponding disc tray.

### One Disc play

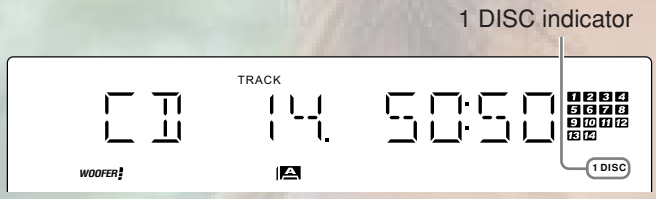
When 2 or 3 CDs are loaded on the disc trays, you can select one particular disc to be played back.

**On the unit ONLY:**

**1 Load CDs.**

- If the current playing source is not the CD player, press CD ▶/II, then ■ before going to the next step.

**2 Press REPEAT repeatedly so that the 1 DISC indicator lights up on the display.**

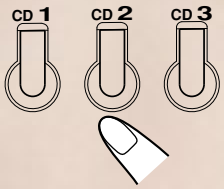




- Each time you press the button, the indication on the display changes as follows:

ALL DISC (initial setting) → 1 DISC → REPEAT 1* → REPEAT ALL DISC* ← REPEAT 1 DISC*

* See page 21.

**3 Press one of the disc number buttons (CD1, CD2 or CD3) you want to listen.**




Playback stops when all tracks of the selected disc are played once and resumes to All Disc play.

**To stop during play,** press ■.

- For MP3 disc, this unit can store the number of the track that you have stopped playback. By pressing CD ▶/II, you can start playback again from the beginning of the same track—Resume play (see also page 19).

**To remove the disc,** press ⏏.

**To exit from One Disc play,** press REPEAT repeatedly so that ALL DISC indicator lights up on the display.

**notes**

**The following operations will also cancel the One Disc play and restore All Disc play when—**

- Turning off the power,
- Ejecting the carrousel, or
- Changing the source to play.

## Basic CD Operations

While playing a CD, you can do the following operations.

### To exchange CDs during playback of another

Press DISC CHANGE to change the CD and the carrousel comes out.
If you change CDs during play, the current play will not stop until all CDs you have changed are played.


**To close the carrousel,** press DISC CHANGE or ⏏.

### To skip to the another CD in the carrousel

Press DISC SKIP on the remote control.


### To stop play for a moment

Press CD ▶/II.
While pausing, "PAUSE" appears on the display.


**To resume play,** press CD ▶/II again.

### To locate a particular point in a track

During play, press and hold ◀◀ or ▶▶.

- ◀◀: Fast reverses the disc.
- ▶▶: Fast forwards the disc.

When using the remote control, press and hold I◀◀/◀◀ or ▶▶I/▶▶.

### To go to another track

**For Audio CD:**

Turn the I◀◀/▶▶I control before or during playback.

- I◀◀: Goes back to the beginning of the current or previous tracks.
- ▶▶I: Skips to the beginning of the next or succeeding tracks.

When using the remote control, press I◀◀/◀◀ or ▶▶I/▶▶.

**notes**

**If you turn the I◀◀/▶▶I control (or press I◀◀/◀◀ or ▶▶I/▶▶ on the remote control) to select a track while playback is stopped**

The selected track starts playback.

**For MP3 disc:**

**When the MP3 playback mode is the TRACK mode**
(See also page 19.)

Turn the I◄◄/►►I control before or during playback.

- I◄◄: Goes back to the beginning of the current or previous tracks.
- ►►I: Skips to the beginning of the next or succeeding tracks.

When using the remote control, press I◄◄/◄◄ or ►►I/►►.

**If you turn the I◄◄/►►I control (or press I◄◄/◄◄ or ►►I/►► on the remote control) to select a track while playback is stopped**

The selected track starts playback.

## To go to another album on an MP3 disc

**When the MP3 playback mode is the ALBUM mode**
(See also page 19.)

Turn the I◄◄/►►I control before or during playback.

- I◄◄: Goes back to the beginning of the first track in the previous albums.
- ►►I: Skips to the beginning of the first track in the next or succeeding albums.

When using the remote control, press I◄◄/◄◄ or ►►I/►►.

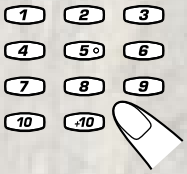
**If you turn the I◄◄/►►I control (or press I◄◄/◄◄ or ►►I/►► on the remote control) to select an album while playback is stopped**

The first track in the selected album starts playback.

## To go to another track directly using the number buttons

**For Audio CD:**

Pressing the number button(s) before or during play allows you to start playing the selected track.

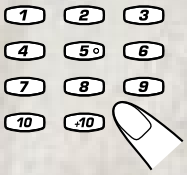



Ex.: For track number 5, press 5.
For track number 15, press +10, then 5.
For track number 20, press +10, then 10.
For track number 32, press +10, +10, +10, then 2.

**For MP3 disc:**

**• When the MP3 playback mode is the TRACK mode**
(See also page 19.)

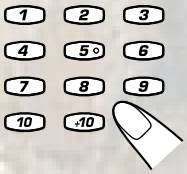
Pressing the number button(s) before or during play allows you to start playing the selected track on the disc.




Ex.: For track number 5, press 5.
For track number 15, press +10, then 5.
For track number 20, press +10, then 10.
For track number 32, press +10, +10, +10, then 2.
For track number 123, press +10 twelve times, then 3.

**• When the MP3 playback mode is the ALBUM mode**
(See also page 19.)

Pressing the number button(s) before or during play allows you to start playing the selected track in the current album.




Ex.: For track number 5, press 5.
For track number 15, press +10, then 5.
For track number 20, press +10, then 10.
For track number 32, press +10, +10, +10, then 2.
For track number 123, press +10 twelve times, then 3.

**If your entry is ignored**

You have tried to enter a track number that does not exist on the disc or in the album (for example, selecting track 14 in the album that only has 12 tracks). Such entries are ignored.

## Changing the MP3 Playback Mode

When playing an MP3 disc, you can choose the playback mode of the MP3 disc as follows:

- **TRACK mode:**
  The unit recognizes only tracks (files). You can play an MP3 disc like an Audio CD.
- **ALBUM mode:**
  The unit recognizes tracks (files) and albums (folders) on an MP3 disc. You can play an MP3 disc according to the way how they are grouped.
  In this mode, you can do the following operations:
  - Turning the I◄◄/►►I control (or pressing I◄◄/◄◄ or ►►I/►► on the remote control) allows you to skip to the first track of the previous or next albums. (See page 18.)
  - Pressing the number button(s) allows you to start playing the selected track in the current album. (See page 18.)

### On the remote control ONLY:

**Press MP3 before or during playing an MP3 disc.**



GROUP indicator appears when the MP3 playback mode is the ALBUM mode.

- Each time you press the button, the MP3 playback mode changes between “ALBUM” and “TRACK” alternately.

## Turning On or Off the Resume Play for MP3 Disc

For MP3 disc, this unit can store the number of the track that you have stopped playback. By pressing CD ►/II, you can start playback again from the beginning of the same track—Resume play.
You can turn on and off the resume play for MP3 discs.

### On the unit ONLY:

**Press PROGRAM before or during playing an MP3 disc.**



- Each time you press PROGRAM, the resume play turns on and off alternately.

**notes**

**The following operations will erase the memory of the track number that you have stopped playback when—**

- Pressing ⏏ to eject the disc.
- Pressing one of the disc number buttons to change the disc to play.

## Programming the Playing Order of the Tracks —Program Play

You can arrange the order in which the tracks play before you start playing. **You can program up to 32 tracks.**

- To use Repeat play (see page 21) for Program play, press REPEAT after starting Program play.
- This function does not work for MP3 discs.

**On the unit ONLY:**

### 1 Load CDs.

- If the current playing source is not the CD player, press CD ►/II, then ■ before going to the next step.

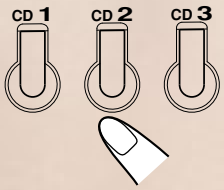
### 2 Press PROGRAM so that "PROGRAM" appears on the display.

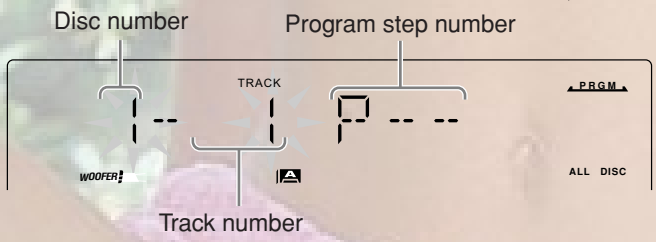

The PRGM (program) indicator also lights up on the display.

- All Disc play is selected automatically. You cannot select One Disc play for Program play.

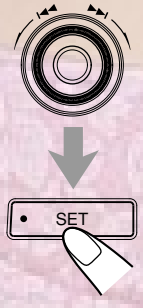

- If a program has been stored in memory, the program is called up.

### 3 Press one of the disc number buttons (CD1, CD2, and CD3) to select the disc number you want to play.



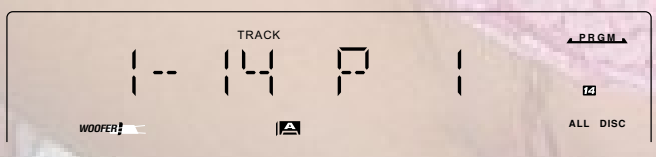




### 4 Turn the I◄◄/►►I control to select the track number, then press SET.




Each time you select a track and press SET, the selected track number is added to the track number indicator.

- You can select up to the 99th track on each disc.




### 5 Program other tracks you want.

- To program tracks from the same disc, repeat step *4*.
- To program tracks from a different disc, repeat steps *3* and *4*.

### 6 Press CD ►/II.

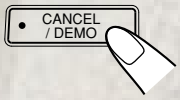

The tracks are played in the order you have programmed.

**To stop during play,** press ■.

**To exit from Program play,** press PROGRAM again before or after play so that the unit enters All Disc play. (The program you have made is stored in memory until you turn off the unit, eject the carrousel, or erase the program.)

- Program play is also canceled when you press ⏏.

### To modify the program




Before playing, you can erase the last programmed track shown on the display by pressing CANCEL/DEMO.

- Each time you press the button, the last programmed track is erased from the program.

**To check the program during play,** perform the following procedure:

- You can check only the programmed tracks on the current disc at one time.

*1* Press CD ►/II to pause Program play.

*2* Turn the I◄◄/►►I control.

The programmed tracks on the currently selected disc appear on the display in the programmed (or reverse) order.

- If tracks on another disc have been programmed, "PAUSE" appears on the display.
  To check the programmed tracks on another disc, press CD ►/II twice, then turn the I◄◄/►►I control.

- Pressing CD ►/II again starts Program play from the track currently shown on the display.

**To add tracks in the program before play,** simply select the disc numbers and/or track numbers you want to add by following steps *3* and *4* of the programming procedure.

**To erase the entire program before or during play,** press ■ twice.

- Turning the power off or ejecting the carrousel will also erase the stored memory.

**If you try to program a 33rd track**

"FULL" will appear on the display.

**If you have programmed a track from an empty tray, or a track number that does not exist on the disc**

Such program steps will be skipped.

**If there is an MP3 disc on the disc tray**

Even if you add tracks on the MP3 disc to the program in step *3* to *5*, those tracks will be skipped.

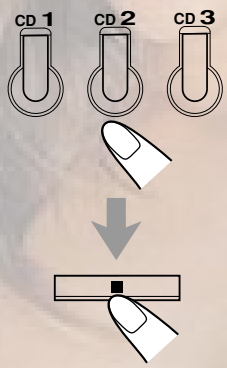
## Playing at Random——Random Play

The tracks of the selected CD will play at random.
- To use Random play, you have to cancel the Program play.

### On the unit ONLY:

**1 Load a CD.**

**2 Press one of the disc number buttons (CD1, CD2, and CD3) for the disc you want to play, then press ■.**




**3 Press RANDOM so that "RANDOM" appears on the display.**


The RANDOM indicator also lights up on the display.
- Activating Random play cancels Repeat play or All Disc play. (One Disc play is automatically selected.)
- For MP3 discs, activating Random play changes the ALBUM mode to the TRACK mode.


- The tracks are played automatically at random. Random play ends when all tracks are played once.

**To stop and cancel Random play,** press ■.
- If you press RANDOM again during play, Random play is canceld and the unit enters All Disc play mode.
- Random play is also canceled when you press ⏏.

**If you turn the |◄◄/►►| control (or press |◄◄/◄◄ or ►►|/►► on the remote control)**

Playback skips to the next track selected randomly.

## Repeating Tracks or CDs——Repeat Play

You can have all the CDs, the program or the individual track currently playing repeat as many times as you like.
- Repeat play and Random play cannot be used at the same time.

### On the unit ONLY:

**To repeat play,** press REPEAT during or before playing.


- Each time you press the button, Repeat play mode changes as follows, and the following indicator lights up on the display:

ALL DISC* → 1 DISC* → REPEAT 1 → REPEAT ALL DISC ← REPEAT 1 DISC ←

**REPEAT 1**: Repeats one track on one CD.
**REPEAT 1 DISC****: Repeats all the tracks on one CD.
**REPEAT ALL DISC**: Repeats all the tracks on all the CDs, or all the tracks on the program.

* See pages 15 and 17.
** REPEAT 1 DISC is not used for Program play.

**To cancel Repeat play,** press REPEAT repeatedly until the REPEAT indicator (REPEAT 1, REPEAT 1 DISC or REPEAT ALL DISC) goes off from the display.
- Repeat play is also canceled when you press ■ or ⏏.

## Prohibiting Disc Ejection——Carrousel Lock

You can prohibit CD ejection from the unit and can lock the carrousel.
- This operation is possible only while the unit is on with CD selected as the source.

### On the unit ONLY:

**To prohibit disc ejection,** press ⏏ for the carrousel while holding ■.
"LOCKED" appears for a while, and the carrousel is locked.

**If you try to eject CDs**

"LOCKED" appears to inform you that the Carrousel Lock is in use.

**To cancel the prohibition and unlock the carrousel,** press ⏏ for the carrousel while holding ■.
"UN LOCKED" appears for a while, and the carrousel is unlocked.

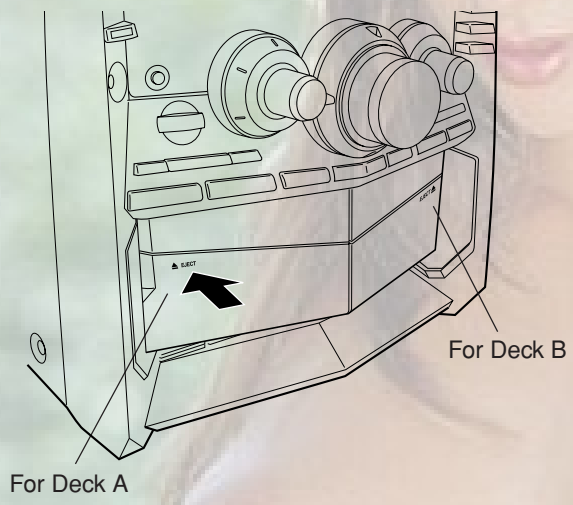
**When you unplug the AC power cord or if a power failure occurs**

The setting of the Carrousel Lock will return to the initial setting (not to prohibit disc ejection) in a few days.

# Playing Back Tapes

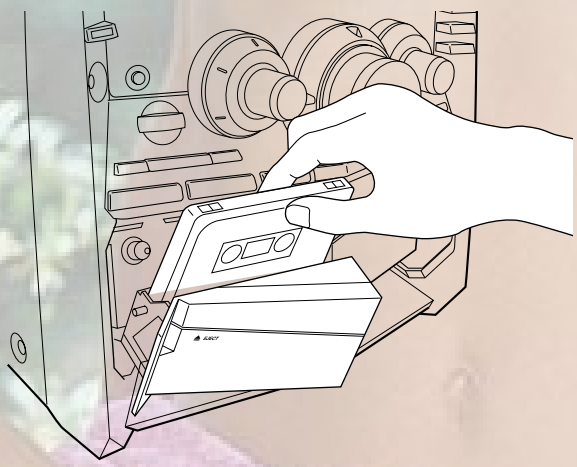
## Playing Back a Tape

### 1 Press ⏏ EJECT for the deck you want to use.




### 2 Put a cassette in, with the exposed part of the tape down and the side you want to play facing front.

• You can play back only type I tapes.



### 3 Close the cassette holder gently.

If you put cassettes in both decks A and B, the last deck which you have put a cassette into is selected.
**To operate the other deck,** press TAPE A/B (or A/B on the remote control).

### 4 Press TAPE ►.


The tape play starts and the tape running indicator (►) starts flashing slowly.

When the tape plays to the end, the deck automatically stops.

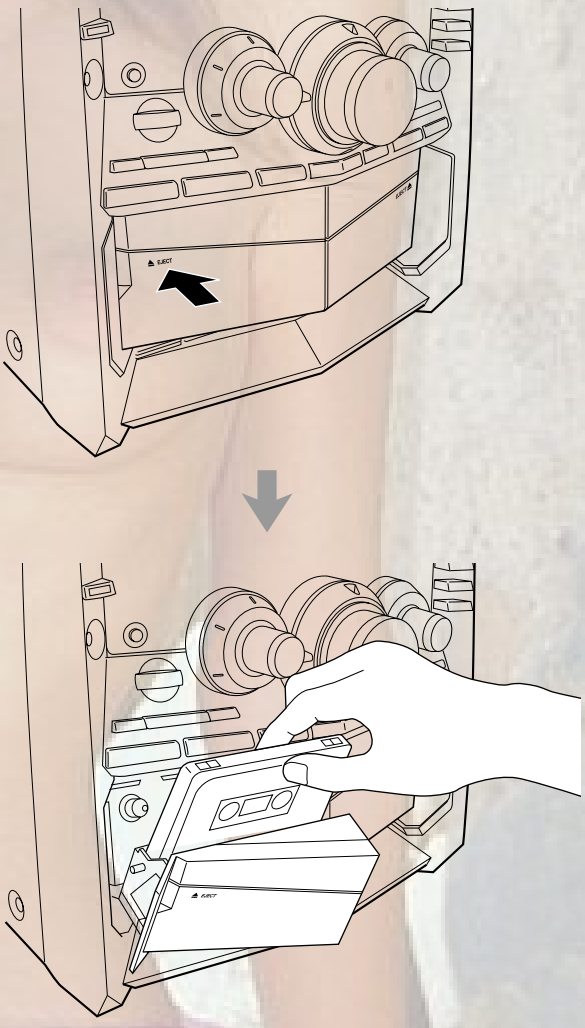
**To stop during play,** press ■.

**To operate the other deck,** press TAPE A/B (or A/B on the remote control), then TAPE ►.

**To fast-forward the tape,** press ►► (or ►►I/►► on the remote control). The tape running indicator (►) starts flashing quickly.

**To rewind the tape,** press ◄◄ (or I◄◄/◄◄ on the remote control). The tape running indicator (◄) starts flashing quickly.

**To remove the cassette,** press ⏏ EJECT for deck A or EJECT ⏏ for deck B.



STOP! The use of the C-120 or thinner tape is not recommended, since characteristic deterioration may occur and this tape easily jams in the pinch-rollers and the capstans.

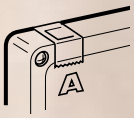
# Recording

**IMPORTANT:**

- **It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable program and in any literary, dramatic, musical, or artistic embodied therein.**
- The recording level is automatically set correctly, so it is not affected by the VOLUME, the SUBWOOFER LEVEL, and the SOUND MODE controls. Thus, during recording you can adjust the sound you are actually listening to without affecting the recording level.
- While recording, you can hear the SOUND TURBO effect through the speakers or headphones. However, the sound is recorded without this effect (see page 10).
- If recordings you have made have excessive noise or static, the unit may be too close to a TV. Place the unit away from the TV.
- You can use type I tape for recording.

### To protect your recording

Cassettes have two small tabs on the back to protect unexpected erasure or re-recording.
To protect your recording, remove these tabs.
To re-record on a protected tape, cover the holes with adhesive tape.

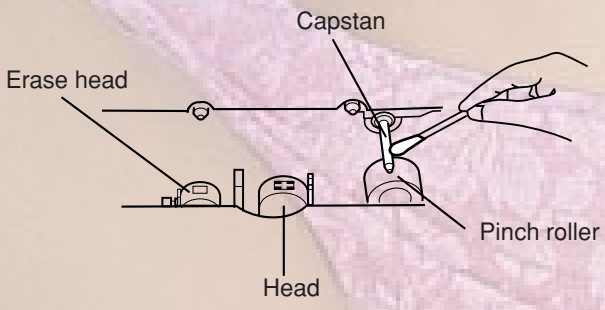



### To keep the best recording and playback sound quality

If the heads, capstans, and pinch rollers of the cassette decks become dirty, the following will occur:

- Impaired sound quality
- Discontinuous sound
- Fading
- Incomplete erasure
- Difficulty in recording

**To clean the head, capstan, and pinch roller**
Use a cotton swab moistened with alcohol.

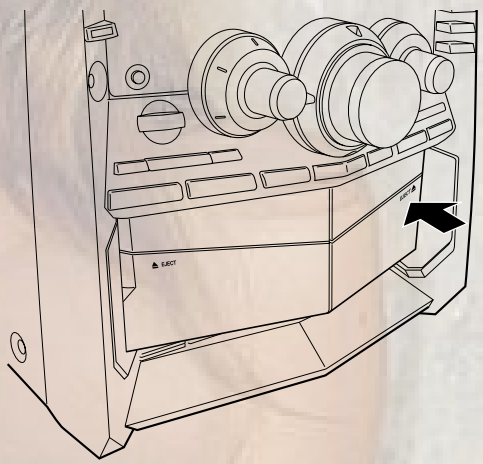



**To demagnetize the head**
Turn off the unit, and use a head demagnetizer (available at electronics and audio shops).

## Recording a Tape on Deck B

**On the unit ONLY:**

**1 Press EJECT ⏏ for deck B.**



**2 Put a recordable cassette in, with the exposed part of the tape down and the side you want to record facing front.**

**3 Close the cassette holder gently.**

**4 Start playing the source—FM, AM, CD player or auxiliary equipment connected to AUX IN jacks.**

- For duplicating tapes, see "Dubbing Tapes" on page 24.
- For recording from CD, see "CD Synchronized Recording" on page 24.

**5 Press REC START/STOP.**
The REC (recording) indicator lights up on the display and recording starts.


**To stop during recording,** press REC START/STOP again or ■.

**To remove the cassette,** press EJECT ⏏ for deck B.

## Dubbing Tapes

**On the unit ONLY:**

**1 Press TAPE ►, then ■.**


**2 Put the source cassette in deck A, and a recordable cassette into deck B.**

**3 Press DUBBING.**

Dubbing starts.
"DUBBING" appears, and the REC (recording) indicator lights up on the display.



**To stop during dubbing,** press REC START/STOP or ■.

**To remove the cassettes,** press ⏏ EJECT for deck A and EJECT ⏏ for deck B.

## CD Synchronized Recording

You can easily record a CD onto a tape.

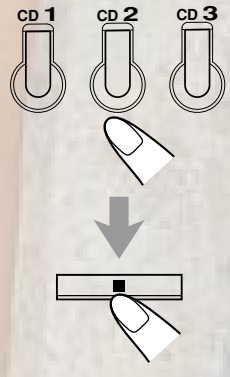
- This function does not work for MP3 discs. When recording an MP3 disc onto a tape, see "Recording a Tape on Deck B" on page 23.
- You can also record the tracks in the order you have made the program.
  If there is a track on the MP3 disc in the program, it will be skipped and some blank space will be recorded on the tape.

**On the unit ONLY:**

**1 Put a recordable cassette into deck B.**

**2 Place a disc correctly on the recess of the disc tray, with its label side up.**

**3 Press one of the disc number buttons (CD1, CD2, and CD3) to select the disc, then ■.**




**4 Press CD REC START.**

"CD REC" appears, and the REC (recording) indicator lights up on the display.



Deck B starts recording and the CD player starts playing. When the recording from the selected CD is done, the CD player and deck B stop.

- When recording your program, the CD player and deck B stop after all tracks in the program are recorded.

**To stop during CD Synchronized Recording,** press REC START/STOP or ■.

**To remove the cassette,** press EJECT ⏏ for deck B.

# Using the Timers

There are three timers available—Daily Timer, Recording Timer, and Sleep Timer.
Before using the timers, you need to set the clock built in the unit. (See "Setting the Clock" on page 9.)

## Using Daily Timer

With Daily Timer, you can wake to your favorite music or radio program. You can set the timer whether the unit is on or off.

### How Daily Timer actually works

The unit automatically turns on, set the volume level to the preset level, and starts playing the specified source when the on-time comes (the ◕ indicator flashes while the timer is operating). Then, when the off-time comes, the unit automatically turns off (stands by).
Daily Timer works every day unless you cancel it.

- There is a time limit in doing the following steps. If the setting is canceled before you finish, start from step ***1*** again.
- If you have made a mistake while setting timer, press CANCEL/DEMO. (However, this does not always work. If CANCEL/DEMO does not work, press CLOCK/TIMER repeatedly and start from step ***1*** again.)

**Before you start...**

- *When using a CD as the source to play:*
  —Make sure there is a CD on the currently selected disc number tray.
- *When using a tape as the source to play:*
  —Make sure that a tape is in the deck whose deck indicator (A or B) is lit on the display.
- *When using the external component as the source to play:*
  —Set the timer equipped with the external component at the same time.

**On the unit ONLY:**

***1*** **Press CLOCK/TIMER repeatedly until "DAILY" appears on the display.**

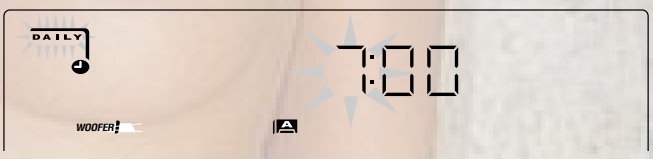

◕ indicator lights up and the DAILY (daily timer) indicator starts flashing on the display.


- Each time you press the button, the clock/timer setting modes change as follows:

DAILY → ON TIME (Daily Timer) → REC
Canceled ← CLOCK (See page 9.) ← ON TIME (Recording Timer)

***2*** **Press CLOCK/TIMER again.**


"ON TIME" appears for 2 seconds, then the unit enters on-time setting mode.




***3*** **Set the on-time you want the unit to turn on.**


1) Turn the I◄◄/►►I control to set the hour, then press SET.
2) Turn the I◄◄/►►I control to set the minute, then press SET.
"OFF TIME" appears for 2 seconds, then the unit enters off-time setting mode.

***4*** **Set the off-time you want the unit to turn off (on standby).**


1) Turn the I◄◄/►►I control to set the hour, then press SET.
2) Turn the I◄◄/►►I control to set the minute, then press SET.
The unit enters source selecting mode.

## 5 Turn the I◄◄/►►I control to select the source to play, then press SET.

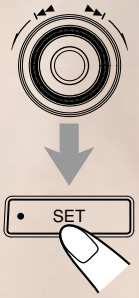

• Each time you turn the I◄◄/►►I control, the source changes as follows:

TUNER FM ⟷ TUNER AM
AUX ⟷ TAPE ⟷ CD

TUNER FM : tunes in to a specified preset FM station.
→ go to step *6*.
TUNER AM : tunes in to a specified preset AM station.
→ go to step *6*.
CD : plays the current disc from the first track.
→ go to step *7*.
TAPE : plays a tape in deck A or B.
→ go to step *7*.
AUX : plays an external source.
→ go to step *7*.

## 6 Select the preset station number.

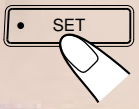
Turn the I◄◄/►►I control to select the preset station number, then press SET.
The unit enters volume setting mode.




## 7 Turn the I◄◄/►►I control to set the volume level.

• You can select the volume level from VOL MIN, VOL 1 — VOL 30, and VOL MAX.


## 8 Press SET to complete the Daily Timer setting.




The DAILY (daily timer) indicator stops flashing and remains lit. The settings you have done are shown on the display in sequence for your confirmation.

## 9 Press ⏻/I to turn off the unit (on standby) if you have set the Daily Timer with the unit turned on.


**notes**

**If the unit is turned on when the timer-on time comes**
Daily Timer does not work.

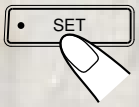
### To turn on or off Daily Timer after its setting is done

**1 Press CLOCK/TIMER repeatedly until "DAILY" appears on the display.**


**2 To turn off the Daily Timer, press CANCEL/DEMO.**


The DAILY (daily timer) indicator goes off from the display ("OFF" appears for a while).
The Daily Timer is canceled, but the setting for the Daily Timer remains in memory until you change it.

**To turn on the Daily Timer, press SET.**




The DAILY (daily timer) indicator lights up on the display. The settings you have done are shown on the display in sequence for your confirmation.

## Using Recording Timer

With Recording Timer, you can make a tape of a radio broadcast automatically. You can set the timer whether the unit is on or off.

### How Recording Timer actually works

The unit automatically turns on, tunes in to the specified station, sets the volume level to "VOL MIN," and starts recording when the on-time comes (the ◕ indicator flashes while the timer is operating). Then, when the off-time comes, the unit automatically turns off (stands by).
Recording Timer works only once, but the timer setting remains in memory until you change it.

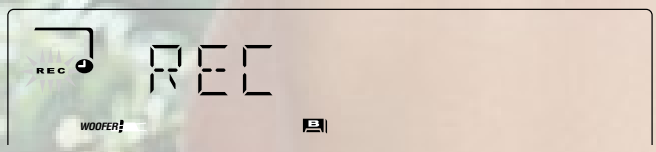
- There is a time limit in doing the following steps. If the setting is canceled before you finish, start from step ***2*** again.
- If you have made a mistake while setting the timer, press CANCEL/DEMO. (However, this does not always work. If CANCEL/DEMO does not work, press CLOCK/TIMER repeatedly and start from step ***2*** again.)

**On the unit ONLY:**

### *1* Put a recordable cassette into deck B.

### *2* Press CLOCK/TIMER repeatedly until "REC" appears on the display.


◕ indicator lights up and the REC (recording timer) indicator starts flashing on the display.




- Each time you press the button, the clock/timer setting modes change as follows:

DAILY → ON TIME → REC
(Daily Timer)
Canceled ← CLOCK ← ON TIME
(See page 9.) (Recording Timer)

### *3* Press CLOCK/TIMER again.


"ON TIME" appears for 2 seconds, then the unit enters on-time setting mode.


### *4* Set the on-time you want the unit to turn on.


1) Turn the I◄◄/►►I control to set the hour, then press SET.
2) Turn the I◄◄/►►I control to set the minute, then press SET.
"OFF TIME" appears for 2 seconds, then the unit enters off-time setting mode.

### *5* Set the off-time you want the unit to turn off (on standby).


1) Turn the I◄◄/►►I control to set the hour, then press SET.
2) Turn the I◄◄/►►I control to set the minute, then press SET.
The unit enters preset station selecting mode.

### *6* Select the preset station.


1) Turn the I◄◄/►►I control to select the band ("TUNER FM" or "TUNER AM"), then press SET.
2) Turn the I◄◄/►►I control to select a preset channel number, then press SET.
The REC (recording timer) indicator stops flashing and remains lit. The settings you have done are shown on the display in sequence for your confirmation.

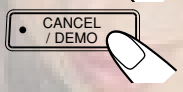
### *7* Press ⏻/I to turn off the unit (on standby) if necessary.


**About the recording source**
If you change the source while recording, the recording source also changes.

### To turn on or off Recording Timer after its setting is done

**1 Press CLOCK/TIMER repeatedly until "REC" appears on the display.**


**2 To turn off the Recording Timer, press CANCEL/DEMO.**




The REC (recording timer) indicator goes off from the display ("OFF" appears for a while). The Recording Timer is canceled, but the setting for the Recording Timer remains in memory until you change it.

**To turn on the Recording Timer, press SET.**


The REC (recording timer) indicator lights up on the display. The settings you have done are shown on the display in sequence for your confirmation.

## Using Sleep Timer

With Sleep Timer, you can fall asleep to music.
You can set Sleep Timer when the unit is turned on.

### How Sleep Timer actually works

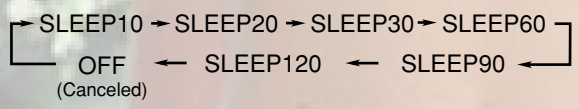
The unit automatically turns off after the specified time length passes.

### On the remote control ONLY:

**1 Press SLEEP.**


The time length until the shut-off time appears and the SLEEP indicator starts flashing on the display.

- Each time you press the button, the time length changes as follows:




**2 Wait for about 3 seconds after specifying the time length.**

The SLEEP indicator stops flashing and remains lit.

**To check the remaining time until the shut-off time,** press SLEEP once so that the remaining time until the shut-off time appears for about 3 seconds.

**To change the shut-off time,** press SLEEP repeatedly until the desired time length appears on the display.

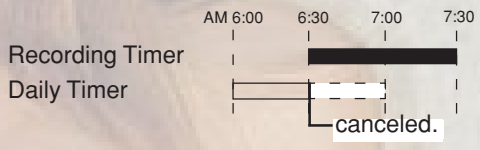
**To cancel the setting,** press SLEEP repeatedly until "OFF" appears on the display so that the SLEEP indicator goes off from the display.

- Sleep Timer is also canceled when you turn off the unit.

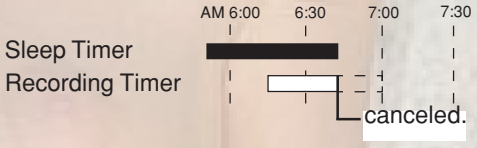
## Timer Priority

Since each timer can be set separately, you may wonder what happens if the setting for these timers overlaps.
Here are some examples.

- **Recording Timer has priority over Daily Timer.**
  If Recording Timer is set to come on while Daily Timer is operating, Daily Timer is canceled and Recording Timer start working.




- If Sleep Timer overlaps with another timer (either Daily Timer or Recording Timer), a timer with the earlier shut-off time has priority.




**When using the Recording Timer and Sleep Timer at the same time, pay special attention to the shut-off time.**

# Maintenance

To get the best performance of the unit, keep your discs, tapes, and mechanism clean.

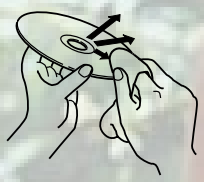
## Cleaning the unit

- **Stains on the unit**
  Should be wiped off with a soft cloth. If the unit is heavily stained, wipe it with a cloth soaked in water-diluted neutral detergent and wrung well, then wipe clean with a dry cloth.
- **Avoid the following since they may cause damage to the unit.**
  - DO NOT wipe it with a hard cloth.
  - DO NOT wipe it strong.
  - DO NOT wipe it with thinner or benzine.
  - DO NOT apply any volatile substance such as insecticides to it.
  - DO NOT allow any rubber or plastic to remain in contact with it for a long time.

## Handling discs

- Remove the disc from its case by holding it at the edge while pressing the center hole lightly.
- Do not touch the shiny surface of the disc, or bend the disc.
- Put the disc back in its case after use to prevent warping.

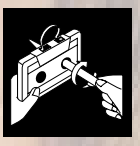
- Be careful not to scratch the surface of the disc when placing it back in its case.
- Avoid exposure to direct sunlight, temperature extremes, and moisture.



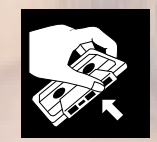
**To clean the disc**
Wipe the disc with a soft cloth in a straight line from center to edge.

STOP! DO NOT use any solvent—such as conventional record cleaner, spray, thinner, or benzine—to clean the disc.

## Handling cassette tapes



- If the tape is loose in its cassette, take up the slack by inserting a pencil in one of the reels and rotating.
- If the tape is loose, it may get stretched, cut, or caught in the cassette.



- Be careful not to touch the tape surface.

- Avoid the following places to store the tape:
  — In dusty places
  — In direct sunlight or heat
  — In moist areas
  — Near a magnet

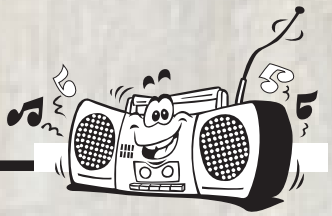
# Additional Information

### Description of the PTY codes:

| | |
|---|---|
| **NEWS**: | News. |
| **AFFAIRS**: | Topical program expanding or enlarging upon the news — debate, or analysis. |
| **INFO**: | Program the purpose of which is to impart advice in the widest sense. |
| **SPORT**: | Program concerned with any aspect of sports. |
| **EDUCATE**: | Educational programs. |
| **DRAMA**: | All radio plays and serials. |
| **CULTURE**: | Programs concerning any aspect of national or regional culture, including language, theatre, etc. |
| **SCIENCE**: | Programs about natural sciences and technology. |
| **VARIED**: | Used for mainly speech-based programs like quizzes, panel games and personality interviews. |
| **POP M**: | Commercial music of current popular appeal. |
| **ROCK M**: | Rock music. |
| **M.O.R. M**: | Current contemporary music considered to be "easy-listening." |
| **LIGHT M**: | Instrumental music, and vocal or choral works. |
| **CLASSICS**: | Performances of major orchestral works, symphonies, chamber music, etc. |
| **OTHER M**: | Music not fitting into any of the other categories. |
| **WEATHER**: | Weather reports and forecasts. |
| **FINANCE**: | Stock Market reports, commerce, trading etc. |
| **CHILDREN**: | Programs targeted at a young audience. |
| **SOCIAL**: | Programs about sociology, history, geography, psychology and society. |
| **RELIGION**: | Religious programs. |
| **PHONE IN**: | Involving members of the public expressing their views either by phone or at a public forum. |
| **TRAVEL**: | Travel information. |
| **LEISURE**: | Programs about recreational activities. |
| **JAZZ**: | Jazz music. |
| **COUNTRY**: | Songs which originate from, or continue the musical tradition of the American Southern States. |
| **NATION M**: | Current popular music of the nation or region in that country's language. |
| **OLDIES**: | Music from the so-called "golden age" of popular music. |
| **FOLK M**: | Music which has its roots in the musical culture of a particular nation. |
| **DOCUMENT**: | Program concerning factual matters, presented in an investigative style. |

**Classification of the PTY codes for some FM stations may be different from the above list.**

# Troubleshooting

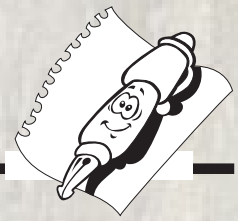


If you are having a problem with your unit, check this list for a possible solution before calling for service.
If you cannot solve the problem from the hints given here, or the unit has been physically damaged, call a qualified person, such as your dealer, for service.

| Symptom | Cause | Action |
|---|---|---|
| Unable to cancel the display demonstration. | Other buttons are pressed to cancel the display demonstration. | Press CANCEL/DEMO on the unit. (See page 8.) |
| No sound is heard. | Connections are incorrect or loose. | Check all connections and make corrections. (See pages 6 to 8.) |
| Hard to listen to broadcasts because of noise. | • Antennas are disconnected.<br>• The AM (MW) loop antenna is too close to the unit.<br>• The FM antenna is not properly extended and positioned. | • Reconnect the antennas correctly and securely.<br>• Change the position and direction of the AM (MW) loop antenna.<br>• Extend the FM antenna at the best position. |
| The disc sound is discontinuous. | The disc is scratched or dirty. | Clean or replace the disc. (See page 29.) |
| The carrousel does not open or close. | • The AC power cord is not plugged in.<br>• The carrousel is locked. | • Plug the AC power cord.<br>• Unlock the carrousel. (See page 21.) |
| The disc does not play. | The disc is placed upside down. | Place the disc with the label side up. |
| The MP3 disc does not play. | • No MP3 files are recorded on the disc.<br>• MP3 files do not have the file extension—.MP3, .Mp3, .mP3, or .mp3 in their file names.<br>• MP3 files are not recorded in the format compliant with ISO 9660 Level 1 or Level 2. | Replace the disc. |
| The readout time of the MP3 disc is too long. | The readout time varies with the complexity of the recording configuration. | Do not use too many hierarchies and folders when recording. Also, do not record any other types of audio tracks together with MP3 files. (See page 15.) |
| The cassette holders cannot be opened. | Power supply from the AC power cord has been cut off while the tape was running. | Turn on the unit. |
| Impossible to record. | Small tabs on the back of the cassette are removed. | Cover the holes with adhesive tape. |
| Operations are disabled. | The built-in microprocessor may malfunction due to external electrical interference. | Unplug the AC power cord and then plug it back in. |
| Unable to operate the unit from the remote control. | • The path between the remote control and the remote sensor on the unit is blocked.<br>• The batteries are exhausted. | • Remove the obstruction.<br>• Replace the batteries. |

# Specifications

Design and specifications are subject to change without notice.



## CA-MXGT88

### Amplifier section

Output Power

SUBWOOFERS : 100 W per channel, min. RMS, driven into 6 Ω at 63 Hz with no more than 10% total harmonic distortion. (IEC268-3)
75 W per channel, min. RMS, driven into 6 Ω at 63 Hz with no more than 0.9% total harmonic distortion. (DIN)

MAIN SPEAKERS : 55 W per channel, min. RMS, driven into 4 Ω at 1 kHz with no more than 10% total harmonic distortion. (IEC268-3)
35 W per channel, min. RMS, driven into 4 Ω at 1 kHz with no more than 0.9% total harmonic distortion. (DIN)

Audio input sensitivity/Impedance
(at 1 kHz, measured at MAIN SPEAKERS)
AUX : 400 mV/50 kΩ

Speakers/Impedance : Subwoofers : 6 Ω – 16 Ω
Main speakers : 4 Ω – 8 Ω

### Tuner

FM tuning range : 87.50 MHz – 108.00 MHz
AM (MW) tuning range : 522 kHz – 1 629 kHz

### CD player

CD Capacity : 3 CDs
Dynamic range : 85 dB
Signal-to-noise ratio : 85 dB

### Cassette deck

Frequency response
Normal (type I): 50 Hz — 14 000 Hz
Wow and flutter : 0.15% (WRMS)

### General

Power requirement : AC 230 V ∿, 50 Hz
Power consumption : 160 W (at operation)
18 W (on standby; with power saving off—Normal Mode)
2.3 W (on standby; with power saving on—Eco mode)
Dimensions (approx.): 270 mm x 317 mm x 453 mm (W/H/D)
Mass (approx.) : 9.3 kg

### Supplied accessories

See page 6.

## CA-MXGA77

### Amplifier section

Output Power

SUBWOOFERS : 80 W per channel, min. RMS, driven into 6 Ω at 63 Hz with no more than 10% total harmonic distortion. (IEC268-3)
65 W per channel, min. RMS, driven into 6 Ω at 63 Hz with no more than 0.9% total harmonic distortion. (DIN)

MAIN SPEAKERS : 45 W per channel, min. RMS, driven into 4 Ω at 1 kHz with no more than 10% total harmonic distortion. (IEC268-3)
30 W per channel, min. RMS, driven into 4 Ω at 1 kHz with no more than 0.9% total harmonic distortion. (DIN)

Audio input sensitivity/Impedance
(at 1 kHz, measured at MAIN SPEAKERS)
AUX : 400 mV/50 kΩ

Speakers/Impedance : Subwoofers : 6 Ω – 16 Ω
Main speakers : 4 Ω – 8 Ω

### Tuner

FM tuning range : 87.50 MHz – 108.00 MHz
AM (MW) tuning range : 522 kHz – 1 629 kHz

### CD player

CD Capacity : 3 CDs
Dynamic range : 85 dB
Signal-to-noise ratio : 85 dB

### Cassette deck

Frequency response
Normal (type I): 50 Hz — 14 000 Hz
Wow and flutter : 0.15% (WRMS)

### General

Power requirement : AC 230 V ∿, 50 Hz
Power consumption : 150 W (at operation)
17 W (on standby; with power saving off—Normal Mode)
2.3 W (on standby; with power saving on—Eco mode)
Dimensions (approx.): 270 mm x 317 mm x 453 mm (W/H/D)
Mass (approx.) : 9 kg

### Supplied accessories

See page 6.

VICTOR COMPANY OF JAPAN, LIMITED

EN



0203TMMMDWSAM

JVC

# INSTRUCTIONS

## SPEAKER SYSTEM

# SP-MXGA77

**BEDIENUNGSANLEITUNG: LAUTSPRECHERSYSTEM**
**MANUEL D'INSTRUCTIONS: SYSTEME DES ENCEINTES**
**GEBRUIKSAANWIJZING: LUIDSPREKERSYSTEEM**
**MANUAL DE INSTRUCCIONES: SISTEMA DE ALTAVOCES**
**ISTRUZIONI: SISTEMA DI ALTOPARLANTI**
**BRUKSANVISNING: HÖGTALARSYSTEM**
**KÄYTTÖOHJE: KAIUTINJÄRJESTELMÄ**
**VEJLEDNING: HØJTTALERSYSTEM**

Thank you for purchasing JVC speakers.
Before you begin using them, please read the instructions carefully to be sure you get the best possible performance. If you have any questions, consult your JVC dealer.

---

Vielen Dank für den Kauf dieser JVC-Lautsprecher.
Lesen Sie bitte diese Bedienungsanleitung vor Ingebrauchnahme sorgfältig durch, um stets optimale Ergebnisse zu erzielen. Wenden Sie sich bei etwaigen Fragen bitte an Ihren JVC Händler.

---

Nous vous remercions pour l'achat de ces enceintes JVC.
Avant de les utiliser, lire ces instructions avec attention pour en obtenir les meilleures performances possibles. En cas de questions, consulter votre revendeur JVC.

---

Dank u voor de aanschaf van deze JVC luidsprekers.
Lees alvorens over te gaan tot aansluiten, deze gebruiksaanwijzing door zodat u de best mogelijke prestaties zult verkrijgen. Neem kontakt op met de JVC dealer indien u vragen heeft.

---

Le estamos muy agradecidos por haber adquirido estos altavoces de JVC.
Antes de utilizarlos, sirvase leer las instrucciones detenidamente a fin de obtener el mejor rendimiento posible. Si tienenaluna pregunta, acuda a su agente de JVC.

Grazie per aver acquistato questi altoparlanti della JVC.
Prima di cominciare l'uso degli altoparlanti, leggete attentamente le istruzioni per assicurare le migliori prestazioni. Qualora sorgessero dei dubbi, rivolgetevi al vostro rivenditore JVC.

---

Tack för ditt val av dessa JVC-högtalare.
Innan du kopplar in högtalarna i din ljudanläggning bör du för att få maximala prestanda från högtalarna läsa igenom bruksanvisningen noggrant. Kontakta din JVC-återförsäljare om du har frågor eller känner dig osäker.

---

Kiitos siitä että päädyit valinnassasi JVC-kaiuttimiin.
Ennen kuin alat käyttää niitä, lue käyttöohje huolellisesti, jotta ne toimisivat parhaalla mahdollisella tavalla. Jos Sinulla on kysyttävää ota yhteys JVC-edustajaan.

---

Tak for købet af JVC-højttalerne.
Gennemlæs venligst vejledningen omhyggeligt før de tages i brug, så De kan opnå den bedst mulige ydelse. Forhør hos Deres JVC forhandler hvis De har nogen spørgsmål.

### — SAFETY INSTRUCTIONS —
### "SOME DOS AND DON'TS ON THE SAFE USE OF EQUIPMENT"

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured.

---

Do read the operating instructions before you attempt to use the equipment.

Do ensure that all electrical connections (including the mains plug, extension leads and interconnections between pieces of equipment) are properly made and in accordance with the manufacturer's instructions. Switch off and withdraw the mains plug when making or changing connections.

Do consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.

Do be careful with glass panels or doors on equipment.

---

DON'T continue to operate the equipment if you are in any doubt about it working normally, or if it is damaged in any way — switch off, withdraw the mains plug and consult your dealer.

DON'T remove any fixed cover as this may expose dangerous voltages.

DON'T leave equipment switched on when it is unattended unless it is specifically stated that it is designed for unattended operation or has a standby mode.

Switch off using the switch on the equipment and make sure that your family know how to do this.

Special arrangements may need to be made for infirm of handicapped people.

DON'T use equipment such as personal stereos or radios so that you are distracted from the requirements of traffic safety. It is illegal to watch television whilst driving.

DON'T listen to headphones at high volume as such use can permanently damage your hearing.

DON'T obstruct the ventilation of the equipment, for example with curtains or soft furnishing.

Overheating will cause damage and shorten the life of the equipment.

DON'T use makeshift stands and NEVER fix legs with wood screws — to ensure complete safety always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.

DON'T allow electrical equipment to be exposed to rain or moisture.

ABOVE ALL

- NEVER let anyone, especially children, push anything into holes, slots or any other opening in the case.
- this could result in a fatal electrical shock;
- NEVER guess or take chances with electrical equipment of any kind
- it is better to be safe than sorry!

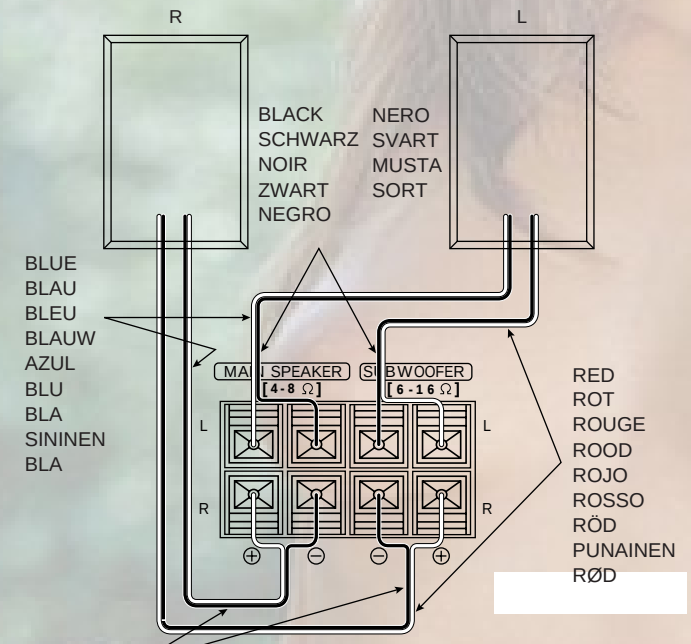


LVT1066-001A
[E]

**Connection**
**Anschluß**
**Raccordement**
**Aansluiting**
**Conexión**
**Collegamento**
**Ansluiting**
**Liitäntä**
**Tilslutning**

Right speaker
Rechter Lautsprecher
Enceinte de droite
Rechter spreker
Altavoz derecho
Altoparlante destro
Höger högtalare
Oikea kaiutin
Højre højttaler

Left speaker
Linker Lautsprecher
Enceinte de gauche
Linker spreker
Altavoz izquierdo
Altoparlante sinistro
Vänster högtalare
Vasen kaiutin
Venstre højttaler




BLACK
SCHWARZ
NOIR
ZWART
NEGRO
NERO
SVART
MUSTA
SORT

Amplifier output terminals
Ausgang des Verstärkers
Bornes de sortie de l'amplificaterur
Uitgangsaansluitengen van de versterker
Terminales de salida de amplificador
Terminali de uscita dell'amplifcator
Utgångar på förstärkaren
Vahvistimen ulostuloliittimet
Forstærkerudgangsbøsninger

## CONNECTION

- DO NOT use other amplifier to operate this speaker system except for CA-MXGA77.
- Turn off power to the whole system before connecting the speakers to the amplifier.
- The maximum power handling capacity of the SP-MXGA77 main speaker is 55 W Subwoofer is 100 W. Excessive input will result in abnormal noise and possible damage. In cases where the signals described below are applied to the speakers, even if the signals are below the maximum allowable input, they may cause an overload and burn the wiring of the speakers. Be sure to lower the amplifier volume beforehand.
  1) Noise during FM tuning.
  2) High level signals containing high frequency components produced by a tape deck in the fast forward mode.
  3) Click noise produced when turning power of other components on and off.
  4) Click noise produced when connecting or disconnecting cords with the power on.
  5) Click noise produced when the cartridge is replaced with the power on.
  6) Click noise produced when operating amplifier switches.
  7) Continuous high frequency oscillation or high pitch electronically produced musical instrument sound.
  8) Howling when using a microphones.

## SPECIFICATIONS

| | |
|---|---|
| Type | : 3-way 3-speaker Bass-Reflex Type<br>Twin Hyper Power-Drive Subwoofer |
| Speakers: | |
| Subwoofer | : 13.5 cm cone × 1 |
| Main woofer | : 16.0 cm cone × 1 |
| Tweeter | : 5.0 cm cone × 1 |
| Power Handling Capacity: | |
| Subwoofer | : 100 W |
| Main Speaker | : 55 W |
| Impedance: | |
| Subwoofer | : 6 Ω |
| Main Speaker | : 4 Ω |
| Frequency Range: | |
| Subwoofer | : 32 Hz — 90 Hz |
| Main Speaker | : 90 Hz — 20 000 Hz |
| Sound Pressure Level: | |
| Subwoofer | : 86 dB/W·m |
| Main Speaker | : 75 dB/W·m |
| Dimensions (W × H × D) | : 290 mm × 317 mm × 336 mm |
| Mass | : 5.5 kg each |

*Design and specifications subject to change without notice.*

## ANSCHLUSS

- Verwenden Sie zum Betrieb dieses Lautsprechersystems keinen anderen Verstärker, ausgenommen CA-MXGA77.
- Schalten Sie vor dem Anschluß der Lautsprecher an den Verstärker die Spannungsversorgung des gesamten Systems aus.
- Die maximale Belastbarkeit des SP-MXGA77-Hauptlautsprechers ist 55 W und die des Subwoofers ist 100 W. Eine Überlastung führt zu Verzerrungen und möglicherweise zu Beschädigungen. Signale der unten beschriebenen Art können, auch wenn sie unter dem maximal zulässigen Eingang liegen, eine Überlastung verursachen und die Lautsprecherwicklungen durchbrennen. Verringern Sie vorher die Lautstärke des Verstärkers.

1) Geräusche beim Einstellen von UKW-Sendern.
2) Hochpegelige Signale mit Hochfrequenz-Anteilen, die von Tonbanddecks beim Schnellvorspulen erzeugt werden.
3) Klickgeräusche, wenn die Spannungsversorgung anderer Komponenten ein-und ausgeschaltet wird.
4) Klickgeräusche, wenn Kabel angeschlossen oder abgetrennt werden, während die Spannungsversorgung eingeschaltet ist.
5) Klickgeräusche, wenn der Tonabnehmer des Plattenspielers ausgewechselt wird, während die Spannungsversorgung eingeschaltet ist.
6) Klickgeräusche, die beim Betätigen von Schaltern des Verstärkers erzeugt werden.
7) Ständige Hochfrequenzschwingungen oder elektronisch erzeugte Töne von Musikinstrumenten mit hohen Tonhöhen.
8) Rückkopplungen von Mikrofonen.

## RACCORDEMENT

- NE PAS utiliser d'autre amplificateur que le CA-MXGA77 pour faire fonctionner les enceintes.
- Mettre hors circuit tout le système avant de raccorder les enceintes à l'amplificateur.
- La puissance maximale admissible par le haut-parleur principal du SP-MXGA77 est de 55 W, celle admissible par le haut-parleur d'extrêmes graves est de 100 W. En dépassant la puissance admissible, cela provoquera des bruits anormaux et détériorera les enceintes. Au cas où les signaux décrits ci-dessous sont envoyés aux enceintes, et même si ces signaux sont inférieurs à la puissance d'entrée maximum admissible, ils risquent de provoquer une surcharge ou même un incendie. S'assurer de bien diminuer le volume sonore de l'amplificateur.

1) Parasites durant une syntonisation FM.
2) Signaux de niveau élevé contenant des composants à haute fréquence, comme ceux générés par une platine d'enregistrement en mode avance rapide.
3) Cliquetis se produisant lorsque d'autres appareils sont mis en ou hors circuit.
4) Cliquetis se produisant lorsque des appareils sont branchés ou dé-branchés alors que leur alimentation est en circuit.
5) Cliquetis se produisant lorsque la cellule d'une platine tourne-disque est changée alors que l'alimentation est en circuit.
6) Cliquetis se produisant lorsque les commandes de l'amplificateur sont manipulées.
7) Oscillations continuelles à haute fréquence ou sons très aigus provenant d'instruments de musique électroniques.
8) Hurlements dus à l'utilisation de micros.

## TECHNISCHE DATEN

| | |
|---|---|
| Typ | : 3-Weg, 3-Lautsprecher-Baßreflexbox<br>Twin Hyper Power-Drive Subwoofer |
| Lautsprecher: | |
| Subwoofer | : 13,5 cm Konus × 1 |
| Hauptwoofer | : 16,0 cm Konus × 1 |
| Hochtöner | : 5,0 cm konus × 1 |
| Belastbarkeit: | |
| Subwoofer | : 100 W |
| Hauptlautsprecher | : 55 W |
| Impedanz: | |
| Subwoofer | : 6 Ω |
| Hauptlautsprecher | : 4 Ω |
| Frequenzbereich: | |
| Subwoofer | : 32 Hz — 90 Hz |
| Hauptlautsprecher | : 90 Hz — 20 000 Hz |
| Schalldruckpegel: | |
| Subwoofer | : 86 dB/W·m |
| Hauptlautsprecher | : 75 dB/W·m |
| Abmessungen (B × H × T) | : 290 mm × 317 mm × 336 mm |
| Gewicht | : Je 5,5 kg |

*Technische Änderungen vorbehalten.*

## CARACTÉRISTIQUES

| | |
|---|---|
| Type | : Enceinte 3 voices, 3 haut-parleurs type à réflexion des basses<br>Twin Hyper Power-Drive Subwoofer |
| Haut-parleurs: | |
| Extrêmes graves | : conique de 13,5 cm × 1 |
| Principal | : conique de 16,0 cm × 1 |
| Aigus | : conique de 5,0 cm × 1 |
| Puissance maximale admissible: | |
| Haut-parleur d'extrêmes graves | : 100 W |
| Haut-parleur principal | : 55 W |
| Impédance: | |
| Haut-parleur d'extrêmes graves | : 6 Ω |
| Haut-parleur principal | : 4 Ω |
| Bande passante: | |
| Haut-parleur d'extrêmes graves | : 32 Hz — 90 Hz |
| Haut-parleur principal | : 90 Hz — 20 000 Hz |
| Pression sonore: | |
| Haut-parleur d'extrêmes graves | : 86 dB/W·m |
| Haut-parleur principal | : 75 dB/W·m |
| Dimensions (L × H × P) | : 290 mm × 317 mm × 336 mm |
| Masse | : 5,5 kg chaque |

*Présentation et caractéristiques modifiables sans préavis.*

## AANSLUITINGEN

- Gebruik GEEN andere versterker dan de CA-MXGA77 om dit luidsprekersysteem aan te sturen.
- Schakel de spanning van alle aangesloten komponenten uit alvorens de luidsprekers met de versterker te verbinden.
- Het maximale vermogen van de SP-MXGA77 hoofdluidspreker is 55 W en van de subwoofer 100 W. Te hoge ingang kan in abnormale geluidsreproduktie en in beschadigingen resulteren.

  Overbelasting en verbranding van de bedrading kan worden veroorzaakt, wanneer de hieronder beschreven signalen naar de luidspekers worden gevoed, zelfs wanneer de signalen onder het maximaal toegestane ingangsvermogen zijn. Verminder eerst het volume van de versterker.

  1) Ruis, zoals dit optreedtijdens afstemming op een FM-zender.
  2) Hoogfrekwentie signalen van een hoog niveau, zoals die tijdens het vooruitspoelen van een tapedeck worden geproduceerd.
  3) Klikkende geluiden, die worden veroorzaakt door het in - en uitschakelen van de netspanning van andere komponenten.
  4) Klikkende geluiden, zoals die worden geproduceerd bij het tot stand brengen of verbreken van aansluitingen terwijl de netspanning is ingeschakeld.
  5) Klikkende geluiden, zoals die optreden bij het vervangen van het element van een draaitafel terwijl de netspanning is ingeschakeld.
  6) Klikkende geluiden, zoals die worden geproduceerd door bediening van de schakelaars van de versterker.
  7) Voortdurende hoogfrekwentie-oscillatie, of hoogtonige, elektronisch geproduceerde geluiden van muziekinstrumenten.
  8) Rondzingend geluid bij gebruik van mikrofoons.

## CONEXIÓN

- NO utilice ningún otro amplificador para operar este sistema de altavoces excepto CA-MXGA77.
- Desactive la alimentación de todo el sistema antes de conectar los altavoces al amplificador.
- La capacidad máxima de potencia del altavoz principal del SP-MXGA77 es de 55 W y la del altavoz de subgraves es de 100 W. Uná entrada excesiva resultará en ruido anormal y posibles daños. En casos donde las señales descritas más abajo se apliquen a los altavoces, aunque las mismas resulten menores que la entrada máxima permisible, pueden causar una sobrecarga y quemar el cableado de los altavoces. Asegúrese de disminuir el volumen del amplificador con anterioridad.

  1) Ruido durante la sintonia en FM.
  2) Señales de alto nivel que contengan componentes de alta frecuencia producidos por un magnetófono en el modo de avance rápido.
  3) Ruidos de conmutación provocados al encender y apagar otros componentes.
  4) Ruido de conmutación al conectar o desconectar cables con los componentes encendidos.
  5) Ruido de conmutación cuando se reemplaza la cápsula con los componentes encendidos.
  6) Ruido de conmutación provocados por la operación de los selectores del amplificador.
  7) Continua oscilación de alta frecuencia o de sonidos de tonos altos provocados por instrumentos electrónicos.
  8) Aullidos a utilizar micrófonos.

## TECHNISCHE GEGEVENS

| | |
|---|---|
| Type | : 3-weg 3-luidsprekers bass reflex Twin Hyper Power-Drive Subwoofer |
| Luidsprekers: | |
| Subwoofer | : 13,5 cm kegeltype × 1 |
| Hoofdwoofer | : 16,0 cm kegeltype × 1 |
| Tweeter | : 5,0 cm kegeltype × 1 |
| Maximale vermogen: | |
| Subwoofer | : 100 W |
| Hoofdluidspreker | : 55 W |
| Impedantie: | |
| Subwoofer | : 6 Ω |
| Hoofdluidspreker | : 4 Ω |
| Frekwentiebereik: | |
| Subwoofer | : 32 Hz — 90 Hz |
| Hoofdluidspreker | : 90 Hz — 20 000 Hz |
| Geluidsdrukniveau: | |
| Subwoofer | : 86 dB/W·m |
| Hoofdluidspreker | : 75 dB/W·m |
| Afmetingen (B × H × D) | : 290 mm × 317 mm × 336 mm |
| Gewicht | : Elk 5,5 kg |

*Veranderingen in technische gegevens et ontwerp onder voorbehpoud.*

## ESPECIFICACIONES

| | |
|---|---|
| Tipo | : Reflex bajo con 3-altavoces y 3 vias Twin Hyper Power-Drive Subwoofer |
| Altavoces: | |
| De subgraves | : Tipo cónico de 13,5 cm × 1 |
| Principal | : Tipo cónico de 16,0 cm × 1 |
| De agudos | : Tipo cónico de 5,0 cm × 1 |
| Capacidad de potencia: | |
| De subgraves | : 100 W |
| Principal | : 55 W |
| Impedancia: | |
| De subgraves | : 6 Ω |
| Principal | : 4 Ω |
| Gama de frecuencias: | |
| De subgraves | : 32 Hz — 90 Hz |
| Principal | : 90 Hz — 20 000 Hz |
| Nivel de presión acústica: | |
| De subgraves | : 86 dB/W·m |
| Principal | : 75 dB/W·m |
| Dimensiones (An × Al × Prf) | : 290 mm × 317 mm × 336 mm |
| Peso | : 5,5 kg cada uno |

*El diseño y las especificaciones están sujetos a cambio sin aviso.*

## COLLEGAMENTO

- NON usare un amplificatore diverso dal modello CA-MXGA77 per utilizzare questo sistema di altoparlanti.
- Spegnete la corrente dell'intero sistema prima di collegare gli altoparlanti all'amplificatore.
- La capacità di potenza massima dell'altoparlante principale del modello SP-MXGA77 è di 55 W e quella del subwoofer è di 100 W. Un ingresso eccessivo causerà un suono anormale è possibili danni. Nel caso in cui i segnali descritti qui sotto vengono applicati agli altoparlanti, possono causare un sovraccarico e bruciare il cablaggio degli altoparlanti, anche se i segnali siano al di sotto dell'ingresso massimo ammesso. Assicuratevi di diminuire il livello del volume dell'altoparlante prima di procedere.

1) Generazione di rumore durante la sintonizzazione FM.
2) Segnali di alto livello che contengono dei componenti ad alta frequenza riprodotti da una piastra a cassette nel modo di avanzamento rapido.
3) Si senitrà uno scatto quando accendete o spegnete la corrente degli altri compoenti.
4) Si sentirà uno scatto quando collegate o scollegate i cavi con la corrente accesa.
5) Si sentirà uno scatto quando viene sostituita la cartuccia con la corrente accesa.
6) Si sentirà uno scatto quando vengono usati gli interruttori dell'amplificatore.
7) Oscillazione continua ad alta frequenza o suoni acuti da strumenti musicali elettronici.
8) Ululato quando usate i microfoni.

## ANSLUTNING

- Använd INTE någon annan förstärkare än CA-MXGA77 till att driva detta högtalarsystem med.
- Slå av strömmen i alla apparater i ljudanläggningen innan högtalarna ansluts till förstärkaren.
- Maximal effekthanteringskapacitet för SP-MXGA77 är 55 W för huvudhögtalare/100 W för lågbashîgtalare. Brus uppstår i ljudet och högtalarna kan skadas om de matas med för hög effekt. I situationerna som beskrivs nedan kan högtalarna också överbelastas och kabeltråden inne i hägtalarna brännas sönder, fastän högtalarnas effekt inte har överskridits. Sänk därför ljudstyrkan på förhand.

1) Brus under inställning av FM-radiostationer.
2) Starka, högfrekventa signaler från ett kassettdäck under snabbspolning framåt.
3) Ljudbangar som uppstår när andra apparater i anläggningen slås till och från.
4) Skrapljud som uppstår när anslutningskablar ansluts eller kopplas från medan strömmen är på.
5) Skrapljud som uppstår när pickupelementet på en skivspelare byts medan strömmen är på.
6) Ljudbangar som uppstår när du använder förstärkarens omkopplare.
7) Kontinuerliga, högfrekvenssvängningar eller högfrekvent ljud från elektroniska musikinstrument.
8) Akustisk återkoppling (tjutande ljud) vid bruk av mikrofoner.

## SPECIFICAZIONI

| | |
|---|---|
| Tipo | : Reflex basso con 3-altoparlanti e 3 vie<br>Twin Hyper Power-Drive Subwoofer |
| Altoparlanti: | |
| Subwoofer | : Cono da 13,5 cm × 1 |
| Woofer principale | : Cono da 16,0 cm × 1 |
| Tweeter | : Cono da 5,0 cm × 1 |
| Capacità di potenza: | |
| Subwoofer | : 100 W |
| Altoparlante principale | : 55 W |
| Impedenza: | |
| Subwoofer | : 6 Ω |
| Altoparlante principale | : 4 Ω |
| Gamma di frequenza: | |
| Subwoofer | : 32 Hz — 90 Hz |
| Altoparlante principale | : 90 Hz — 20 000 Hz |
| Livello di pressione sonora: | |
| Subwoofer | : 86 dB/W·m |
| Altoparlante principale | : 75 dB/W·m |
| Dimensioni (L × A × P) | : 290 mm × 317 mm × 336 mm |
| Massa | : 5,5 kg ciascuno |

*Il disegno e le specificazioni sono soggetti a cambiamenti senza preavviso.*

## TEKNISKA DATA

| | |
|---|---|
| Typ | : 3-vägs, 3-elements basreflexhögtalare<br>Twin Hyper Power-Drive Subwoofer |
| Högtalarelement: | |
| Lågbaselement | : 13,5 cm kon × 1 |
| Huvudbaselement | : 16,0 cm kon × 1 |
| Diskantelement | : 5,0 cm kon × 1 |
| Effekthanteringskapacitet: | |
| Lågbashögtalare | : 100 W |
| Huvudhögtalare | : 55 W |
| Impedans: | |
| Lågbashögtalare | : 6 Ω |
| Huvudhögtalare | : 4 Ω |
| Frekvensomfång: | |
| Lågbashögtalare | : 32 Hz — 90 Hz |
| Huvudhögtalare | : 90 Hz — 20 000 Hz |
| Ljudtrycksnivå: | |
| Lågbashögtalare | : 86 dB/W·m |
| Huvudhögtalare | : 75 dB/W·m |
| Yttermått (B × H × D) | : 290 mm × 317 mm × 336 mm |
| Vikt | : 5,5 kg perst. |

*Rätt till ändringar av utförande och specifikationer förbehålles utan föregående meddelande.*

## LIITÄNTÄ

- ÄLÄ käytä muuta vahvistinta tämän kaiutinjärjestelmän käyttöön paitsi mallille CA-MXGA77.
- Katkaise koko järjestelmän virta ennen kuin suoritat liitännät kaiuttimista vahvistimeen.
- Mallin SP-MXGA77 pääkaiuttimen enimmäisteho on 55 W, apubassokaiuttimen 100 W. Liiallinen antoteho aiheuttaa epänormaalia kohinaa ja jopa vahinkoa. Tapauksissa, missä kaiuttimet joutuvat alla kuvattujen signaalien kohteeksi, vaikka signaalit olisivat alle sallitun maksimi antotehon, ne saattavat aiheuttaa ylikuormitusta ja polttaa kaiuttimien johdot. Vähennä siis vahvistimen äänenvoimakkuutta jo ennalta.

1) Kohinaa FM-virityksen aikana.
2) Kasettidekistä eteenpäinkelauksen aikana muodostuneet vahvat, korkeataajuuksisia komponentteja sisältävät signaalit.
3) Klik-ääni, joka syntyy silloin kun toisten osien virta kytketään ja katkaistaan.
4) Klik-ääni, joka syntyy silloin kun kytketään tai irrotetaan johtoja virran ollessa päällä.
5) Klik-ääni, joka syntyy silloin kun vaihdetaan hylsy virran ollessa päällä.
6) Klik-ääni, joka syntyy silloin kun käytetään vahvistimen kytkimiä.
7) Jatkuva korkea värähtely tai elektronisesti tuotettu korkea soittimen ääni.
8) Ulinaa mikrofonia käytettäessä.

## TILSLUTNING

- Anvend IKKE anden forstærker end CA-MXGA77 til drift af dette højttalersystem.
- Sluk for strømmen til hele systemet før højttalerne forbindes til forstærkeren.
- Den maksimale belastningskapacitet for SP-MXGA77 hovedhøjttaleren er 55 W/for subwooferen 100 W. For kraftigt indgangssignal vil resultere i unormal stoj og muligvis beskadigelse. I tilfælde hvor højttalerne udsættes for signalerne beskrevet nedenfor, kan der forekomme overbelastning og overbrænding af ledningerne i højttalerne selv om signalstyrken er under den maksimale tilladte værdi. Husk derfor at at sænke højttalerlydstyrken i forvejen.

1) Støj under FM-afstemning.
2) Signaler med høje niveauer der indeholder höjfrekvente komponenter dannet af en båndoptager der er indstillet til hurtig fremspoling.
3) Klikstøj dannet når der tændes eller slukkes for strømmen til andre domponenter.
4) Klikstøj der dannes når ledninger tilsluttes eller tages ud af forbindelse mens der er tændt for strømmen.
5) Klikstøj der dannes når pickuppen udskiftes mens der er tændt for strømmen.
6) Klikstøj der dannes når forstærkerens omskiftere betjenes.
7) Fortsat høj frekvenssvingning, eller en højlyd dannet af et elektronisk instrument.
8) Hyletoner når der anvendes en mikrofon.

## TEKNISET TIEDOT

| | |
|---|---|
| Tyyppi | : 3-tie, 3 kaiuttimen bassorefleksi Twin Hyper Power-Drive Subwoofer |
| Kaiuttimet: | |
| Apubasso | : 13,5 cm karitomuotoinen × 1 |
| Pääbasso | : 16,0 cm karitomuotoinen × 1 |
| Diskantti | : 5,0 cm karitomuotoinen × 1 |
| Enimmäisteho: | |
| Apubasso | : 100 W |
| Pääkaiutin | : 55 W |
| Impedanssi: | |
| Apubasso | : 6 Ω |
| Pääkaiutin | : 4 Ω |
| Taajuusala: | |
| Apubasso | : 32 Hz — 90 Hz |
| Pääkaiutin | : 90 Hz — 20 000 Hz |
| Äänenpainetaso: | |
| Apubasso | : 86 dB/W·m |
| Pääkaiutin | : 75 dB/W·m |
| Mitat (L × K × S) | : 290 mm × 317 mm × 336 mm |
| Paino | : 5,5 kg perst. |

*Oikeudet muutoksiin pidätetään.*

## SPECIFIKATIONER

| | |
|---|---|
| Type | : 3-vejs basrefleks-højttaler med 3-elementer Twin Hyper Power-Drive Subwoofer |
| Højttalere: | |
| Subwoofer | : 13,5 cm membran × 1 |
| Hoved-bashøjttaler | : 16,0 cm membran × 1 |
| Diskantenhed | : 5,0 cm membran × 1 |
| Belastningskapacitet: | |
| Subwoofwer | : 100 W |
| Hovedhøjttaler | : 55 W |
| Impedans: | |
| Subwoofwer | : 6 Ω |
| Hovedhøjttaler | : 4 Ω |
| Frekvensområde: | |
| Subwoofwer | : 32 Hz — 90 Hz |
| Hovedhøjttaler | : 90 Hz — 20 000 Hz |
| Lydtryksniveau: | |
| Subwoofwer | : 86 dB/W·m |
| Hovedhøjttaler | : 75 dB/W·m |
| Mål (B × H × D) | : 290 mm × 317 mm × 336 mm |
| Vægt | : 5,5 kg hver |

*Design og specifikationer kan blive ændret uden varsel.*

EN. GE. FR. NL. SP. IT. SW. FI. DA.

JVC
VICTOR COMPANY OF JAPAN, LIMITED

0303NSMMACSAM

# PARTS LIST

## [ MX-GA77 ]

* All printed circuit boards and its assemblies are not available as service parts.

Area suffix

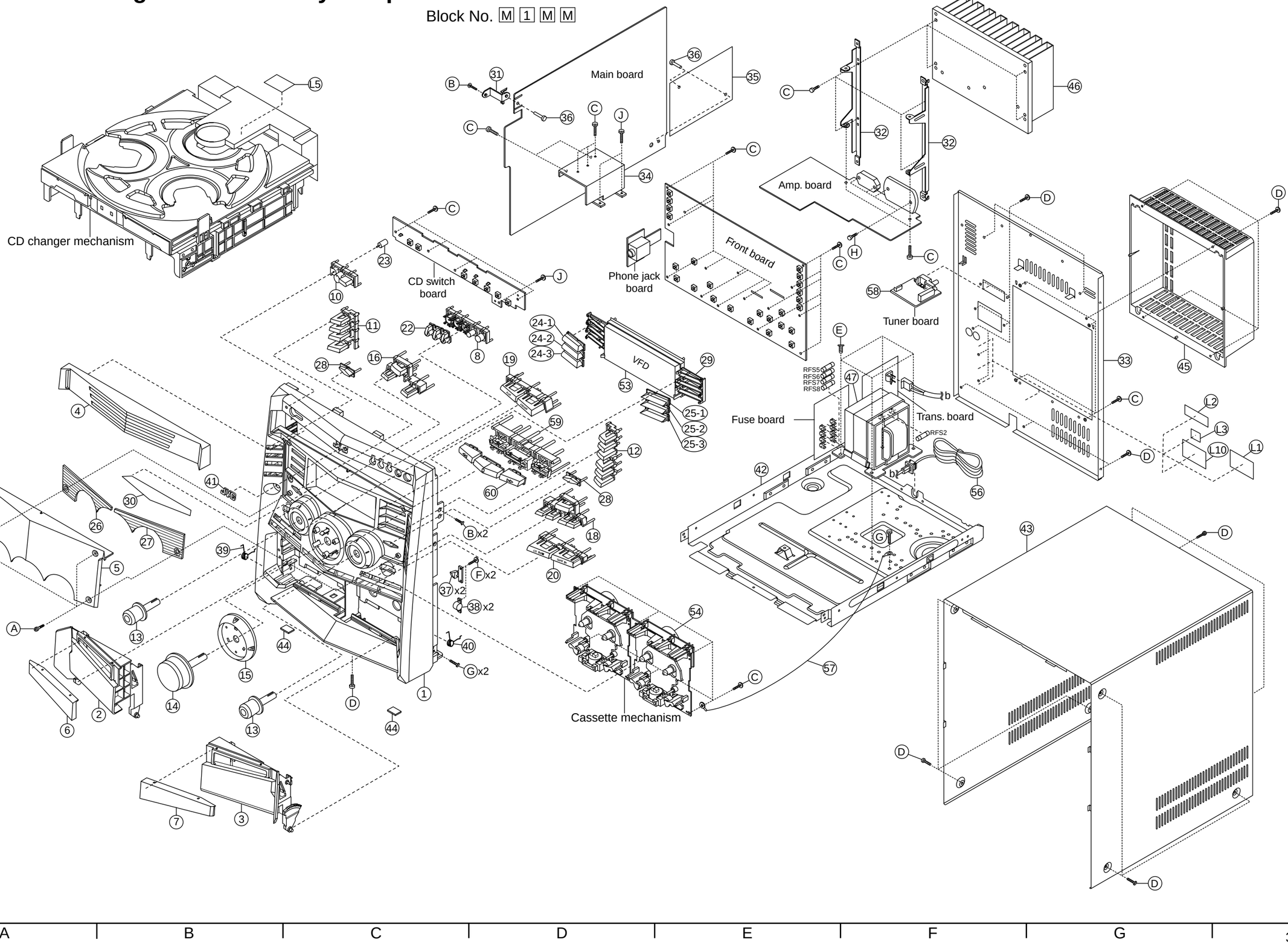
B ---------- U.K.
E ---------- Continental Europe
EN ---------- Northern Europe
EV ---------- Eastern Europe

- Contents -

< MEMO >

# Exploded view of general assembly and parts list

Block No. M 1 M M



## ■ Parts list (General assembly)

Block No. M1MM

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | AH64-02252C | FRONT CABINET | 1 | | |
| | 2 | AH64-02253B | CASSETTE DOOR A | 1 | | |
| | 3 | AH64-02254B | CASSETTE DOOR B | 1 | | |
| | 4 | AH64-02255B | CD DOOR | 1 | | |
| | 5 | AH64-02256E | WINDOW VFD | 1 | | |
| | 6 | AH64-02257A | WINDOW DOOR A | 1 | | |
| | 7 | AH64-02258A | WINDOW DOOR B | 1 | | |
| | 8 | AH640-2259B | KNOB DISC | 1 | | |
| | A | AH64-01106G | SCREW | 4 | M3X10 SILVER | |
| | B | 6002-000126 | SCREW | 3 | FH M3X10 BLK | |
| | C | 6003-000276 | SCREW | 40 | BH M3X10 YEL | |
| | D | 6003-000275 | SCREW | 26 | BH M3X10 BLACK | |
| | E | AH60-10107A | SCREW | 4 | M4X6 YEL | |
| | F | 6003-000277 | SCREW | 4 | BH M3X12 YEL | |
| | G | 6002-000398 | SCREW | 3 | BH M3X6 YEL | |
| | H | 6003-001230 | SCREW | 4 | BH M3 14 YEL | |
| | J | 6003-000283 | SCREW | 3 | BH M3X8 YEL | |
| | L 1 | AH68-01253C | RATING LABEL | 1 | | B,E,EN |
| | | AH68-01253D | RATING LABEL | 1 | | EV |
| | L 2 | AH68-00332A | CARTON LABEL | 1 | | |
| | L 3 | AH68-00331A | GOST LABEL | 1 | | EV |
| | L 5 | AH68-50275D | CD STICKER | 1 | | |
| | L10 | AH68-00486A | CAUTION LABEL B | 1 | | EV |
| | 10 | AH64-02261B | KNOB POWER ECO | 1 | | |
| | 11 | AH64-02262B | KNOB REC | 1 | | |
| | 12 | AH64-02263B | KNOB REPEAT | 1 | | |
| | 13 | AH64-02264B | KNOB SOUND | 2 | | |
| | 14 | AH64-02265B | KNOB VOLUME | 1 | | |
| | 15 | AH64-02266B | DECO RING | 1 | | |
| | 16 | AH64-02267B | KNOB TURBO | 1 | | |
| | 18 | AH64-02269B | KNOB RDS | 1 | | |
| | 19 | AH64-02270B | KNOB FUNCTION L | 1 | | |
| | 20 | AH64-02271B | KNOB FUNCTION R | 1 | | |
| | 22 | AH67-00200B | LENS DISC | 1 | | |
| | 23 | AH67-00201A | LENS POWER | 1 | | |
| | 24-1 | AH67-00202B | LENS-EQ L1 | 1 | ROCK | |
| | 24-2 | AH67-00202C | LENS-EQ L2 | 1 | POP | |
| | 24-3 | AH67-00202D | LENS-EQ L3 | 1 | CLASSIC | |
| | 25-1 | AH67-00203B | LENS-EQ R1 | 1 | DANCE | |
| | 25-2 | AH67-00203C | LENS-EQ R2 | 1 | HALL | |
| | 25-3 | AH67-00203D | LENS-EQ R3 | 1 | STADIUM | |
| | 26 | AH67-00204B | LENS INNER L | 1 | | |
| | 27 | AH67-00205B | LENS INNER R | 1 | | |
| | 28 | AH67-00208A | LENS MILKY | 2 | | |
| | 29 | AH61-01258A | VFD HOLDER | 1 | | |
| | 30 | AH63-00507A | SHEET MIRROR | 1 | | |
| | 31 | AH61-01261A | PCB BRAKET | 1 | | |
| | 32 | AH61-01262A | H SINK BRAKET | 2 | | |

## ■ Parts list (General assembly)

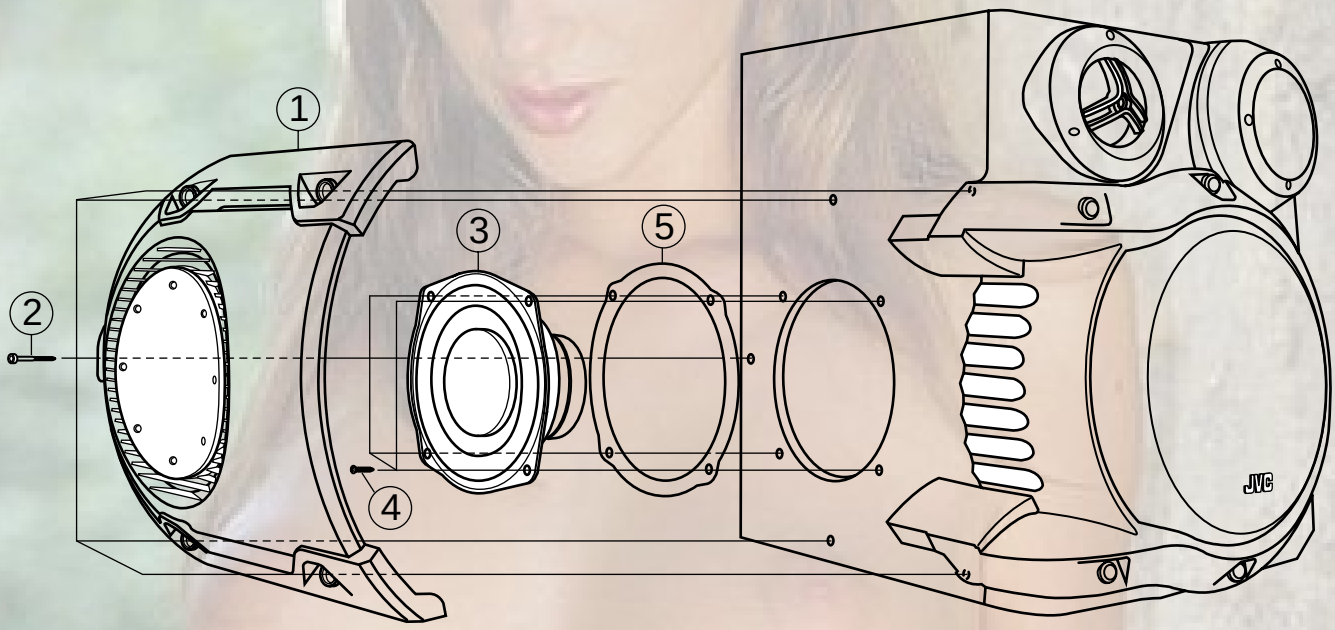
Block No. M1MM

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 33 | AH64-02273E | REAR CABINET | 1 | | |
| | 34 | AH62-00042A | HEAT SINK | 1 | 4959 | |
| | 35 | AH63-00278A | PCB COVER | 1 | | |
| | 36 | AH61-40014A | SUPPORT RIVET | 3 | | |
| | 37 | AH95-50001A | LATCH ASSY | 2 | | |
| | 38 | AH61-80030A | DAMPER ASSY | 2 | | |
| | 39 | AH61-00552A | DOOR SPRING A | 1 | | |
| | 40 | AH61-00553A | DOOR SPRING B | 1 | | |
| | 41 | AH64-00462C | BADGE JVC | 1 | | |
| | 42 | AH64-30416E | BOTTOM CABINET | 1 | | |
| | 43 | AH64-30390K | TOP CABINET | 1 | | |
| | 44 | AH69-20031A | CUSHION FOOT | 2 | | |
| | 45 | AH63-00250B | HEAT SINK COVER | 1 | | |
| | 46 | AH62-00080E | HEAT SINK | 1 | MAIN | |
| ⚠ | 47 | AH26-00188A | TRANS POWER | 1 | 230V 40.5/40/4 | |
| | 53 | AH07-00098A | VFD | 1 | BJ904GNK | |
| | 54 | ---------- | CASSETTE MECHA | 1 | CWM43FF09 | |
| ⚠ | 56 | AH39-00257A | POWER CORD | 1 | 250V 2.5A 1830MM | E,EN,EV |
| ⚠ | | AH39-00258Q | POWER CORD | 1 | 250V 5A 1830MM | B |
| | 57 | AH39-50001X | GROUND WIRE | 1 | | |
| | 58 | AH40-00050A | TUNER PACK | 1 | KST-MJ111MS0-60 | |
| | 59 | AH61-01400A | KNOB DECK | 1 | | |
| | 60 | AH64-02551B | KNOB | 1 | | |

# Exploded view of general assembly and parts list

Block No. M 2 M M

## SPEAKER BOX



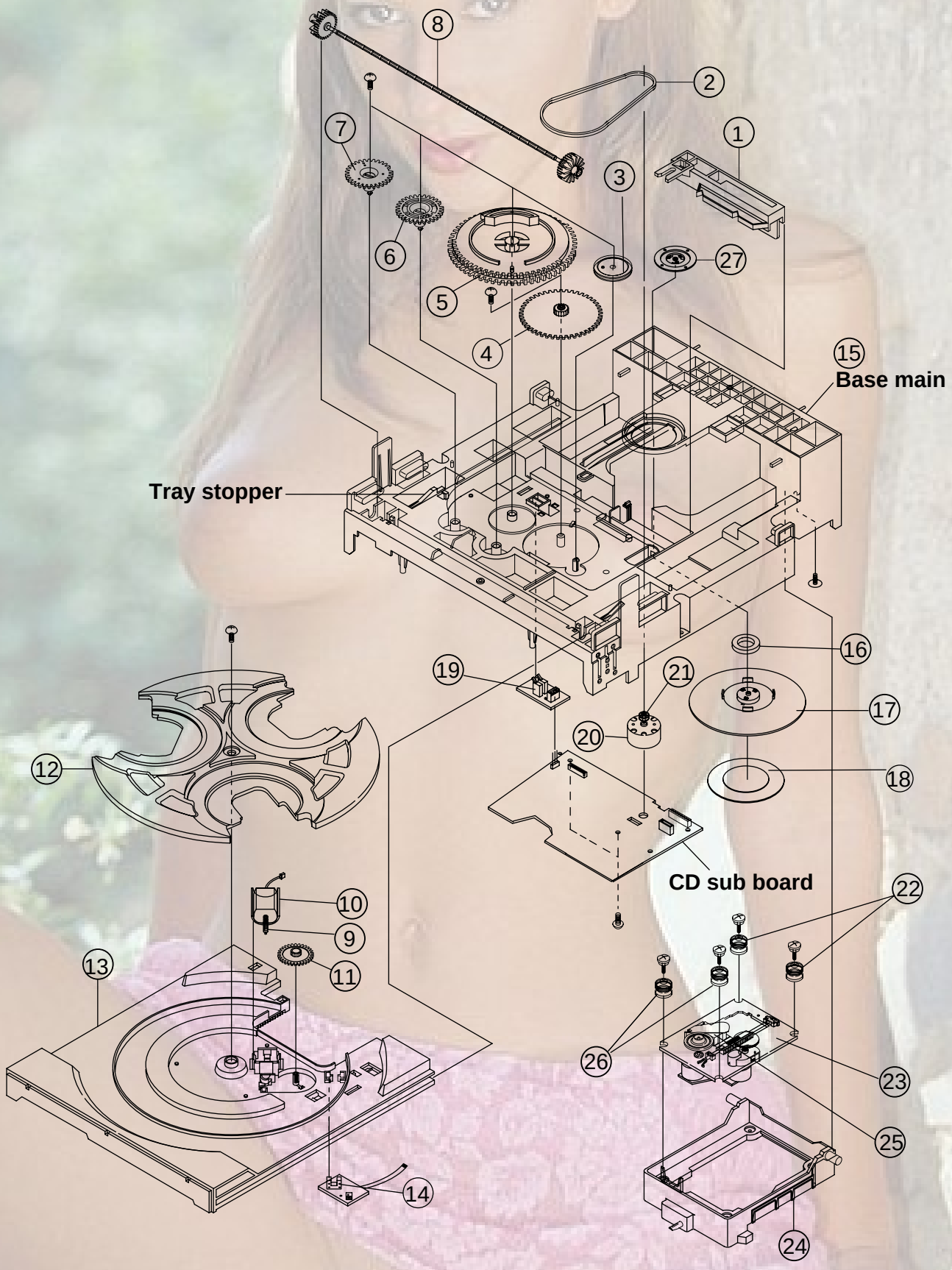

### ■ Parts list (General assembly)

**Block No. M2MM**

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | AH81-00959E | SIDE PANEL | 1 | RIGHT | |
| | | AH81-00959F | SIDE PANEL | 1 | LEFT | |
| | 2 | AH81-01121A | SCREW | 5 | 4.0X40MM BK | |
| | 3 | AH81-00959M | SPEAKER | 1 | 130MM 6OHM 120W | |
| | 4 | AH81-00959Z | SCREW | 4 | 3.5MMX16MM BK | |
| | 5 | AH91-00959X | SHEET | 1 | EVA | |

# CD changer mechanism assembly and parts list

Block No. M A M M



## ■ Parts list (CD changer mechanism)

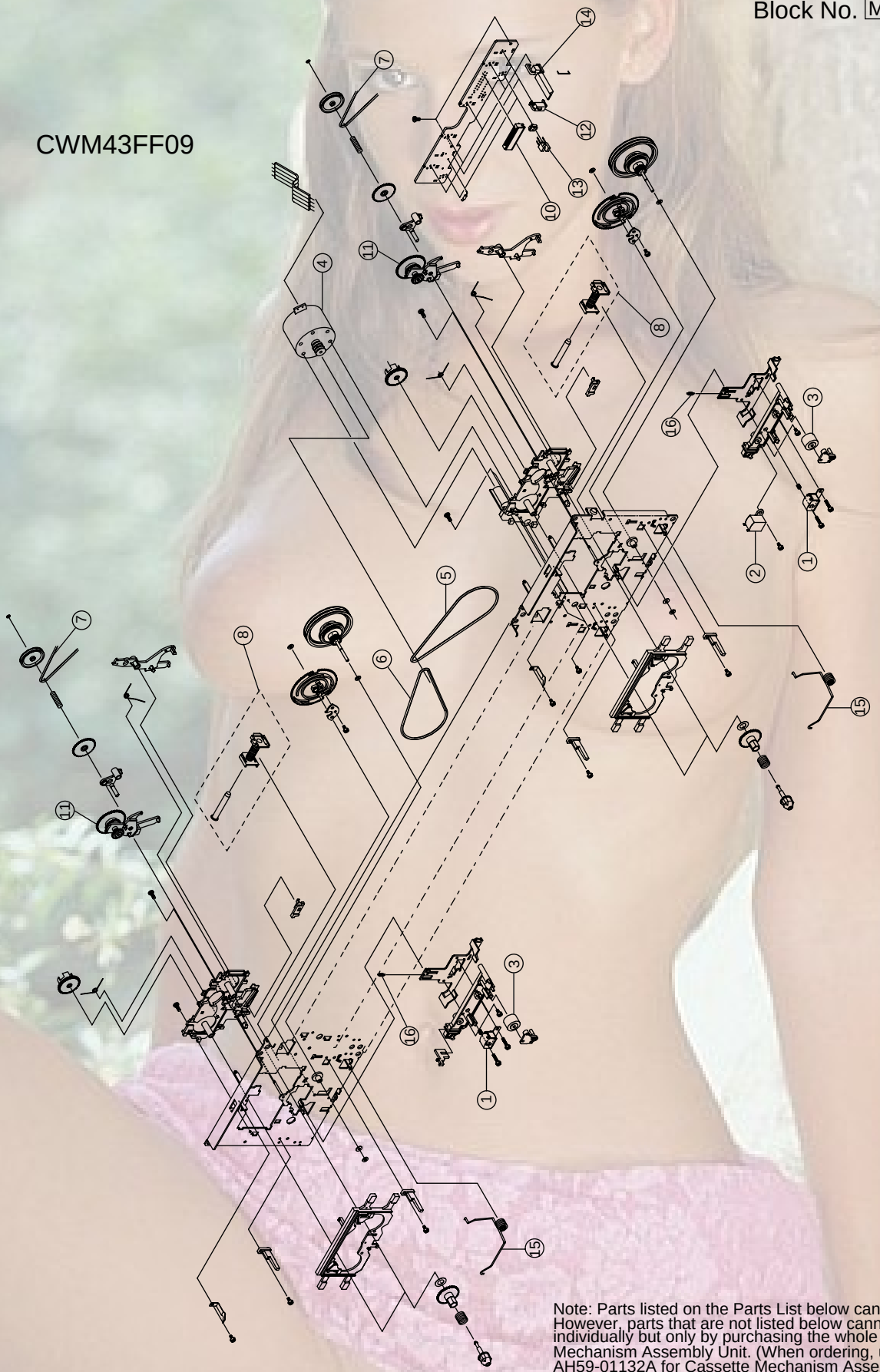
**Block No. MAMM**

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | AH66-80022A | SLIDE CAM | 1 | ABS HF-380 NTR | |
| | 2 | AH66-60034A | BELT LOAD | 1 | CR | |
| | 3 | AH66-20186A | GEAR PULLEY | 1 | POM (M90-44)WHT | |
| | 4 | AH66-20187A | GEAR-LOAD | 1 | POM (M90-44)BLK | |
| | 5 | AH66-20188A | GEAR-CAM | 1 | POM(M90-44)WHT | |
| | 6 | AH66-20189A | GEAR-TRAY | 1 | POM(M90-44)BLK | |
| | 7 | AH66-20190A | GEAR-CONVERTOR | 1 | POM (M90-44) WH | |
| | 8 | AH66-20191A | GEAR-SYNCRO | 1 | ABS HF-380 NTR | |
| | 9 | AH66-20192A | GEAR-WORM | 1 | POM (M90-44)WHT | |
| | 10 | AH31-12001A | LOADING MOTOR | 1 | FF-030PN-09120 | |
| | 11 | AH66-20193A | GEAR-ROULETTE | 1 | POM(M90-44)BLK | |
| | 12 | AH66-90056A | TRAY-ROULETTE | 1 | ABS XR-401 BLK | |
| | 13 | AH66-90055A | TRAY DISC | 1 | ABS XR-401 BLK | |
| | 14 | AH32-10001F | SENSOR | 1 | KPI-L06 | |
| | 15 | AH61-20428A-1 | BASE MAIN | 1 | CMS-300,BLK | |
| | 16 | 3302-000159 | MAGNET-FERRITE | 1 | 3500-3800G,6P | |
| | 17 | AH66-90053A | TABTE-CHUCK UNI | 1 | BLK,CMS300 | |
| | 18 | AH63-00068B | SHEET CHUCK | 1 | HYMERON,BLK,0.4 | |
| | 19 | 3404-000101 | SWICH MICRO | 1 | MLS-24 | |
| | 20 | AH31-10021A | DC MORTOR | 1 | RF-500TB,9VDC | |
| | 21 | AH66-10008A | PULLEY-MOTOR | 1 | BLK,CMS-CR3 | |
| | 22 | AH73-10031A | RUBBER-CD | 1 | RCD380,RED | |
| | 23 | AH91-60150C | SP MOTOR ASS'Y | 1 | CMS-D73SG6U | |
| | 24 | AH66-30098A | LEVER-LIFTER | 1 | ABS(BLK),CMS-30 | |
| | 25 | AH30-00007A | CD PICKUP | 1 | SOH-AD3 | |
| | 26 | AH73-10034A | RUBBER-CD(G) | 1 | CMS-300D,GREEN | |
| | 27 | AH61-00255A | BRKT CHUCK | 1 | SECL 0.8T | |

# Cassette mechanism assembly and parts list

Block No. M P M M

CWM43FF09



Note: Parts listed on the Parts List below can be supplied. However, parts that are not listed below cannot be supplied individually but only by purchasing the whole Cassette Mechanism Assembly Unit. (When ordering, use the Parts No. AH59-01132A for Cassette Mechanism Assembly Unit.)

## ■ Parts list (Cassette mechanism)

**Block No. MPMM**

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | 1 | AH81-00472A | PB HEAD | 2 | TC881CB067P | |
| | 2 | AH81-00472B | E HEAD | 1 | TC2131 | |
| | 3 | AH81-00472N | PINCH ROLLER | 2 | 22-027-41054 | |
| | 4 | AH81-00902E | MOTOR ASSY | 1 | 50-093-4879 | |
| | 5 | AH81-00902G | BF BELT | 1 | 02-083-4236 | |
| | 6 | AH81-00902J | AF BELT | 1 | 02-083-4234 | |
| | 7 | AH81-00902K | FR BLET | 2 | 02-083-4188 | |
| | 8 | AH81-00902L | SOLENOID ASSY | 2 | 50-093-4748 | |
| | 10 | AH81-00902Q | HOUSING | 1 | 6216016100 | |
| | 11 | AH81-00472V | CLUTCH ASSY | 2 | 50-093-4503 | |
| | 12 | AH81-00902W | MODE SWITCH | 1 | MPU11570MLB0 | |
| | 13 | AH81-00902X | PHOTO INTERRUPT | 1 | RP1352 | |
| | 14 | AH81-00902Y | LEAF SWITCH | 1 | LSA11355 | |
| | 15 | AH81-00903A | SPRING62 | 2 | 01-082-4686 | |
| | 16 | AH81-00473H | SPRING 04 | 2 | 01-080-4635 | |

■ **Electrical parts list (Main board)** **Block No. 01**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | AC101 | 2301-000216 | M.CAPACITOR | 220NF 5% 50V | |
| | AC102 | 2301-000474 | M.CAPACITOR | 8.2NF 10% 50V | |
| | AC103 | 2301-000390 | M.CAPACITOR | 15NF 10% 50V | |
| | AC104 | 2301-000216 | M.CAPACITOR | 220NF 5% 50V | |
| | AC105 | 2301-000419 | M.CAPACITOR | 27NF 10% 50V | |
| | AC106 | 2301-000449 | M.CAPACITOR | 47NF 10% 50V | |
| | AC107 | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | AC108 | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | AC109 | 2301-000419 | M.CAPACITOR | 27NF 10% 50V | |
| | AC110 | 2301-000216 | M.CAPACITOR | 220NF 5% 50V | |
| | AC111 | 2201-000144 | C.CAPACITOR | 0.1NF 5% 50V | |
| | AD101 | 0401-000101 | DIODE | 1N4148 100V | |
| | AD102 | 0401-000101 | DIODE | 1N4148 100V | |
| | AD103 | 0401-000101 | DIODE | 1N4148 100V | |
| | AD104 | 0401-000101 | DIODE | 1N4148 100V | |
| | AE101 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE102 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE103 | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| | AE104 | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| | AE105 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE106 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE107 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE108 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE109 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | AE110 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | AE111 | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | AE112 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE113 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE114 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | AE115 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | AE116 | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | AE117 | 2401-003621 | E.CAPACITOR | 47UF 20% 63V | |
| | AIC01 | 1201-000191 | IC | BA4558 DIP 8P | |
| | AIC02 | 1201-000191 | IC | BA4558 DIP 8P | |
| | AIC03 | 1201-000191 | IC | BA4558 DIP 8P | |
| | AIC04 | 1201-000191 | IC | BA4558 DIP 8P | |
| | AO101 | 0501-002409 | TRANSISTOR | KTC945B NPN | |
| | AQ102 | 0501-002409 | TRANSISTOR | KTC945B NPN | |
| | AO103 | 0501-002409 | TRANSISTOR | KTC945B NPN | |
| | AR01L | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR01R | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR02L | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | AR02R | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | AR03L | 2001-000508 | CARBON RESISTOR | 220K 5% 1/8W | |
| | AR03R | 2001-000508 | CARBON RESISTOR | 220K 5% 1/8W | |
| | AR101 | 2001-000563 | CARBON RESISTOR | 27K 5% 1/8W | |
| | AR102 | 2001-000563 | CARBON RESISTOR | 27K 5% 1/8W | |
| | AR103 | 2001-000548 | CARBON RESISTOR | 270K 5% 1/8W | |
| | AR104 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR105 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR106 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR107 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR108 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR109 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR110 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR111 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR112 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR113 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR114 | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR115 | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | AR116 | 2001-000977 | CARBON RESISTOR | 8.2K 5% 1/8W | |
| | AR117 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR118 | 2001-000508 | CARBON RESISTOR | 220K 5% 1/8W | |

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | AR119 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR120 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR121 | 2001-000802 | CARBON RESISTOR | 5.6K 5% 1/8W | |
| | AR122 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR123 | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | AR124 | 2001-000331 | CARBON RESISTOR | 12K 5% 1/8W | |
| | AR125 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR126 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR127 | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | AR128 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR129 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR130 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR131 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR132 | 2001-000508 | CARBON RESISTOR | 220K 5% 1/8W | |
| | AR133 | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | AR134 | 2001-001000 | CARBON RESISTOR | 82K 5% 1/8W | |
| | AR135 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR136 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR137 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | AR138 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | AR139 | 2001-000554 | CARBON RESISTOR | 270 5% 1/8W | |
| | AR140 | 2001-000802 | CARBON RESISTOR | 5.6K 5% 1/8W | |
| | AR141 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR301 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | BC01L | 2301-000361 | M.CAPACITOR | 1.2NF 10% 50V | |
| | BC01R | 2301-000361 | M.CAPACITOR | 1.2NF 10% 50V | |
| | BD101 | 0401-000101 | DIODE | 1N4148 100V | |
| | BL01L | AH26-10002W | TRANS TRAP COIL | BIAS-TRAP105K | |
| | BL01R | AH26-10002W | TRANS TRAP COIL | BIAS-TRAP105K | |
| | BO02L | 0501-000010 | TRANSISTOR | KSC1008 NPN | |
| | BO02R | 0501-000010 | TRANSISTOR | KSC1008 NPN | |
| | BO03L | 0501-000010 | TRANSISTOR | KSC1008 NPN | |
| | BQ03R | 0501-000010 | TRANSISTOR | KSC1008 NPN | |
| | BQ101 | 0504-001128 | DIGI TRANSISTOR | KRA103M PNP | |
| | BR01L | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | BR01R | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | BR02L | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | BR02R | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | BR03L | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | BR03R | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | BR101 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | CE101 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | CE102 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | CE103 | 2401-001887 | E.CAPACITOR | 100UF 20% 50V | |
| | CO01L | 0504-001125 | DIGI TRANSISTOR | KRC110M NPN | |
| | CO01R | 0504-001125 | DIGI TRANSISTOR | KRC110M NPN | |
| | CO101 | 0504-001128 | DIGI TRANSISTOR | KRA103M PNP | |
| | CR01L | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | CR01R | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | CR02L | 2001-000411 | CARBON RESISTOR | 18K 5% 1/8W | |
| | CR02R | 2001-000411 | CARBON RESISTOR | 18K 5% 1/8W | |
| | CW101 | 3708-001577 | CONNECTOR | 30P 1.25MM | |
| | CW103 | 3708-000412 | CONNECTOR | 12P 1.25MM | |
| | CW104 | 3711-001137 | CONNECTOR | 8P 2MM | |
| | CW105 | 3708-001167 | CONNECTOR | 14P 1.25MM | |
| | CW106 | AH39-00295A | LEAD CONNECTOR | MAX-L85 9P | |
| | CW107 | AH39-00338A | LEAD CONNECTOR | | |
| | CW108 | 3711-001062 | CONNECTOR | 6P 1R 2MM | |
| | CW109 | 3711-003111 | CONNECTOR | 6P 1R 2.5MM | |
| | CW11 | AH37-22001N | CONNECTOR JACK | 10MM YFW800-02 2P | |
| | CW110 | 3711-003107 | CONNECTOR | 3P 1R 2.5MM | |
| | CW111 | 3711-000907 | CONNECTOR | 3P 1R 2MM | |
| | EC07L | 2301-000454 | M.CAPACITOR | 5.6NF 10% 50V | |

■ **Electrical parts list (Main board)** **Block No. 01**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | EC07R | 2301-000454 | M.CAPACITOR | 5.6NF 10% 50V | |
| | EC08L | 2301-000216 | M.CAPACITOR | 220NF 5% 50V | |
| | EC08R | 2301-000216 | M.CAPACITOR | 220NF 5% 50V | |
| | EC09L | 2301-000216 | M.CAPACITOR | 220NF 5% 50V | |
| | EC09R | 2301-000216 | M.CAPACITOR | 220NF 5% 50V | |
| | EC10L | 2201-000368 | C.CAPACITOR | 0.22NF 10% 50V | |
| | EC10R | 2201-000368 | C.CAPACITOR | 0.22NF 10% 50V | |
| | EC101 | 2301-000361 | M.CAPACITOR | 1.2NF 10% 50V | |
| | EC102 | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | EC103 | 2201-000783 | C.CAPACITOR | 100NF +80-20% 50V | |
| | EC11L | 2201-000368 | C.CAPACITOR | 0.22NF 10% 50V | |
| | EC11R | 2201-000368 | C.CAPACITOR | 0.22NF 10% 50V | |
| | ED102 | 0401-000101 | DIODE | 1N4148 100V | |
| | EE01L | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE01R | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE02L | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE02R | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE03L | 2401-001917 | E.CAPACITOR | 1UF 20% 50V GP | |
| | EE03R | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE04L | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE04R | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE05L | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE05R | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE06L | 2401-001919 | E.CAPACITOR | 2.2UF 20% 50V | |
| | EE06R | 2401-001919 | E.CAPACITOR | 2.2UF 20% 50V | |
| | EE07L | 2401-001917 | E.CAPACITOR | 1UF 20% 50V GP | |
| | EE07R | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | EE08L | 2401-001917 | E.CAPACITOR | 1UF 20% 50V GP | |
| | EE08R | 2401-001917 | E.CAPACITOR | 1UF 20% 50V GP | |
| | EE101 | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| | EE102 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | EE103 | 2401-000830 | E.CAPACITOR | 220UF 20% 25V | |
| | EE107 | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| | EE108 | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| | EE109 | 2401-000759 | E.CAPACITOR | 220NF 20% 50V | |
| | EIC01 | 1204-001776 | IC | TDA7442D | |
| | EIC02 | 1201-000191 | IC | BA4558 DIP 8P | |
| | EJ101 | 3722-000379 | PIN JACK | 4P/2C 3.5MM | |
| ⚠ | EPT01 | AH26-80144W | TRANS POWER | SUB POWER TRANS | |
| | EQ101 | 0501-002409 | TRANSISTOR | KTC945B NPN | |
| | ER01L | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | ER01R | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | ER02L | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | ER02R | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | ER03L | 2001-000411 | CARBON RESISTOR | 18K 5% 1/8W | |
| | ER03R | 2001-000411 | CARBON RESISTOR | 18K 5% 1/8W | |
| | ER04L | 2001-000411 | CARBON RESISTOR | 18K 5% 1/8W | |
| | ER04R | 2001-000411 | CARBON RESISTOR | 18K 5% 1/8W | |
| | ER05L | 2001-000515 | CARBON RESISTOR | 220 5% 1/8W | |
| | ER05R | 2001-000515 | CARBON RESISTOR | 220 5% 1/8W | |
| | ER06L | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | ER06R | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | ER07L | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | ER07R | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | ER08L | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | ER08R | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | ER09L | 2001-000947 | CARBON RESISTOR | 7.5K 5% 1/8W | |
| | ER09R | 2001-000947 | CARBON RESISTOR | 7.5K 5% 1/8W | |
| | ER10L | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | ER10R | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | ER101 | 2001-000515 | CARBON RESISTOR | 220 5% 1/8W | |
| | ER102 | 2001-000515 | CARBON RESISTOR | 220 5% 1/8W | |
| | ER103 | 2001-000023 | CARBON RESISTOR | 47 5% 1/4W | |

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | ER104 | 2001-000022 | CARBON RESISTOR | 47 5% 1/4W | |
| | ER109 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | ER110 | 2001-000773 | CARBON RESISTOR | 470K 5% 1/8W | |
| | ER111 | 2001-000515 | CARBON RESISTOR | 220 5% 1/8W | |
| | ER112 | 2001-000645 | CARBON RESISTOR | 330K 5% 1/8W | |
| | ER113 | 2001-000989 | CARBON RESISTOR | 820K 5% 1/8W | |
| | ER13L | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | ER13R | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | ER14L | 2001-000008 | CARBON RESISTOR | 15K 5% 1/8W | |
| | ER14R | 2001-000008 | CARBON RESISTOR | 15K 5% 1/8W | |
| | ER15L | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | ER15R | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | ER16L | 2001-000003 | CARBON RESISTOR | 330 5% 1/8W | |
| | ER16R | 2001-000003 | CARBON RESISTOR | 330 5% 1/8W | |
| | ER17L | 2001-000003 | CARBON RESISTOR | 330 5% 1/8W | |
| | ER17R | 2001-000003 | CARBON RESISTOR | 330 5% 1/8W | |
| | EZD01 | 0403-000372 | ZENER DIODE | UZ9.1BM 9.1V | |
| | EZD02 | 0403-000372 | ZENER DIODE | UZ9.1BM 9.1V | |
| | HC01L | 2201-000642 | C.CAPACITOR | 0.68NF 10% 50V | |
| | HC01R | 2201-000642 | C.CAPACITOR | 0.68NF 10% 50V | |
| | HC02L | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | HC02R | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | HC03L | 2201-000389 | C.CAPACITOR | 0.022NF 5% 50V | |
| | HC03R | 2201-000389 | C.CAPACITOR | 0.022NF 5% 50V | |
| | HE01L | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | HE01R | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | HE02L | 2401-001164 | E.CAPACITOR | 33UF 20% 16V | |
| | HE02R | 2401-001164 | E.CAPACITOR | 33UF 20% 16V | |
| | HE101 | 2401-000830 | E.CAPACITOR | 220UF 20% 25V | |
| | HE102 | 2401-000830 | E.CAPACITOR | 220UF 20% 25V | |
| | HE103 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | HIC01 | 1201-001285 | IC | BA4556 SOP 8P | |
| | HQ01L | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | HQ01R | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | HR01L | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | HR01R | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | HR02L | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | HR02R | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | HR03L | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | HR03R | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | HR04L | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | HR04R | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | HR05L | 2001-000019 | CARBON RESISTOR | 10 5% 1/2W | |
| | HR05R | 2001-000019 | CARBON RESISTOR | 10 5% 1/2W | |
| | HR06L | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | HR06R | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | HR101 | 2001-000028 | CARBON RESISTOR | 100 5% 1/2W | |
| | HR102 | 2001-000019 | CARBON RESISTOR | 10 5% 1/2W | |
| | HR103 | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | HR104 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | JC00R | 2201-000368 | C.CAPACITOR | 0.22NF 10% 50V | |
| | JC001 | 2201-000368 | C.CAPACITOR | 0.22NF 10% 50V | |
| | JC01L | 2201-000642 | C.CAPACITOR | 0.68NF 10% 50V | |
| | JC01R | 2201-000642 | C.CAPACITOR | 0.68NF 10% 50V | |
| | JC02L | 2301-000379 | M.CAPACITOR | 10NF 10% 50V | |
| | JC02R | 2301-000379 | M.CAPACITOR | 10NF 10% 50V | |
| | JC03L | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | JC03R | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | JC04L | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | JC04R | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | JC05L | 2301-000430 | M.CAPACITOR | 33NF 10% 50V | |
| | JC05R | 2301-000430 | M.CAPACITOR | 33NF 10% 50V | |
| | JC06L | 2201-000674 | C.CAPACITOR | 0.82NF 10% 50V | |

■ **Electrical parts list (Main board)** **Block No. 01**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | JC06R | 2201-000674 | C.CAPACITOR | 0.82NF 10% 50V | |
| | JC101 | 2201-000557 | C.CAPACITOR | 0.47NF 10% 50V | |
| | JC102 | 2301-000407 | M.CAPACITOR | 2.7NF 10% 50V | |
| | JC103 | 2301-000404 | M.CAPACITOR | 2.2NF 10% 50V | |
| | JC104 | 2301-000404 | M.CAPACITOR | 2.2NF 10% 50V | |
| | JC105 | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | JC106 | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | JC107 | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | JC108 | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | JC111 | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | JD101 | 0401-000101 | DIODE | 1N4148 100V | |
| | JE01L | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | JE01R | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | JE02L | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | JE02R | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | JE101 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | JE102 | 2401-001164 | E.CAPACITOR | 33UF 20% 16V | |
| | JE103 | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | JE104 | 2401-001164 | E.CAPACITOR | 33UF 20% 16V | |
| | JE105 | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| | JE106 | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | JIC01 | 1201-001899 | IC | HA12237F OFP 40P | |
| | JL101 | 2701-000298 | INDUCTOR | 470UH 10% | |
| | JL102 | AH26-10003C | TRANS TRAP COIL | PCHNS-5371EOJ | |
| | JO01L | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | JO01R | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | JO101 | 0501-002176 | TRANSISTOR | KTD863 NPN 1W | |
| | JQ102 | 0501-000422 | TRANSISTOR | KTA1273 PNP | |
| | JO103 | 0501-002409 | TRANSISTOR | KTC945B NPN | |
| | JO104 | 0504-001128 | DIGI TRANSISTOR | KRA103M PNP | |
| | JR01L | 2001-000977 | CARBON RESISTOR | 8.2K 5% 1/8W | |
| | JR01R | 2001-000977 | CARBON RESISTOR | 8.2K 5% 1/8W | |
| | JR02L | 2001-000241 | CARBON RESISTOR | 1.5K 5% 1/8W | |
| | JR02R | 2001-000241 | CARBON RESISTOR | 1.5K 5% 1/8W | |
| | JR03L | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | JR03R | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | JR04L | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | JR04R | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | JR05L | 2001-000802 | CARBON RESISTOR | 5.6K 5% 1/8W | |
| | JR05R | 2001-000802 | CARBON RESISTOR | 5.6K 5% 1/8W | |
| | JR06L | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | JR06R | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | JR07L | 2001-000302 | CARBON RESISTOR | 10 5% 1/8W | |
| | JR07R | 2001-000302 | CARBON RESISTOR | 10 5% 1/8W | |
| | JR08L | 2001-000008 | CARBON RESISTOR | 15K 5% 1/8W | |
| | JR08R | 2001-000008 | CARBON RESISTOR | 15K 5% 1/8W | |
| | JR101 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | JR102 | 2001-000456 | CARBON RESISTOR | 2.2 5% 1/4W | |
| | JR103 | 2001-000023 | CARBON RESISTOR | 47 5% 1/4W | |
| | JR104 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | JR105 | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | JR106 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | JR107 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | JR108 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | JR109 | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | JR110 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | JR112 | 2001-000435 | CARBON RESISTOR | 1M 5% 1/8W | |
| | JR113 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | JVR01 | 2103-000248 | ROTA V RESISTOR | 200K 30% 1/10W | |
| | JVR02 | 2103-000248 | ROTA V RESISTOR | 200K 30% 1/10W | |
| ⚠ | PBD01 | 0402-001258 | DIODE | GBU606 600V 6A | |
| ⚠ | PBD02 | 0402-001258 | DIODE | GBU606 600V 6A | |
| ⚠ | PBD03 | 0402-001077 | DIODE | KBP202G 200V 2A | |

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | PCB | AH41-00555A | MAIN PCB | | |
| ⚠ | PC201 | 2201-000161 | C.CAPACITOR | 10NF +80-20% | |
| ⚠ | PC202 | 2201-000161 | C.CAPACITOR | 10NF +80-20% | |
| ⚠ | PC203 | 2201-000161 | C.CAPACITOR | 10NF +80-20% | |
| | PD101 | 0401-000101 | DIODE | 1N4148 100V | |
| | PD102 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD104 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD105 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD106 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD107 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD108 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD13 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD201 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD202 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD204 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD205 | 0401-000101 | DIODE | 1N4148 100V | |
| | PD206 | 0401-000101 | DIODE | 1N4148 100V | |
| | PD208 | 0401-000101 | DIODE | 1N4148 100V | |
| | PD209 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PD210 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | PE101 | 2401-001413 | E.CAPACITOR | 470UF 20% 35V | |
| | PE102 | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | PE103 | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| ⚠ | PE201 | 2401-002258 | E.CAPACITOR | 4700UF 20% 50V | |
| ⚠ | PE202 | 2401-002258 | E.CAPACITOR | 4700UF 20% 50V | |
| ⚠ | PE203 | 2401-003381 | E.CAPACITOR | 3300UF 20% 63V | |
| ⚠ | PE204 | 2401-003381 | E.CAPACITOR | 3300UF 20% 63V | |
| ⚠ | PE205 | 2401-003116 | E.CAPACITOR | 4700UF 20% 35V | |
| | PE206 | 2401-000830 | E.CAPACITOR | 220UF 20% 25V | |
| | PE207 | 2401-001938 | E.CAPACITOR | 22UF 20% 25V | |
| | PE208 | 2401-000407 | E.CAPACITOR | 10UF 20% 16V | |
| | PE209 | 2401-001912 | E.CAPACITOR | 1UF 20% 50V | |
| | PE212 | 2401-000230 | E.CAPACITOR | 100UF 20% 100V | |
| | PE213 | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| | PE214 | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| ⚠ | PF101 | 2008-000135 | FUSIBLE RESISTOR | 1 5% 1/2W | |
| ⚠ | PIC01 | AC14-12001G | IC | KA78L05 | |
| | PIC02 | 1203-001653 | IC | L4959 | |
| | PL101 | 3501-001159 | RELAY | 12VDC 0.54W | |
| | PL102 | 2701-000298 | INDUCTOR | 470UH 10% | |
| | PL103 | AH27-10001F | COIL | 27UH | |
| | PL104 | AH27-10001F | COIL | 27UH | |
| | PQ101 | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | PQ102 | 0504-000144 | DIGI TRANSISTOR | KSR2002 PNP | |
| | PQ103 | 0504-001123 | DIGI TRANSISTOR | KRC103M NPN | |
| | PQ104 | 0501-000331 | TRANSISTOR | KSC1009-Y NPN | |
| | PQ105 | 0501-000422 | TRANSISTOR | KTA1273 PNP | |
| | PQ106 | 0501-002408 | TRANSISTOR | MPS751 PNP | |
| | PR101 | 2001-001195 | CARBON RESISTOR | 82 5% 1/2W | |
| | PR102 | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | PR103 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | PR104 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | PR105 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | PR201 | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | PR202 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | PR203 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | PR204 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | PR205 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | PR206 | 2003-000455 | CARBON RESISTOR | 100 5% 2W | |
| | PR207 | 2001-000563 | CARBON RESISTOR | 27K 5% 1/8W | |
| | PR208 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | PR209 | 2001-000111 | CARBON RESISTOR | 150 5% 1/4W | |
| | PR210 | 2001-000055 | CARBON RESISTOR | 4.7K 5% 1/4W | |

■ **Electrical parts list (Main board)** **Block No. 01**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | PR211 | 2001-000038 | CARBON RESISTOR | 390 5% 1/4W | |
| | PR216 | 2003-000701 | CARBON RESISTOR | 470 5% 2W | |
| | PR217 | 2001-001153 | CARBON RESISTOR | 47 5% 1/2W | |
| | PR218 | 2001-001153 | CARBON RESISTOR | 47 5% 1/2W | |
| | PR219 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | PR220 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | PR221 | 2001-000660 | CARBON RESISTOR | 33K 5% 1/8W | |
| | PR222 | 2001-000319 | CARBON RESISTOR | 120K 5% 1/8W | |
| | PW103 | 3711-000190 | CONNECTOR | 2P 1R 7.92MM | |
| | PZD01 | 0403-000354 | ZENER DIODE | UZ5.1B 5.1V | |
| | PZ102 | 0403-000564 | ZENER DIODE | TZP16A 16V | |
| | PZ103 | 0403-000564 | ZENER DIODE | TZP16A 16V | |
| | PZ104 | 0403-000393 | ZENER DIODE | UZP5.1B 5.1V | |
| | PZ105 | 0403-000379 | ZENER DIODE | UZP12B 12V | |
| ⚠ | RFS9 | 3601-001334 | FUSE | 250V 5A | |

■ **Electrical parts list (Front board)** **Block No. 02**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | BUZZ1 | 3002-001134 | BUZZER | 85DB 12V | |
| | CW01B | AH39-00247A | LEAD CONNECTOR | | |
| | FR101 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR102 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR103 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR104 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR105 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR106 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR107 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR108 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR109 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR110 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR111 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR112 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR113 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR114 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR115 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR116 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR117 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR118 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR119 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR120 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR121 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR122 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR123 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR124 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR125 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR126 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR127 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR128 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR129 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR130 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR131 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR132 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR133 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR134 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR135 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR136 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | FR140 | 2001-000995 | CARBON RESISTOR | 820 5% 1/8W | |
| | FR141 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | FR142 | 2001-000221 | CARBON RESISTOR | 1.2K 5% 1/8W | |
| | FR143 | 2001-000241 | CARBON RESISTOR | 1.5K 5% 1/8W | |
| | FR144 | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | FR145 | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | FR146 | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | FR147 | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | FR148 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR149 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | FR150 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | FR151 | 2001-000010 | CARBON RESISTOR | 68K 5% 1/8W | |
| | FR152 | 2001-000995 | CARBON RESISTOR | 820 5% 1/8W | |
| | FR153 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | FR154 | 2001-000221 | CARBON RESISTOR | 1.2K 5% 1/8W | |
| | FR155 | 2001-000241 | CARBON RESISTOR | 1.5K 5% 1/8W | |
| | FR156 | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | FR157 | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | FR158 | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | FR159 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | FR160 | 2001-000890 | CARBON RESISTOR | 6.8K 5% 1/8W | |
| | FR161 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | FR162 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | FR201 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | FR202 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | FR203 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | FR204 | 2001-000855 | CARBON RESISTOR | 560 5% 1/4W | |
| | FR205 | 2001-000995 | CARBON RESISTOR | 820 5% 1/8W | |
| | FR206 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | FR207 | 2001-000221 | CARBON RESISTOR | 1.2K 5% 1/8W | |
| | FR208 | 2001-000241 | CARBON RESISTOR | 1.5K 5% 1/8W | |
| | FR209 | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | FR210 | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | FSR01 | 2103-000341 | VR SEMI | 2K 30% 1/10W | |
| | HC201 | 2202-000807 | C.CAPACITOR | 22NF +80-20% | |
| | HC202 | 2202-000807 | C.CAPACITOR | 22NF +80-20% | |
| | HC203 | 2202-000850 | C.CAPACITOR | 2.2NF 20% | |
| | HC204 | 2202-000850 | C.CAPACITOR | 2.2NF 20% | |
| | HD201 | 0401-000101 | DIODE | 1N4148 100V | |
| | HJACK | 3722-000351 | PHONE JACK | 11P 3.5PI AG | |
| | HJ201 | 3811-000389 | WIRE-NO SHEATH CU | SPCW 300V | |
| | HR201 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | LD101 | 0601-001739 | LED | ROUND RED | |
| | LD102 | 0601-001739 | LED | ROUND RED | |
| | LD103 | 0601-001739 | LED | ROUND RED | |
| | LD104 | 0601-001739 | LED | ROUND RED | |
| | LD105 | 0601-001739 | LED | ROUND RED | |
| | LD106 | 0601-001739 | LED | ROUND RED | |
| | LD107 | 0601-001739 | LED | ROUND RED | |
| | LD108 | 0601-001739 | LED | ROUND RED | |
| | LD201 | 0601-001739 | LED | ROUND RED | |
| | LD202 | 0601-001739 | LED | ROUND RED | |
| | LD203 | 0601-001739 | LED | ROUND RED | |
| | LD204 | 0601-001739 | LED | ROUND RED | |
| | PCB | AH41-00552A | FRONT PCB | | |
| | SW101 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW102 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW103 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW104 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW105 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW106 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW107 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW201 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW202 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW203 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW204 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW205 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW206 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW207 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW208 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW209 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW210 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW211 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW212 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW301 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW302 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW303 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW304 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW305 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW306 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW307 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW308 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW309 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW310 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW311 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW312 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | SW313 | 3404-001048 | TACT SWITCH | DC12V 50MA | |
| | UCW01 | 3708-001577 | CONNECTOR | 30P 1.25MM | |

■ **Electrical parts list (Front board)** **Block No. 02**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | UCW02 | 3708-000492 | CONNECTOR | 9P 1.25MM | |
| | UCW03 | 3708-000492 | CONNECTOR | 9P 1.25MM | |
| | UCW04 | 3708-000454 | CONNECTOR | 22P 1.25MM | |
| | UCW05 | 3708-000178 | CONNECTOR | 16P 1.25MM | |
| | UC001 | 2201-000783 | C.CAPACITOR | 100NF +80-20% 50V | |
| | UC101 | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | UC102 | 2401-000759 | E.CAPACITOR | 220NF 20% 50V | |
| | UC103 | 2401-001355 | E.CAPACITOR | 470UF 20% 10V | |
| | UC104 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | UC105 | 2201-000389 | C.CAPACITOR | 0.022NF 5% 50V | |
| | UC106 | 2201-000389 | C.CAPACITOR | 0.022NF 5% 50V | |
| | UC107 | 2202-000854 | C.CAPACITOR | 47NF 30% 50V | |
| | UC108 | 2202-000854 | C.CAPACITOR | 47NF 30% 50V | |
| | UC109 | 2202-000796 | C.CAPACITOR | 1NF 10% 50V | |
| | UC110 | 2201-000565 | C.CAPACITOR | 47NF +80-20% 50V | |
| | UC111 | 2401-000475 | E.CAPACITOR | 10UF 20% 50V | |
| | UC112 | 2202-000854 | C.CAPACITOR | 47NF 30% 50V | |
| | UC113 | 2401-000475 | E.CAPACITOR | 10UF 20% 50V | |
| | UC114 | 2201-000783 | C.CAPACITOR | 100NF +80-20% 50V | |
| | UC115 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | UC116 | 2401-001364 | E.CAPACITOR | 470UF 20% 16V | |
| | UC118 | 2401-000830 | E.CAPACITOR | 220UF 20% | |
| | UC130 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | UC131 | 2201-000783 | C.CAPACITOR | 100NF +80-20% 50V | |
| | UC132 | 2202-000780 | C.CAPACITOR | 100NF +80-20% 50V | |
| | UC133 | 2202-000780 | C.CAPACITOR | 100NF +80-20% 50V | |
| | UC135 | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | UC137 | 2401-001572 | E.CAPACITOR | 47UF 20% 50V | |
| | UC138 | 2401-001511 | E.CAPACITOR | 47UF 20% 16V | |
| | UD05 | 0401-000101 | DIODE | 1N4148 100V | |
| | UD06 | 0401-000101 | DIODE | 1N4148 100V | |
| | UD101 | 0401-000101 | DIODE | 1N4148 100V | |
| | UD102 | 0401-000101 | DIODE | 1N4148 100V | |
| | UD103 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | UD104 | 0401-000101 | DIODE | 1N4148 100V | |
| | UD105 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | UD106 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | UD107 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | UD108 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | UD109 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | UD110 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | UD25 | 0401-000101 | DIODE | 1N4148 100V | |
| | UIC01 | AH11-00095B | MASK ROM | LC876764C | |
| | UIC02 | AC59-60060A | MODULE REMOCON | GP1U281R | |
| | UIC03 | 0904-001621 | IC | PT8300 SOP 28P | |
| | UIC04 | 0904-001621 | IC | PT8300 SOP 28P | |
| | UQ101 | 0501-002409 | TRANSISTOR | KTC945B NPN | |
| | UQ102 | 0504-001123 | DIGI TRANSISTOR | KRC103M NPN | |
| | UQ103 | 0504-001123 | DIGI TRANSISTOR | KRC103M NPN | |
| | UQ104 | 0504-001123 | DIGI TRANSISTOR | KRC103M NPN | |
| | UQ107 | 0501-000422 | TRANSISTOR | KTA1273 PNP | |
| | UQ108 | 0501-000422 | TRANSISTOR | KTA1273 PNP | |
| | UQ109 | 0501-000422 | TRANSISTOR | KTA1273 PNP | |
| | UQ118 | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | UQ119 | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | UQ120 | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | UQ201 | 0502-001063 | TR POWER | KTD2092 NPN | |
| | UR001 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | UR002 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR003 | 2003-000500 | OMF RESISTOR | 150 5% 1W | |
| | UR004 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | UR100 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | UR101 | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | UR102 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | UR103 | 2001-000508 | CARBON RESISTOR | 220K 5% 1/8W | |
| | UR104 | 2001-000793 | CARBON RESISTOR | 47 5% 1/8W | |
| | UR105 | 2001-000295 | CARBON RESISTOR | 10M 5% 1/8W | |
| | UR106 | 2001-000850 | CARBON RESISTOR | 560K 5% 1/8W | |
| | UR107 | 2001-000435 | CARBON RESISTOR | 1M 5% 1/8W | |
| | UR108 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR109 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR110 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR111 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR112 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR113 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | UR114 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | UR115 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | UR116 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | UR117 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR118 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR119 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR120 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR121 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR122 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR123 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR124 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR125 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR126 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR127 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR128 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR129 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR130 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR131 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR132 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR133 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR134 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR135 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR136 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR137 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR138 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR139 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR140 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR141 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR142 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR143 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR144 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR145 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | UR146 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | UR147 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | UR148 | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | UR149 | 2001-000734 | CARBON RESISTOR | 4.7K 5% 1/8W | |
| | UR150 | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | UR152 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR153 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR154 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR155 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR156 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR157 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR158 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR159 | 2001-000034 | CARBON RESISTOR | 220 5% 1/4W | |
| | UR160 | 2001-001178 | CARBON RESISTOR | 680 5% 1/2W | |
| | UR161 | 2001-001178 | CARBON RESISTOR | 680 5% 1/2W | |
| | UR162 | 2001-001178 | CARBON RESISTOR | 680 5% 1/2W | |
| | UR166 | 2001-000613 | CARBON RESISTOR | 3.9K 5% 1/8W | |
| | UR170 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |
| | UR171 | 2001-000290 | CARBON RESISTOR | 10K 5% 1/8W | |

■ **Electrical parts list (Front board)** **Block No. 02**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | UR172 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | UR173 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | UR180 | 2001-000008 | CARBON RESISTOR | 15K 5% 1/8W | |
| | UR181 | 2001-000660 | CARBON RESISTOR | 33K 5% 1/8W | |
| | UR182 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | UR183 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | UR184 | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | UX101 | 2801-001394 | CRYSTAL | 32.768KHZ 20PPM | |
| | UX102 | 2802-001174 | RESONATOR | 10MHZ 0.5% | |
| | VFD | AH07-00098A | VFD | BJ904GNK | |
| | VR101 | 3406-001085 | ROTARY SWITCH | NO CLICK | |
| | VR102 | 3406-001084 | ROTARY SWITCH | CLICK | |
| | VR103 | 3406-001084 | ROTARY SWITCH | CLICK | |
| | ZD101 | 0403-000334 | ZENER DIODE | UZ2.7BSA 2.7V | |
| | ZD102 | 0403-000334 | ZENER DIODE | UZ2.7BSA 2.8V | |
| | ZD103 | 0403-000334 | ZENER DIODE | UZ2.7BSA 2.9V | |
| | ZD104 | 0403-000361 | ZENER DIODE | UZ6.2BSB 6.2V | |

■ **Electrical parts list (Amp. board)** **Block No. 03**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | ACE1 | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | ACE4 | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | ACW1 | 3708-001167 | CONNECTOR | 14P 1.25MM | |
| | ACW2 | 3711-003113 | CONNECTOR | 9P 1R 2.5MM | |
| | AC10L | 2202-000263 | C.CAPACITOR | 470PF 10% 50V | |
| | AC10R | 2202-000263 | C.CAPACITOR | 470PF 10% 50V | |
| | AC11L | 2201-000557 | C.CAPACITOR | 0.47NF 10% 50V | |
| | AC11R | 2201-000557 | C.CAPACITOR | 0.47NF 10% 50V | |
| | AC12L | 2201-000838 | C.CAPACITOR | 0.003NF 0.25PF 50V | |
| | AC12R | 2201-000838 | C.CAPACITOR | 0.003NF 0.25PF 50V | |
| | AC13L | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | AC13R | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | AC14L | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | AC14R | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | AC20L | 2202-000263 | C.CAPACITOR | 470PF 10% 50V | |
| | AC20R | 2202-000263 | C.CAPACITOR | 470PF 10% 50V | |
| | AC21L | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | AC21R | 2202-000781 | C.CAPACITOR | 100PF 10% 50V | |
| | AC22L | 2201-000838 | C.CAPACITOR | 0.003NF 0.25PF 50V | |
| | AC22R | 2201-000838 | C.CAPACITOR | 0.003NF 0.25PF 50V | |
| | AC23L | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | AC23R | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | AC24L | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | AC24R | 2202-000817 | C.CAPACITOR | 4.7NF 20% 16V | |
| | AC25L | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | AC25R | 2301-000375 | M.CAPACITOR | 100NF 10% 50V | |
| | AC50L | 2201-000381 | C.CAPACITOR | 22NF +80% 50V | |
| | AC50R | 2201-000381 | C.CAPACITOR | 22NF +80% 50V | |
| | AC51L | 2201-000381 | C.CAPACITOR | 22NF +80% 50V | |
| | AC51R | 2201-000381 | C.CAPACITOR | 22NF +80% 50V | |
| | AC603 | 2201-000783 | C.CAPACITOR | 100NF +80-20% 50V | |
| | AC604 | 2201-000783 | C.CAPACITOR | 100NF +80-20% 50V | |
| | AC607 | 2201-000547 | C.CAPACITOR | 4.7NF 20% 500V | |
| | AC608 | 2201-000547 | C.CAPACITOR | 4.7NF 20% 500V | |
| | AD100 | 0401-000101 | DIODE | 1N4148 100V | |
| | AD200 | 0401-000101 | DIODE | 1N4148 100V | |
| | AD303 | 0402-000127 | DIODE | 1N4002 100V 1A | |
| | AE10L | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | AE10R | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | AE100 | 2401-000357 | E.CAPACITOR | 100UF 0.2 50V | |
| | AE101 | 2401-001164 | E.CAPACITOR | 33UF 20% 16V | |
| | AE102 | 2401-000357 | E.CAPACITOR | 100UF 0.2 50V | |
| | AE103 | 2401-000357 | E.CAPACITOR | 100UF 0.2 50V | |
| | AE11L | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| | AE11R | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| | AE20L | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | AE20R | 2401-002180 | E.CAPACITOR | 2.2UF 20% 50V | |
| | AE201 | 2401-001164 | E.CAPACITOR | 33UF 20% 16V | |
| | AE202 | 2401-000230 | E.CAPACITOR | 100UF 20% 100V | |
| | AE203 | 2401-000230 | E.CAPACITOR | 100UF 20% 100V | |
| | AE204 | 2401-000230 | E.CAPACITOR | 100UF 20% 100V | |
| | AE21L | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| | AE21R | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| | AE50L | 2401-000459 | E.CAPACITOR | 10UF 20% 35V | |
| | AE50R | 2401-000459 | E.CAPACITOR | 10UF 20% 35V | |
| | AE500 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AE501 | 2401-001893 | E.CAPACITOR | 100UF 20% 16V | |
| | AJW9 | 2001-000331 | CARBON RESISTOR | 12K 5% 1/8W | |
| | AL10L | AH27-90001A | COIL SPRING | 2.2UH | |
| | AL10R | AH27-90001A | COIL SPRING | 2.2UH | |
| | AL11L | AH27-90001A | COIL SPRING | 2.2UH | |
| | AL11R | AH27-90001A | COIL SPRING | 2.2UH | |
| | AL20L | AH27-90001A | COIL SPRING | 2.2UH | |

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | AL20R | AH27-90001A | COIL SPRING | 2.2UH | |
| | AL21L | AH27-90001A | COIL SPRING | 2.2UH | |
| | AL21R | AH27-90001A | COIL SPRING | 2.2UH | |
| | AQ1OR | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | AO10L | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | AO100 | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | AO200 | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | AO301 | 0501-000010 | TRANSISTOR | KSC1008 NPN | |
| | AO50L | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | AO50R | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | AO603 | 0501-002375 | TRANSISTOR | KTC8050 NPN | |
| | ARL1 | 3501-001197 | RELAY | 12VDC 0.54W 44.4MA | |
| | AR10L | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | AR10R | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | AR101 | 2003-000008 | OMF RESISTOR | 100 5% 1W | |
| | AR102 | 2001-000660 | CARBON RESISTOR | 33K 5% 1/8W | |
| | AR103 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | AR11L | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | AR11R | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | AR12L | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR12R | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR13L | 2001-000472 | CARBON RESISTOR | 2.7K 5% 1/8W | |
| | AR13R | 2001-000472 | CARBON RESISTOR | 2.7K 5% 1/8W | |
| | AR14L | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | AR14R | 2001-001055 | CARBON RESISTOR | 1.8K 5% 1/2W | |
| | AR15L | 2003-000390 | OMF RESISTOR | 0.27 5% 2W | |
| | AR15R | 2003-000390 | OMF RESISTOR | 0.27 5% 2W | |
| | AR16L | 2001-000017 | CARBON RESISTOR | 4.7 5% 1/4W | |
| | AR16R | 2001-000017 | CARBON RESISTOR | 4.7 5% 1/4W | |
| | AR17L | 2003-000689 | OMF RESISTOR | 4.7 5% 1W | |
| | AR17R | 2003-000689 | OMF RESISTOR | 4.7 5% 1W | |
| | AR18L | 2001-000010 | CARBON RESISTOR | 68K 5% 1/8W | |
| | AR18R | 2001-000010 | CARBON RESISTOR | 68K 5% 1/8W | |
| | AR20L | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | AR20R | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | AR200 | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | AR201 | 2001-000660 | CARBON RESISTOR | 33K 5% 1/8W | |
| | AR202 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | AR203 | 2003-000008 | OMF RESISTOR | 100 5% 1W | |
| | AR204 | 2001-000331 | CARBON RESISTOR | 12K 5% 1/8W | |
| | AR21L | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR21R | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR22L | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | AR22R | 2001-000258 | CARBON RESISTOR | 1.8K 5% 1/8W | |
| | AR23L | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR23R | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR24L | 2003-000390 | OMF RESISTOR | 0.27 5% 2W | |
| | AR24R | 2003-000390 | OMF RESISTOR | 0.27 5% 2W | |
| | AR25L | 2001-000017 | CARBON RESISTOR | 4.7 5% 1/4W | |
| | AR25R | 2001-000017 | CARBON RESISTOR | 4.7 5% 1/4W | |
| | AR27L | 2003-000689 | OMF RESISTOR | 4.7 5% 1W | |
| | AR27R | 2003-000689 | OMF RESISTOR | 4.7 5% 1W | |
| | AR301 | 2001-000449 | CARBON RESISTOR | 2.2K 5% 1/8W | |
| | AR302 | 2001-000273 | CARBON RESISTOR | 100K 5% 1/8W | |
| | AR303 | 2001-000515 | CARBON RESISTOR | 220 5% 1/8W | |
| | AR50L | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR50R | 2001-000864 | CARBON RESISTOR | 56K 5% 1/8W | |
| | AR500 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR501 | 2001-000281 | CARBON RESISTOR | 100 5% 1/8W | |
| | AR51L | 2001-001000 | CARBON RESISTOR | 82K 5% 1/8W | |
| | AR51R | 2001-001000 | CARBON RESISTOR | 82K 5% 1/8W | |
| | AR52L | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | AR52R | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |

■ **Electrical parts list (Amp. board)** **Block No. 03**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | AR53L | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR53R | 2001-000522 | CARBON RESISTOR | 22K 5% 1/8W | |
| | AR54L | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | AR54R | 2001-000786 | CARBON RESISTOR | 47K 5% 1/8W | |
| | AR55L | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | AR55R | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| | AR603 | 2001-000591 | CARBON RESISTOR | 3.3K 5% 1/8W | |
| ⚠ | FIC01 | 1201-001955 | IC POWER AMP | STK403-070 14P | |
| | FIC02 | 1201-000191 | IC | BA4558 DIP 8P | |
| | HRFS2 | 3602-000147 | FUSE CLIP | | |
| | HRFS5 | 3602-000147 | FUSE CLIP | | |
| | HRFS6 | 3602-000147 | FUSE CLIP | | |
| | HRFS7 | 3602-000147 | FUSE CLIP | | |
| | HRFS8 | 3602-000147 | FUSE CLIP | | |
| | PCB | AH41-00553A | AMP PCB | | |
| | PCW1 | 3711-000588 | CONNECTOR | 10P 1R 2.5MM | |
| | PC101 | 2201-000546 | C.CAPACITOR | 4.7NF 20% 400V | |
| | PC102 | 2201-000546 | C.CAPACITOR | 4.7NF 20% 400V | |
| | PL101 | AH27-10001F | COIL | 27UH | |
| | PL102 | AH27-10001F | COIL | 27UH | |
| | PW102 | AH37-22001N | CONNECTOR JACK | 10MM YFW800-02 | |
| ⚠ | RFS2 | 3601-000282 | FUSE | 250V 4A | |
| ⚠ | RFS5 | 3601-000301 | FUSE | 250V 6.3A | |
| ⚠ | RFS6 | 3601-000301 | FUSE | 250V 6.3A | |
| ⚠ | RFS7 | 3601-001290 | FUSE | 250V 8A | |
| ⚠ | RFS8 | 3601-001290 | FUSE | 250V 8A | |
| | SPK | 3716-001208 | TERMINAL BLOCK | SOLDER 8P 12.5MM | |
| ⚠ | WIC01 | 1201-001963 | IC-POWER AMP | STK403-100 SIP 14P | |

■ **Electrical parts list (CD board)** **Block No. 04**

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | CW101 | 3708-001252 | CONNECTOR | 16P 1MM | |
| | CW102 | AH39-20561P | LEAD CONNECTOR | 6P 150MM | |
| | CW103 | 3708-001131 | CONNECTOR | 5P 1.25MM | |
| | CW104 | 3711-003379 | CONNECTOR | 3P 1R 2.5MM | |
| | CW105 | 3708-001438 | CONNECTOR | 22P 1.25MM | |
| | CW106 | AH39-00060A | LEAD CONNECTOR | 51015-08 51004-08 | |
| | CW107 | 3711-000906 | CONNECTOR | 3P 1R 2MM | |
| | C101 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C102 | 2203-001537 | CHIP CAPACITOR | 1NF 10% 50V | |
| | C103 | 2203-001551 | CHIP CAPACITOR | 1.5NF 10% 50V | |
| | C104 | 2203-001551 | CHIP CAPACITOR | 1.5NF 10% 50V | |
| | C105 | 2203-000609 | CHIP CAPACITOR | 22NF 10% 50V | |
| | C106 | 2203-001137 | CHIP CAPACITOR | 68NF +80-20% 50V | |
| | C107 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C108 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C111 | 2203-000892 | CHIP CAPACITOR | 4.7NF 10% 50V | |
| | C112 | 2203-000892 | CHIP CAPACITOR | 4.7NF 10% 50V | |
| | C113 | 2202-000780 | C.CAPACITOR | 100NF +80-20% 50V | |
| | C114 | 2401-001625 | E.CAPACITOR | 6.8UF 20% 50V | |
| | C115 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C116 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C117 | 2203-001537 | CHIP CAPACITOR | 1NF 10% 50V | |
| | C118 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C119 | 2203-000802 | CHIP CAPACITOR | 33NF 10% 50V | |
| | C120 | 2401-001968 | E.CAPACITOR | 470NF 20% 50V | |
| | C121 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C122 | 2203-001137 | CHIP CAPACITOR | 68NF +80-20% 50V | |
| | C123 | 2401-000438 | E.CAPACITOR | 10UF 20% 25V | |
| | C124 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C124A | 2203-001064 | CHIP CAPACITOR | 56NF 10% 50V | |
| | C125 | 2203-000840 | CHIP CAPACITOR | 0.39NF 5% 50V | |
| | C126 | 2203-000495 | CHIP CAPACITOR | 2.2NF 10% 50V | |
| | C127 | 2203-000595 | CHIP CAPACITOR | 0.22NF 5% 50V | |
| | C128 | 2203-000802 | CHIP CAPACITOR | 33NF 10% 50V | |
| | C129 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C130 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C131 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C132 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C133 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C134 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C135 | 2401-001968 | E.CAPACITOR | 470NF 20% 50V | |
| | C201 | 2203-001619 | CHIP CAPACITOR | 0.027NF 5% 50V | |
| | C202 | 2203-001619 | CHIP CAPACITOR | 0.027NF 5% 50V | |
| | C203 | 2203-001223 | CHIP CAPACITOR | 0.82NF 10% 50V | |
| | C204 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C205 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C207 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C208 | 2203-000858 | CHIP CAPACITOR | 0.039NF 5% 50V | |
| | C209 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C211 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C212 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C213 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C214 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C215 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C216 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C217 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C218 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C301 | 2401-001102 | E.CAPACITOR | 330UF 20% 16V | |
| | C302 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C303 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C304 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C305 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C401 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |

| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | C402 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C403 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C501L | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| | C501R | 2401-001954 | E.CAPACITOR | 4.7UF 20% 50V | |
| | C502L | 2203-001537 | CHIP CAPACITOR | 1NF 10% 50V | |
| | C502R | 2203-001537 | CHIP CAPACITOR | 1NF 10% 50V | |
| | C601 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C602 | 2203-000260 | CHIP CAPACITOR | 10NF 10% 50V | |
| | C603 | 2401-000240 | E.CAPACITOR | 100UF 20% 10V | |
| | C603A | 2202-000780 | C.CAPACITOR | 100NF +80-20% 50V | |
| | C604 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C605 | 2203-001223 | CHIP CAPACITOR | 0.82NF 10% 50V | |
| | C606 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C607 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C608 | 2203-001223 | CHIP CAPACITOR | 0.82NF 10% 50V | |
| | C610 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C611 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C612 | 2203-000203 | CHIP CAPACITOR | 100NF 10% 16V | |
| | C801 | 2401-002183 | E.CAPACITOR | 220UF 20% 16V | |
| | C803 | 2203-000787 | CHIP CAPACITOR | 0.33NF 5% 50V | |
| | C804 | 2202-000243 | C.CAPACITOR | 33PF 5% 50V | |
| | C805 | 2202-000243 | C.CAPACITOR | 33PF 5% 50V | |
| | C806 | 2202-000243 | C.CAPACITOR | 33PF 5% 50V | |
| | DR1 | 2007-000872 | CHIP RESISTOR | 4.7K 5% 1/10W | |
| | DR2 | 2007-000872 | CHIP RESISTOR | 4.7K 5% 1/10W | |
| | D301 | 0402-000151 | DIODE | 1N5392 100V 1.5A | |
| | IC101 | 1204-001799 | IC | KB9226 48P | |
| | IC201 | 0904-001524 | IC | S5L9290 48P | |
| | IC301 | 1003-000179 | IC | KA9258D 28P | |
| | IC401 | 1003-001162 | IC | KA3082 10PIN | |
| | IC402 | 1003-001162 | IC | KA3082 10PIN | |
| | IC601 | 1204-001885 | IC | S5L9276 64P | |
| | IC602 | 1105-001339 | IC | M11L1644 24P | |
| | IC801 | AC14-12001G | IC | KA78L05 | |
| | PCB | AH41-00282B | CD PCB | | |
| | O101 | 0501-000314 | TRANSISTOR | KSA812 PNP | |
| | O301 | 0501-000610 | TRANSISTOR | KSA928A-Y PNP | |
| | Q302 | 0501-000010 | TRANSISTOR | KSC1008 NPN | |
| | R101 | 2007-001039 | CHIP RESISTOR | 56K 5% 1/10W | |
| | R102 | 2007-001039 | CHIP RESISTOR | 56K 5% 1/10W | |
| | R103 | 2007-001039 | CHIP RESISTOR | 56K 5% 1/10W | |
| | R104 | 2007-001039 | CHIP RESISTOR | 56K 5% 1/10W | |
| | R105 | 2007-000409 | CHIP RESISTOR | 15K 5% 1/10W | |
| | R105 | 2007-001208 | CHIP RESISTOR | 82K 5% 1/10W | |
| | R106 | 2007-001208 | CHIP RESISTOR | 82K 5% 1/10W | |
| | R107 | 2007-001216 | CHIP RESISTOR | 82 5% 1/10W | |
| | R108 | 2007-000308 | CHIP RESISTOR | 10 5% 1/10W | |
| | R110 | 2007-000409 | CHIP RESISTOR | 15K 5% 1/10W | |
| | R112 | 2007-001195 | CHIP RESISTOR | 820K 5% 1/10W | |
| | R113 | 2007-000444 | CHIP RESISTOR | 180K 5% 1/10W | |
| | R114 | 2007-000001 | CHIP RESISTOR | 68K 5% 1/10W | |
| | R115 | 2007-001177 | CHIP RESISTOR | 8.2K 5% 1/10W | |
| | R116 | 2007-000546 | CHIP RESISTOR | 20K 5% 1/10W | |
| | R117 | 2001-000331 | CARBON RESISTOR | 12K 5% 1/8W | |
| | R118 | 2007-000477 | CHIP RESISTOR | 1M 5% 1/10W | |
| | R119 | 2007-001208 | CHIP RESISTOR | 82K 5% 1/10W | |
| | R120 | 2007-001039 | CHIP RESISTOR | 56K 5% 1/10W | |
| | R121 | 2007-000409 | CHIP RESISTOR | 15K 5% 1/10W | |
| | R123 | 2007-000941 | CHIP RESISTOR | 47K 5% 1/10W | |
| | R124 | 2007-000338 | CHIP RESISTOR | 120K 5% 1/10W | |
| | R125 | 2007-000338 | CHIP RESISTOR | 120K 5% 1/10W | |
| | R126 | 2007-001039 | CHIP RESISTOR | 56K 5% 1/10W | |
| | R127 | 2007-001208 | CHIP RESISTOR | 82K 5% 1/10W | |

■ **Electrical parts list (CD board)** **Block No. 04**

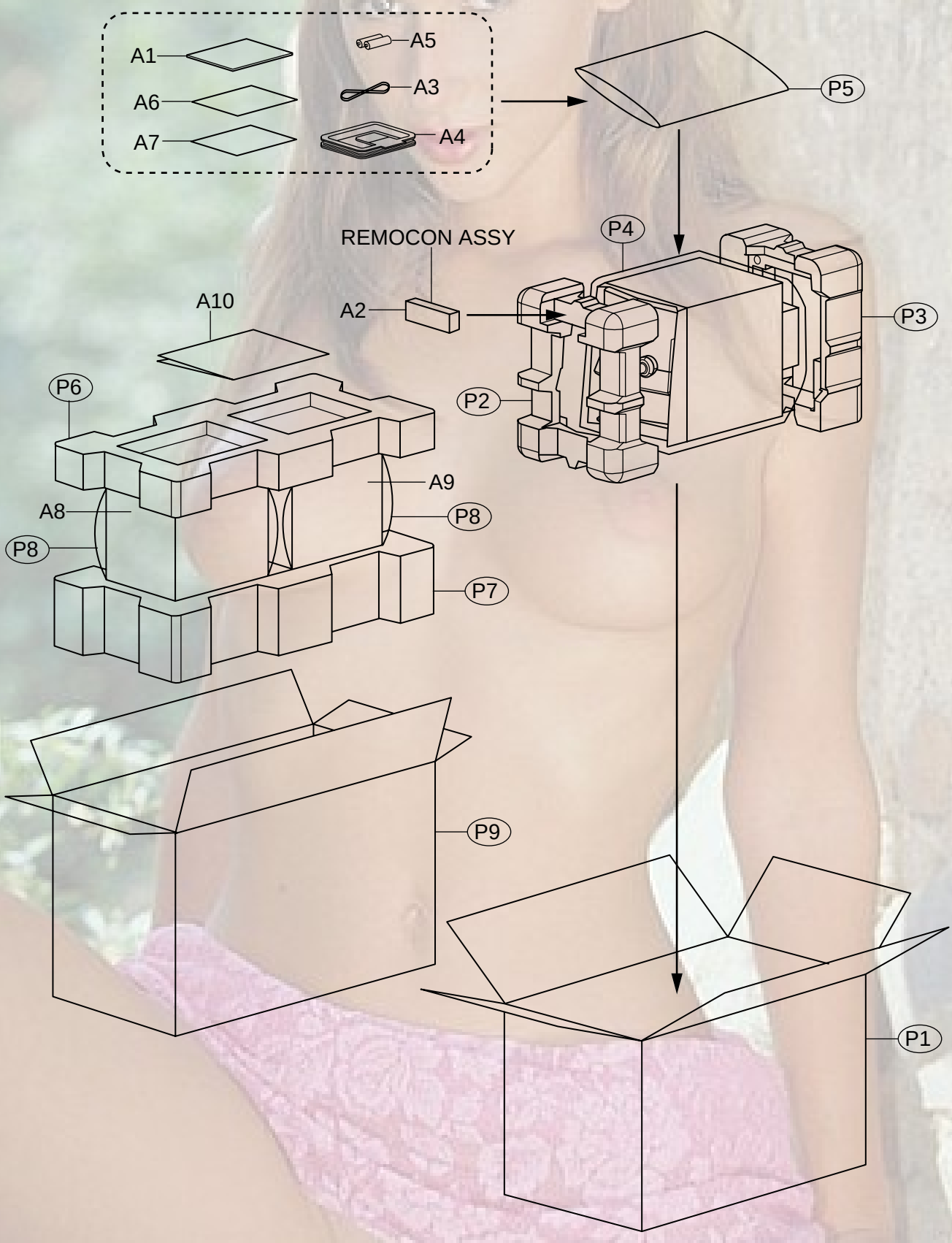
| ⚠ | Item | Parts number | Parts name | Remarks | Area |
|---|---|---|---|---|---|
| | R128 | 2007-000653 | CHIP RESISTOR | 27K 5% 1/10W | |
| | R129 | 2007-000941 | CHIP RESISTOR | 47K 5% 1/10W | |
| | R132 | 2007-000300 | CHIP RESISTOR | 10K 5% 1/10W | |
| | R133 | 2007-000300 | CHIP RESISTOR | 10K 5% 1/10W | |
| | R201 | 2007-000290 | CHIP RESISTOR | 100 5% 1/10W | |
| | R202 | 2007-000477 | CHIP RESISTOR | 1M 5% 1/10W | |
| | R203 | 2007-000290 | CHIP RESISTOR | 100 5% 1/10W | |
| | R204 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R205 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R206 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R207 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R208 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R209 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R210 | 2007-000572 | CHIP RESISTOR | 220 5% 1/10W | |
| | R211 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | R212 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | R213 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R301 | 2008-000140 | FUSIBLE RESISTOR | 2.2 5% 1/2W | |
| | R302 | 2001-001006 | CARBON RESISTOR | 82 5% 1/8W | |
| | R501L | 2007-000282 | CHIP RESISTOR | 100K 5% 1/10W | |
| | R501R | 2007-000282 | CHIP RESISTOR | 100K 5% 1/10W | |
| | R502L | 2007-000290 | CHIP RESISTOR | 100 5% 1/10W | |
| | R502R | 2007-000290 | CHIP RESISTOR | 100 5% 1/10W | |
| | R601 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R602 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R603 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R604 | 2001-000515 | CARBON RESISTOR | 220 5% 1/8W | |
| | R605 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | R801 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R802 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R803 | 2001-000429 | CARBON RESISTOR | 1K 5% 1/8W | |
| | R804 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R805 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R806 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R807 | 2007-000872 | CHIP RESISTOR | 4.7K 5% 1/10W | |
| | R808 | 2007-000872 | CHIP RESISTOR | 4.7K 5% 1/10W | |
| | R809 | 2007-000872 | CHIP RESISTOR | 4.7K 5% 1/10W | |
| | R809 | 2007-000300 | CHIP RESISTOR | 10K 5% 1/10W | |
| | R810 | 2001-000362 | CARBON RESISTOR | 150 5% 1/8W | |
| | R811 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R812 | 2007-000468 | CHIP RESISTOR | 1K 5% 1/10W | |
| | R813 | 2007-000941 | CHIP RESISTOR | 47K 5% 1/10W | |
| | X201 | 2802-000211 | RESONATOR | 16.93MHZ 0.5% | |
| | ZD301 | 0403-000344 | ZENER DIODE | UZ3.9B 3.9V | |
| | ZD401 | 0403-000361 | ZENER DIODE | UZ6.2BSB 6.2V | |
| | ZD402 | 0403-000352 | ZENER DIODE | UZ4.7BM 4.7V | |

< MEMO >

# Packing materials and accessories parts list

Block No. M 3 M M
Block No. M 5 M M

## B,E,EN Version



## ■ Parts list (Packing B,E,EN Version)

**Block No. M3MM**

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | P 1 | AH69-00905B | PACKING CASE | 1 | SET | B,E,EN |
| | P 2 | AH69-00867A | CUSHION | 1 | FRONT | B,E,EN |
| | P 3 | AH69-00868A | CUSHION | 1 | REAR | B,E,EN |
| | P 4 | AH69-30012T | PORY BAG | 1 | SET | |
| | P 5 | AH69-00525A | PORY BAG | 1 | INSTRUCTIONS | |
| | P 6 | AH81-00959Q | CUSHION TOP | 1 | SPEAKER BOX | |
| | P 7 | AH81-00929R | CUSHION BOTTOM | 1 | SPEAKER BOX | |
| | P 8 | AH81-00631U | PORY BAG | 2 | SPEAKER BOX | |
| | P 9 | AH81-00959S | PACKING CASE | 1 | SPEAKER BOX | B,E,EN |

## ■ Parts list (Accessories B,E,EN Version)

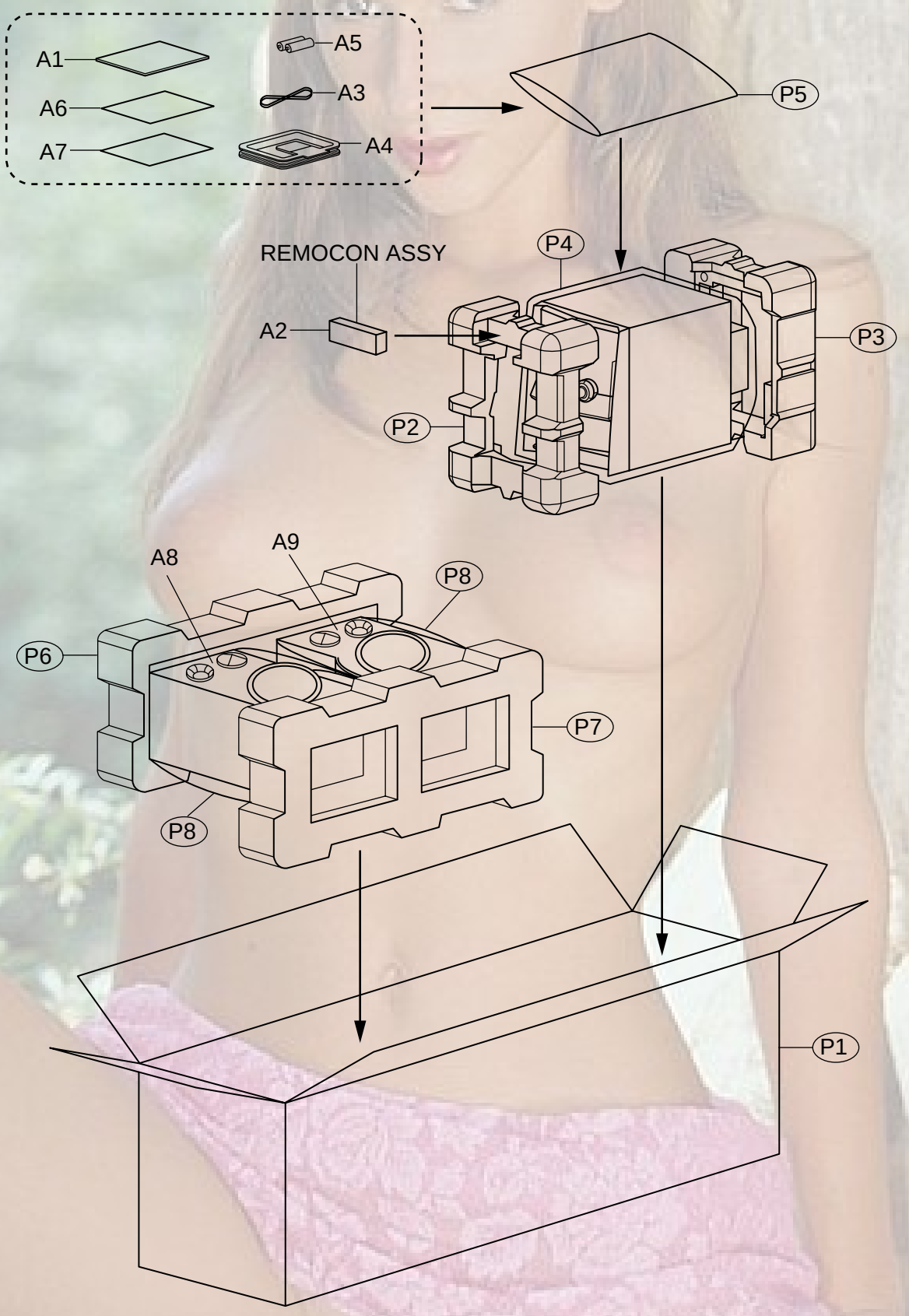
**Block No. M5MM**

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | A 1 | AH68-01227D | INSTRUCTIONS | 1 | LVT1010-003B | B |
| | | AH68-01227E | INSTRUCTIONS | 1 | LVT1010-004B | E |
| | | AH68-01227F | INSTRUCTIONS | 1 | LVT1010-005B | EN |
| | A 2 | AH59-01163A | REMOCON ASSY | 1 | RM-MXGT88R | |
| | A 3 | AH38-10001A | FM WIRE | 1 | | |
| | A 4 | AH42-20001P | ANT LOOP | 1 | | |
| | A 5 | ---------- | BATTERY | 2 | | |
| | A 6 | AH68-00415J | IMPORTANT CARD | 1 | | |
| | A 7 | AH68-00416A | SAFETY CARD | 1 | | |
| | A 8 | MXGA77-SPBOX-R | SPEAKER BOX R | 1 | | |
| | A 9 | MXGA77-SPBOX-L | SPEAKER BOX L | 1 | | |
| | A10 | LVT1066-001A | INSTRUCTIONS | 1 | SPEAKER BOX | B,E,EN |

# Packing materials and accessories parts list

Block No. M 3 M M
Block No. M 5 M M

## EV Version



## ■ Parts list (Packing EV Version)

**Block No. M3MM**

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | P 1 | AH69-00906D | MASTER CARTON | 1 | | EV |
| | P 2 | AH69-00867C | CUSHION L | 1 | FRONT | EV |
| | P 3 | AH69-00868C | CUSHION R | 1 | REAR | EV |
| | P 4 | AH69-30012T | PORY BAG | 1 | SET | |
| | P 5 | AH69-00525A | PORY BAG | 1 | INSTRUCTIONS | |
| | P 6 | AH81-00959Q | CUSHION TOP | 1 | SPEAKER BOX | |
| | P 7 | AH81-00929R | CUSHION BOTTOM | 1 | SPEAKER BOX | |
| | P 8 | AH81-00631U | PORY BAG | 2 | SPEAKER BOX | |

## ■ Parts list (Accessories EV Version)

**Block No. M5MM**

| ⚠ | Item | Parts number | Parts name | Q'ty | Description | Area |
|---|---|---|---|---|---|---|
| | A 1 | AH68-01227G | INSTRUCTIONS | 1 | LVT1010-006A | EV |
| | A 2 | AH59-01163A | REMOCON ASSY | 1 | RM-MXGT88R | |
| | A 3 | AH38-10001A | FM WIRE | 1 | | |
| | A 4 | AH42-20001P | ANT LOOP | 1 | | |
| | A 5 | ---------- | BATTERY | 2 | | |
| | A 6 | AH68-00415J | IMPORTANT CARD | 1 | | |
| | A 7 | AH68-00416A | SAFETY CARD | 1 | | |
| | A 8 | MXGA77-SPBOX-R | SPEAKER BOX R | 1 | | |
| | A 9 | MXGA77-SPBOX-L | SPEAKER BOX L | 1 | | |

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# SCHEMATIC DIAGRAMS

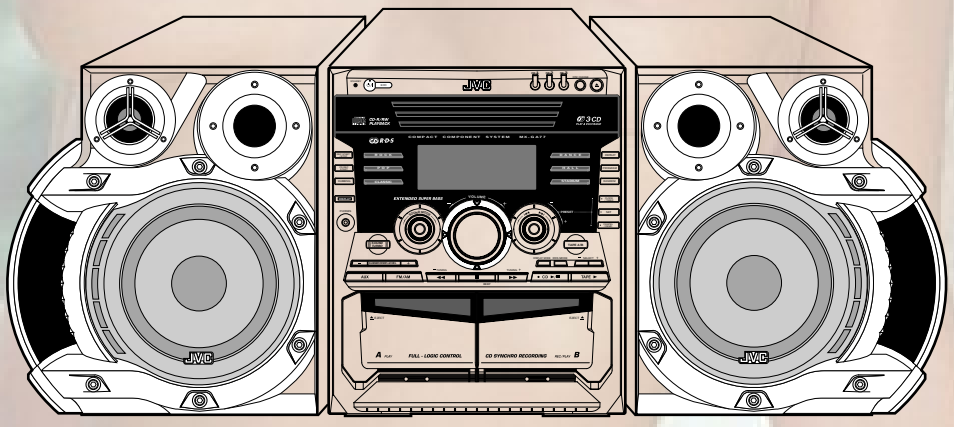
## COMPACT COMPONENT SYSTEM

# MX-GA77

**CD-ROM No.SML200307**

**Area suffix**

B ---------- U.K.
E ---- Continental Europe
EN ----- Northern Europe
EV ------- Eastern Europe



SP-MXGA77 CA-MXGA77 SP-MXGA77

COMPACT disc DIGITAL AUDIO

R·D·S

## Contents



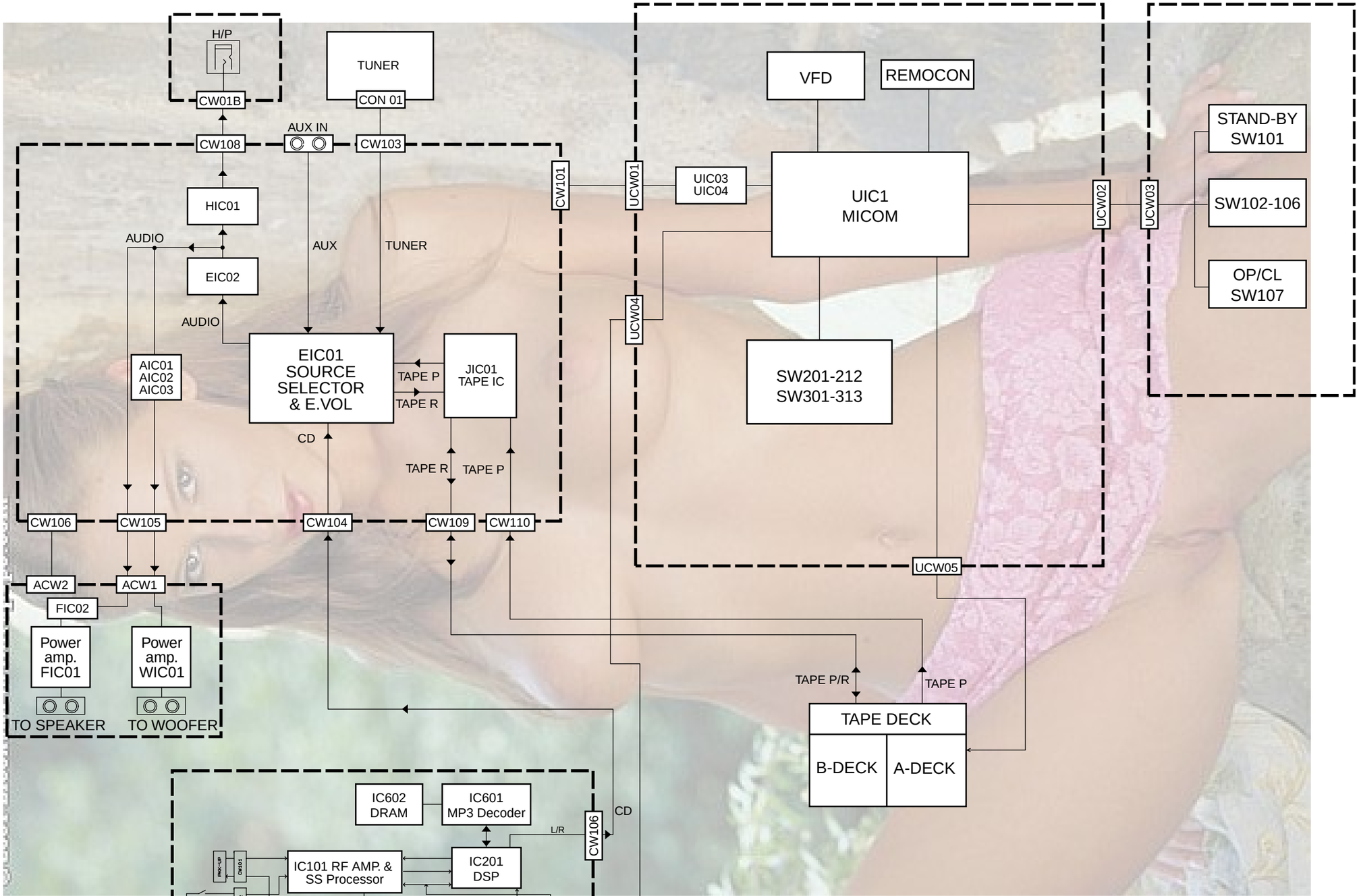


No.22083SCH
Jul. 2003

In regard with component parts appearing on the silk-screen printed side (parts side) of the PWB diagrams, the parts that are printed over with black such as the resistor (▬), diode (▬) and ICP (●) or identified by the "⚠" mark nearby are critical for safety.

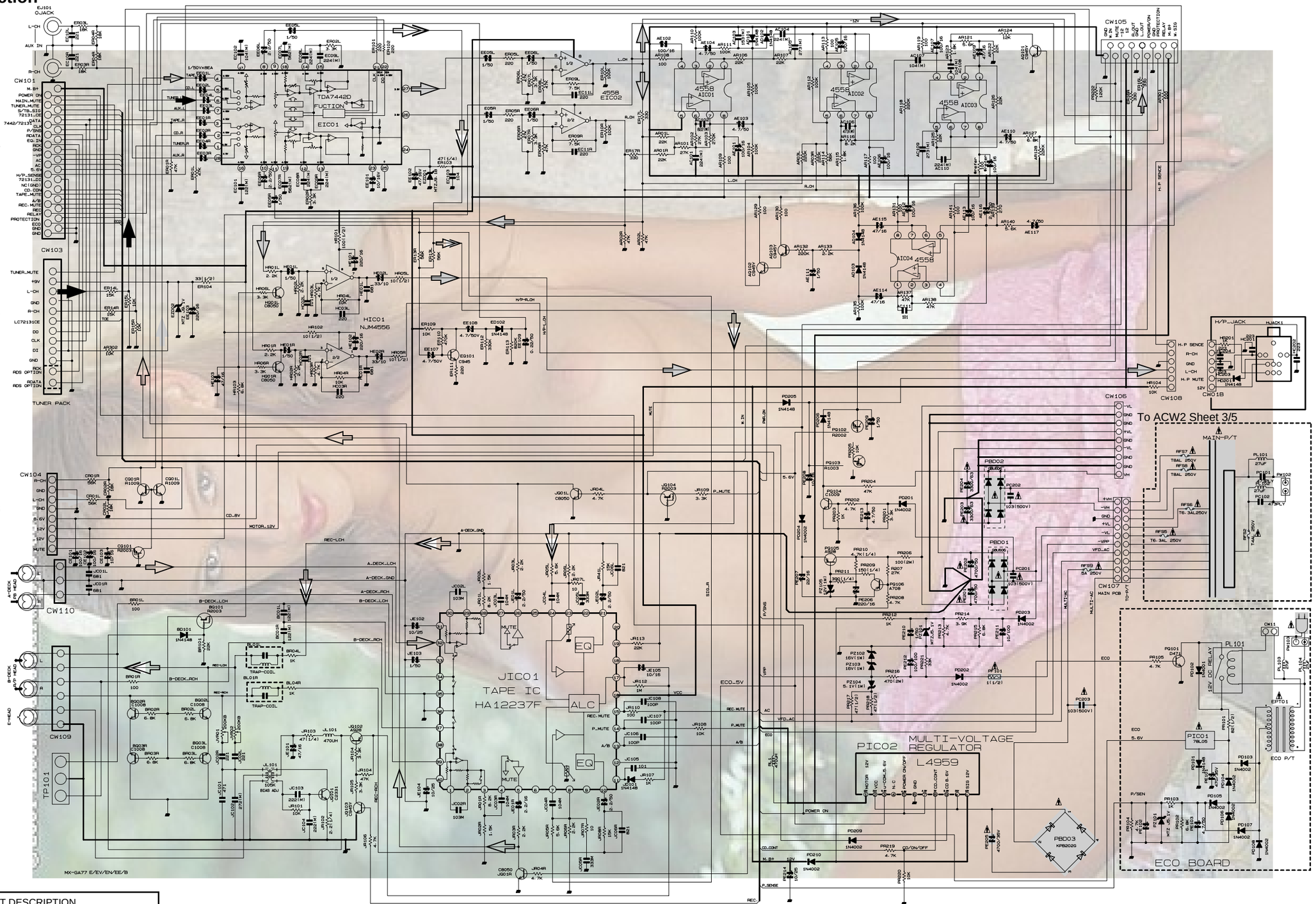
(This regulation does not correspond to J and C version.)

# Block diagram



# Standard schematic diagrams

## ■ Main section

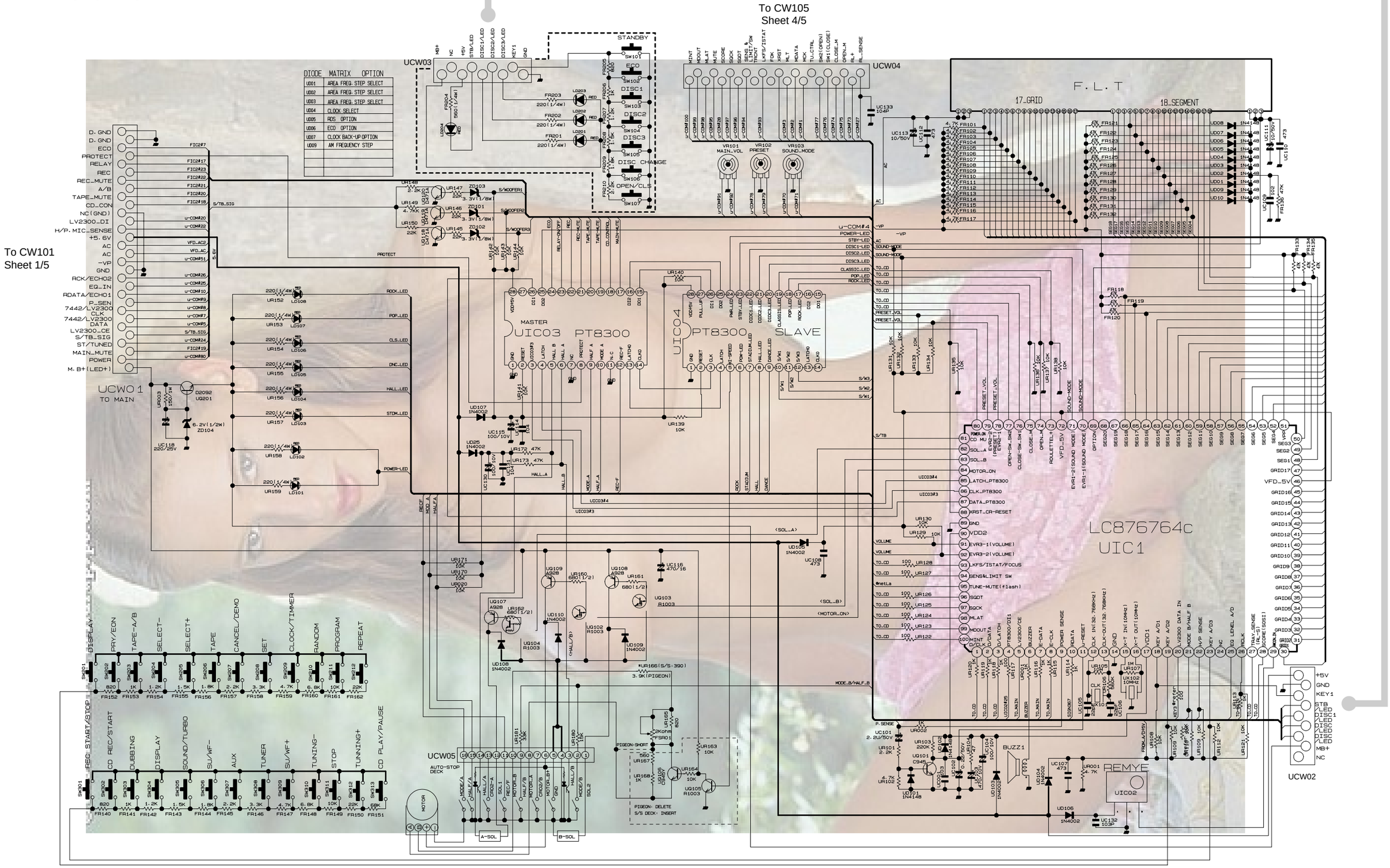



| SHEET NUMBER | CIRCUIT DESCRIPTION |
|---|---|
| 1/5 | Main |
| 2/5 | FL display & System control |
| 3/5 | Amp. |
| 4/5 | CD |
| 5/5 | Tuner |

MAIN signal
TUNER signal
CD signal
TAPE P.B. signal
TAPE REC. signal

⚠ Parts are safety assurance parts. When replacing those parts, make sure to use the specified parts.

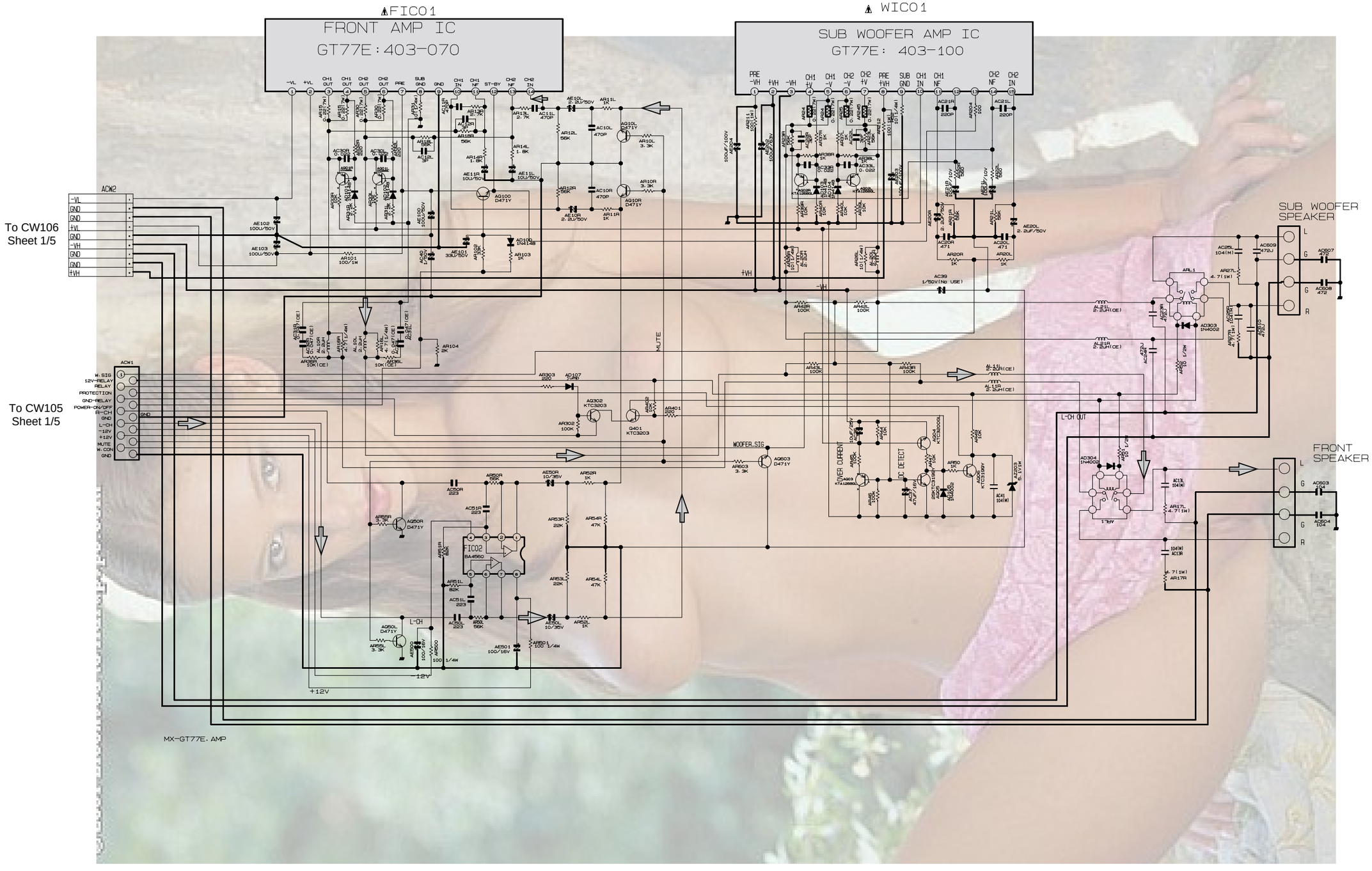
## ■ FL display & System control section




| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|

| A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|

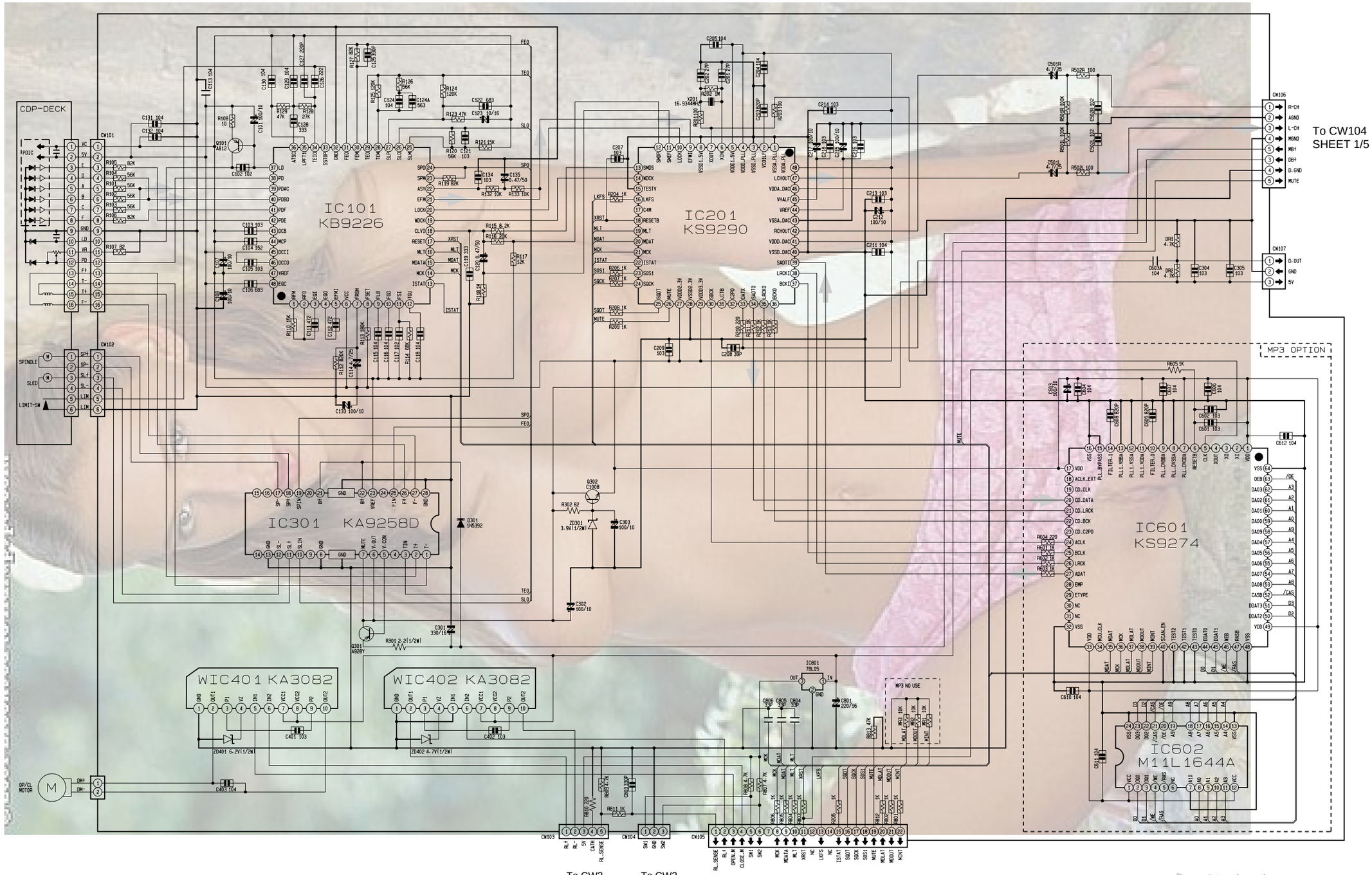
## ■ Amp. section



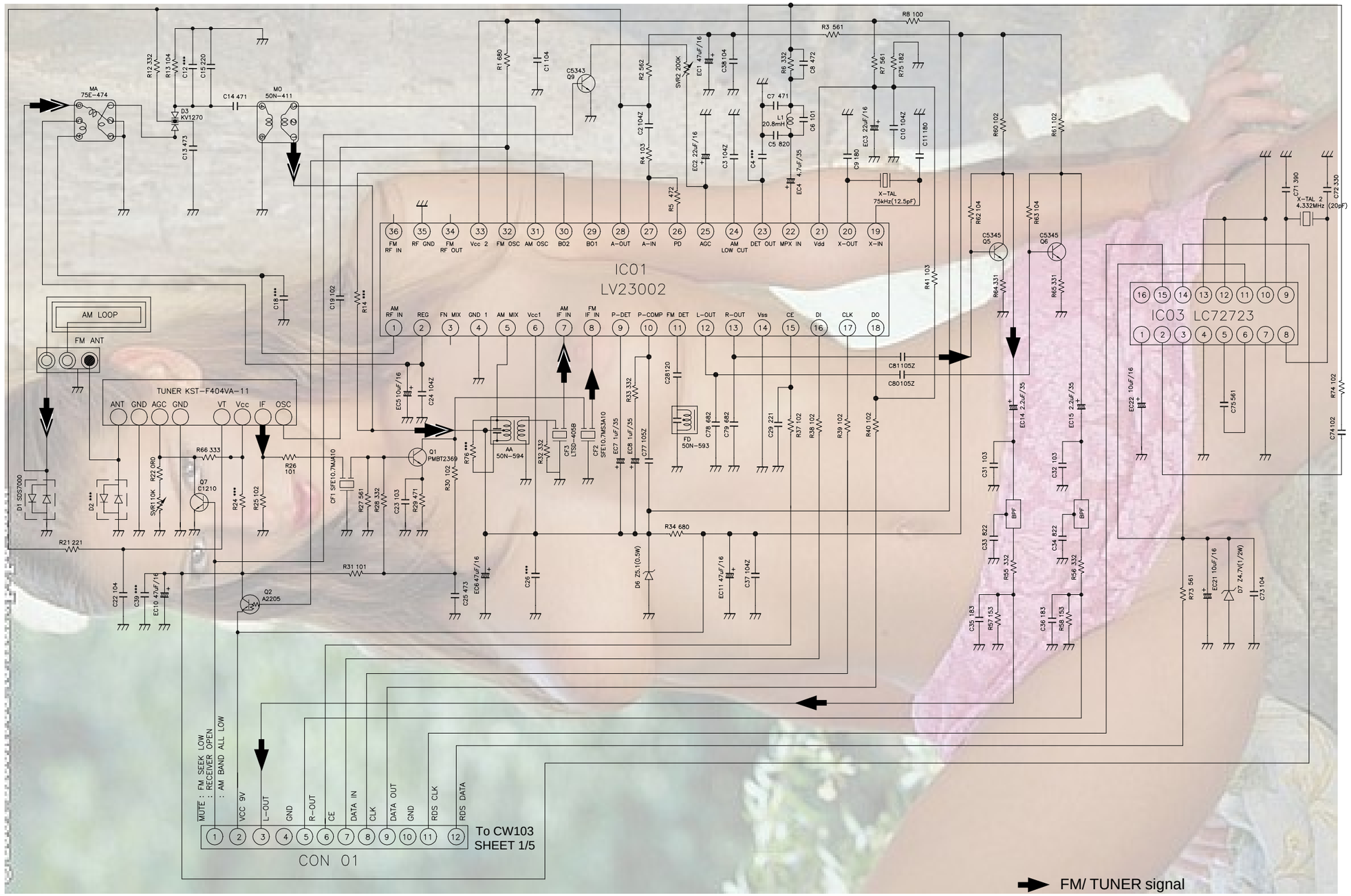

⚠ Parts are safety assurance parts. When replacing those parts, make sure to use the specified parts.

MAIN signal

## ■ CD section


CDP-DECK
IC101
KB9226
IC201
KS9290
IC301 KA9258D
IC601
KS9274
IC602
M11L1644A
WIC401 KA3082
WIC402 KA3082
IC801
78L05
MP3 OPTION
MP3 NO USE
To CW104
SHEET 1/5
To CW2
Sensor board
To CW3
Switch board
To UCW04
SHEET 2/5
CD signal

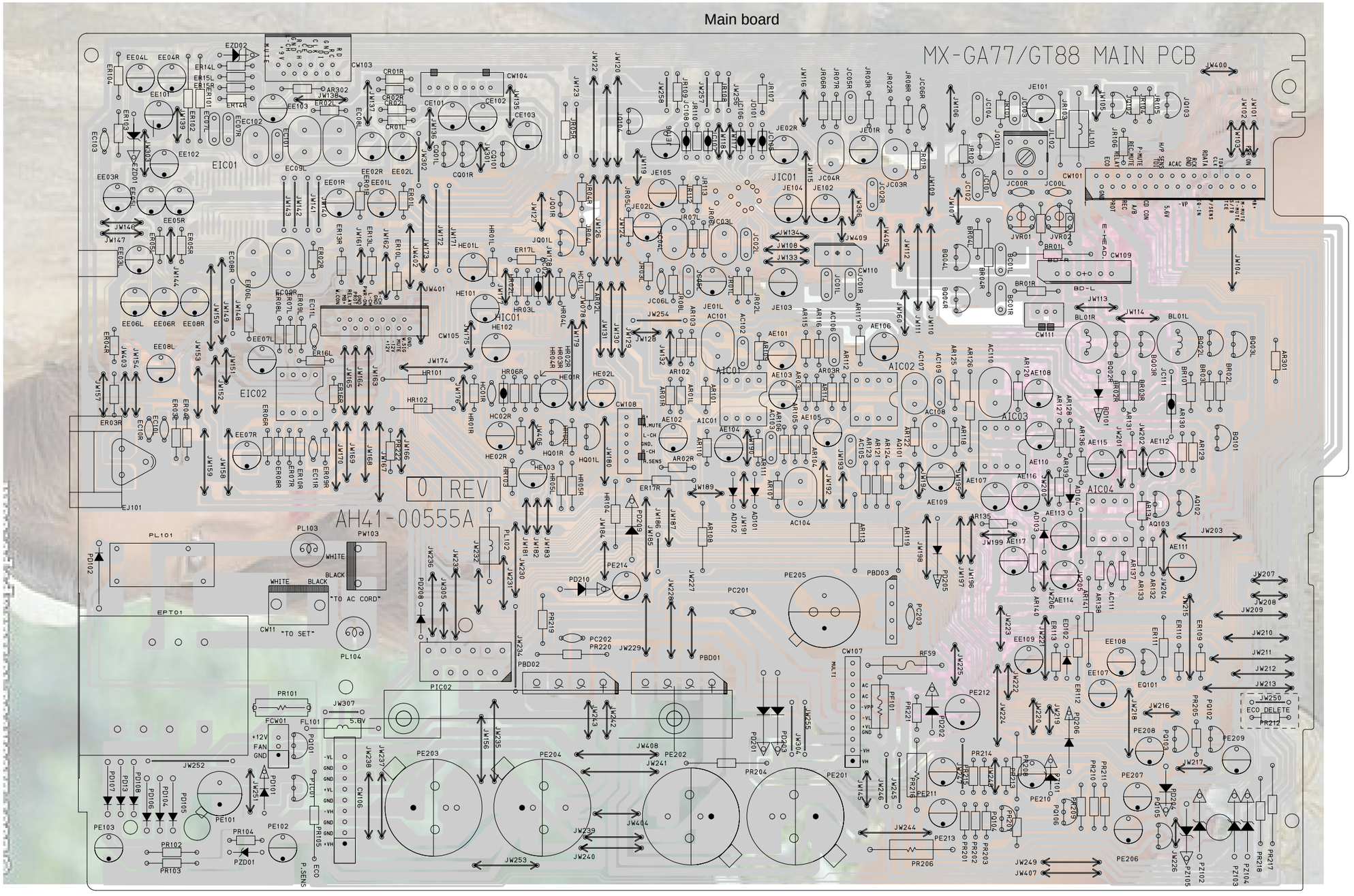
## ■ Tuner section



# Printed circuit boards

## ■ Main board

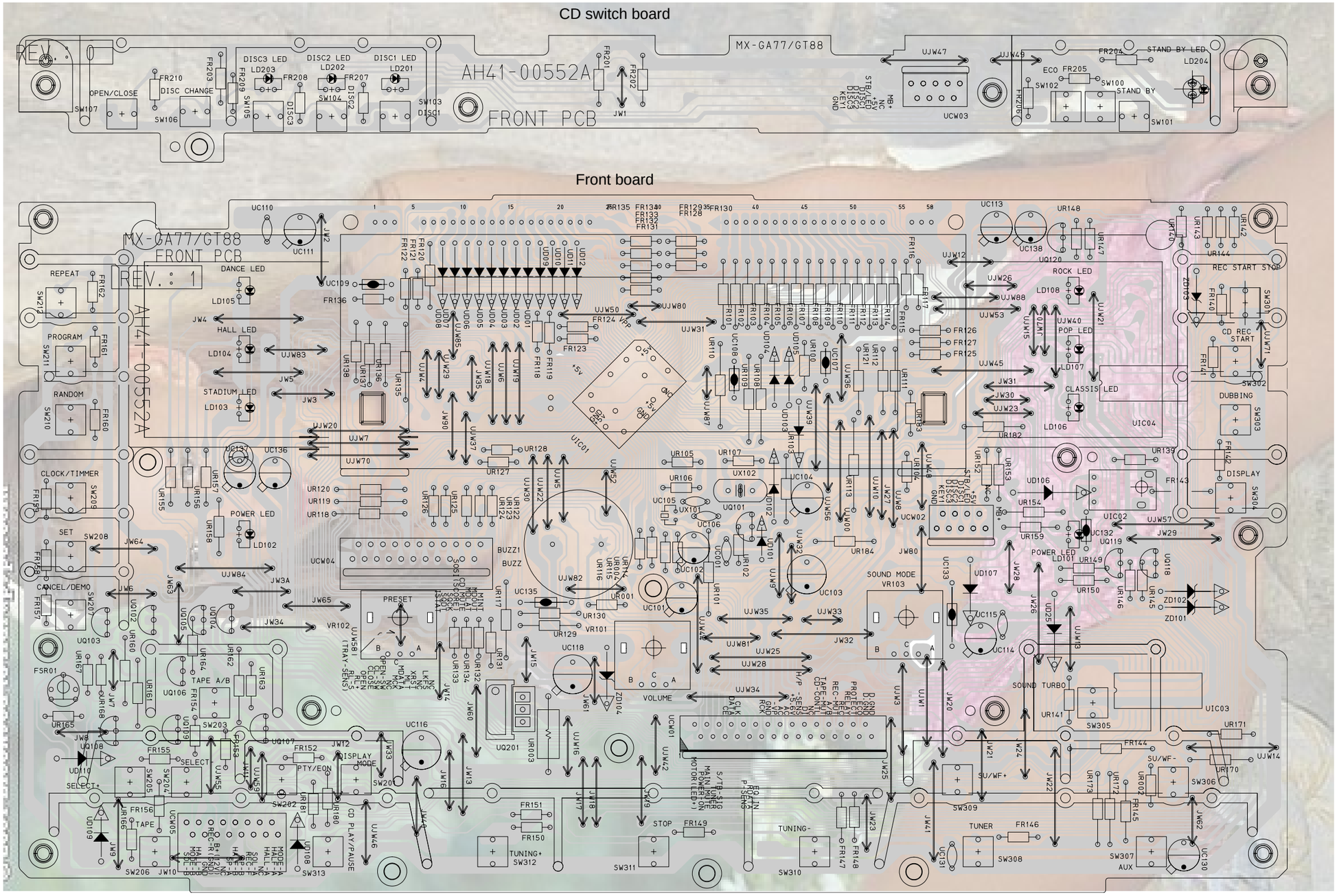
Main board



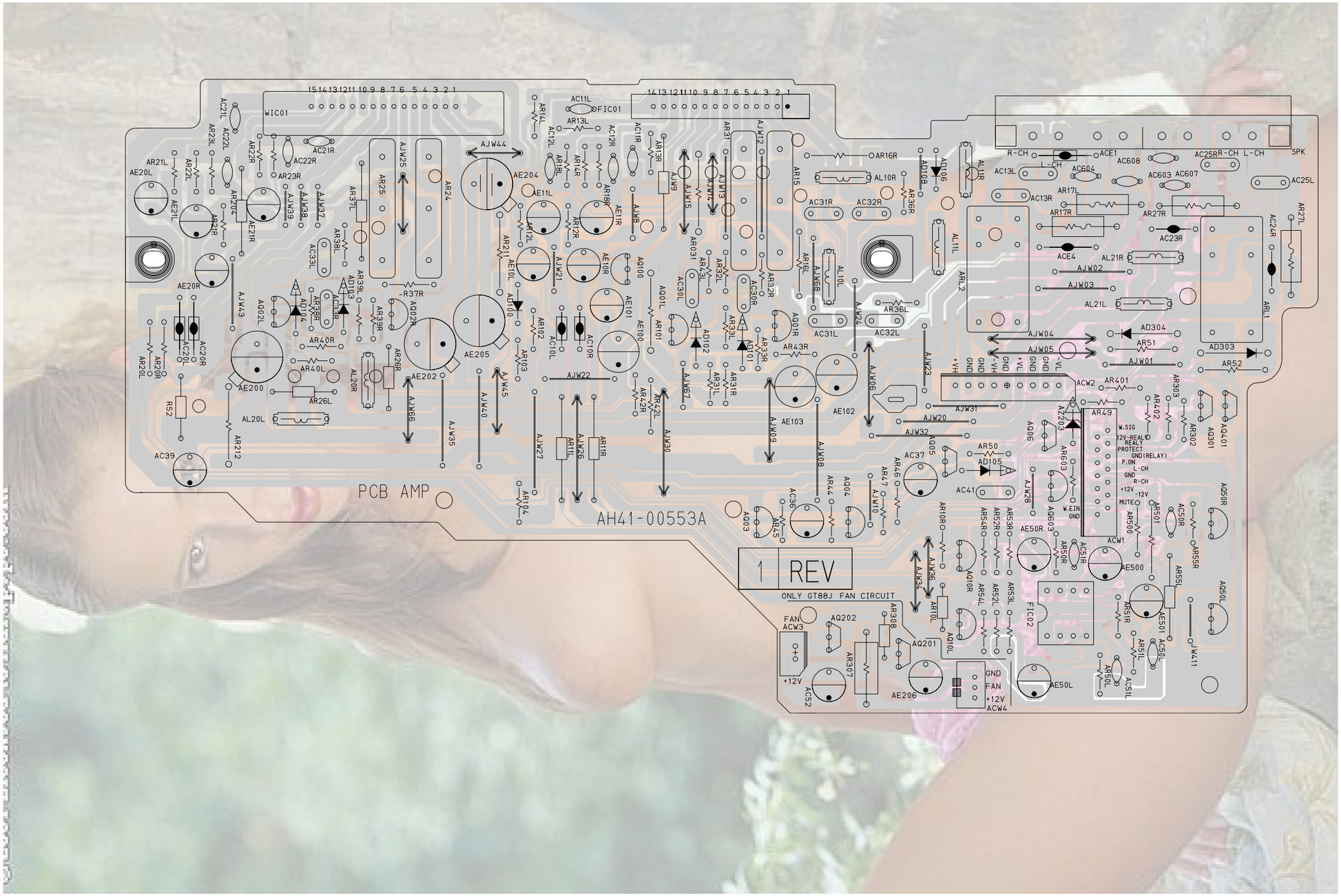
## ■ Front board

CD switch board

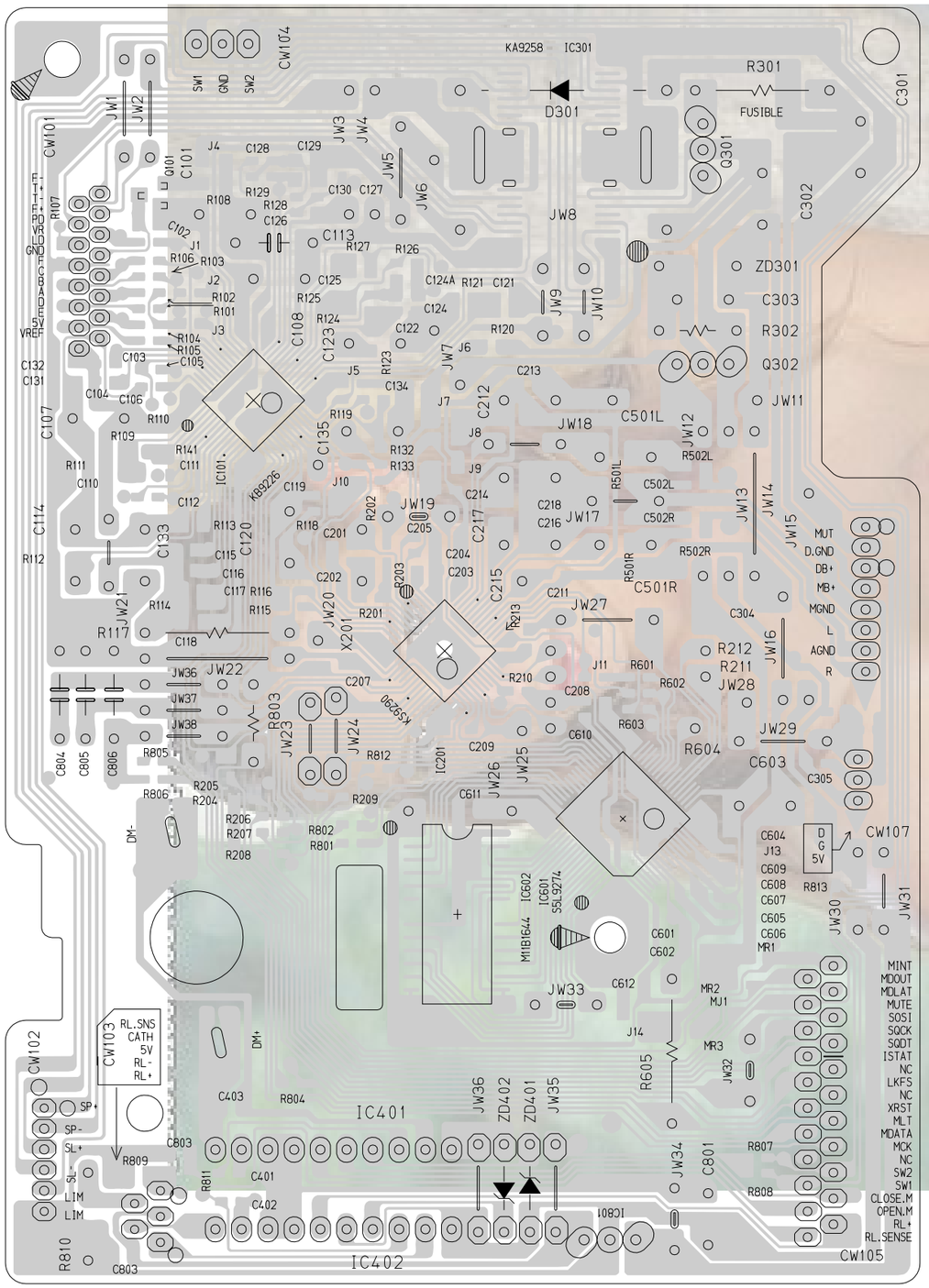
Front board



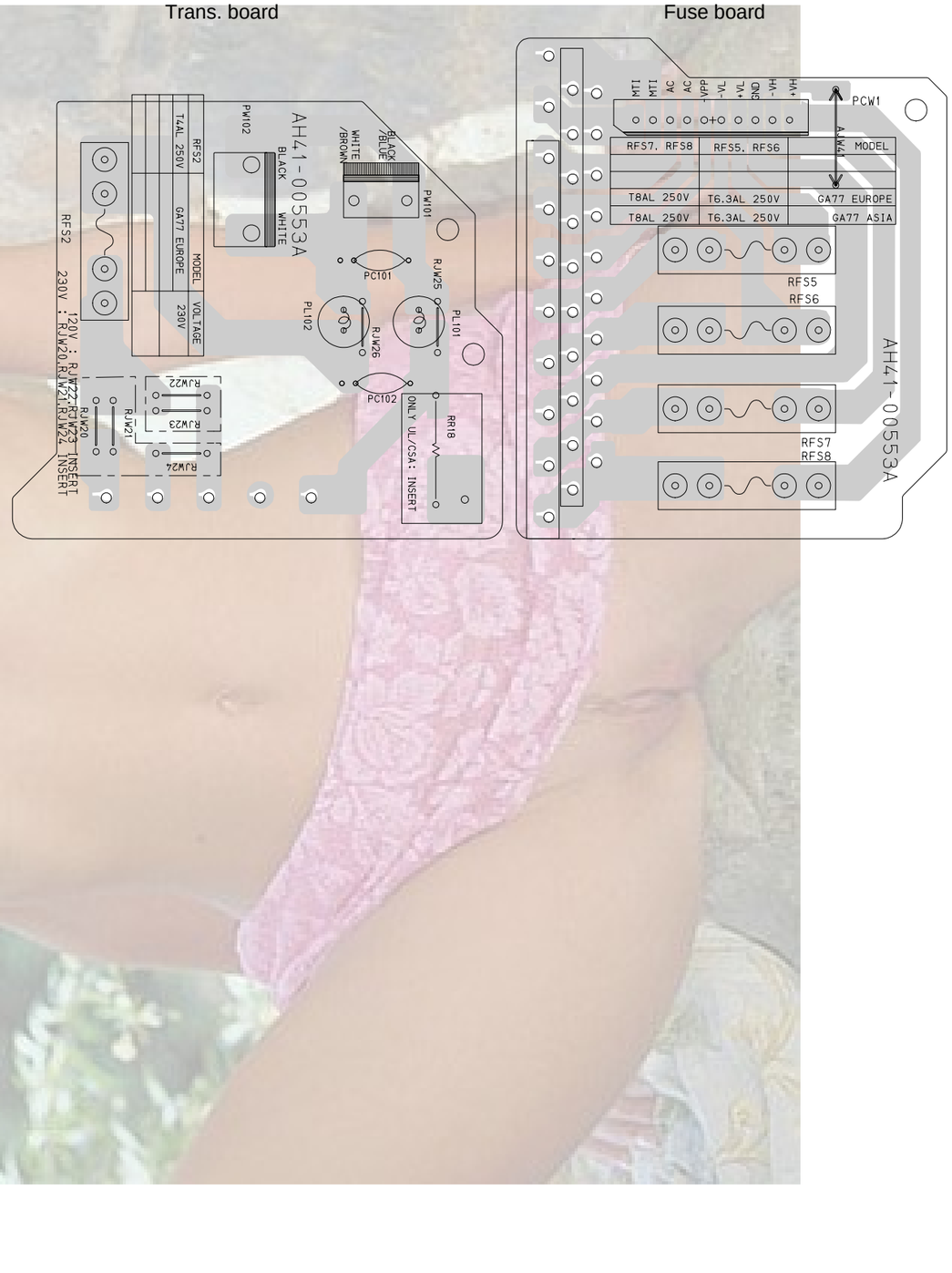
## ■ Amp. board


PCB AMP
AH41-00553A
1 REV
ONLY GT88J FAN CIRCUIT
WIC01
FIC01
FIC02
R-CH
L-CH
SPK
W.SIG
12V-REAL
REALY PROTECT
GND(RELAY)
P.ON
L-CH
GND
R-CH
+12V
-12V
MUTE
W.EIN
GND
FAN
+12V
+VH
-VH
+VL
-VL
GND

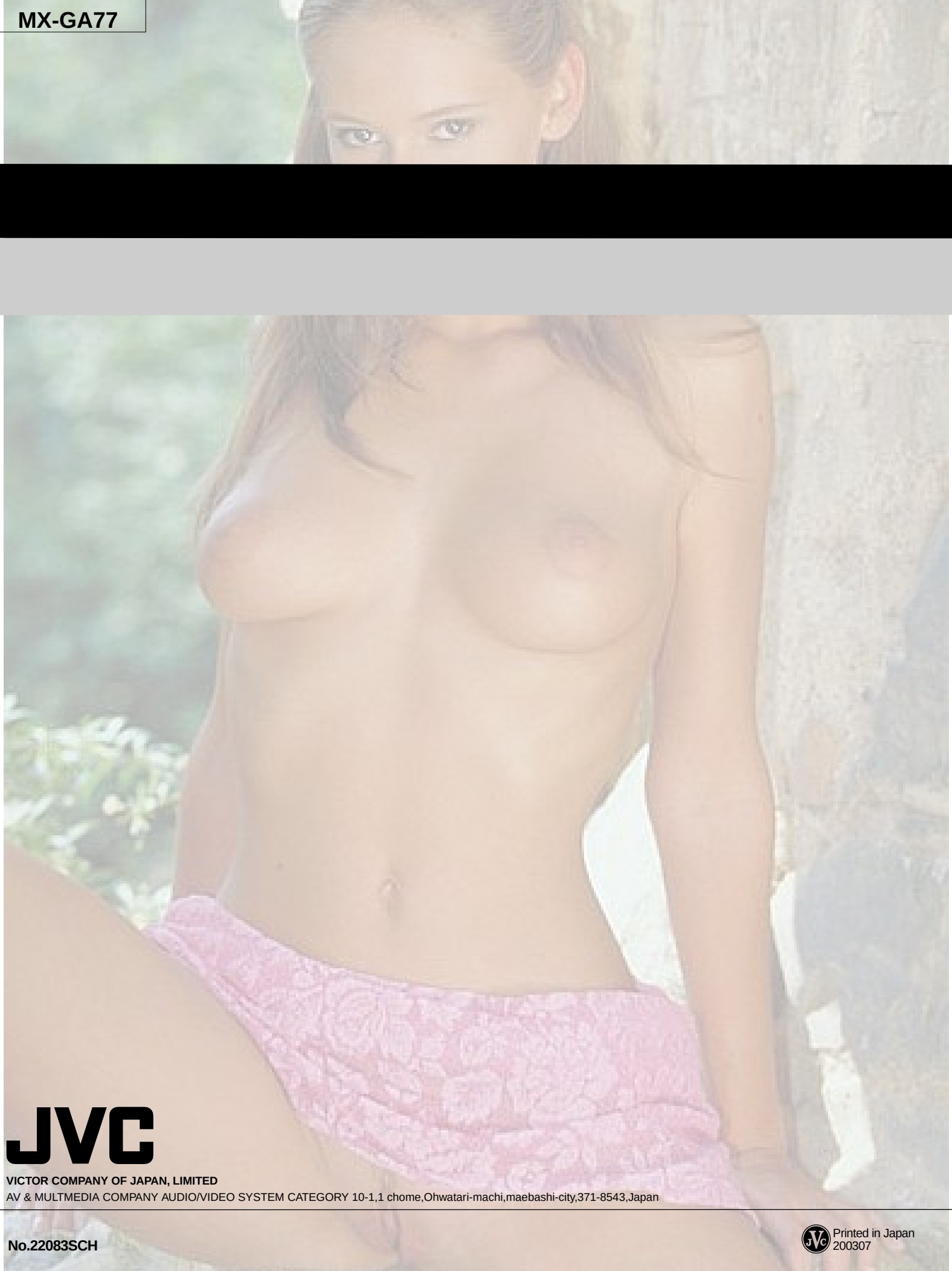
## ■ CD servo board




## ■ Power supply board



< MEMO >



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