JVC

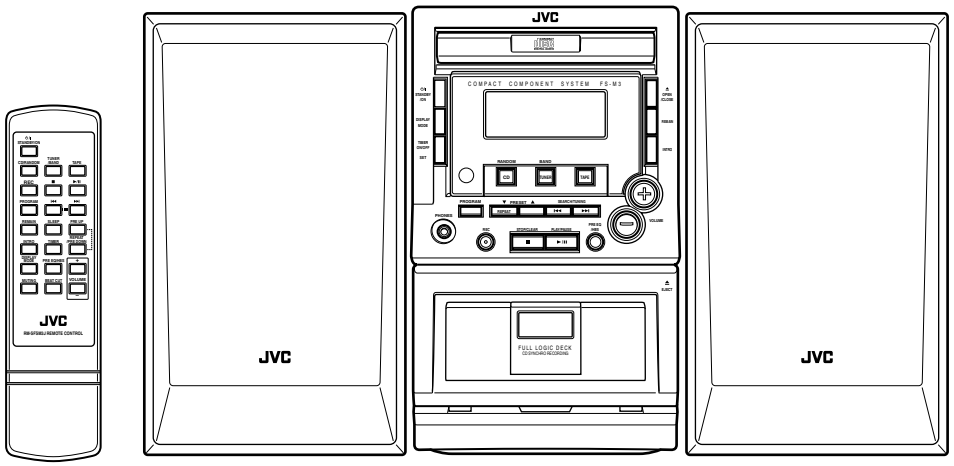
SERVICE MANUAL

COMPACT COMPONENT SYSTEM

FS-M3

Area suffix

J ---------- U.S.A.
C ---------- Canada



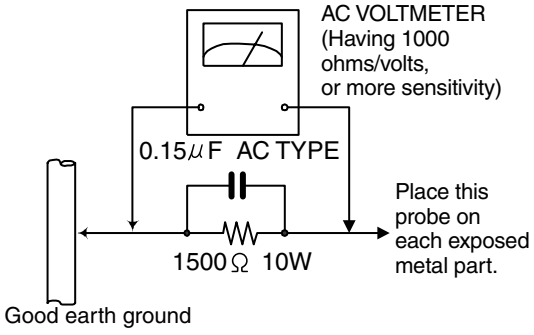
COMPACT disc DIGITAL AUDIO

Contents

No.21067
Feb. 2002

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.)

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

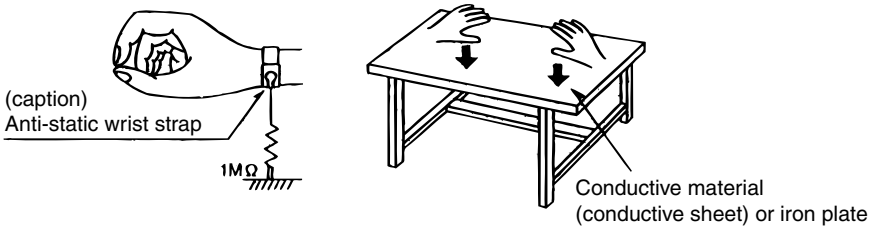
Static electricity in the work area can destroy the optical pickup (laser diode) in devices such as CD players.
Be careful to use proper grounding in the area where repairs are being performed.

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. Remove solder of the short land on the card wire 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.

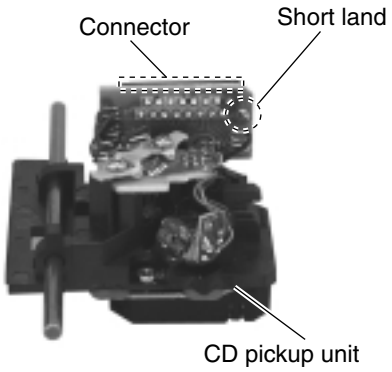
3. Handle the card wire carefully as it may break when subjected to strong force.

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

5. Attention when traverse unit is decomposed

***Please refer to "Disassembly method" in the text for the CD pickup unit.**

- Apply solder to the short land before the card wire is disconnected from the connector on the CD pickup unit.
  (If the card wire is disconnected without applying solder, the CD pickup may be destroyed by static electricity.)
- In the assembly, be sure to remove solder from the short land after connecting the card wire.



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.**

VARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

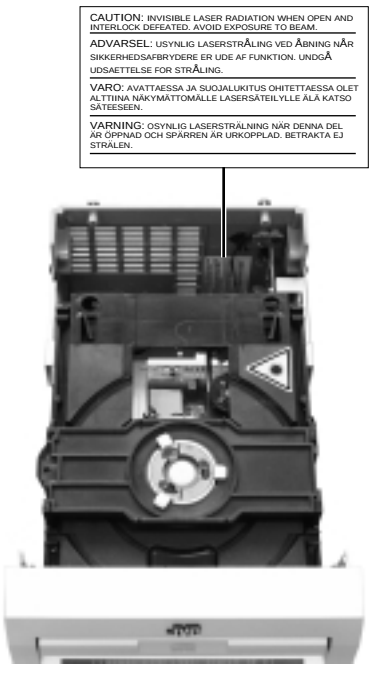
VARO : Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle.Älä katso säteeseen.

ADVARSEL : Usynlig laserstråling ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

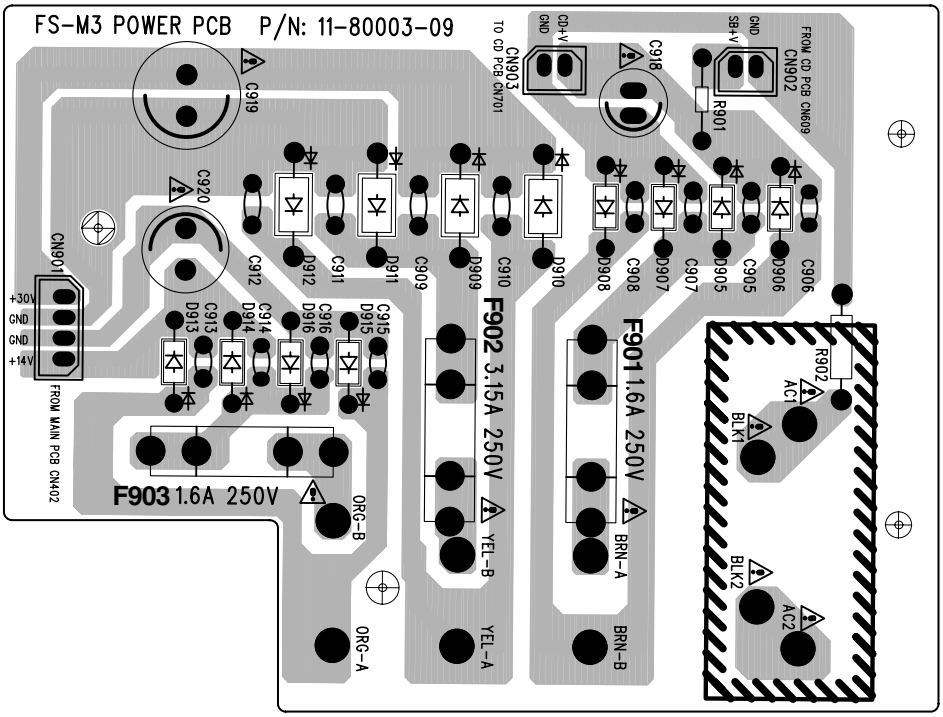
ADVARSEL : Usynlig laserstråling ved åpning,når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

REPRODUCTION AND POSITION OF LABELS

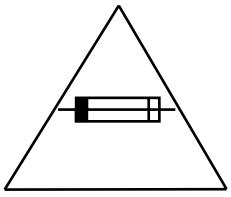
WARNING LABEL



Importance administering point on the safety



For USA and Canada / pour États - Unis d' Amérique et Canada



Caution: For continued protection against risk of fire, replace only with same type 1.6A/250V for F901,3.15A/250V for F902,1.6A/250V for F903. This symbolspecifies type of fast operating fuse.

Precaution: Pour eviter risques de feux, remplacez le fusible de sureté de F901 comme le meme type que 1.6A/250V,F902 comme le meme type que 3.15A/250,et 1.6A/250V pour F903.
Ce sont des fusibles suretes qui functionnes rapide.

Disassembly method

<Main body section>

Replacement of the fuses and power amplifier IC

■ Replacing the fuses (See Fig. 1.)

- Remove the left side panel according to its disassembly method (see **Figs. 5** and **6**).

Fuses are located inside the left side panel.

[Caution] Be sure to replace the required fuses with designated ones.

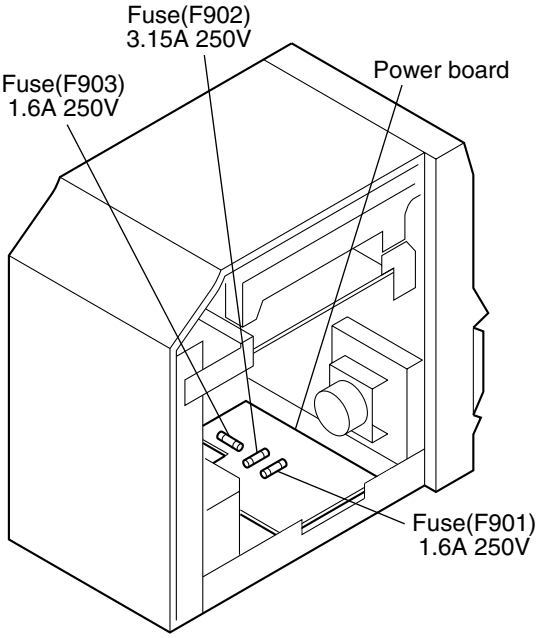


Fig.1

■ Replacing the power amplifier IC on the main board (See Fig. 2.)

- Remove the main board according to its disassembly method (see Figs. **17** and **18**).

1. Remove the two screws **A** that attach the power amplifier IC onto the heat sink.

2. In order to replace the power amplifier IC, remove the solder from soldered part **a** on the back side of the main board.

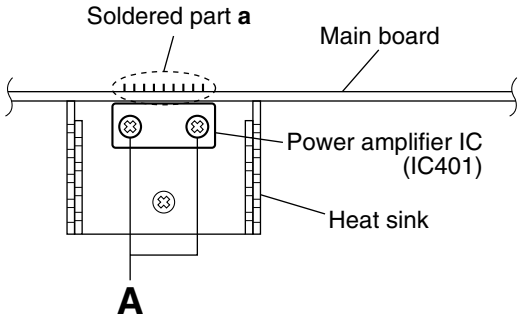


Fig.2

■ Removing the right side panel

(See Figs. 3 and 4.)

1. From the right side of the main body, remove the three screws **B** and three screws **C** retaining the right side panel.

2. Slide the right side panel toward the rear (in the direction of arrow **1**) until the claw **b** at the back of the panel is hooked by the chassis and then lift the panel upward (in the direction of arrow **2**) to remove it.

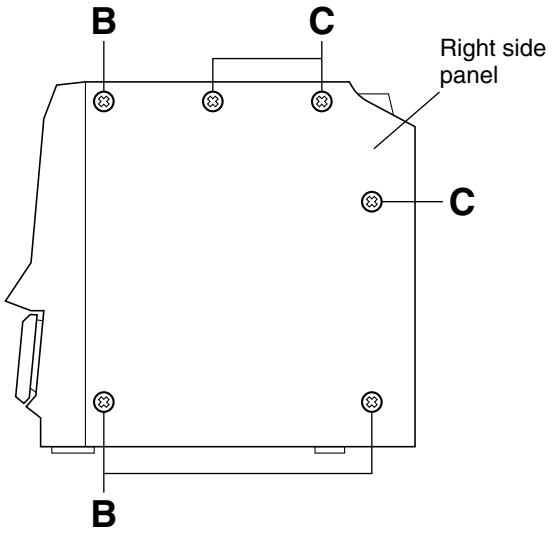


Fig.3

■ Removing the left side panel

(See Figs. 5 and 6.)

1. From the left side of the main body, remove the three screws **B** and three screws **C** retaining the left side panel.

2. Slide the left side panel toward the rear (in the direction of arrow **3**) until the claw **c** at the back of the panel is hooked by the chassis, and then lift the panel upward (in the direction of arrow **4**) to remove it.

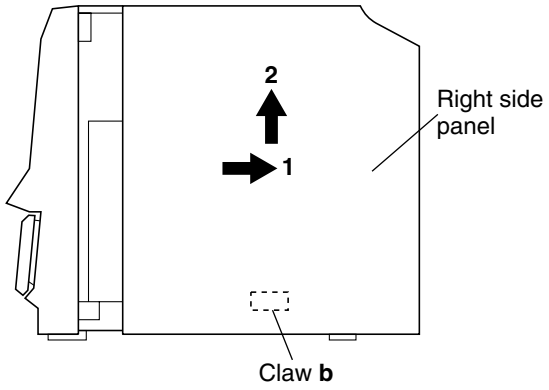


Fig.4

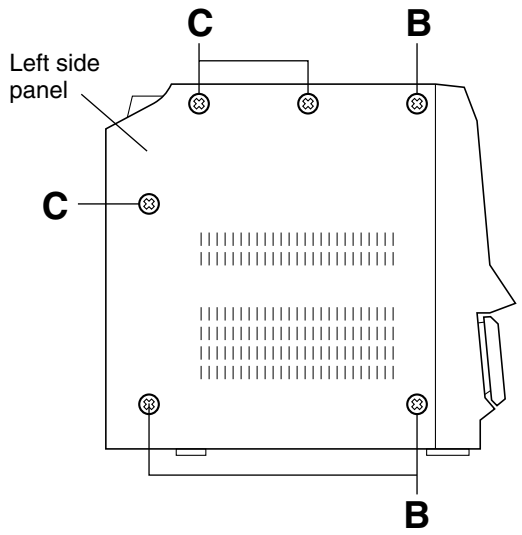


Fig.5

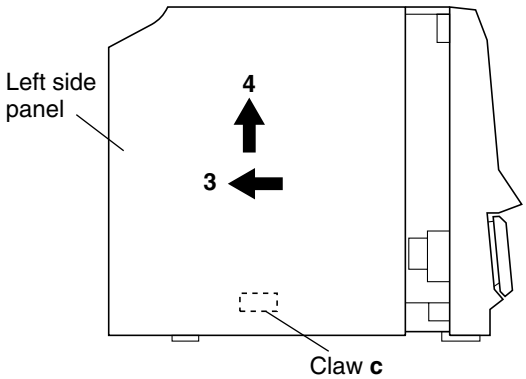


Fig.6

■ Removing the top cover

(See Figs. 7 and 8.)

- Remove the left and right side panels.

1. From the back side of the main body, loosen the two screws **D** retaining the top cover.

2. Lift the rear part of the top cover to remove it.

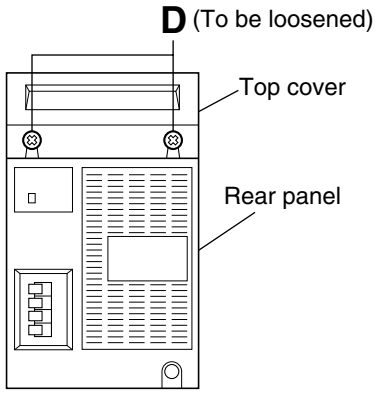


Fig.7

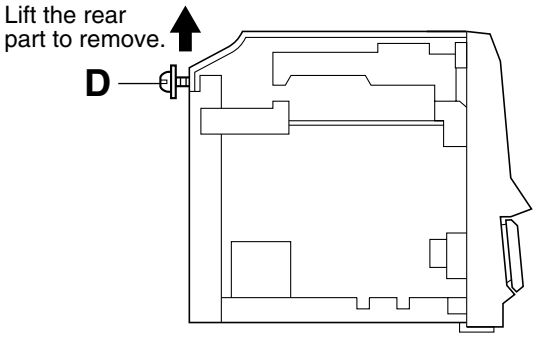


Fig.8

■ Removing the front panel assembly

(See Figs. 9 to 11.)

- Remove the left and right side panels.
- Remove the top cover.

1. Remove the tie band bundling the wires.

2. Disconnect the wire from the connector CN902 on the power board.

3. Disconnect the wire from the connector on the cassette switch board.

4. Remove the screw **E** retaining the bracket on the H.P. jack board.

5. Disconnect the wires from the two connectors CN201 and CN402 on the main board.

6. Disconnect the wires from the two connectors CN607 and CN608 on the CD & MCU board.

7. Remove the four screws **F** and the two screws **G** retaining the bracket of the CD mechanism assembly from the left and right.

8. Remove the screw **H** retaining the front panel assembly from the bottom side of the main body.

9. While opening the hooks **d** to the left and right of the lower part of the front panel assembly (in the direction of arrows **1**), slide the front panel assembly toward the front (in the direction of arrow **2**).

[Note] After assembly, apply a locking agent to the screws F and G.

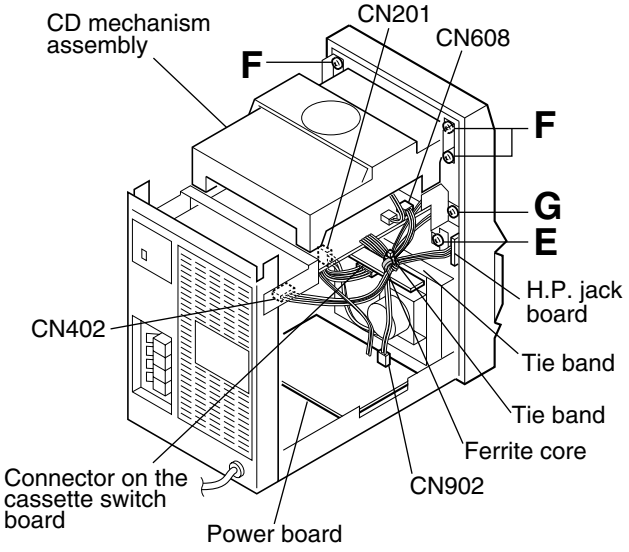


Fig.9

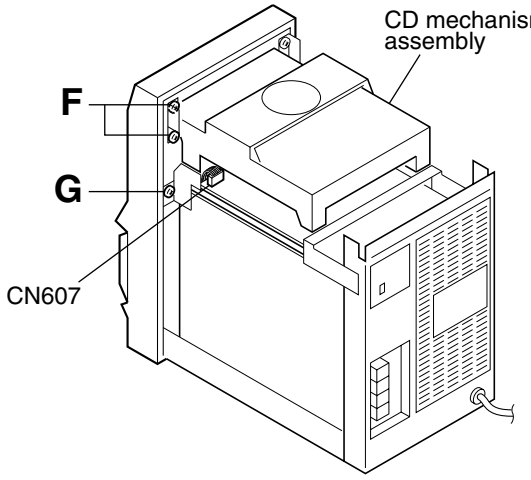


Fig.10

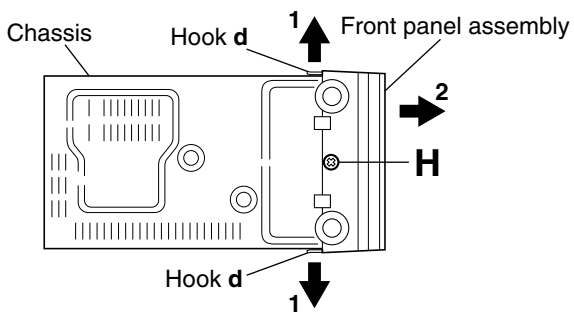


Fig.11

■ Removing the CD mechanism assembly (See Figs. 12 to 14.)

- Remove the left and right side panels.
- Remove the top cover.
- Remove the front panel assembly.

1. Disconnect the wires from the four connectors CN601, CN602, CN603 and CN701 on the CD & MCU board.

2. From the left side of the main body, remove the tie band bundling the wires.

3. Loosen the screw **J** retaining the main board.

4. From the left and right sides of the main body, remove the four screws **K** retaining the bracket.

5. Slide the CD mechanism assembly toward the front and remove it from the studs of the main board.

[Note] After assembly, apply a adhesive agent to the stud.

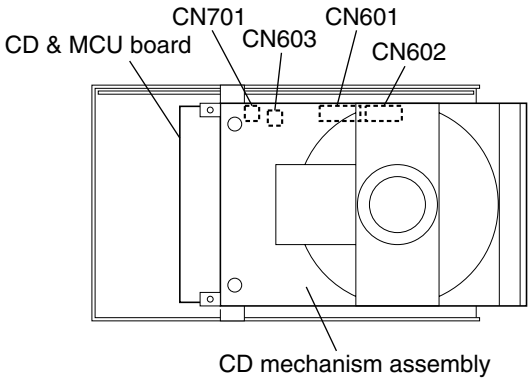


Fig.12

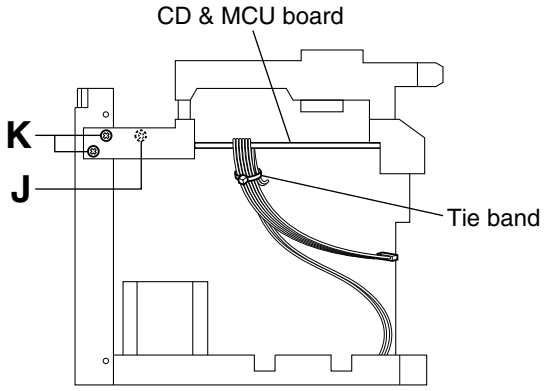


Fig.13

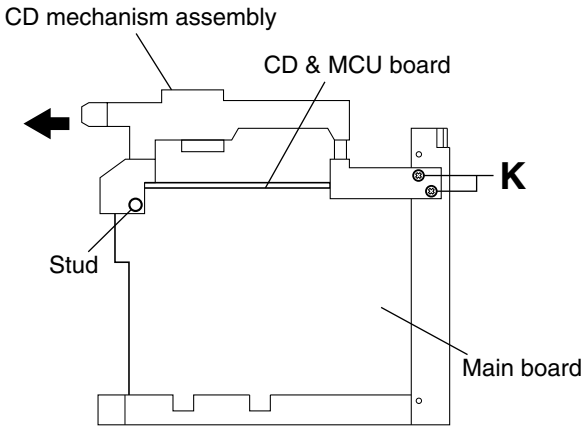


Fig.14

■ Removing the power board

(See Figs. 15 and 16.)

- Remove the left and right side panels.

1. Disconnect the wire from the connector CN901 on the power board.

2. Remove the two screws **L** retaining the chassis .

3. Remove the power board by pinching the two studs retaining the board using radio pliers, etc.

[Note]
- **After assembly, apply a locking agent to the screw L.**
- **After assembly, apply a adhesive agent to the studs.**

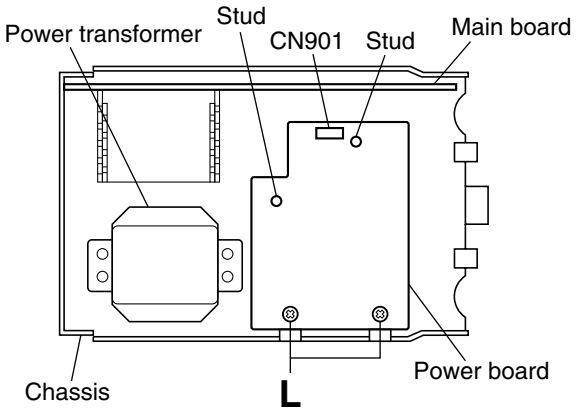


Fig.15

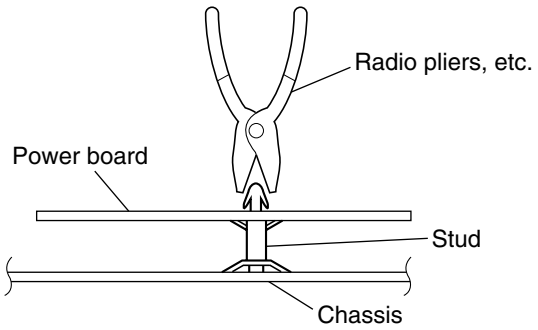


Fig.16

■ Removing the main board

(See Figs. 17 and 18.)

- Remove the left and right side panels.
- Remove the top cover.
- Remove the front panel assembly.
- Remove the CD mechanism assembly.

1. Remove the two screws **M** retaining the speaker terminal of the main board.

2. From the top side of the main body, remove the screw **N** retaining the heat sink of the main board.

3. Remove the solder from the soldered part **e** that attaches the FM antenna wire to the main board.

4. Slide the main board toward the front to remove it from the chassis.

[Note] After assembly, apply a locking agent to the screw N.

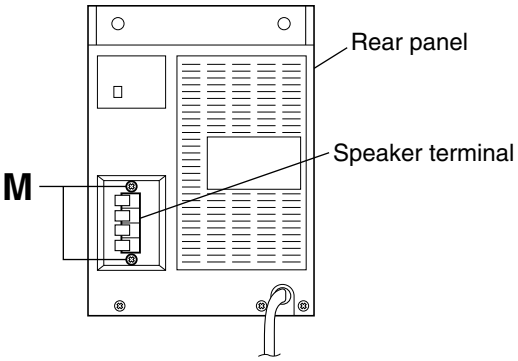


Fig.17

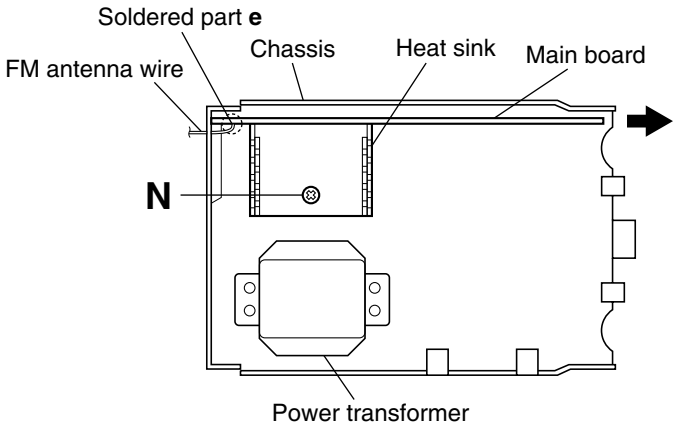


Fig.18

<Front panel assembly section>

- Remove the left and right side panels.
- Remove the top cover.
- Remove the front panel assembly.

■ Removing the key switch board

(See Fig. 19.)

Remove the ten screws **P** retaining the key switch board.

■ Removing the cassette mechanism assembly

(See Fig. 19.)

1. Remove the two screws **Q** and the two screws **R** retaining the cassette mechanism assembly.

2. Remove the tie band bundling the REC/PB head wire.

[Note] After assembly, apply a locking agent to the screws Q and R.

■ Removing the cassette door damper and cassette door stopper

(See Fig. 19.)

1. Remove the screw **S** retaining the damper bracket and take out the cassette door damper.

2. Remove the two screws **T** retaining the cassette door stopper and remove the cassette door stopper.

[Note] After assembly, apply a locking agent to the screws S and T.

■ Removing the cassette door cover

(See Fig. 20.)

[Note] Use the following procedure to remove only the cassette door cover. This procedure does not require the removal of exterior parts such as the side panels.

1. Open the cassette door.

2. Slide the cassette door cover in the direction of the arrow and disengage the two claws **f** and the two claws **g** on the left and right of the cassette door cover from the cassette door.

■ Removing the cassette door

(See Figs. 21 and 22.)

- Remove the cassette mechanism assembly.
- Remove the cassette door cover.

1. Open the cassette door, disengage the spring hooked across the front of the front panel assembly and the cassette door in the outward direction, and remove it from the claw **h**.

2. From the back side of the front panel assembly, remove the two screws **U** retaining the bracket.

3. While pushing the arm section **i** of the cassette door in the direction of the arrow, remove the shaft section **j** of the cassette door from the front panel assembly.

4. While pushing the cassette door arm section **k** in the direction of the arrow, remove the shaft section **m** of the cassette door from the front panel assembly.

5. Take out the cassette door from the back side of the front panel assembly.

[Caution] In the assembly, be sure to put the spring around the shaft j before attaching the cassette door.

[Note] After assembly, apply a locking agent to the screw U.

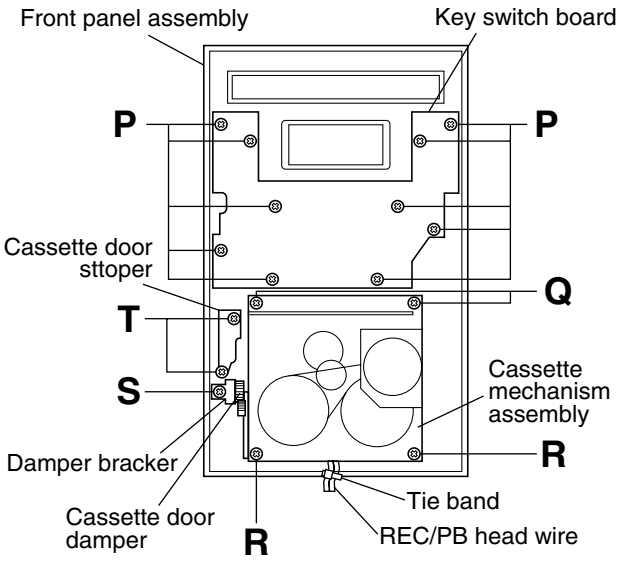


Fig.19

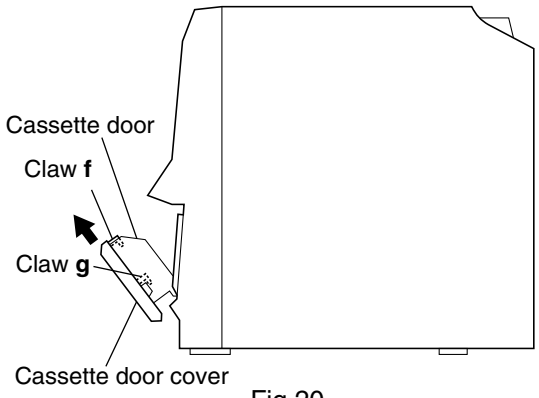


Fig.20

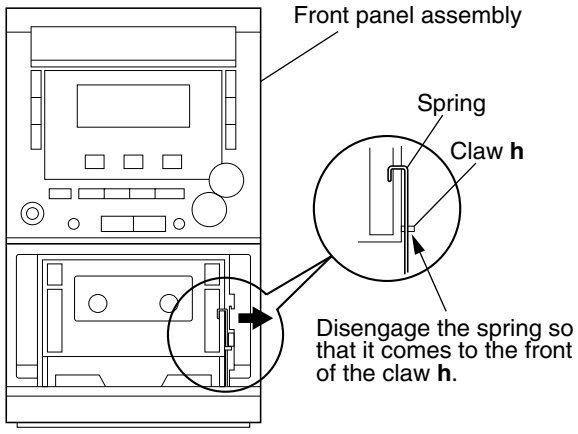


Fig.21

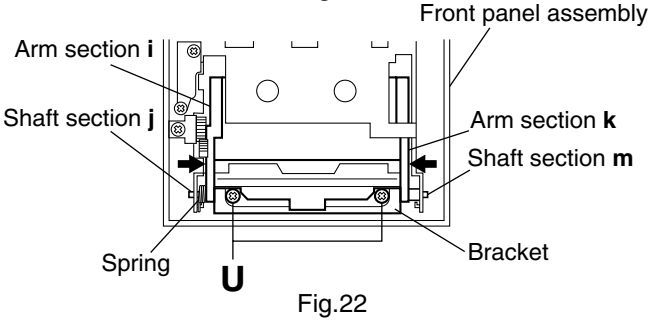


Fig.22

<CD mechanism section>

- Remove the left and right side panels.
- Remove the top cover.
- Remove the front panel assembly.
- Remove the CD mechanism assembly.

■ Removing the CD & MCU board

(See Figs. 23 and 24.)

1. From the back side of the CD mechanism assembly, remove the four screws **V** retaining the CD & MCU board.

2. Disengage the two studs retaining the CD & MCU board.

3. Disconnect the wires from the two connectors CN702 and CN703 on the CD & MCU board.

4. Lift the CD & MCU board and attach solder to the short land part **n** on the CD pickup assembly.

5. Disconnect the card wire from the connector CN704 on the CD & MCU board, and take out the CD & MCU board.

[Caution]
- **Be sure to solder the short land part n on the CD pickup unit before disconnecting the card wire from the CD pickup assembly (see Fig. 24). If the card wire is disconnected without attaching solder, the CD pickup may be destroyed by static electricity.**
- **In the assembly, be sure to remove solder from the short land part n after connecting the card wire.**

[Note]
- **After assembly, apply a locking agent to the screw V.**
- **After assembly, apply a adhesive agent to the studs.**

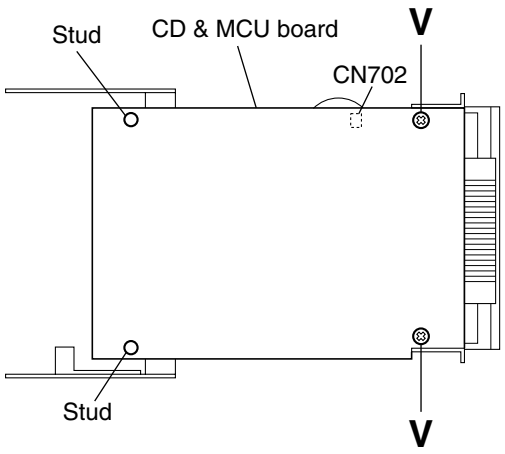


Fig.23

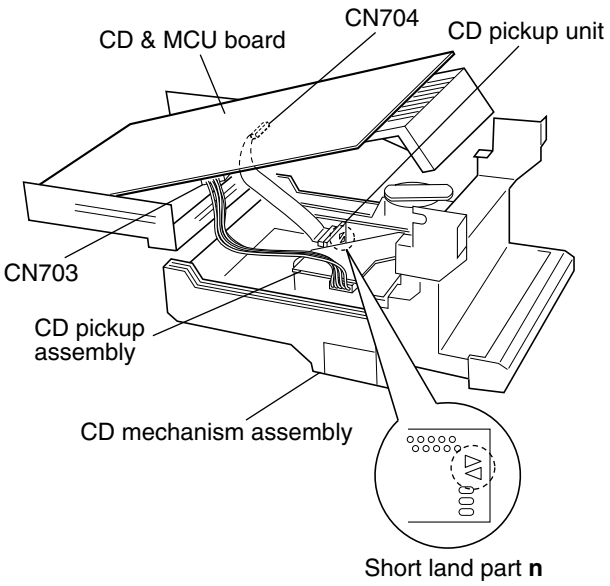


Fig.24

■ Removing the CD pickup assembly

(See Fig. 25.)

- Remove the CD & MCU board.

1. From the back side of the CD mechanism assembly, remove the four screws **W** retaining the CD pickup assembly.

2. Take out the CD pickup assembly.

[Note] When removing or replacing the dampers, note their colors and be sure to attach them in their correct positions.

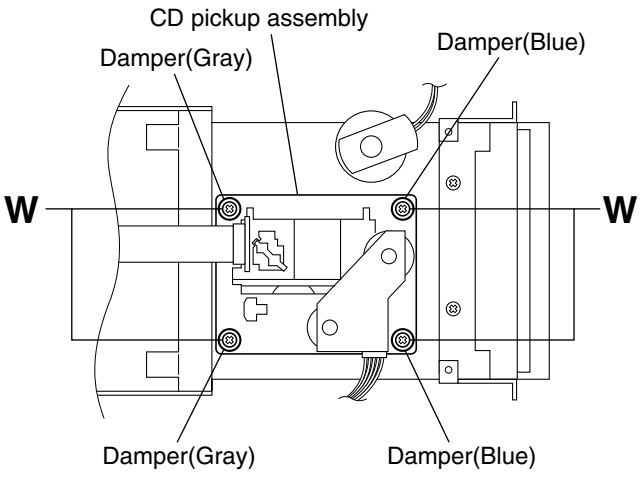


Fig.25

■ Removing the tray motor

(See Figs. 26 to 29.)

- Remove the CD & MCU board.

1. On the top of the CD mechanism assembly, open up the claws **p** and **q** at the left and right of the clamper assembly and lift the assembly to remove it.

2. On the top of the CD mechanism assembly, push the section **r** of the elevator in the direction of the arrow and lower the CD pickup assembly.

3. Pull out the tray.

4. While opening up the claws **s** at the left and right of the tray in the directions of the arrows, remove the tray.

5. While pushing the claw **t** on the CD mechanism assembly downwards, slide the elevator fully in the direction of the arrow.

6. Remove the transparent cover.

7. Remove the belt from the tray motor pulley.

8. Remove the two screws **X** retaining the tray motor and remove it.

[Note]
- **Take care not to attach grease on the belt.**
- **After attaching the tray motor in the assembly, apply a locking agent to the screws X.**

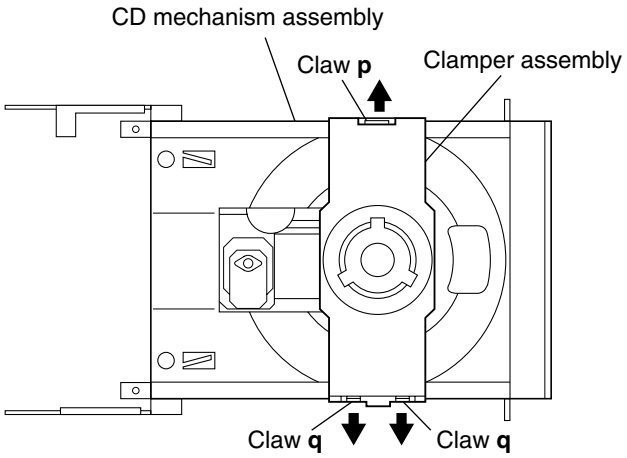


Fig.26

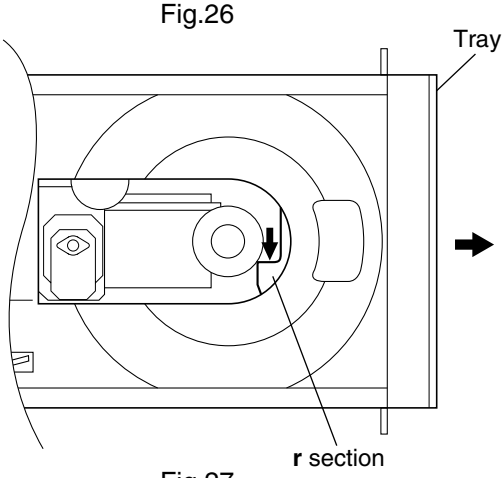


Fig.27

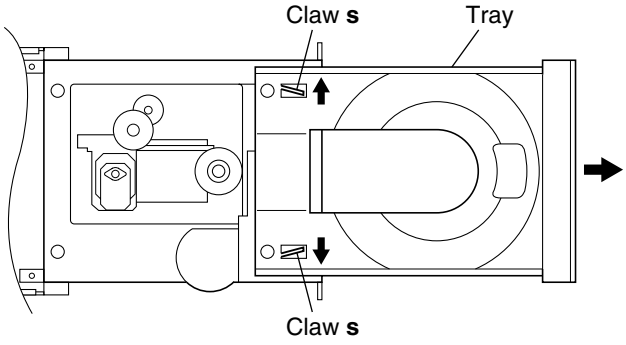


Fig.28

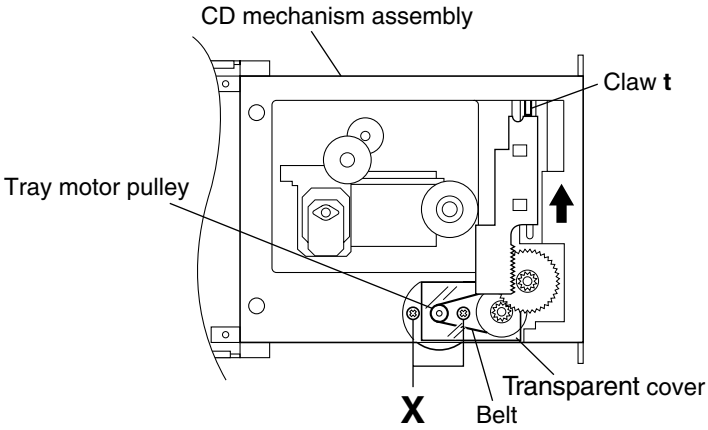


Fig.29

■ Replacing the CD pickup unit

(See Figs. 30 to 33.)

[Note] Use the following procedure to replace only the CD pickup unit.

1. Remove the left and right side panels (see **Figs. 3** to **6**).

2. Remove the top cover (see **Figs. 7** and **8**).

3. On the top of the main body, open up the claws **p** and **q** on the left and right of the clamper assembly in the direction of the arrows and lift the assembly to remove it.

4. On the top of the main body, push section **r** on the elevator of the CD mechanism assembly and lower the CD pickup assembly.

5. Pull out the tray.

6. Remove the slit washer retaining the feed middle gear, and take out the feed middle gear.

7. Remove the two screws **Y** retaining the shaft.

8. Turn the CD pickup unit upside down and apply solder to the short land part **n**.

9. Disconnect the card wire from the CD pickup unit and replace the unit.

[Caution]
- **Be sure to solder the short land part n on the CD pickup unit before disconnecting the card wire from the CD pickup unit (see Fig. 33). If the card wire is disconnected without attaching solder, the CD pickup may be destroyed by static electricity.**
- **In the assembly, be sure to remove solder from the short land part n after connecting the card wire.**

[Note]
- **Removing the CD pickup unit involves the removal of the sliding spring. In the assembly, be sure to attach the spring in the correct orientation before attaching the CD pickup unit (see Fig. 33).**

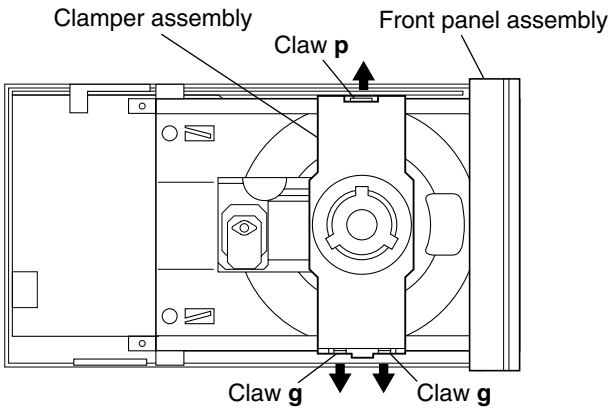


Fig.30

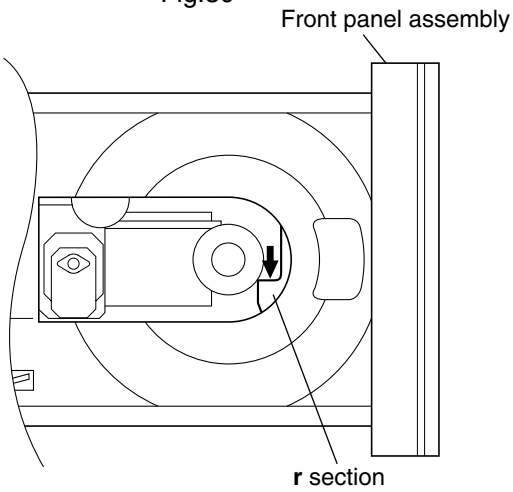


Fig.31

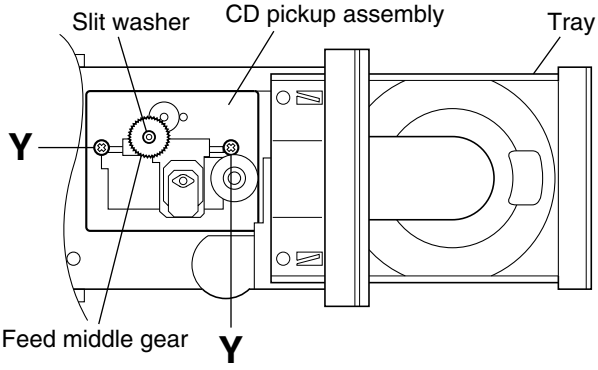


Fig.32

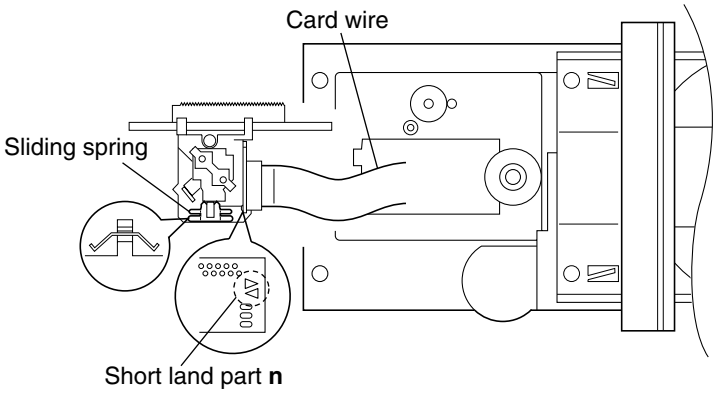


Fig.33

Adjustment method

■ Measuring instructions required for adjustment

1. AM signal generator
2. FM signal generator
3. Inter mediate frequency sweep generator
4. FM stereo signal generator
5. Low-frequency oscillator
   (oscillation frequency 50Hz-20kHz, 0dB output with 600 ohm impedance)
6. Attenuator (600 ohm impedance)
7. Electronic voltmeter
8. Distortion meter
9. Torque gauge (cassette for CTG-N)
10. Wow & flutter meter
11. Frequency counter meter
12. Test tape
    VT712 : For tape speed and wow flutter
    VT724 : For reference level
    VT703 : For playback frequency
    VT703 : For head azimuth adjustment

13. Blank tape
    TAPE Ⅰ : AC-225

■ Measuring instruments

Radio section
- FM 1kHz, 22.5kHz deviation
- FM STEREO : 1kHz, 67.5kHz deviation
  pilot signal 7.5kHz
- AM : 1kHz, 30% modulation
- Reference output :
  H.phone output -10dBs(0.245V) 32 ohm
  Speaker output 0dBs(2.8V) 8 ohm

Cassette amplifier section
- Reference output :
  H.phone output -10dBs(0.245V) 32 ohm
  Speaker output 0dBs(2.8V) 8 ohm
- Standard mode of function knob :
  Press TAPE knob of select TAPE mode

CD section
- CD test disc : CTS-1000

■ Measurement conditions

Power supply voltage
AC120V/60Hz

■ Cassette amplifier section

Item	Measuring condition	Check and adjustment procedure	Standard value	Adjusting part
Head azimuth adjustment	▪ Test tape: VT703 (10kHz) ▪ Signal output terminal: H.phone out (with 32 ohm load)	1.Play back the test tape VT703 (10kHz). 2.Adjust the head azimuth adjusting screw so that the phase difference between the R and L channels is minimized at an output level that is within ±2dB of the maximum output level. After this adjustment, lock the head azimuth adjusting screw with screw sealant to cover more than a half of the screw head. 3.When the head azimuth is maladjusted, correct it with the head azimuth adjusting screw.	▪ Output level: Within ±2dB of maximum output level ▪ Phase difference R and L channels: Minimum	Head azimuth adjusting screw (To be used only after head replacement) See Fig.1 on page 1-16.
Tape speed and wow/flutter check and adjustment	▪ Test tape: VT712 (3kHz) ▪ Signal output terminal: H.phone out (with 32 ohm load)	1.Play back the test tape VT712 (3kHz) by the end portion. 2.Connect a frequency counter and check that it reads between 2940 and 3090Hz. If not, adjust the frequency with the motor semifixed resistor. 3.Check that the wow/flutter is within 0.38% (unweighted).	▪ 2940 to 3090Hz ▪ Within 0.38% (unweighted)	▪ Tape speed: ▪ Motor semifixed resistor See Fig.2 on page 1-16. ▪ Check only
PB frequency response check	▪ Test tape: VT703 ▪ Signal output terminal: H.phone out (with 32 ohm load)	Play back the test tape VT703 while con-firming that deviation between the 1kHz signal and 8kHz signal should be (0+3dB-6dB).	Deviation between 1kHz and 8kHz: (0+3dB-6dB)	
Bias frequency check	▪ Tape: Normal ▪ Signal output terminal: Cassette REC./PLAY HEAD	Set the TUNER or CD function and with TAPE to record. Check to see if the frequency at the measuring point P207 is 68kHz ±1kHz if not adjust L203 until the frequency counter indicates 68 kHz ±1kHz.		L203, P207 See Fig.3 on page 1-16.
REC and PB frequency response adjustment	▪ Test tape: AC225 ▪ Signal input: SG 1kHz -20dBs with emphasis ▪ Signal output terminal: H.phone out (with 32 ohm load)	At TUNER, set the BAND to the FM position, and record the reference 1kHz signal and 8kHz signal alternately repeatedly. While playing back the recorded signal of the 1kHz signal differ from that of the 8kHz signal by within (0+3dB-6dB).	Level difference for 1kHz singnal: Within (0+3dB-6dB)	

■ Tuner section

Item	Measuring condition	Check and adjustment procedure	Standard value	Adjusting part
AM IF adjustment	▪ Signal input: Loop antenna ▪ Signal output: IC101 pin19	1.Set the intermediate frequency sweep generator to AM 450kHz. 2.Adjust T101 for maximum and center output.		T101 See Fig.3 on page 1-16.
AM tracking adjustment	▪ Signal input: Loop antenna ▪ Signal output: H.phone out (with 32 ohm load)	1.Set the TUNER at 530kHz adjust L101 until the test point P101 voltage at 1.1V±0.1V. 2.Set the TUNER at 1710kHz, check the test point P101 voltage at 7.0V±0.3V. 3.Set the TUNER and S/G at 600kHz, adjust L102 for maximum output. 4.Set the TUNER and S/G at 1400kHz, adjust the TC102 for maximum output. 5.Repeat the above steps 3 and 4.		L101 L102 TC102 See Fig.3 on page 1-16.
FM tracking adjustment	▪ Signal input: Dummy antenna FM ANT FM GND ▪ Signal output: H.phone out (with 32 ohm load)	1.Set the TUNER at 87.5MHz adjust L106 until the test point P102 voltage at 2.3V±0.1V. 2.Set the TUNER at 108MHz, check the test point P102 voltage at 6.5V±0.3V. 3.Set the TUNER and S/G at 90.1MHz, adjust L105 for maximum output. 4.Set the TUNER and S/G at 106.1MHz, adjust the TC101 for maximum output. 5.Repeat the above steps 3 and 4.		L106 L105 TC101 See Fig.3 on page 1-16.

■ Location of adjusting parts

· Cassette mechanism section

(Caution) For adjusting any head, be sure to use a screw driver degaussed.

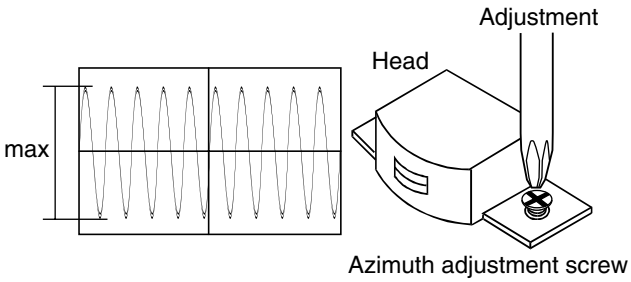


Fig.1 Head output signal

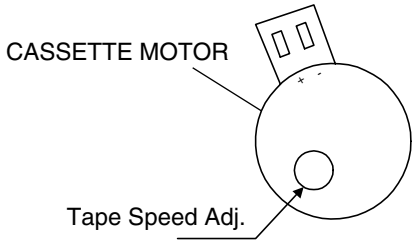


Fig.2

· Main board

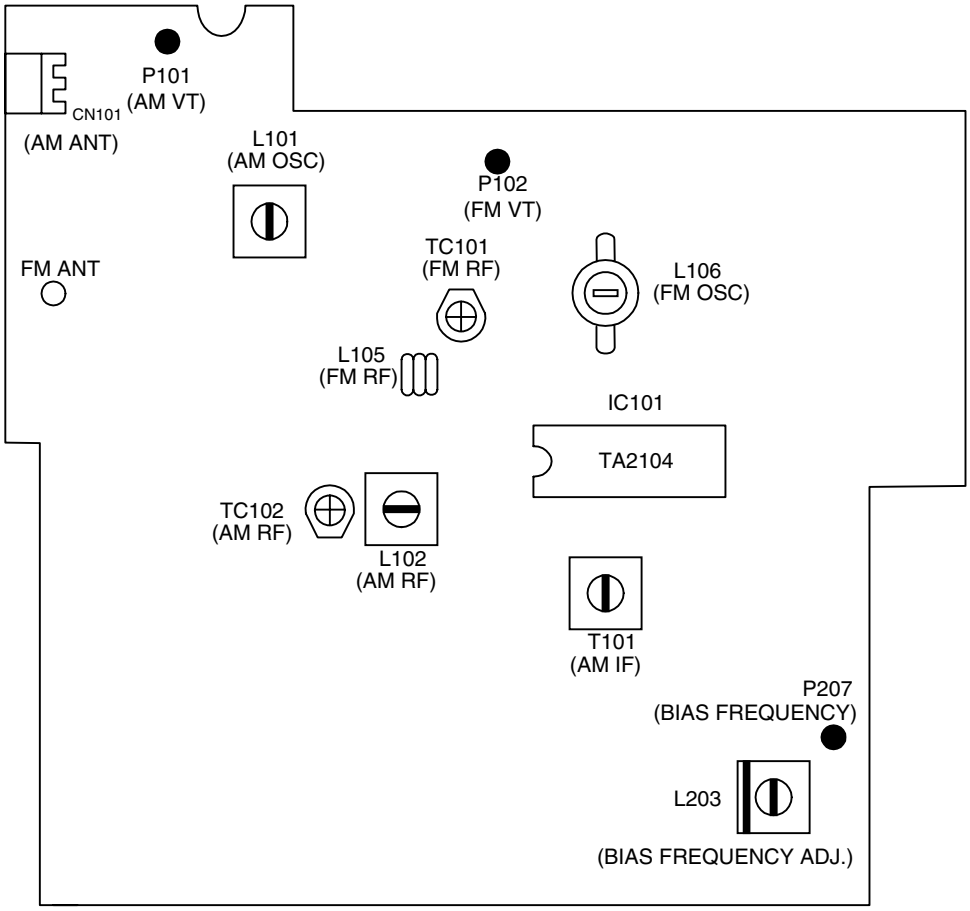
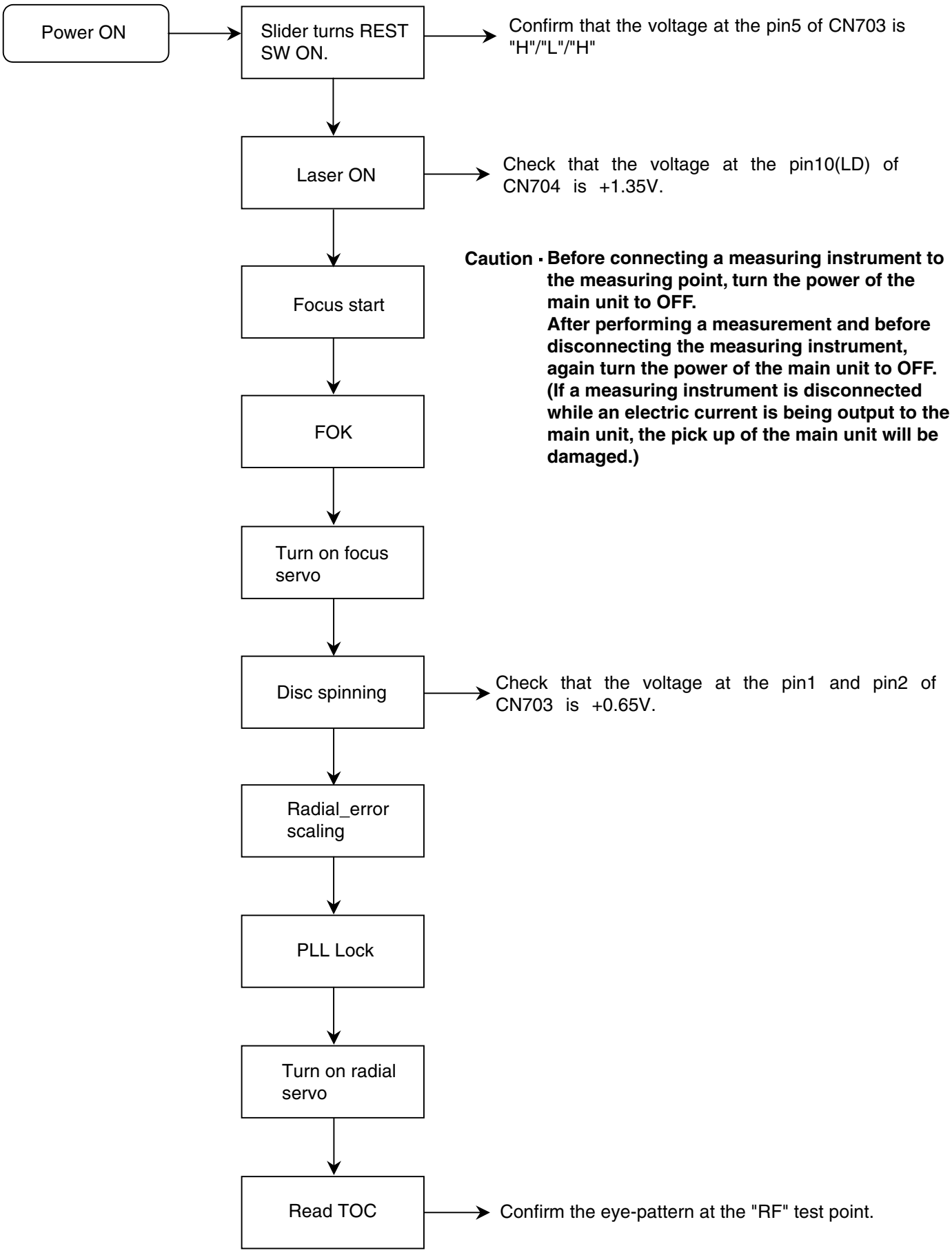


Fig.3

Flow of functional operation until TOC read



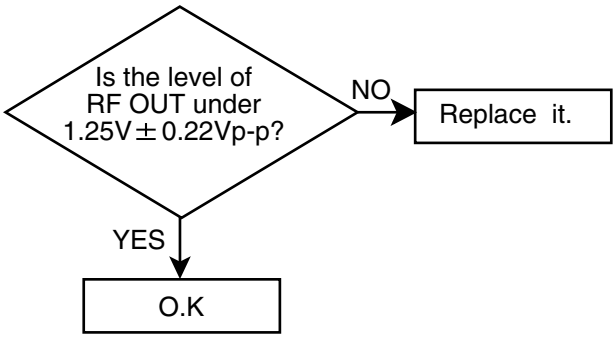
Caution - Before connecting a measuring instrument to the measuring point, turn the power of the main unit to OFF.
After performing a measurement and before disconnecting the measuring instrument, again turn the power of the main unit to OFF.
(If a measuring instrument is disconnected while an electric current is being output to the main unit, the pick up of the main unit will be damaged.)

Maintenance of laser pickup

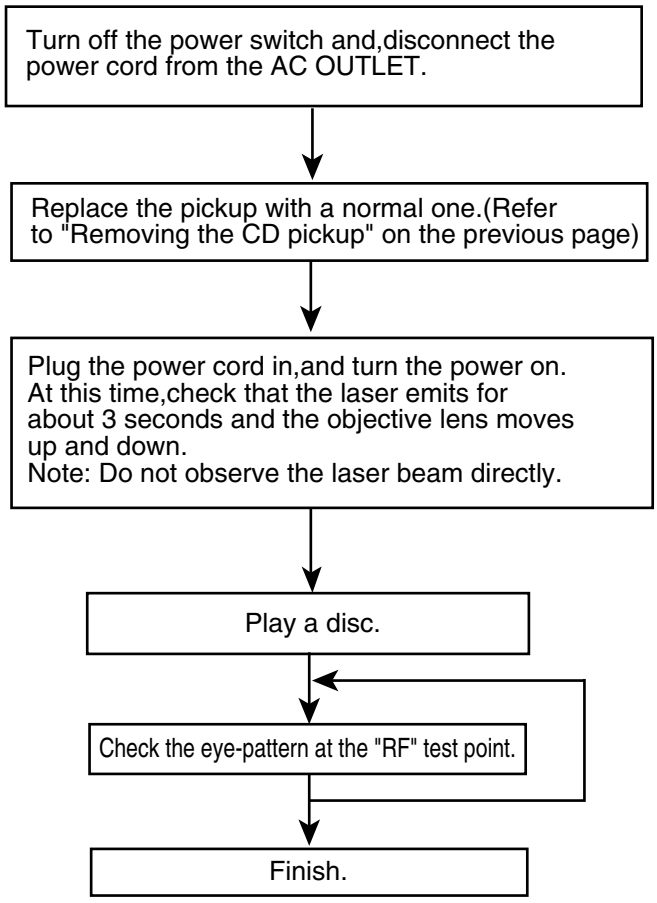
(1) Cleaning the pick up lens
Before you replace the pick up, please try to clean the lens with a alcohol soaked cotton swab.

(2) Life of the laser diode
When the life of the laser diode has expired, the following symptoms will appear.

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



Replacement of laser pickup



(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 would be adjusted when the pickup operates normally,the laser pickup may be damaged due to excessive current.

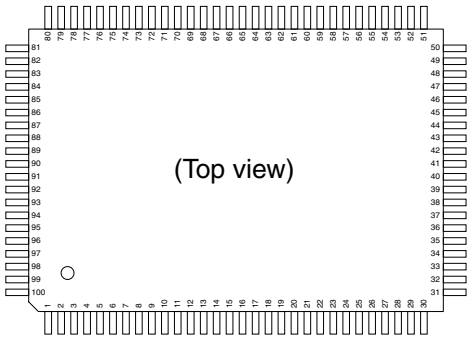
Trouble shooting

Circuit	Symptom	Cause	Remedy
General	No sound	· Speakers are not connected.	Check the speaker connection.
		· Wrong function is selected.	Set switch to the proper position.
		· Defective volume control	Set the volume control to a proper sound level.
		· Defective earphone jack	Replace the earphone jack.
		· Defect in IC601	Check voltages. Replace if necessary.
		· Defect in IC301	Check voltages. Replace if necessary.
AM	No sound, weak sound (Low sensitivity)	· Improper location of unit	Rotate or resposition the unit.
		· Defect in IFT101	Check resistance, voltage, and current. Replace as needed.
		· Defect AM antenna coil or oscilloscope coil	Replace if necessary.
		· Intermediate frequency tuning faulty	Readjust (see "Adjustment method").
		· RF tracking faulty	Readjust (see "Adjustment method").
		· Defective IC101	Check voltages. Replace if necessary.
		· Defective IC102	Check resistance and resolder.
		· Poor contact in antenna circuit	Check resistance and resolder.
FM	No sound, weak sound (Low sensitivity)	· FM antenna not connected	Connect the built-in or external antenna.
		· Defective band selector switch	Replace or repair the switch.
		· Defective IC101	Check voltages. Replace if necessary.
		· Defective IC102	Check voltages. Replace if necessary.
		· Intermediate frequency tuning faulty	Readjust (see "Adjustment method").
		· Poor contact in FM antenna circuit	Resolder or repair as required.
Tape	No sound/recording, unsteady tape sound, weak sound	· Dirty capstan or head	Clean the capstan or head with alcohol.
		· Irregular cassette tape winding	Replace tape.
		· Defective IC202	Check voltages. Replace if necessary.
		· Cassette erasure prevention tabs broken out	Replace tape or cover tab openings with adhesive tape.
CD	Cannot read the table of content. No sound	· Disc is inserted upside down.	Insert disc correctly.
		· Disc is dirty.	Wipe clean with a soft cloth.
		· Disc is scratched.	Use a new disc.
		· Disc is seriously warped.	Use a new disc.
		· A non-standard disc has been inserted.	Use only a brand name disc.
		· Moisture has formed inside the CD deck.	Wait about 20 to 30 minutes.
		· Defective IC701	Check voltages. Replace if necessary.
		· Defective IC704	Check voltages. Replace if necessary.
		· Defective TA2092N	Check voltages. Replace if necessary.
		· Defect in the CD pickup mechanism	Replace as required.

Description of major ICs

■ 87EP26F-1J15 (IC601) : MCU

1. Terminal layout



2.Pin function

Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	VSS	-	GND (0V)	28	B-PHOTO OUTPUT	I	Reel pulse input of deck B. Have pulse input means the tape is rotating.
2	XOUT	O	Resonator connecting pins for high clock(4-8MHz).				
3	XIN	I	For inputting external clock, XIN is used and XOUT is opened.	29	CD-RW	O	CD-RW control output
				30	$\overline{RES}$	O	CD servo reset output
4	$\overline{RESERT}$	I/O	Reset signal input or watchdog timer output/address-trap-reset output	31	$\overline{CCE}$	O	Servo DSP chip enable output
				32	BUCK	O	Servo DSP clock output
5	XTOUT	O	Resonator connecting pins for slow clock(32.768kHz)	33	BUS0	I/O	Servo DSP command and data I/O
6	XTIN	I	or general purpose I/O.	34	BUS1	I/O	Servo DSP command and data I/O
7	TEST	I	Test pin for out-going test. Always fixed to low.	35	BUS2	I/O	Servo DSP command and data I/O
8	SHIFT FREQ.	O	Shift the crystal oscillation frequency to reduce tuner noise.	36	BUS3	I/O	Servo DSP command and data I/O
				37	TRAY IN (SLOUT)	O	Tray open/close outputs for current sensor drawer type mechanism.
9	REMOTE	I	Remote control signal input	38	TRAY OUT (SLIN)	O	
10	MUTE	O	Audio mute output	39	SLT	I	CD pick up position input: L if pick up is in inner side.
11	PLAY MUTE	O	Muting output during play	40	CLT (SLEND)	I	Current sensor input
12	REC MUTE	O	Muting output during recording	41	NC	-	Not connected
13	PLAY/$\overline{REC}$	O	Play or recording output, low for recording.	42	RDS DATA	I	BU1923F(RDS demodulator) interface data input
14	$\overline{(SCK2)}$	-	Not connected	43	STEREO	I	Stereo input pin for tuner stereo indication
15	(SI2)	-	Not connected	44	PWR DET	I	Power down detection
16	(SO2)	-	Not connected	45	AD K3	I	Panel key analog input
17	REC SW (RCS)/(WAIT)	I	Deck reverse record protection input. Low means can record on reverse side.	46	AD K2	I	Panel key analog input
				47	AD K1	I	Panel key analog input
18	REC SW (FWD)	I	Deck forward record protection input. Low means can record on forward side.	48	VAREF	-	Analog reference voltage input
				49	(BOOT)	I	Control input for writing MCU program area via ICU interface.
19	SOL.	O	Solenoid output for deck B.				
20	MODE SW	I	Mode switch input of deck B. Low means the head is up.	50	VSS	-	GND (0V)
				51	VDD	-	VDD (+5V)
21	VOL STB	O	TC9422F volume STB output	52~91	SEG39~0	O	LCD segment outputs
22	POWER	O	Power output control	92~95	COM3~0	O	LCD common outputs
23	B-HALF SW	I	Half switch input of deck B. Low means deck B have tape.	96	VLC	-	LCD drive power supply
				97	PLL DATA	I/O	TC9257P (PLL) interface
24	JOG-B/VOL DATA	I/O	Jog dial input and TC9422F volume data output	98	PLL CLK	O	TC9257P (PLL) interface
25	JOG-A/VOL CLK	I/O	Jog dial input and TC9422F volume clock output	99	PLL PRD	O	TC9257P (PLL) interface
26	RDS CLK	I	BU1923F(RDS demodulator) interface CLK input	100	VDD	-	VDD (+5V)
27	V-MOTOR	O	Motor output				

■ TC9462F (IC701) : Digital servo single chip processor

1. Terminal layout

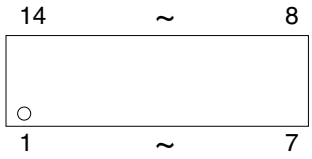
2. Pin function

Pin No.	Symbol	I/O	Function
1	TEST0	I	Test mode terminal. Normally, keep at open
2	$\overline{HSO}$	O	Playback speed mode flag output terminal.
3	$\overline{UHSO}$	O	$\overline{UHSO}$ / $\overline{HSO}$ / PLAYBACK SPEED: H / H / Normal; H / L / 2 times; L / H / 4 times; L / L / -
4	EMPH	O	Subcode Q data emphasis flag output terminal. Emphasis ON at "H" level and OFF at "L" level. The output polarity can invert by command.
5	LRCK	O	Channel clock output terminal. (44.1kHz) L-ch at "L" level and R-ch at "H" level. The output polarity can invert by command.
6	VSS1	-	Digital ground terminal.
7	BCK	O	Bit clock output terminal. (1.4112MHz)
8	AOUT	O	Audio data output terminal.
9	DOUT	O	Digital data output terminal.
10	MBOV	O	Buffer memory over signal output terminal. Over at "H" level.
11	IPF	O	Correction flag output terminal. At "H" level, AOUT output is made to correction impossibility by C_2 correction processing.
12	SBOK	O	Subcode Q data CRCC check adjusting result output terminal. The adjusting result is OK at "H" level.
13	CLCK	I/O	Subcode P~W data readout clock input/output terminal. This terminal can select by command bit.
14	VDD1	-	Digital power supply voltage terminal.
15	VSS2	-	Digital ground terminal.
16	DATA	O	Subcode P~W data output terminal.
17	SFSY	O	Playback frame sync signal output terminal.
18	SBSY	O	Subcode block sync signal output terminal.
19	SPCK	O	Processor status signal readout clock output terminal.
20	SPDA	O	Processor status signal output terminal.
21	COFS	O	Correction frame clock output terminal. (7.35kHz)
22	MONIT	O	Internal signal (DSP internal flag and PLL clock) output terminal. Selected by command. This terminal output the text data with serial by command.
23	VDD2	-	Digital power supply voltage terminal.
24	TESIO0	I	Test input/output terminal. Normally, keep at "L" level. The terminal that inputted the clock for read of text data by command.
25	P2VREF	-	PLL double reference voltage supply terminal.
26	HSSW	O	2/4 times speed at "V_{REF}" voltage.
27	ZDET	O	1 bit DA converter zero detect flag output terminal.
28	PDO	O	Phase difference signal output terminal of EFM signal and PLCK signal.
29	TMAXS	O	TMAX detection result output terminal. Selected by command bit (TMPS).
30	TMAX	O	TMAX detection result output terminal. Selected by command bit (TMPS). DIFFERENCE RESULT / TMAX OUTPUT: Longer than fixed freq. / "P2V_{REF}"; Shorter than fixed freq. / "Vss"; Within the fixed freq. / "HiZ"
31	LPFN	I	LPF amplifier inverting input terminal for PLL.
32	LPFO	O	LPF amplifier output terminal for PLL.
33	PVREF	-	PLL reference voltage supply terminal.
34	VCOREF	I	VCO center frequency reference level terminal. Normally, keep at "PV$_{REF}$" level.
35	VCOF	O	VCO filter terminal.
36	AVSS1	-	Analog ground terminal.
37	SLCO	O	Data slice level output terminal.
38	RFI	I	RF signal input terminal.
39	AVDD1	-	Analog power supply voltage terminal.
40	RFCT	I	RFRP signal center level input terminal.
41	RFZI	I	RFRP zero cross input terminal.
42	RFRP	I	RF ripple signal input terminal.
43	FEI	I	Focus error signal input terminal.
44	SBAD	I	Sub-beam adder signal input terminal.
45	TSIN	I	Test input terminal. Normally, keep at "V_{REF}" level.
46	TEI	I	Tracking error signal input terminal. Take in at tracking servo on.
47	TEZI	I	Tracking error zero cross input terminal.
48	FOO	O	Focus servo equalizer output terminal.
49	TRO	O	Tracking servo equalizer output terminal.
50	VREF	-	Analog reference voltage supply terminal.

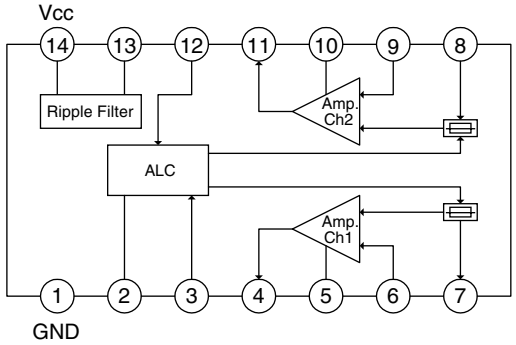
Pin No.	Symbol	I/O	Function
51	RFGC	O	RF amplitude adjustment control signal output terminal.
52	TEBC	O	Tracking balance control signal output terminal.
53	FMO	O	Feed equalizer output terminal.
54	FVO	O	Speed error signal or feed search equalizer output terminal.
55	DMO	O	Disk equalizer output terminal. (PWM carrier= 88.2kHz for DSP, Synchronize to PXO)
56	2VREF	-	Analog double reference voltage supply terminal.
57	SEL	O	APC circuit ON/OFF indication signal output terminal. At the laser on time, UHF = L at "HiZ" level and UHF = H at "H" level.
58	FLGA	O	External flag output terminal for internal signal. Can select signal from TEZC, $\overline{FOON}$, $\overline{FOK}$ and RFZC by command.
59	FLGB	O	External flag output terminal for internal signal. Can select signal from $\overline{DFCT}$, $\overline{FOON}$, $\overline{FMON}$ and RFZC by command.
60	FLGC	O	External flag output terminal for internal signal. Can select signal from $\overline{TRON}$, $\overline{TRSR}$, $\overline{FOK}$ and $\overline{SRCH}$ by command.
61	FLGD	O	External flag output terminal for internal signal. Can select signal from $\overline{TRON}$, $\overline{DMON}$, $\overline{HYS}$ and $\overline{SHC}$ by command.
62	VDD3	-	Digital power supply voltage terminal.
63	VSS3	-	Digital ground terminal.
64	IO0	I/O	General I/O terminal. Can change over input port or output port by command. At the input mode time can readout a state of terminal (H/L) by read command. At the output mode time can control a state of terminal (H/L/HiZ) by command.
65	IO1	I/O	
66	IO2	I/O	
67	IO3	I/O	
68	$\overline{DMOUT}$	I	This terminal controls IO0~IO3 terminal. At "L" level time, IO0, 1 out feed equalizer signal of 2-state PWM, IO2,3 out disk equalizer signal of 2-state PWM.
69	$\overline{CKSE}$	I	Normally, keep at open.
70	$\overline{DACT}$	I	DAC test mode terminal. Normally, keep at open.
71	TESIN	I	Test input terminal. Normally, keep at "L" level.
72	TESIO1	I	Test input/output terminal. Normally, keep at "L" level.
73	VSS4	-	Digital ground terminal.
74	PXI	I	Crystal oscillator connecting input terminal for DSP. Normally, keep at "L" level.
75	PXO	O	Crystal oscillator connecting output terminal for DSP.
76	VDD4	-	Digital power supply voltage terminal.
77	XVSS	-	Oscillator ground terminal for system clock.
78	XI	I	Crystal oscillator connecting input terminal for system clock.
79	XO	O	Crystal oscillator connecting output terminal for system clock.
80	XVDD	-	Oscillator power supply voltage terminal for system clock.
81	DVSR	-	Analog ground terminal for DA converter.(R-ch)
82	RO	O	R channel data forward output terminal.
83	DVDD	-	Analog supply voltage terminal for DA converter.
84	DVR	-	Reference voltage terminal for DA converter.
85	LO	O	L channel data forward output terminal.
86	DVSL	-	Analog ground terminal for DA converter.(L-ch)
87	TEST1	I	Test mode terminal. Normal, keep at open.
88	TEST2	I	Test mode terminal. Normal, keep at open.
89	TEST3	I	Test mode terminal. Normal, keep at open.
90	BUS0	I/O	Micon interface data input/output terminal.
91	BUS1	I/O	
92	BUS2	I/O	
93	BUS3	I/O	
94	VDD5	-	Digital power supply voltage terminal.
95	VSS5	-	Digital ground terminal.
96	BUCK	I	Micon interface clock input terminal.
97	$\overline{CCE}$	I	Command and data sending/receiving chip enable signal input terminal. The bus line becomes active at "L" level.
98	TEST4	I	Test mode terminal. Normal, keep at open.
99	$\overline{TSMOD}$	I	Local test mode selection terminal.
100	$\overline{RST}$	I	Reset signal input terminal. Reset at "L" level.

■ AN7312 (IC202) : Dual recording/Playback pre-amplifier circuit with ALC

1. Terminal layout



2. Block diagram

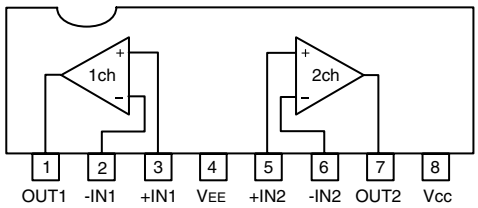


3. Pin function

Pin No.	Symbol	I/O	Function
1	GND	-	GND
2	ALC time constant	-	ALC time constant by resistance and capacitor
3	ALC input Ch.1	I	Right channel ALC input
4	Output Ch.1	O	Right channel output
5	Phase compensation Ch.1	-	No connect
6	N.E.B. Ch.1	I	Right channel negative feed back input
7	Input Ch.1	I	Right channel signal input
8	Input Ch.2	I	Left channel signal input
9	N.E.B. Ch.2	I	Left channel negative feed back input
10	Phase compensation Ch.2	-	No connect
11	Output Ch.2	O	Left channel output
12	ALC input Ch.2	I	Left channel ALC input
13	Ripple filter	-	Ripple filter
14	Vcc	-	Power supply

■ BA4558N (IC402) : Dual operational amplifier

1. Terminal layout & Block diagram

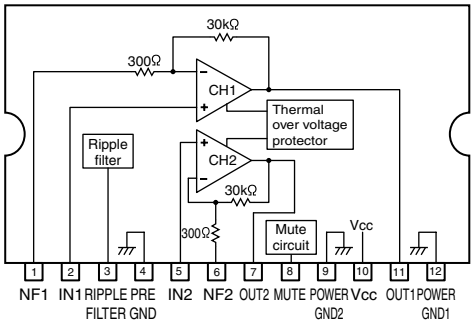


2. Pin function

PIN No.	Symbol	I/O	Function
1	OUT1	O	A output
2	-IN1	I	A - input
3	+IN1	I	A + input
4	VEE	-	V-
5	+IN2	I	B + input
6	-IN2	I	B - input
7	OUT2	O	B output
8	Vcc	-	V+

■ LA4282 (IC401) : Power amplifier

1. Terminal layout & Block diagram

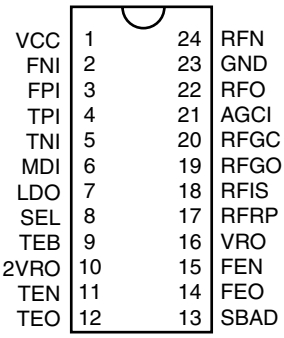


2. Pin function

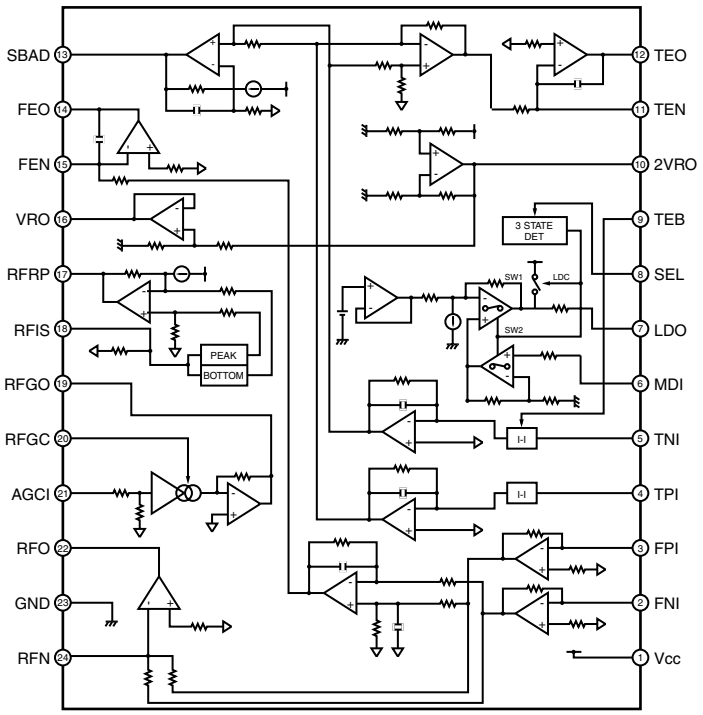
PIN No.	Symbol	I/O	Function
1	NF1	-	Right channel negative feed back
2	IN1	I	Right channel signal input
3	RIPPLE FILTER	-	Ripple filter
4	PRE GND	-	PRE GND
5	IN2	I	Left channel signal input
6	NF2	-	Left channel negative feed back
7	OUT2	O	Left channel output
8	MUTE	-	Mute control
9	POWER GND2	-	Power GND
10	Vcc	-	Power supply
11	OUT1	O	Right channel output
12	POWER GND1	-	Power GND

■ TA2109F (IC704) : RF Amplifier

1.Terminal Layout



2.Block Diagram

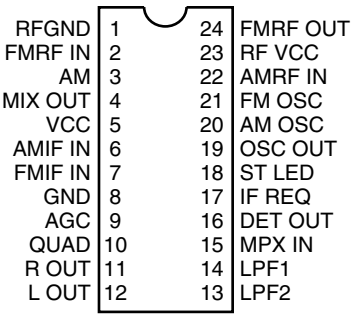


3.Pin Function

Pin No.	Symbol	I/O	Function
1	VCC	-	Power supply input terminal
2	FNI	I	Main beam I-V amplifier input terminal
3	FPI	I	Main beam I-V amplifier input terminal
4	TPI	I	Sub beam I-V amplifier input terminal
5	TNI	I	Sub beam I-V amplifier input terminal
6	MDI	I	Monitor photo diode amplifier input terminal
7	LDO	O	Laser diode amplifier output terminal
8	SEL	I	Laser diode control signal input terminal and APC circuit ON/OFF control signal input terminal
9	TEB	I	Tracking error balance adjustment signal input terminal Controlled by 3 PWM signal
10	2VRO	O	Reference voltage (2Vref) output terminal 2Vref=4.2V when Vcc=5V
11	TEN	I	TE amplifier negative input terminal
12	TEO	O	TE error signal output terminal
13	SBAD	O	Sub beam adder signal output terminal
14	FEO	O	Focus error signal output terminal
15	FEN	I	FE amplifier negative input terminal
16	VRO	O	Reference voltage (Vref) output terminal Vref=2.1V when Vcc=5V
17	RFRP	O	Track count signal output terminal
18	RFIS	I	RFRP detect circuit input terminal
19	RFGO	O	RF gain signal output terminal
20	RFGC	I	RF amplitude adjustment control signal input terminal controlled by 3 PWM signal (PWM carrier =88.2 kHz)
21	AGCI	I	RF signal amplitude adjustment amplifier input terminal
22	RFO	O	RF signal output terminal
23	GND	-	Connect to GND
24	RFN	I	RF amplifier negative input terminal

■ TA2104BN (IC101) : 1chip AM/FM, MPX tuner system

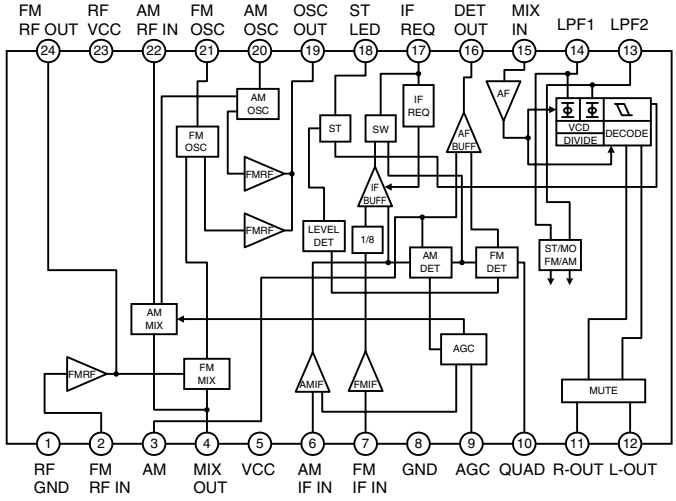
1. Terminal layout



2. Pin function

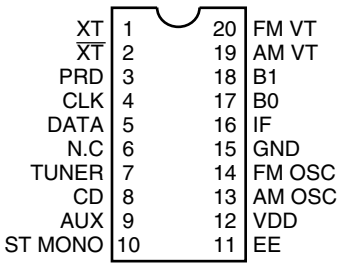
PIN No.	Symbol	I/O	Function	PIN No.	Symbol	I/O	Function
1	RFGND	-	Ground terminal for RF	13	LPF2	I	FM/AM switch
2	FMRF IN	I	Input of FMRF signal	14	LPF1	I	Stereo/monoral switch
3	AM	I	AM low frequency cut	15	MPX IN	I	Multiplex signal input
4	MIX OUT	O	Output of FM/AM RF mix	16	DET OUT	O	AM/FM detection output
5	VCC	-	Power supply terminal	17	IF REQ	O	IF out/REQ out
6	AMIF IN	I	Input of AMIF signal	18	ST LED	O	Stereo indicator output
7	FMIF IN	I	Input of FMIF signal	19	OSC OUT	O	PLL data bus for FM or AM
8	GND	-	Ground terminal	20	AM OSC	-	AM local oscillation circuit
9	AGC	I	AGC voltage input terminal	21	FM OSC	-	FM local oscillation circuit
10	QUAD	I	OSC terminal for FM DET.	22	AMRF IN	I	Input of AMRF signal
11	R OUT	O	Output R-channel	23	RF VCC	-	Power supply terminal for RF
12	L OUT	O	Output L-channel	24	FMRF OUT	O	Output of FMRF signal

3. Block diagram



■ TC9257F (IC102) : PLL frequency synthesizer

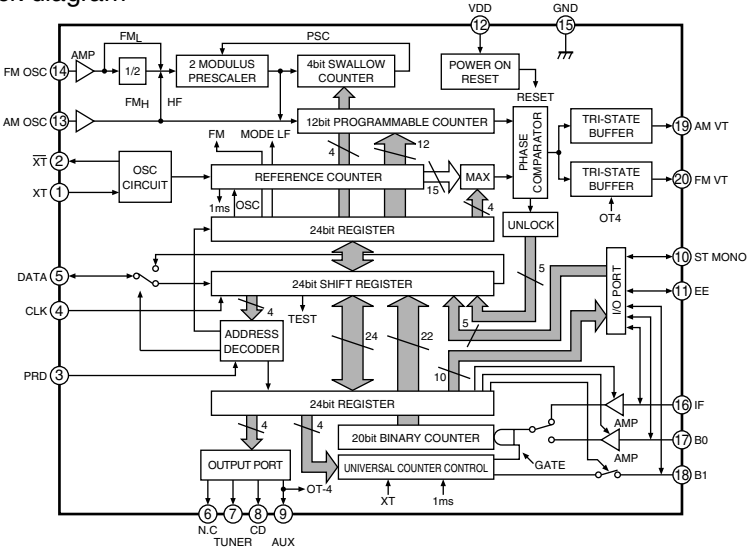
1. Terminal layout



2. Pin function

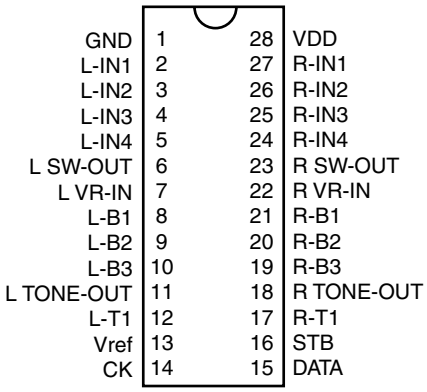
PIN No.	Symbol	I/O	Function	PIN No.	Symbol	I/O	Function
1	XT	I	Crystal oscillator pins	11	EE	I/O	General-purpose I/O port
2	$\overline{XT}$	O	Crystal oscillator pins	12	VDD	-	Power supply pin
3	PRD	I	Period signal input	13	AM OSC	I	Programmable counter input
4	CLK	I	Clock signal input	14	FM OSC	I	Programmable counter input
5	DATA	I/O	Serial data input/output	15	GND	-	Ground pin
6	N.C	O	General-purpose output port	16	IF	I/O	General-purpose I/O port
7	TUNER	O	General-purpose output port	17	B0	I/O	General-purpose I/O port
8	CD	O	General-purpose output port	18	B1	I/O	General-purpose I/O port
9	AUX	O	General-purpose output port	19	AM VT	O	Phase comparator output
10	ST MONO	I/O	General-purpose I/O port	20	FM VT	O	Phase comparator output

3. Block diagram

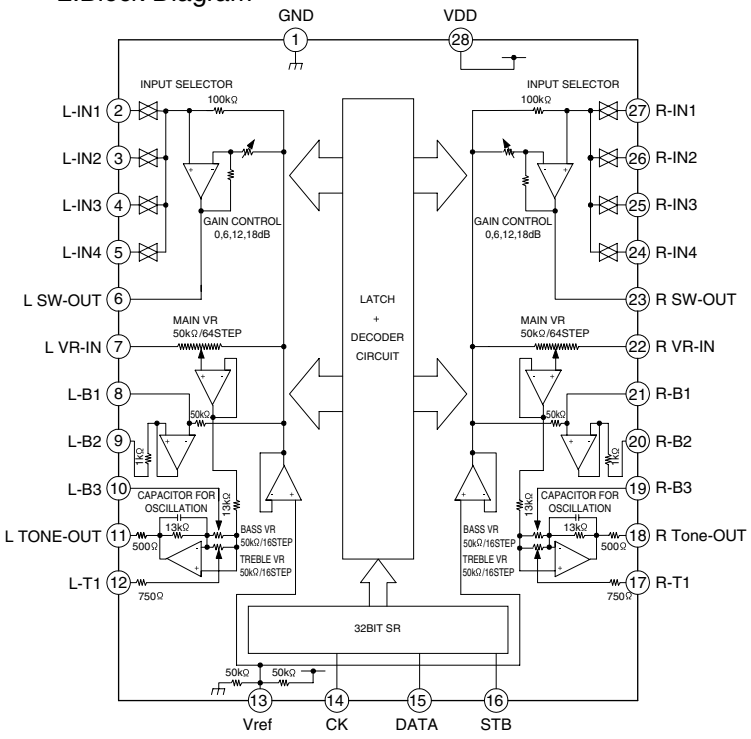


■ TC9422F (IC301) : System electronic volume

1.Terminal Layout



2.Block Diagram

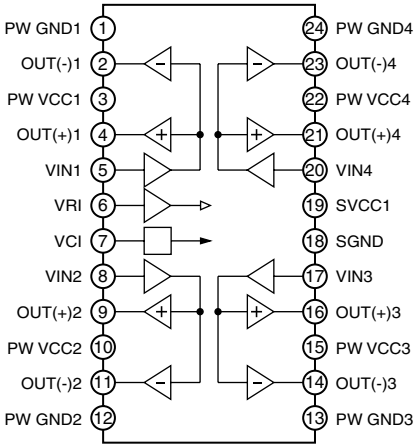


3.Pin Function

Pin No.	Symbol	I/O	Function
1	GND	-	Ground pin
2	L-IN1	I	Audio signal input pin (L-ch)
3	L-IN2	I	Audio signal input pin (L-ch)
4	L-IN3	I	Audio signal input pin (L-ch)
5	L-IN4	I	Audio signal input pin (L-ch)
6	L SW-OUT	O	Audio signal output pin (L-ch)
7	L VR-IN	I	Main volume input pin (L-ch)
8	L-B1	I	Tone control tap pin 1 for bus
9	L-B2	I	Tone control tap pin 2 for bus
10	L-B3	I	Tone control tap pin 3 for bus
11	L TONE-OUT	O	Tone control output pin (L-ch)
12	L-T1	I	Tone control tap pin for treble (L-ch)
13	Vref	I	Reference voltage input pin
14	CK	I	Clock input pin
15	DATA	I	Data input pin
16	STB	I	Strobe input pin
17	R-T1	I	Tone control tap pin for treble (R-ch)
18	R TONE-OUT	O	Tone control output pin (R-ch)
19	R-B3	I	Tone control tap pin 3 for bus
20	R-B2	I	Tone control tap pin 2 for bus
21	R-B1	I	Tone control tap pin 1 for bus
22	R VR-IN	I	Main volume input pin (R-ch)
23	R SW-OUT	O	Audio signal output pin (R-ch)
24	R-IN4	I	Audio signal input pin (R-ch)
25	R-IN3	I	Audio signal input pin (R-ch)
26	R-IN2	I	Audio signal input pin (R-ch)
27	R-IN1	I	Audio signal input pin (R-ch)
28	VDD	-	Power supply voltage pin

■ TA2092N (IC703) : Power driver IC

1.Terminal Layout & Block Diagram

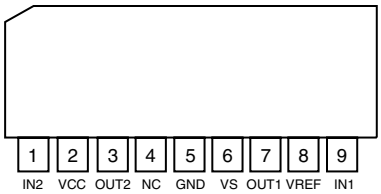


2.Pin Function

Pin No.	Symbol	I/O	Function
1	PW GND1	-	Power GND
2	OUT(-)1	O	Inverted output for CH1
3	PW VCC1	-	Supply terminal of output stage for CH1
4	OUT(+)1	O	Non-inverted output for CH1
5	VIN1	I	Input for CH1
6	VRI	-	Input reference voltage
7	VCI	-	Output reference voltage
8	VIN2	I	Input for CH2
9	OUT(+)2	O	Non-inverted output for CH2
10	PW VCC2	-	Supply terminal of output stage for CH2
11	OUT(-)2	O	Inverted output for CH2
12	PW GND2	-	Power GND
13	PW GND3	-	Power GND
14	OUT(-)3	O	Inverted output for CH3
15	PW VCC3	-	Supply terminal of output stage for CH3
16	OUT(+)3	O	Non-inverted output for CH3
17	VIN3	I	Input for CH3
18	SGND	-	Supply terminal of small signal GND
19	SVCC1	-	Small signal GND
20	VIN4	I	Input for CH4
21	OUT(+)4	O	Non-inverted output for CH4
22	PW VCC4	-	Supply terminal of output stage for CH4
23	OUT(-)4	O	Inverted output for CH4
24	PW GND4	-	Power GND

■ TA7291S (IC702) : Bridge driver

1.Terminal Layout

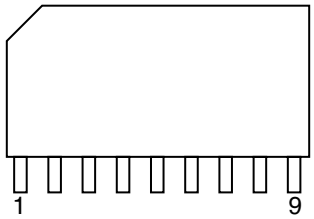


2.Truth table

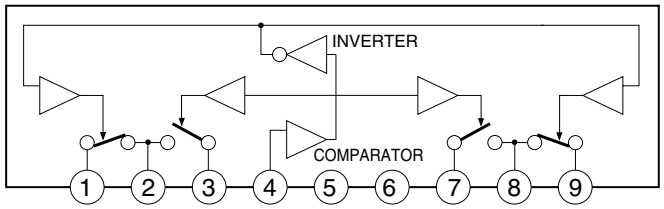
INPUT		OUTPUT		MODE
IN1	IN2	OUT1	OUT2	
0	0	∞	∞	STOP
1	0	H	L	CW/CCW
0	1	L	H	CCW/CW
1	1	L	L	BRAKE

■ UPC1330HA(IC201): REC/PB audio head switch

1. Terminal layout



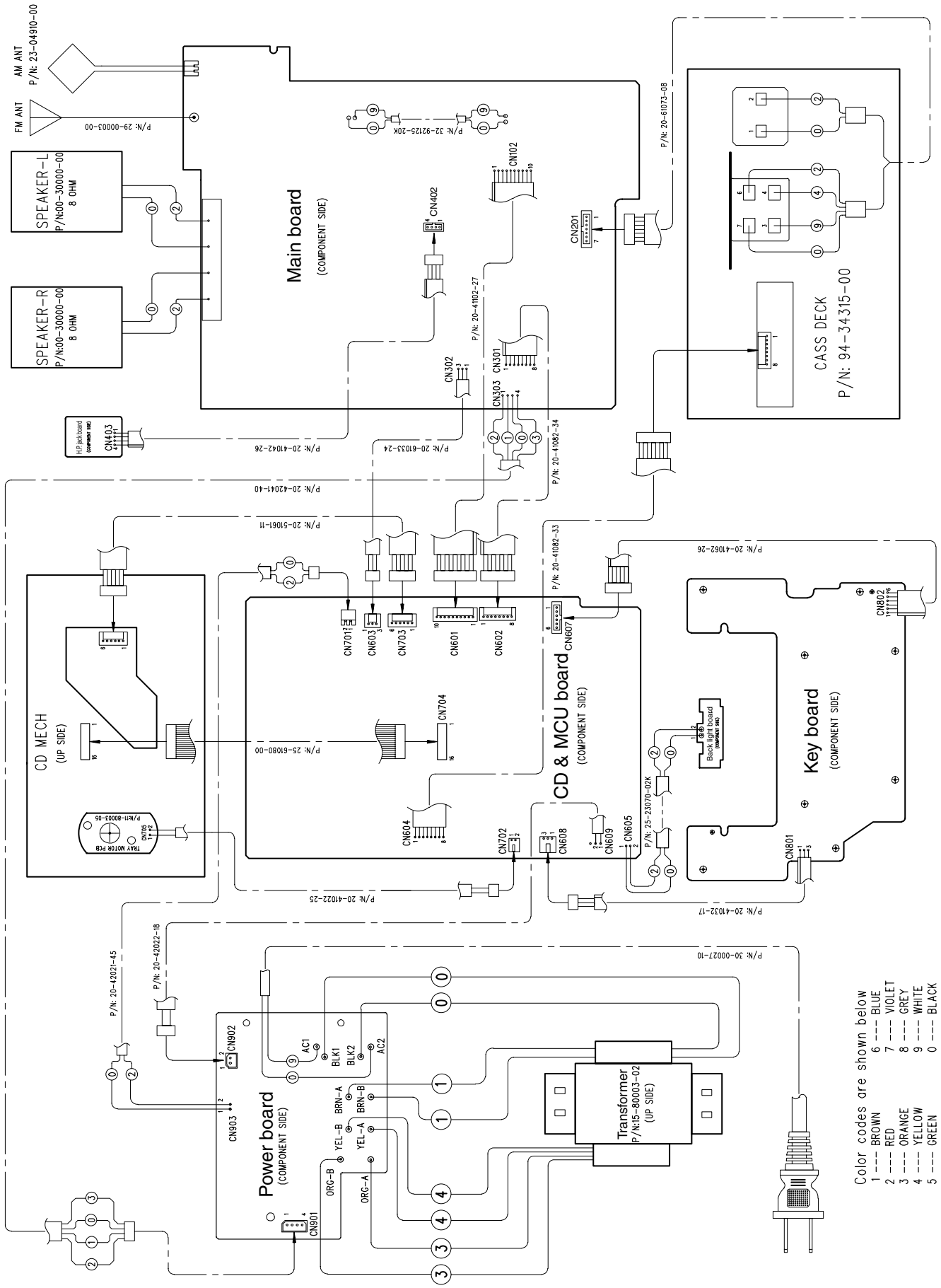
2. Block diagram



3. Pin function

Pin No.	Symbol	I/O	Function
1	SW_{R1}	-	Record SW (Left channel)
2	GND	-	GND
3	SW_{P1}	-	Play SW (Left channel)
4	CONT	-	Record/play control pin
5	GND	-	GND
6	Vcc	-	Power supply
7	SW_{P2}	-	Play SW (Right channel)
8	GND	-	GND
9	SW_{R2}	-	Record SW (Right channel)

Wiring connections



JVC

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No.21067

200202(SV)

PARTS LIST

[FS-M3]

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

Area suffix

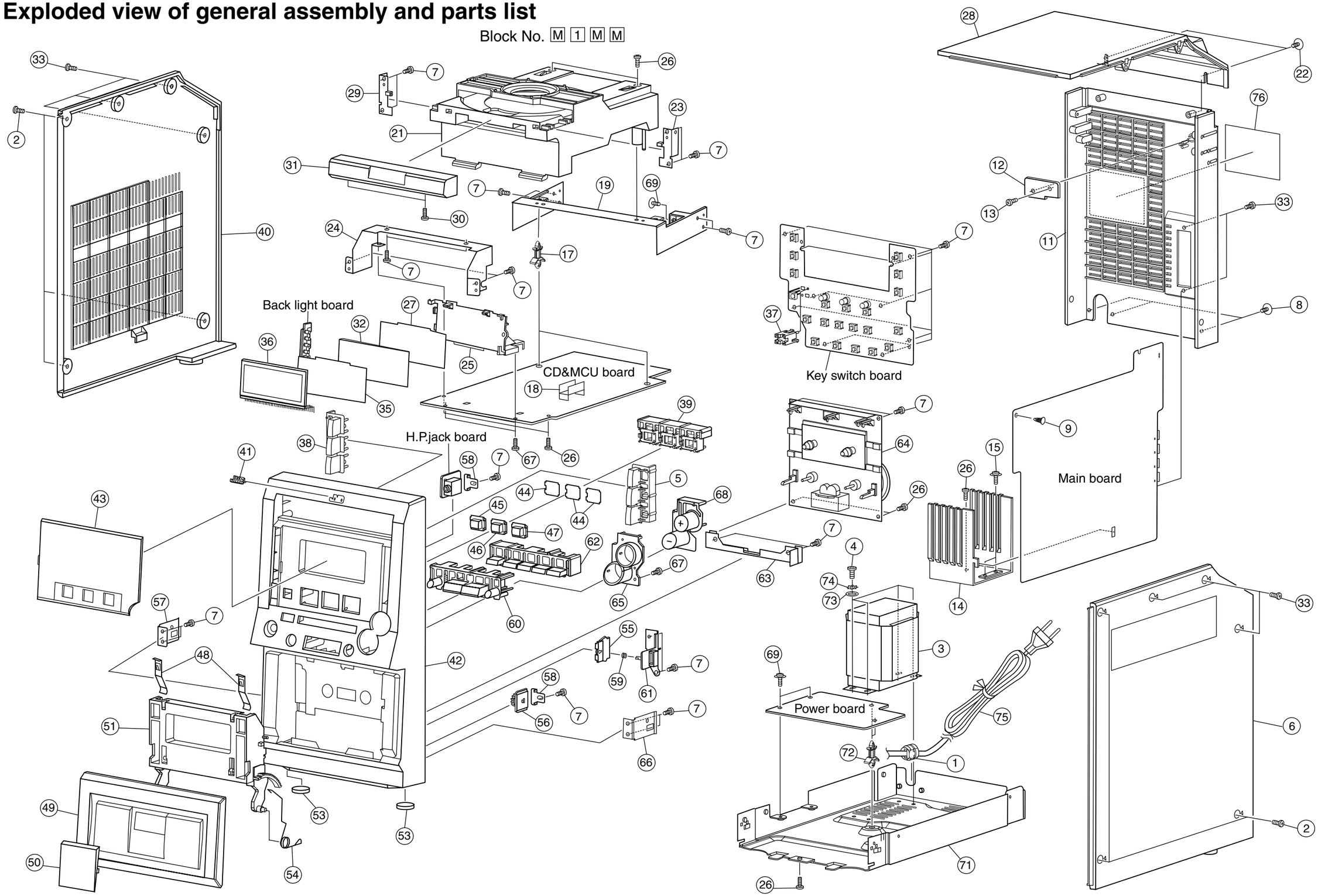
J ---------- U.S.A.
C ---------- Canada

- 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	OW84-10002-02	S.R BUSHING	1	SR-F41 AC CORD	
	2	OW40-23010-52	SCREW	6	M3X10 BH/MS TAP.	
⚠	3	OW15-80003-02	TRANSFORMER	1	EI-66 WHS66-36Q1E M3	
	4	OW40-10408-81	SCREW	4	D4X8 BH	
	5	OW53-30000-01	KEY BUTTON	1	OPEN/CLOSE	
	6	OW61-30000-02	SIDE PLATE	1	RIGHT	C
		OW61-30000-06	SIDE PLATE	1	RIGHT	J
	7	OW40-13008-91	SCREW	34	D3X8,BH/ST, PITCH	
	8	OW40-03008-53	SCREW	3	M3X8 WH/MS TAPTITE	
	9	OW84-30000-02	PCB LOCK SUPPOR	1	RS-3	
	11	OW61-30000-04	REAR CABINET	1	94V2	J
		OW61-30000-07	REAR CABINET	1	94HB	C
	12	OW11-80003-08	PCB WASHER	1	94HB 1.6MM	
	13	OW40-12606-21	SCREW	1	D2.6X6 BH/ST BLK	
	14	OW39-00155-07	HEAT SINK	1	MC155 POWER IC	
	15	OW40-13008-03	SCREW	2	D3X8 WH/ST	
	17	OW84-30000-05	PCB LOCK SUPPOR	2	H=12.7	
	18	OW39-00013-00A	HEAT SINK	1	CDT13	
	19	OW39-30000-03	MOUNT BRACKET	1	CD REAR	
	21	OW98-00110-02	CD MECHA	1	TCP11TK3+TD001	
	22	OW40-13010-03	SCREW	2	D3X10 WH/ST	
	23	OW39-30000-01	CD F. MOUNT BKT	1	RIGHT	
	24	OW39-30000-02	CD F. MOUNT BKT	1		
	25	OW48-30000-01	LCD BLACKET	1		
	26	OW40-03006-81	SCREW	8	M3X6 BH/MS BLK	
	27	OW68-30000-00	LIGHT GUIDE PAPER	1	0.1TH	
	28	OW60-30000-04	TOP CABINET	1		J
		OW60-30000-01	TOP CABINET	1		C
	29	OW39-30000-00	CD F. MOUNT BKT	1	LEFT	
	30	OW40-12605-21	SCREW	2	D2.6X5 BH/ST BLK	
	31	OW66-30000-00	CD DOOR	1		
	32	OW43-30000-05	LIGHT GUIDE	1		
	33	OW40-13012-01	SCREW	8	D3X12 BH/ST	
	35	OW68-30000-01	LCD FILTER	1		
	36	OW91-80003-00	LCD	1	914117T-P(YEEBO)	
	37	OW48-30000-02	REMOTE SENSOR	1		
	38	OW53-30000-00	KEY BUTTON	1	STANDBY	
	39	OW53-30000-04	KEY BUTTON	1	FUNCTION	
	40	OW61-30000-01	SIDE PLATE	1	LEFT 94HB	C
		OW61-30000-05	SIDE PLATE	1	LEFT 94V2	J
	41	OW55-30000-00	BAGE	1		
	42	OW60-30000-03	FRONT CABINET	1	94V2	J
		OW60-30000-05	FRONT CABINET	1	94HB	C
	43	OW43-30000-09	DISPLAY LENS	1		
	44	OW68-30000-02	F.KEY FILTER	3	TD207	
	45	OW43-30000-02	LENS	1	FUNCTION KEY CD	
	46	OW43-30000-03	LENS	1	FUNCTION KEY TUNER	
	47	OW43-30000-04	LENS	1	FUNCTION KEY TAPE	

■ Parts list (General assembly)

Block No. M1MM

⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	48	OW39-30000-07	CASS TAPE SPRING	2		
	49	OW66-30000-01	CASS DOOR COVER	1		
	50	OW43-30000-01	CASS DOOR LENS	1		
	51	OW66-00155-03	TECHNICAL DOOR	1	MC155	
	53	OW81-00155-01	MC155 RUBER FOOT	2	D16X3MM PORON	
	54	OW36-30000-00	TORSION SPRING	1	D1.0MM	
	55	OW49-00155-01	LATCH CAM	1	MC155	
	56	OW63-00155-01	DAMP GEAR	1	313911873620	
	57	OW39-30000-04	BRACKET	1	LEFT	
	58	OW39-00155-13	D. GEAR HOLDER	2		
	59	OW36-00155-03A	COMPRESS SPRING	1	M155 (4MML)	
	60	OW53-30000-02	KEY BUTTON	1	RECORD/DIRECTION	
	61	OW49-00155-02	LATCH CAM HOLDER	1	MC155	
	62	OW53-30000-03	KEY BUTTON	1	STOP/PROGRAM	
	63	OW39-00055-01	DECK MECHA BKT	1	MC55	
	64	OW94-34315-00	CASSETTE MECHA	1	CFL4315	
	65	OW48-30000-00	ORNAMENT	1	RING	
	66	OW39-30000-05	BRACKET	1	RIGHT	
	67	OW40-12608-21	SCREW	3	D2.6X8 BH/ST	
	68	OW53-30000-05	KEY BUTTON	1	VOLUME	
	69	OW40-03006-53	SCREW	3	M3X6 WH/MS TAP	
	71	OW39-30000-06	BOTTOM CASE	1		
	72	OW84-30000-04	PCB LOCK SUPPOR	2	H=9.6	
	73	OW35-00010-03	METAL WASHER	4	D10XD4X1MM	
	74	OW35-20001-01	TOOTH WASHER	4	EXTERNAL M4	
⚠	75	OW30-00027-10	AC CORD	1		
	76	OW87-30000-21	RATING LABEL	1		J
		OW87-30000-23	RATING LABEL	1		C

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

⚠	Item	Parts number	Parts name	Remarks	Area
	CF101	OW09-50450-00J	CER FILTER	SFU450B 450HK2	
	CF102	OW09-50107-20J	CER FILTER	LT10.7MFS3(RED)	
	CF103	OW09-50107-07J	CER.DIS	JT10.7MFG82	
	CN101	OW20-12020-01K	CONNECTOR	P=2.5MM 2PIN	
	CN102	OW20-41102-27	CONNECTOR	P=2MM 10PIN	
	CN201	OW20-11070-00	CONNECTOR	P=2MM 7PIN	
	CN301	OW20-41082-34	CONNECTOR	P=2MM 8PIN	
	CN302	OW20-61033-24	CONNECTOR	GRY 3PIN	
	CN303	OW20-42041-40	CONNECTOR	P=2.5MM 4PIN	
	CN401	OW12-00006-00Q	CONNECTOR	SPK TERMFINAL	
	CN402	OW20-11040-00	CONNECTOR	P=2MM 4PIN	
	C102	OW05-00223-00	C.CAPACITOR	0.022MFF 10% 50V	
	C104	OW05-09391-05	MYLAR CAPACITOR	390MF 5%	
	C105	OW05-00100-06	C.CAPACITOR	10PF 5%	
	C116	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C117	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C118	OW05-00102-00	C.CAPACITOR	0.001MF 10% 50V	
	C119	OW05-00102-00	C.CAPACITOR	0.001MF 10% 50V	
	C120	OW05-00120-06	C.CAPACITOR	12PF 5%	
	C121	OW05-00102-00	C.CAPACITOR	0.001MF 10% 50V	
	C122	OW05-00331-00	C.CAPACITOR	330PF	
	C123	OW06-16106-02	E.CAPACITOR	10MF 16V	
	C124	OW06-50105-02T	E.CAPACITOR	1MF 50V	
	C125	OW06-50104-00	E.CAPACITOR	0.1MF 50V	
	C126	OW06-50104-00	E.CAPACITOR	0.1MF 50V	
	C127	OW06-50474-20	E.CAPACITOR	0.47MF 50V	
	C128	OW05-00103-00	C.CAPACITOR	0.01MF 10% 50V	
	C129	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C131	OW05-00333-00	C.CAPACITOR	0.033MF 10% 50V	
	C132	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C133	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C134	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C137	OW05-02123-10	MYLAR CAPACITOR	0.012MF 10%	
	C138	OW05-02123-10	MYLAR CAPACITOR	0.012MF 10%	
	C139	OW05-00222-00	C.CAPACITOR	0.0022MF 50V	
	C140	OW05-00103-00	C.CAPACITOR	0.01MF 10% 50V	
	C141	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C142	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C143	OW05-00103-00	C.CAPACITOR	0.01MF 10% 50V	
	C144	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C145	OW05-00222-00	C.CAPACITOR	0.0022MF 50V	
	C147	OW06-50335-02	E.CAPACITOR	3.3MF 50V	
	C148	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C149	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C150	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C152	OW05-00102-00	C.CAPACITOR	0.001MF 10% 50V	
	C155	OW06-50105-02T	E.CAPACITOR	1MF 50V	
	C156	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C157	OW05-00300-06	C.CAPACITOR	30PF 5%	
	C158	OW05-00300-06	C.CAPACITOR	30PF 5%	
	C159	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C160	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C161	OW05-00220-06	C.CAPACITOR	22PF 5%	
	C162	OW05-00103-00	C.CAPACITOR	0.01MF 10% 50V	
	C163	OW05-00470-06	C.CAPACITOR	47PF 5%	
	C164	OW05-00200-06	C.CAPACITOR	20PF 5%	
	C165	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C166	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C167	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C168	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C169	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C171	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C190	OW05-00102-00	C.CAPACITOR	0.001MF 10% 50V	

⚠	Item	Parts number	Parts name	Remarks	Area
	C201	OW05-00151-00	C.CAPACITOR	150PF	
	C202	OW05-02182-10	MYLAR CAPACITOR	0.0018MF 10%	
	C203	OW06-50105-02T	E.CAPACITOR	1MF 50V	
	C204	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C205	OW05-02102-10	MYLAR CAPACITOR	0.001MF 10%	
	C206	OW05-02102-10	MYLAR CAPACITOR	0.001MF 10%	
	C207	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C208	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C209	OW05-02272-10	MYLAR CAPACITOR	0.0027MF 10%	
	C210	OW05-00331-00	C.CAPACITOR	330PF	
	C211	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C212	OW05-02332-10	MYLAR CAPACITOR	0.0033MF 10%	
	C213	OW05-02563-10	MYLAR CAPACITOR	0.056MF 10%	
	C214	OW05-02473-10	MYLAR CAPACITOR	0.047MF 10%	
	C215	OW06-50224-02	E.CAPACITOR	0.22MF 50V	
	C216	OW06-16476-02	E.CAPACITOR	47MF 16V	
	C217	OW05-02272-10	MYLAR CAPACITOR	0.0027MF 10%	
	C220	OW05-00151-00	C.CAPACITOR	150PF	
	C221	OW05-00151-00	C.CAPACITOR	150PF	
	C222	OW05-00151-00	C.CAPACITOR	150PF	
	C223	OW05-02182-10	MYLAR CAPACITOR	0.0018MF 10%	
	C224	OW06-50105-02T	E.CAPACITOR	1MF 50V	
	C225	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C226	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C227	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C228	OW05-00331-00	C.CAPACITOR	330PF	
	C229	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C230	OW05-02272-10	MYLAR CAPACITOR	0.0027MF 10%	
	C231	OW05-02473-10	MYLAR CAPACITOR	0.047MF 10%	
	C232	OW05-02332-10	MYLAR CAPACITOR	0.0033MF 10%	
	C233	OW05-02563-10	MYLAR CAPACITOR	0.056MF 10%	
	C234	OW06-16106-02	E.CAPACITOR	10MF 16V	
	C235	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C236	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C237	OW06-50224-02	E.CAPACITOR	0.22MF 50V	
	C238	OW06-16106-02	E.CAPACITOR	10MF 16V	
	C239	OW05-02272-10	MYLAR CAPACITOR	0.0027MF 10%	
	C240	OW05-02682-10	MYLAR CAPACITOR	0.0068MF 10%	
	C241	OW05-02102-10	MYLAR CAPACITOR	0.001MF 10%	
	C242	OW05-02102-10	MYLAR CAPACITOR	0.001MF 10%	
	C243	OW06-16107-02	E.CAPACITOR	100MF 16V	
	C250	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C251	OW05-02102-10	MYLAR CAPACITOR	0.001MF 10%	
	C301	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C302	OW06-16476-02	E.CAPACITOR	47MF 16V	
	C303	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C304	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C305	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C306	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C307	OW06-50475-00	E.CAPACITOR	4.7MF 50V	
	C308	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C309	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C310	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C311	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C312	OW06-50225-00	E.CAPACITOR	2.2MF 50V	
	C313	OW05-00470-06	C.CAPACITOR	47PF 5%	
	C314	OW05-00470-06	C.CAPACITOR	47PF 5%	
	C320	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C321	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C322	OW05-02104-10	MYLAR CAPACITOR	0.1MF 10%	
	C323	OW05-02104-10	MYLAR CAPACITOR	0.1MF 10%	
	C324	OW06-50105-90	E.CAPACITOR	1MF 10% 50V	
	C325	OW06-50105-90	E.CAPACITOR	1MF 10% 50V	

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

⚠	Item	Parts number	Parts name	Remarks	Area
	C326	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C327	OW06-50475-02	E.CAPACITOR	4.7MF 50V	
	C328	OW05-02103-10	MYLAR CAPACITOR	0.01MF 10%	
	C329	OW05-02103-10	MYLAR CAPACITOR	0.01MF 10%	
	C330	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C331	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C332	OW06-16337-02	E.CAPACITOR	330MF 16V	
	C334	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C335	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C336	OW06-16476-02	E.CAPACITOR	47MF 16V	
	C341	OW06-16107-02	E.CAPACITOR	100MF 16V	
	C342	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C343	OW06-25107-00T	E.CAPACITOR	100MF 25V	
	C344	OW06-25228-00	E.CAPACITOR	2200MF 25V	
	C401	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C402	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C403	OW05-00331-00	C.CAPACITOR	330PF	
	C404	OW05-00331-00	C.CAPACITOR	330PF	
	C405	OW06-16106-02	E.CAPACITOR	10MF 16V	
	C406	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C407	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C408	OW06-25107-00T	E.CAPACITOR	100MF 25V	
	C409	OW06-25107-00T	E.CAPACITOR	100MF 25V	
	C410	OW05-02104-10	MYLAR CAPACITOR	0.1MF 10%	
	C411	OW05-02104-10	MYLAR CAPACITOR	0.1MF 10%	
	C412	OW06-25108-00	E.CAPACITOR	1000MF 25V	
	C413	OW06-25108-00	E.CAPACITOR	1000MF 25V	
	C414	OW06-50107-02	E.CAPACITOR	100MF 50V	
⚠	C415	OW06-50228-00	E.CAPACITOR	2200MF 20% 50V	
	C416	OW05-07104-00	C.CAPACITOR	0.1MF 50V	
	C417	OW06-16107-02	E.CAPACITOR	100MF 16V	
	C420	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C421	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C422	OW06-16476-02	E.CAPACITOR	47MF 16V	
	C423	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C424	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C425	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C426	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C427	OW06-16476-02	E.CAPACITOR	47MF 16V	
	C428	OW06-16476-02	E.CAPACITOR	47MF 16V	
	C429	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C430	OW06-16227-02	E.CAPACITOR	220MF 16V	
	C431	OW05-00223-00	C.CAPACITOR	0.022MF 10% 50V	
	C432	OW06-35227-00	E.CAPACITOR	220MF 35V	
	C433	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C434	OW05-00101-06	C.CAPACITOR	100PF 5%	
	C435	OW06-35107-00	E.CAPACITOR	100MF 35V	
	C451	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C452	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C453	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	D101	OW02-00348-00	TUNING DIODE	SVC348-S	
	D103	OW02-00201-00	TUNING DIODE	SVC201SPA	
	D104	OW02-00201-00	TUNING DIODE	SVC201SPA	
	D105	OW02-04148-00R	DIODE	1N4148	
	D108	OW02-04148-00R	DIODE	1N4148	
	D109	OW02-04148-00R	DIODE	1N4148	
	D110	OW02-04148-00R	DIODE	1N4148	
	D111	OW02-04148-00R	DIODE	1N4148	
	D201	OW02-04148-00R	DIODE	1N4148	
	D202	OW02-04148-00R	DIODE	1N4148	
	D301	OW02-04148-00R	DIODE	1N4148	
	D302	OW02-04148-00R	DIODE	1N4148	
	D303	OW02-04148-00R	DIODE	1N4148	

⚠	Item	Parts number	Parts name	Remarks	Area
	D401	OW02-04148-00R	DIODE	1N4148	
	D402	OW02-04148-00R	DIODE	1N4148	
	FMANT	OW29-00003-00	FM ANT WIRE	26UL-1007 BLK.	
	IC101	OW03-02104-01	IC	TA2104BN	
	IC102	OW03-09257-01	IC	TC9257F	
	IC201	OW03-01330-00	IC	UPC1330HA	
	IC202	OW03-07312-00	IC	AN7312	
	IC301	OW03-09422-00	IC	TC9422F	
⚠	IC302	OW03-07812-00	IC	NJM7812A	
⚠	IC401	OW03-04282-00	IC	LA4282	
	IC402	OW03-04558-03	IC	BA4558N	
	LL105	OW81-10001-00	CUSHION	10X10X10MM	
	L101	OW08-01014-02	IFT	1A1014N 10MM	
	L102	OW08-45635-00	AM ANT COIL	MRHNF-45635GG	
	L105	OW09-45045-00	FM COIL	D4.5X4.5T 0.8MM	
	L106	OW09-02750-05	FM OSC.COIL	2422 549 43772	
	L107	OW09-70101-00	INDUCTOR	10MH	
	L108	OW09-70101-00	INDUCTOR	10MH	
	L201	OW09-40474-00W	CHOKE COIL	47MH D6X8MM	
	L202	OW09-40474-00W	CHOKE COIL	47MH D6X8MM	
	L203	OW08-07163-00	BIAS OSC COIL	7LIA63N LIK HANG	
	Q113	OW01-00945-16	TRANSISTOR	2SC945P	
	Q114	OW01-00945-16	TRANSISTOR	2SC945P	
	Q115	OW01-00945-16	TRANSISTOR	2SC945P	
	Q117	OW01-00733-16	TRANSISTOR	2SA733P	
	Q118	OW01-00945-16	TRANSISTOR	2SC945P	
	Q119	OW01-09018-07	TRANSISTOR	9018G	
	Q121	OW01-00945-16	TRANSISTOR	2SC945P	
	Q122	OW01-00945-16	TRANSISTOR	2SC945P	
	Q123	OW01-00945-16	TRANSISTOR	2SC945P	
	Q124	OW01-00945-16	TRANSISTOR	2SC945P	
	Q201	OW01-08050-04S	TRANSISTOR	8050D	
	Q202	OW01-00945-16	TRANSISTOR	2SC945P	
	Q203	OW01-00945-16	TRANSISTOR	2SC945P	
	Q204	OW01-00945-16	TRANSISTOR	2SC945P	
	Q205	OW01-00945-16	TRANSISTOR	2SC945P	
	Q206	OW01-08050-04S	TRANSISTOR	8050D	
	Q207	OW01-00945-16	TRANSISTOR	2SC945P	
	Q208	OW01-00945-16	TRANSISTOR	2SC945P	
	Q209	OW01-00945-16	TRANSISTOR	2SC945P	
	Q210	OW01-00945-16	TRANSISTOR	2SC945P	
	Q211	OW01-00733-16	TRANSISTOR	2SA733P	
	Q212	OW01-00945-16	TRANSISTOR	2SC945P	
	Q213	OW01-00945-16	TRANSISTOR	2SC945P	
	Q214	OW01-00945-16	TRANSISTOR	2SC945P	
	Q215	OW01-00945-16	TRANSISTOR	2SC945P	
	Q301	OW01-00945-16	TRANSISTOR	2SC945P	
	Q302	OW01-00945-16	TRANSISTOR	2SC945P	
	Q303	OW01-01383-18	TRANSISTOR	2SC1383R	
	Q304	OW01-00945-16	TRANSISTOR	2SC945P	
⚠	Q305	OW01-01240-00	TRANSISTOR	2SB1240Q	
	Q401	OW01-08050-04S	TRANSISTOR	8050D	
	Q402	OW01-08050-04S	TRANSISTOR	8050D	
	Q403	OW01-00733-16	TRANSISTOR	2SA733P	
	Q404	OW01-08050-04S	TRANSISTOR	8050D	
	Q405	OW01-08050-04S	TRANSISTOR	8050D	
	Q406	OW01-08050-04S	TRANSISTOR	8050D	
	Q409	OW01-00945-16	TRANSISTOR	2SC945P	
	R102	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R103	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R121	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R122	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R123	OW07-15202-50T	CARBON RESISTOR	2K 1/8W 5%	

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

⚠	Item	Parts number	Parts name	Remarks	Area
	R124	OW07-15180-50T	CARBON RESISTOR	18 1/8W 5%	
	R125	OW07-15203-50T	CARBON RESISTOR	20K 1/8W 5%	
	R126	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R127	OW07-15331-50T	CARBON RESISTOR	330 1/8W 5%	
	R128	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R129	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R130	OW07-15183-50T	CARBON RESISTOR	18K 1/8W 5%	
	R131	OW07-15183-50T	CARBON RESISTOR	18K 1/8W 5%	
	R135	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R136	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R137	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R138	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R139	OW07-15221-50T	CARBON RESISTOR	220 1/8W 5%	
	R142	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R143	OW07-15563-50T	CARBON RESISTOR	56K 1/8W 5%	
	R144	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R145	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R146	OW07-15820-50T	CARBON RESISTOR	82 1/8W 5%	
	R147	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R148	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R149	OW07-15471-50T	CARBON RESISTOR	470 1/8W 5%	
	R150	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R153	OW07-15152-50T	CARBON RESISTOR	1.5K 1/8W 5%	
	R154	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R155	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R156	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R157	OW07-15561-50T	CARBON RESISTOR	560 1/8W 5%	
	R158	OW07-15152-50T	CARBON RESISTOR	1.5K 1/8W 5%	
	R159	OW07-15221-50T	CARBON RESISTOR	220 1/8W 5%	
	R160	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R161	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R162	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R163	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R164	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R165	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R166	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R170	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R171	OW07-15274-50T	CARBON RESISTOR	270K 1/8W 5%	
	R178	OW07-15220-50T	CARBON RESISTOR	22 1/8W 5%	
	R201	OW07-15183-50T	CARBON RESISTOR	18K 1/8W 5%	
	R202	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R203	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R204	OW07-15180-50T	CARBON RESISTOR	18 1/8W 5%	
	R205	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R206	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R207	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R208	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R209	OW07-15684-50T	CARBON RESISTOR	680K 1/8W 5%	
	R210	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R211	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R212	OW07-15823-50T	CARBON RESISTOR	82K 1/8W 5%	
	R213	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R214	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R215	OW07-15511-50T	CARBON RESISTOR	510 1/8W 5%	
	R216	OW07-15823-50T	CARBON RESISTOR	82K 1/8W 5%	
	R217	OW07-15010-50T	CARBON RESISTOR	1 1/8W 5%	
	R218	OW07-15273-50T	CARBON RESISTOR	27K 1/8W 5%	
	R219	OW07-15273-50T	CARBON RESISTOR	27K 1/8W 5%	
	R220	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R221	OW07-15221-50T	CARBON RESISTOR	220 1/8W 5%	
	R222	OW07-15183-50T	CARBON RESISTOR	18K 1/8W 5%	
	R223	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R224	OW07-15331-50T	CARBON RESISTOR	330 1/8W 5%	

⚠	Item	Parts number	Parts name	Remarks	Area
	R225	OW07-15101-00	CARBON RESISTOR	100 1/4W	
	R226	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R227	OW07-15180-50T	CARBON RESISTOR	18 1/8W 5%	
	R228	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R229	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R231	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R241	OW07-15273-50T	CARBON RESISTOR	27K 1/8W 5%	
	R242	OW07-15100-50T	CARBON RESISTOR	10 1/8W 5%	
	R243	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R244	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R245	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R246	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R247	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R248	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R249	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R250	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R251	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R252	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R253	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R254	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R255	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R256	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R257	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R258	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R301	OW07-15680-50T	CARBON RESISTOR	68 1/8W 5%	
	R302	OW07-15471-50T	CARBON RESISTOR	470 1/8W 5%	
	R303	OW07-15394-50T	CARBON RESISTOR	390K 1/8W 5%	
	R304	OW07-15681-50T	CARBON RESISTOR	680 1/8W 5%	
	R306	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R307	OW07-15471-50T	CARBON RESISTOR	470 1/8W 5%	
	R308	OW07-15394-50T	CARBON RESISTOR	390K 1/8W 5%	
	R309	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R310	OW07-15681-50T	CARBON RESISTOR	680 1/8W 5%	
	R312	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R313	OW07-15471-50T	CARBON RESISTOR	470 1/8W 5%	
	R314	OW07-05100-00	CARBON RESISTOR	10 1/4W	
	R315	OW07-15561-50T	CARBON RESISTOR	560 1/8W 5%	
	R320	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R341	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R345	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R346	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R347	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R351	OW07-15123-50T	CARBON RESISTOR	12K 1/8W 5%	
	R352	OW07-15123-50T	CARBON RESISTOR	12K 1/8W 5%	
	R353	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R354	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R401	OW07-15273-50T	CARBON RESISTOR	27K 1/8W 5%	
	R402	OW07-15273-50T	CARBON RESISTOR	27K 1/8W 5%	
	R403	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R404	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R405	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R406	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R407	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R408	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R409	OW07-05022-00	CARBON RESISTOR	2.2 1/4W	
	R410	OW07-05022-00	CARBON RESISTOR	2.2 1/4W	
	R411	OW07-15102-00	CARBON RESISTOR	1K 1/4W 5%	
	R412	OW07-15102-00	CARBON RESISTOR	1K 1/4W 5%	
	R413	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R414	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R415	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R416	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R417	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	

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

⚠	Item	Parts number	Parts name	Remarks	Area
	R418	OW07-15334-50T	CARBON RESISTOR	330K 1/8W 5%	
	R419	OW07-15334-50T	CARBON RESISTOR	330K 1/8W 5%	
	R420	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R421	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R422	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R423	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R424	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R425	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R426	OW07-15272-50T	CARBON RESISTOR	2.7K 1/8W 5%	
	R427	OW07-15272-50T	CARBON RESISTOR	2.7K 1/8W 5%	
	R428	OW07-15221-50T	CARBON RESISTOR	220 1/8W 5%	
	R429	OW07-15221-50T	CARBON RESISTOR	220 1/8W 5%	
	R430	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R431	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R432	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R435	OW07-15122-50T	CARBON RESISTOR	1.2K 1/8W 5%	
	R436	OW07-15100-50T	CARBON RESISTOR	10 1/8W 5%	
	R448	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R449	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R450	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R451	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	TC101	OW05-08100-02	TRIMMER	10PF	
	TC102	OW05-08100-02	TRIMMER	10PF	
	T101	OW08-00332-24C	IFT	810017 YELLOW	
	X101	OW04-07200-05	CRYSTAL	7.2MHZ HC-49U 30PPM	
	Z101	OW02-50100-00	ZENER DIODE	10V 0.5W	
	Z301	OW02-50091-00	ZENER DIODE	9.1V 0.5W	
	Z401	OW02-50270-00	ZENER DIODE	27V 0.5W	

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

⚠	Item	Parts number	Parts name	Remarks	Area
	CN901	OW20-12040-00	CONNECTOR	P=2.5MM 4PIN	
	CN902	OW20-12020-00	CONNECTOR	P=2.5MM 2PIN	
	CN903	OW20-42021-45	CONNECTOR	P=2.5MM 2PIN	
⚠	C905	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C906	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C907	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C908	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C909	OW05-00104-01T	C.CAPACITOR	0.1/100V 10%	
⚠	C910	OW05-00104-01T	C.CAPACITOR	0.1/100V 10%	
⚠	C911	OW05-00104-01T	C.CAPACITOR	0.1/100V 10%	
⚠	C912	OW05-00104-01T	C.CAPACITOR	0.1/100V 10%	
⚠	C913	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C914	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C915	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C916	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
⚠	C918	OW06-16477-00	E.CAPACITOR	470MF 16V	
⚠	C919	OW06-50477-00	E.CAPACITOR	470MF 20% 50V	
⚠	C920	OW06-25477-00	E.CAPACITOR	470MF 25V	
⚠	D905	OW02-04001-00	DIODE	1N4001	
⚠	D906	OW02-04001-00	DIODE	1N4001	
⚠	D907	OW02-04001-00	DIODE	1N4001	
⚠	D908	OW02-04001-00	DIODE	1N4001	
⚠	D909	OW02-00202-00	DIODE RECTIFIER	RL202	
⚠	D910	OW02-00202-00	DIODE RECTIFIER	RL202	
⚠	D911	OW02-00202-00	DIODE RECTIFIER	RL202	
⚠	D912	OW02-00202-00	DIODE RECTIFIER	RL202	
⚠	D913	OW02-04001-00	DIODE	1N4001	
⚠	D914	OW02-04001-00	DIODE	1N4001	
⚠	D915	OW02-04001-00	DIODE	1N4001	
⚠	D916	OW02-04001-00	DIODE	1N4001	
⚠	F901	OW33-50162-02	FUSE	GMC 1.6A 250V	
⚠	F902	OW33-50312-02B	FUSE	GMC 3.15A 250V	
⚠	F903	OW33-50162-02	FUSE	GMC 1.6A 250V	
	HF901	OW39-10001-00A	FUSE HOLDER	C2680	
	HF902	OW39-10001-00A	FUSE HOLDER	C2680	
	HF903	OW39-10001-00A	FUSE HOLDER	C2680	

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

⚠	Item	Parts number	Parts name	Remarks	Area
	CNLED	OW25-23070-02K	CONNECTOR	70MM 2PIN	
	CN801	OW20-41032-17	CONNECTOR	P=2MM 3PIN	
	CN802	OW20-41062-26	CONNECTOR	P=2MM 6PIN	
	C801	OW06-10476-00S	E.CAPACITOR	47MF 10V NICON	
	C802	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
	C803	OW05-00203-82	C.CAPACITOR	0.02MF +80/-20%	
	D801	OW02-30004-15	LED	3G4SC-6	
	D802	OW02-30004-15	LED	3G4SC-6	
	D803	OW02-30004-15	LED	3G4SC-6	
	D804	OW02-50000-10D	LED	L-59EGW	
	D805	OW02-50000-10D	LED	L-59EGW	
	D806	OW02-50000-10D	LED	L-59EGW	
	D807	OW02-04148-00R	DIODE	IN4148	
	D808	OW02-04148-00R	DIODE	IN4148	
	D809	OW02-04148-00R	DIODE	IN4148	
	D810	OW02-04148-00R	DIODE	IN4148	
	D811	OW02-30004-15	LED	3G4SC-6	
	D812	OW02-30004-15	LED	3G4SC-6	
	JK401	OW12-00035-42	PHONE JACK	D3.5 MSJ-035-10AB	
	Q801	OW01-00945-16	TRANSISTOR	2SC945P	
	Q802	OW01-00733-16	TRANSISTOR	2SA733P	
	Q803	OW01-00945-16	TRANSISTOR	2SC945P	
	Q804	OW01-00733-16	TRANSISTOR	2SA733P	
	Q805	OW01-00945-16	TRANSISTOR	2SC945P	
	Q806	OW01-00733-16	TRANSISTOR	2SA733P	
	R801	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R802	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R803	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R804	OW07-15121-50T	CARBON RESISTOR	120 1/8W 5%	
	R805	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R806	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R807	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R808	OW07-15121-50T	CARBON RESISTOR	120 1/8W 5%	
	R809	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R810	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R811	OW07-15121-50T	CARBON RESISTOR	120 1/8W 5%	
	R812	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R813	OW07-15750-50T	CARBON RESISTOR	75 1/8W 5%	
	R814	OW07-15471-50T	CARBON RESISTOR	470 1/8W 5%	
	R815	OW07-15152-50T	CARBON RESISTOR	1.5K 1/8W 5%	
	R816	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R817	OW07-15272-50T	CARBON RESISTOR	2.7K 1/8W 5%	
	R818	OW07-15562-50T	CARBON RESISTOR	5.6K 1/8W 5%	
	R819	OW07-15682-50T	CARBON RESISTOR	6.8K 1/8W 5%	
	R820	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R821	OW07-15273-50T	CARBON RESISTOR	27K 1/8W 5%	
	R822	OW07-15823-50T	CARBON RESISTOR	82K 1/8W 5%	
	R823	OW07-15750-50T	CARBON RESISTOR	75 1/8W 5%	
	R824	OW07-15471-50T	CARBON RESISTOR	470 1/8W 5%	
	R825	OW07-15681-50T	CARBON RESISTOR	680 1/8W 5%	
	R826	OW07-15182-50T	CARBON RESISTOR	1.8K 1/8W 5%	
	R827	OW07-15912-50T	CARBON RESISTOR	9.1K 1/8W 5%	
	R828	OW07-15392-50T	CARBON RESISTOR	3.9K 1/8W 5%	
	R829	OW07-15822-50T	CARBON RESISTOR	8.2K 1/8W 5%	
	R830	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R831	OW07-15273-50T	CARBON RESISTOR	27K 1/8W 5%	
	R832	OW07-15823-50T	CARBON RESISTOR	82K 1/8W 5%	
	R833	OW07-15100-50T	CARBON RESISTOR	10 1/8W 5%	
	R834	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R835	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R836	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R837	OW07-15560-50T	CARBON RESISTOR	56 1/8W 5%	
	R841	OW07-15680-50T	CARBON RESISTOR	68 1/8W 5%	

⚠	Item	Parts number	Parts name	Remarks	Area
	SEN81	OW02-66938-00	SENSORE	RPMF6938 V4	
	SW801	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW802	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW803	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW804	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW805	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW806	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW807	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW808	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW809	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW810	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW811	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW812	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW813	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW814	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW815	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW816	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW817	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW818	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW819	OW16-10101-08S	TACT SWITCH	EVQJAE05R	
	SW820	OW16-10101-08S	TACT SWITCH	EVQJAE05R	

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

⚠	Item	Parts number	Parts name	Remarks	Area
	CN601	OW20-21100-00	CONNECTOR	P=2MM 10PIN	
	CN602	OW20-21080-00	CONNECTOR	P=2MM 8PIN	
	CN603	OW20-21030-00	CONNECTOR	P=2MM 3PIN	
	CN604	OW20-41082-33	CONNECTOR	P=2MM 8PIN	
	CN607	OW20-11060-00	CONNECTOR	P=2MM 6PIN	
	CN608	OW20-21030-00	CONNECTOR	P=2MM 3PIN	
	CN609	OW20-42022-13	CONNECTOR	P=2.5MM 2PIN	
	CN701	OW20-22020-01	CONNECTOR	P=2.5MM 2PIN	
	CN702	OW20-21020-00	CONNECTOR	P=2MM 2PIN	
	CN703	OW20-21060-00	CONNECTOR	P=2MM 6PIN	
	CN704	OW20-80160-00I	CONNECTOR	P=1MM 16PIN	
	C601	OW06-10477-00	E.CAPACITOR	470MF 10V	
	C602	OW06-10108-00	E.CAPACITOR	1000MF 10V	
	C602A	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C603	OW06-10227-00S	E.CAPACITOR	220MF 10V	
	C605	OW05-00104-00	C.CAPACITOR	0.1MF 10% 50V	
	C606	OW05-00250-06	C.CAPACITOR	25PF	
	C607	OW05-00250-06	C.CAPACITOR	25PF	
	C608	OW05-00250-06	C.CAPACITOR	25PF	
	C609	OW05-00250-06	C.CAPACITOR	25PF	
	C610	OW06-10107-00S	E.CAPACITOR	100MF 10V	
	C611	OW06-10107-00S	E.CAPACITOR	100MF 10V	
	C612	OW06-10476-00S	E.CAPACITOR	47MF 10V	
	C613	OW06-10107-00S	E.CAPACITOR	100MF 10V	
	C614	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C622	OW06-10106-02	E.CAPACITOR	10MF 10V	
	C630	OW05-07102-10A	C.CAPACITOR	1000PF 10%	
	C641	OW06-10107-02	E.CAPACITOR	100MF 10V	
	C642	OW06-10476-02	E.CAPACITOR	47MF 10V	
	C643	OW06-16226-02	E.CAPACITOR	22MF 16V	
	C646	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C701	OW05-07103-20A	C.CAPACITOR	0.01MF 20%	
	C702	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C703	OW05-07223-82A	C.CAPACITOR	0.022MF	
	C704	OW06-10227-00S	E.CAPACITOR	220MF 10V	
	C705	OW06-10477-00	E.CAPACITOR	470MF 10V	
	C706	OW06-10106-00	E.CAPACITOR	10MF 10V	
	C707	OW06-10106-02	E.CAPACITOR	10MF 10V	
	C708	OW05-07222-82A	C.CAPACITOR	2200PF	
	C709	OW06-10476-02	E.CAPACITOR	47MF 10V	
	C710	OW06-10226-00	E.CAPACITOR	22MF 10V	
	C711	OW05-07222-82A	C.CAPACITOR	2200PF	
	C712	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C713	OW06-10476-00S	E.CAPACITOR	47MF 10V	
	C714	OW06-10105-02	E.CAPACITOR	1MF 10V	
	C716	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C717	OW05-00150-06	C.CAPACITOR	15PF 5%	
	C718	OW05-00150-06	C.CAPACITOR	15PF 5%	
	C719	OW06-10476-00S	E.CAPACITOR	47MF 10V	
	C720	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C721	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C722	OW06-10476-00S	E.CAPACITOR	47MF 10V	
	C723	OW06-10476-00S	E.CAPACITOR	47MF 10V	
	C724	OW06-10227-00S	E.CAPACITOR	220MF 10V	
	C725	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C726	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C727	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C728	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C729	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C730	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C731	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C732	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C733	OW06-10476-00S	E.CAPACITOR	47MF 10V	

⚠	Item	Parts number	Parts name	Remarks	Area
	C734	OW06-10476-02	E.CAPACITOR	47MF 10V	
	C735	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C736	OW05-07153-00	C.CAPACITOR	0.015MF	
	C737	OW05-07103-20A	C.CAPACITOR	0.01MF 20%	
	C738	OW05-07470-00A	C.CAPACITOR	47PF 5%	
	C739	OW05-07272-00	C.CAPACITOR	0.0027MF 10% 50V	
	C740	OW06-10476-00S	E.CAPACITOR	47MF 10V	
	C741	OW05-07333-00A	C.CAPACITOR	0.033MF 50V	
	C742	OW05-07471-10A	C.CAPACITOR	470PF 10%	
	C743	OW05-07471-10A	C.CAPACITOR	470PF 10%	
	C744	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C745	OW05-00560-06	C.CAPACITOR	56PF 5%	
	C746	OW05-02682-10	MYLAR CAPACITOR	0.0068MF 10%	
	C747	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C748	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C749	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C750	OW06-10107-02	E.CAPACITOR	100MF 10V	
	C751	OW06-10476-02	E.CAPACITOR	47MF 10V	
	C752	OW06-10476-00S	E.CAPACITOR	47MF 10V	
	C753	OW05-07473-82B	C.CAPACITOR	0.047MF	
	C755	OW05-02103-10	MYLAR CAPACITOR	0.01MF 10%	
	C756	OW05-00020-00	C.CAPACITOR	2PF	
	C757	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C760	OW06-10227-02	C.CAPACITOR	220MF 10V	
	C761	OW05-07104-82B	C.CAPACITOR	0.1MF 50V	
	C762	OW06-10106-02	E.CAPACITOR	10MF 10V	
	C763	OW06-50225-02	E.CAPACITOR	2.2MF 50V	
	C790	OW06-16228-00	E.CAPACITOR	2200MF 16V	
	C791	OW05-00104-00	C.CAPACITOR	0.1MF 50V 10%	
	D601	OW02-04148-00R	DIODE	IN4148	
	D602	OW02-04148-00R	DIODE	IN4148	
	D603	OW02-04148-00R	DIODE	IN4148	
	D604	OW02-04148-00R	DIODE	IN4148	
	D605	OW02-50091-00	ZENER DIODE	9.1V 0.5W	
	D606	OW02-50062-00	ZENER DIODE	6.2V 0.5W	
	D607	OW02-04148-00R	DIODE	IN4148	
	D608	OW02-04148-00R	DIODE	IN4148	
	D609	OW02-50062-00	ZENER DIODE	6.2V 0.5W	
	D610	OW02-04001-00	DIODE	1N4001	
	D611	OW02-04148-00R	DIODE	IN4148	
	D701	OW02-04148-00R	DIODE	IN4148	
	D702	OW02-50056-00	ZENER DIODE	5.6V 0.5W	
	D703	OW02-50062-00	ZENER DIODE	6.2V 0.5W	
	D704	OW02-04148-00R	DIODE	IN4148	
	D705	OW02-04148-00R	DIODE	IN4148	
	IC601	OW03-87261-15	IC CPU TMP	87EP26F-1J15	
	IC701	OW03-09462-00	IC	TC9462F	
	IC702	OW03-07291-00	IC	TA7291S	
	IC703	OW03-02092-00	IC	TA2092N	
	IC704	OW03-02109-00	IC	TA2109F	
	LCD61	OW91-80003-00	LCD	91411TT-P	
	L601	OW09-70102-00C	INDUCTOR	100MH	
	L602	OW09-70102-00C	INDUCTOR	100MH	
	L603	OW09-70102-00C	INDUCTOR	100MH	
	L604	OW08-01122-00	FERRITE BEAD	RH03509ST-B246	
	L607	OW08-01122-00	FERRITE BEAD	RH03509ST-B246	
	L608	OW08-01122-00	FERRITE BEAD	RH03509ST-B246	
	L701	OW08-01122-00	FERRITE BEAD	RH03509ST-B246	
	L702	OW08-01122-00	FERRITE BEAD	RH03509ST-B246	
	L703	OW09-70101-00	INDUCTOR	10MH	
	L704	OW09-70101-00	INDUCTOR	10MH	
	Q601	OW01-00945-16	TRANSISTOR	2SC945P	
	Q602	OW01-01240-00	TRANSISTOR	2SB1240Q	

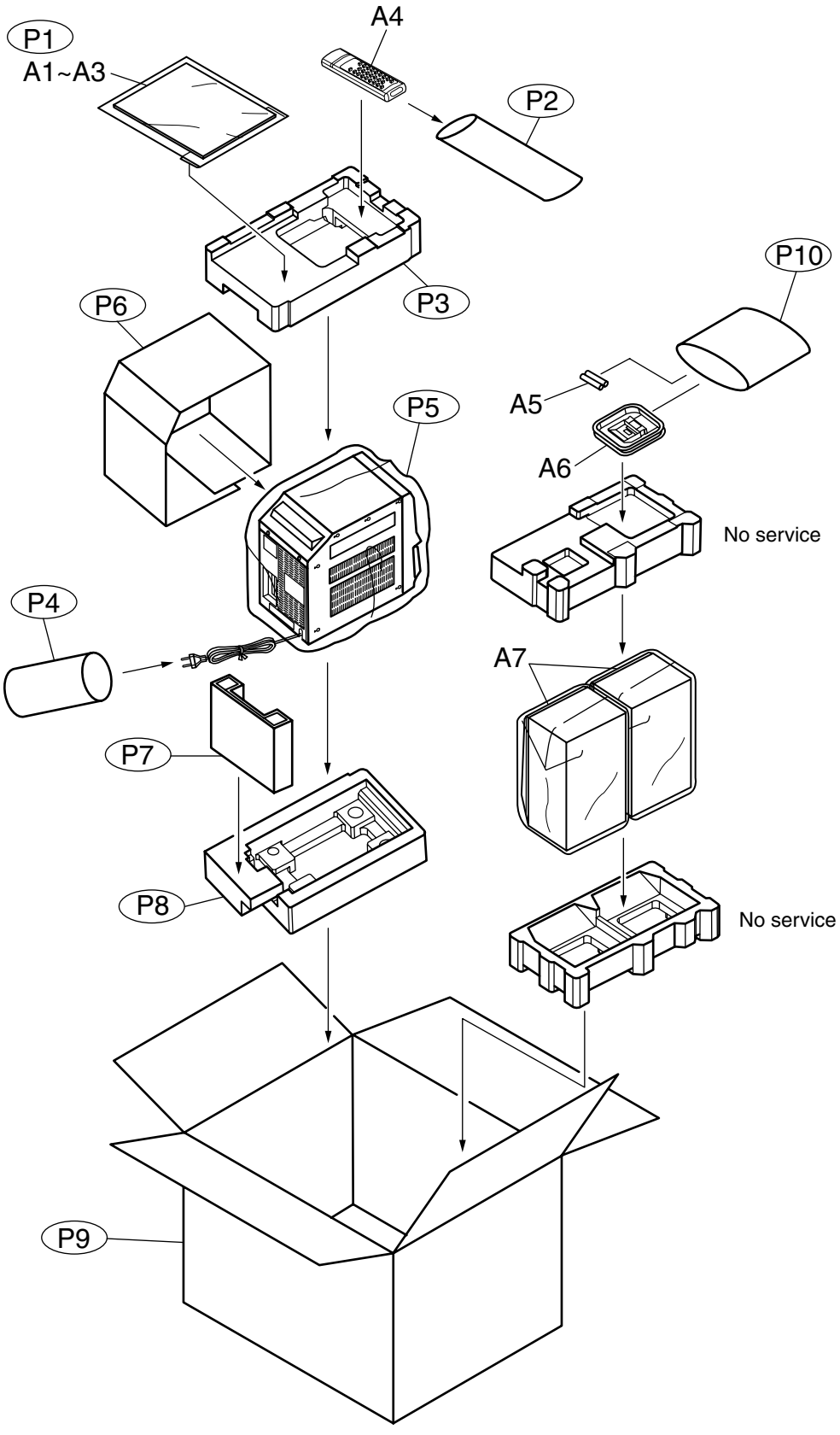
■ **Electrical parts list (CD&MCU board)** **Block No. 04**

⚠	Item	Parts number	Parts name	Remarks	Area
	Q603	OW01-00945-16	TRANSISTOR	2SC945P	
	Q604	OW01-01240-00	TRANSISTOR	2SB1240Q	
	Q605	OW01-00945-16	TRANSISTOR	2SC945P	
	Q606	OW01-08050-04S	TRANSISTOR	8050D	
	Q607	OW01-01383-18	TRANSISTOR	2SC1383R	
	Q610	OW01-08050-04S	TRANSISTOR	8050D	
	Q701	OW01-00945-16	TRANSISTOR	2SC945P	
	Q702	OW01-00945-16	TRANSISTOR	2SC945P	
	Q703	OW01-00733-16	TRANSISTOR	2SA733P	
	Q704	OW01-01383-18	TRANSISTOR	2SC1383R	
	Q705	OW01-00733-16	TRANSISTOR	2SA733P	
	Q707	OW01-00733-16	TRANSISTOR	2SA733P	
	Q708	OW01-00945-16	TRANSISTOR	2SC945P	
	Q709	OW01-00945-16	TRANSISTOR	2SC945P	
	Q791	OW01-01240-00	TRANSISTOR	2SB1240Q	
	Q792	OW01-00945-16	TRANSISTOR	2SC945P	
	R602	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R603	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R604	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R605	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R606	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R607	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R608	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R609	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R610	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R612	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R614	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R615	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R616	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R617	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R618	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R620	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R622	OW07-05022-10	CARBON RESISTOR	2.2 1/2W	
	R623	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R624	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R625	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R626	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R627	OW07-15122-50T	CARBON RESISTOR	1.2K 1/8W 5%	
	R628	OW07-15270-50T	CARBON RESISTOR	27 1/8W 5%	
	R630	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R631	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R632	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R633	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R634	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R635	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R636	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R637	OW07-15472-50T	CARBON RESISTOR	4.7K 1/8W 5%	
	R641	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R642	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R643	OW07-15682-50T	CARBON RESISTOR	6.8K 1/8W 5%	
	R644	OW07-15682-50T	CARBON RESISTOR	6.8K 1/8W 5%	
	R645	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R646	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R647	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R648	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R649	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R650	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R651	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R652	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R653	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R701	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R702	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R703	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	

⚠	Item	Parts number	Parts name	Remarks	Area
	R704	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R705	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R706	OW07-15271-50T	CARBON RESISTOR	270 1/8W 5%	
	R707	OW07-15271-50T	CARBON RESISTOR	270 1/8W 5%	
	R708	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R709	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R710	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R711	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R712	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R713	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R714	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R715	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R716	OW07-15561-50T	CARBON RESISTOR	560 1/8W 5%	
	R717	OW07-15100-50T	CARBON RESISTOR	10 1/8W 5%	
	R721	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R722	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R723	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R724	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R725	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R726	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R727	OW07-15332-50T	CARBON RESISTOR	3.3K 1/8W 5%	
	R728	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R729	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R730	OW07-15683-50T	CARBON RESISTOR	68K 1/8W 5%	
	R731	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R732	OW07-15153-50T	CARBON RESISTOR	15K 1/8W 5%	
	R733	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R734	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R735	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R736	OW07-15333-50T	CARBON RESISTOR	33K 1/8W 5%	
	R737	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R738	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R739	OW07-15100-50T	CARBON RESISTOR	10 1/8W 5%	
	R740	OW07-15393-50T	CARBON RESISTOR	39K 1/8W 5%	
	R741	OW07-15683-50T	CARBON RESISTOR	68K 1/8W 5%	
	R742	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R743	OW07-15154-50T	CARBON RESISTOR	150K 1/8W 5%	
	R744	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R745	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R746	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R747	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R748	OW07-15154-50T	CARBON RESISTOR	150K 1/8W 5%	
	R750	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R751	OW07-05561-00	CARBON RESISTOR	560 1/4W	
	R752	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R753	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R754	OW07-05082-10	CARBON RESISTOR	8.2 1/2W	
	R755	OW07-15101-50T	CARBON RESISTOR	100 1/8W 5%	
	R757	OW07-15562-50T	CARBON RESISTOR	5.6K 1/8W 5%	
	R758	OW07-15104-50T	CARBON RESISTOR	100K 1/8W 5%	
	R759	OW07-15512-50T	CARBON RESISTOR	5.1K 1/8W 5%	
	R760	OW07-15222-50T	CARBON RESISTOR	2.2K 1/8W 5%	
	R761	OW07-15562-50T	CARBON RESISTOR	5.6K 1/8W 5%	
	R762	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R763	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	R764	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R791	OW07-15223-50T	CARBON RESISTOR	22K 1/8W 5%	
	R792	OW07-15473-50T	CARBON RESISTOR	47K 1/8W 5%	
	R793	OW07-15103-50T	CARBON RESISTOR	10K 1/8W 5%	
	R794	OW07-15102-50T	CARBON RESISTOR	1K 1/8W 5%	
	X601	OW04-07200-00H	CEYSTAL	7.2MFHZ HC-49S	
	X602	OW04-32768-03S	CRYSTAL	U3X8 32.768KHZ	
	X701	OW04-16934-41M	CRYSTAL	16.9344MFHZ	

Packing materials and accessories parts list

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



■ Parts list (Packing)

Block No. M3MM

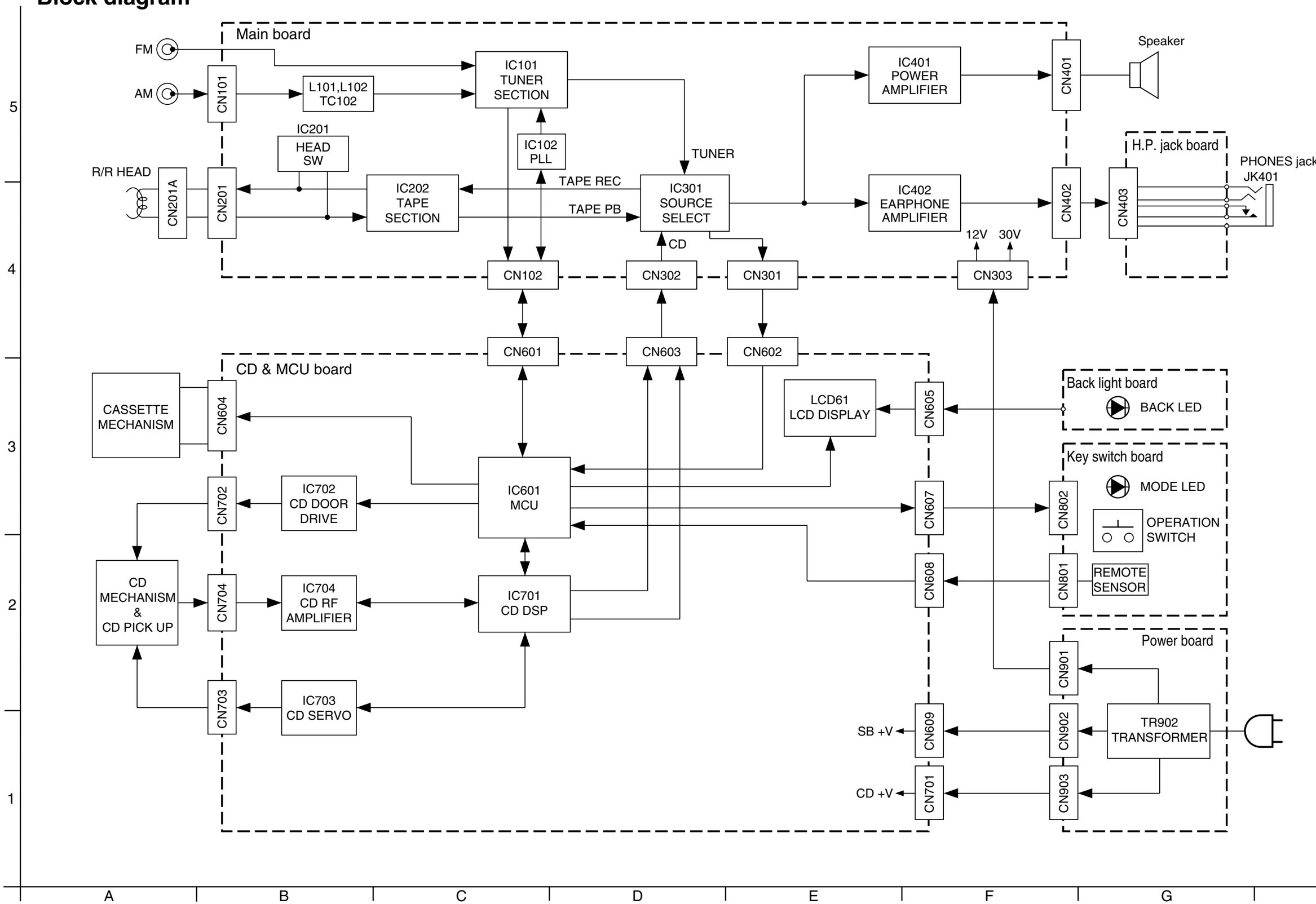
⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	P 1	OW85-91014-02	POLY BAG	1	INSTRUCTIONS	
	P 2	OW85-00025-01A	POLY BAG	1	RREMOTE UNIT	
	P 3	OW86-30000-00	CUSHION	1	TOP	
	P 4	OW85-00025-01A	POLY BAG	1	AC CORD	
	P 5	OW85-92123-02	POLY BAG	1	SET	
	P 6	OW81-30000-01	PROTECT SHEET	1		
	P 7	OW89-30000-00	SUPPORT PAPER	1		
	P 8	OW86-30000-01	CUSHION	1	BOTTOM	
	P 9	OW83-30000-10	GIFT BOX	1		J
		OW83-30000-11	GIFT BOX	1		C
	P10	OW85-90710-04	POLY BAG	1	AM LOOP ANT.	

■ Parts list (Accessories)

Block No. M5MM

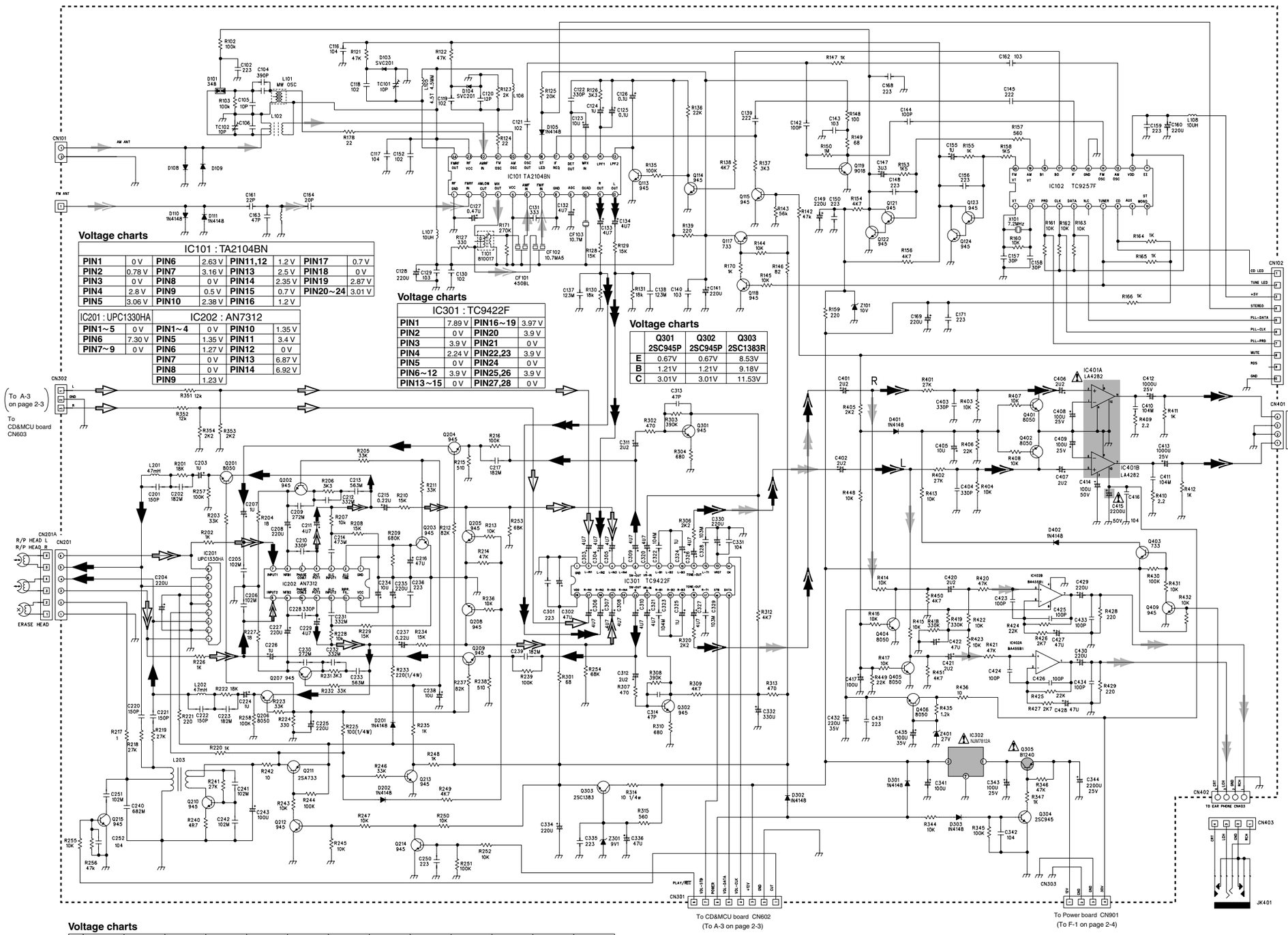
⚠	Item	Parts number	Parts name	Q'ty	Description	Area
	A 1	OW88-30000-50	INSTRUCTIONS	1	ENG	J
		OW88-30000-52	INSTRUCTIONS	1	ENG,FRA	C
	A 2	OW88-30000-43	USER CARD	1	VAN3000-204	
	A 3	OW88-30000-47	WARRANTY CARD	1	BT52004-2	C
	A 4	OWU-RE-JVC	RREMOTE UNIT	1		
	A 5	----------	BATTERY	2		
	A 6	OW23-04910-02	AM LOOP ANT.	1	4910 L=1M W/JST	
	A 7	UXM3R-SPBOX	SPK.WITH BOX	2		

Block diagram



Standard schematic diagrams

■ Main section



Voltage charts

IC101 : TA2104BN

PIN1	0 V	PIN6	2.63 V	PIN11,12	1.2 V	PIN17	0.7 V
PIN2	0.78 V	PIN7	3.16 V	PIN13	2.5 V	PIN18	0 V
PIN3	0 V	PIN8	0 V	PIN14	2.35 V	PIN19	2.87 V
PIN4	2.8 V	PIN9	0.5 V	PIN15	0.7 V	PIN20~24	3.01 V
PIN5	3.06 V	PIN10	2.38 V	PIN16	1.2 V		

IC201 : UPC1330HA		IC202 : AN7312			
PIN1~5	0 V	PIN1~4	0 V	PIN10	1.35 V
PIN6	7.30 V	PIN5	1.35 V	PIN11	3.4 V
PIN7~9	0 V	PIN6	1.27 V	PIN12	0 V
		PIN7	0 V	PIN13	6.87 V
		PIN8	0 V	PIN14	6.92 V
		PIN9	1.23 V		

Voltage charts

IC301 : TC9422F

PIN1	7.89 V	PIN16~19	3.97 V
PIN2	0 V	PIN20	3.9 V
PIN3	3.9 V	PIN21	0 V
PIN4	2.24 V	PIN22,23	3.9 V
PIN5	0 V	PIN24	0 V
PIN6~12	3.9 V	PIN25,26	3.9 V
PIN13~15	0 V	PIN27,28	0 V

Voltage charts

	Q301 2SC945P	Q302 2SC945P	Q303 2SC1383R
E	0.67V	0.67V	8.53V
B	1.21V	1.21V	9.18V
C	3.01V	3.01V	11.53V

Voltage charts

	Q113 2SC945P	Q114 2SC945P	Q115 2SC945P
E	0V	0V	0V
B	0.51V	0V	0V
C	0V	3.2V	1.33V

	Q117 2SA733P	Q118 2SC945P	Q119 9018G
E	4.56V	0V	0V
B	5.77V	0.69V	0.73V
C	6.51V	0V	3.09V

	Q121 2SC945P	Q122 2SC945P	Q123 2SC945P
E	0.63V	0V	0.62V
B	1.1V	0.63V	1.09V
C	2.06V	2.06V	4.23V

	Q124 2SC945P
E	0V
B	0.62V
C	4.23V

Voltage charts

IC102 : TC9257F

PIN1	2.61 V	PIN11	0 V
PIN2	2.61 V	PIN12	5.3 V
PIN3	5.26 V	PIN13	0 V
PIN4	5.26 V	PIN14	2.5 V
PIN5	0.5 V	PIN15	0 V
PIN6	0 V	PIN16	2.5 V
PIN7	4.25 V	PIN17	5.15 V
PIN8	0.3 V	PIN18	0 V
PIN9	0 V	PIN19	1.0 V
PIN10	0 V	PIN20	1.0 V

IC401 : LA4282

PIN1	1.0 V	PIN7	16.02 V
PIN2	0.7 V	PIN8	0 V
PIN3	16.7 V	PIN9	33 V
PIN4	0 V	PIN10	16.3 V
PIN5	0.7 V	PIN11	0 V
PIN6	1.09 V	PIN12	

Voltage charts

	Q304 2SC945P	Q305 2SB1240Q	Q401 8050D
E	0V	14.89V	0V
B	0.75V	14.1V	0V
C	0V	14.82V	0V

	Q402 8050D	Q403 2SA733P	Q404 8050D
E	0V	11.97V	0V
B	0V	0V	0V
C	0V	11.85V	0V

	Q405 8050D	Q406 8050D	Q409 2SC945P
E	0V	27.1V	0V
B	0V	27.9V	0V
C	0V	33.6V	11.92V

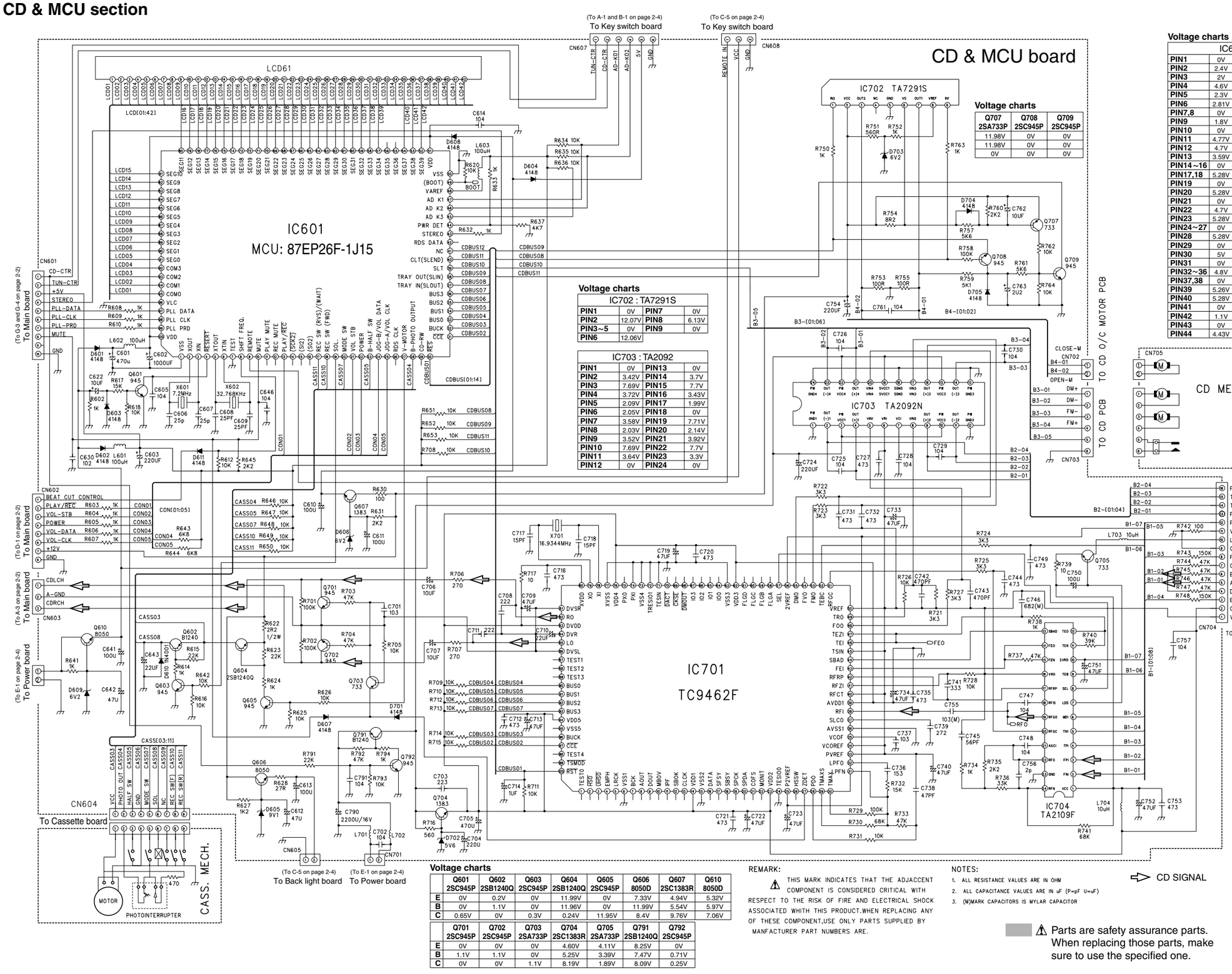
Voltage charts

	Q201 8050D	Q202 2SC945P	Q203 2SC945P	Q204 2SC945P	Q205 2SC945P	Q206 8050D	Q207 2SC945P	Q208 2SC945P	Q209 2SC945P	Q211 2SA733P	Q212 2SC945P	Q213 2SC945P	Q214 2SC945P
E	2.1V	0V	0V	0V	0V	2.1V	0V	0V	0V	8.54V	0V	0V	0V
B	2.7V	0V	0.65V	0.65V	0.65V	2.7V	0V	0.65V	0.65V	7.66V	0.65V	0.65V	0V
C	2.1V	0.2V	0V	0V	0V	2.1V	0.2V	0V	0V	8.11V	0V	0V	4.59V

AM SIGNAL
FM/RADIO SIGNAL
RADIO SIGNAL
TAPE PB SIGNAL
TAPE REC SIGNAL
CD SIGNAL
MAIN SIGNAL
HEAD PHONE SIGNAL

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

■ CD & MCU section



Voltage charts

IC601 : 87EP26F-1J15

PIN1	0V	PIN45	5.26V	PIN89	2.32V
PIN2	2.4V	PIN46,47	5.27V	PIN90	2.44V
PIN3	2V	PIN48	5.36V	PIN91	2.47V
PIN4	4.6V	PIN49	5.35V	PIN92	2.43V
PIN5	2.3V	PIN50	0V	PIN93	2.48V
PIN6	2.81V	PIN51	1.3V	PIN94	2.37V
PIN7,8	0V	PIN52~54	2.38V	PIN95~97	0V
PIN9	1.8V	PIN55,56	2.36V	PIN98	5.27V
PIN10	0V	PIN57~60	2.34V	PIN99,100	4.78V
PIN11	4.77V	PIN61	2.33V		
PIN12	4.7V	PIN62	2.34V		
PIN13	3.59V	PIN63	2.4V		
PIN14~16	0V	PIN64	2.34V		
PIN17,18	5.28V	PIN65	2.31V		
PIN19	0V	PIN66,67	2.41V		
PIN20	5.28V	PIN68	2.45V		
PIN21	0V	PIN69	2.33V		
PIN22	4.7V	PIN70	2.34V		
PIN23	5.28V	PIN71	2.37V		
PIN24~27	0V	PIN72	2.38V		
PIN28	5.28V	PIN73	2.3V		
PIN29	0V	PIN74	2.38V		
PIN30	5V	PIN75	2.32V		
PIN31	0V	PIN76	2.31V		
PIN32~36	4.8V	PIN77	2.44V		
PIN37,38	0V	PIN78	2.45V		
PIN39	5.26V	PIN79~81	2.38V		
PIN40	5.28V	PIN82,83	2.4V		
PIN41	0V	PIN84,85	2.36V		
PIN42	1.1V	PIN86	2.41V		
PIN43	0V	PIN87	2.43V		
PIN44	4.43V	PIN88	2.3V		

Q707 2SA733P / Q708 2SC945P / Q709 2SC945P

	11.98V	0V	0V
	11.98V	0V	0V
	0V	0V	0V

IC702 : TA7291S

PIN1	0V	PIN7	0V
PIN2	12.07V	PIN8	6.13V
PIN3~5	0V	PIN9	0V
PIN6	12.06V		

IC703 : TA2092

PIN1	0V	PIN13	0V
PIN2	3.42V	PIN14	3.7V
PIN3	7.69V	PIN15	7.7V
PIN4	3.72V	PIN16	3.43V
PIN5	2.09V	PIN17	1.99V
PIN6	2.05V	PIN18	0V
PIN7	3.58V	PIN19	7.71V
PIN8	2.03V	PIN20	2.14V
PIN9	3.52V	PIN21	3.92V
PIN10	7.69V	PIN22	7.7V
PIN11	3.64V	PIN23	3.3V
PIN12	0V	PIN24	0V

IC704 : TA9462F

PIN1	4.78V	PIN51	1.6V
PIN2	4.86V	PIN52~55	2V
PIN3	4.84V	PIN56	4V
PIN4	0V	PIN57	2.4V
PIN5	2.45V	PIN58~61	0V
PIN6	0V	PIN62	5V
PIN7	2.48V	PIN63	0V
PIN8~11	0V	PIN64	0.7V
PIN12	2.21V	PIN65~67	2.4V
PIN13	1.27V	PIN68~70	4.8V
PIN14	4.9V	PIN71~74	0V
PIN15,16	0V	PIN75,76	4.9V
PIN17	2.28V	PIN77	0V
PIN18	0V	PIN78	2V
PIN19	2.49V	PIN79	2.36V
PIN20	0.48V	PIN80	4.8V
PIN21	1.65V	PIN81	0V
PIN22	0V	PIN82	2.6V
PIN23	4.9V	PIN83	4.9V
PIN24	0V	PIN84	2.49V
PIN25	4V	PIN85	2.6V
PIN26	2V	PIN86	0V
PIN27	0V	PIN87~89	4.9V
PIN28~34	2V	PIN90,91	4.7V
PIN35	1.5V	PIN92	4.5V
PIN36	0V	PIN93	4.6V
PIN37,38	2V	PIN94	4.98V
PIN39	4.9V	PIN95	0V
PIN40,41	2V	PIN96	4.6V
PIN42	2.5V	PIN97	4.15V
PIN43	2V	PIN98,99	4.96V
PIN44	2.2V	PIN100	4.94V
PIN45~50	2V		

Q601 2SC945P / Q602 2SB1240Q / Q603 2SC945P / Q604 2SB1240Q / Q605 2SC945P / Q606 8050D / Q607 2SC1383R / Q610 8050D

E	0V	0.2V	0V	11.99V	0V	7.33V	4.94V	5.32V
B	0V	1.1V	0V	11.96V	0V	11.99V	5.54V	5.97V
C	0.65V	0V	0.3V	0.24V	11.95V	8.4V	9.76V	7.06V

Q701 2SC945P / Q702 2SC945P / Q703 2SA733P / Q704 2SC1383R / Q705 2SA733P / Q791 2SB1240Q / Q792 2SC945P

E	0V	0V	0V	4.60V	4.11V	8.25V	0V
B	1.1V	1.1V	0V	5.25V	3.39V	7.47V	0.71V
C	0V	0V	1.1V	8.19V	1.89V	8.09V	0.25V

REMARK:

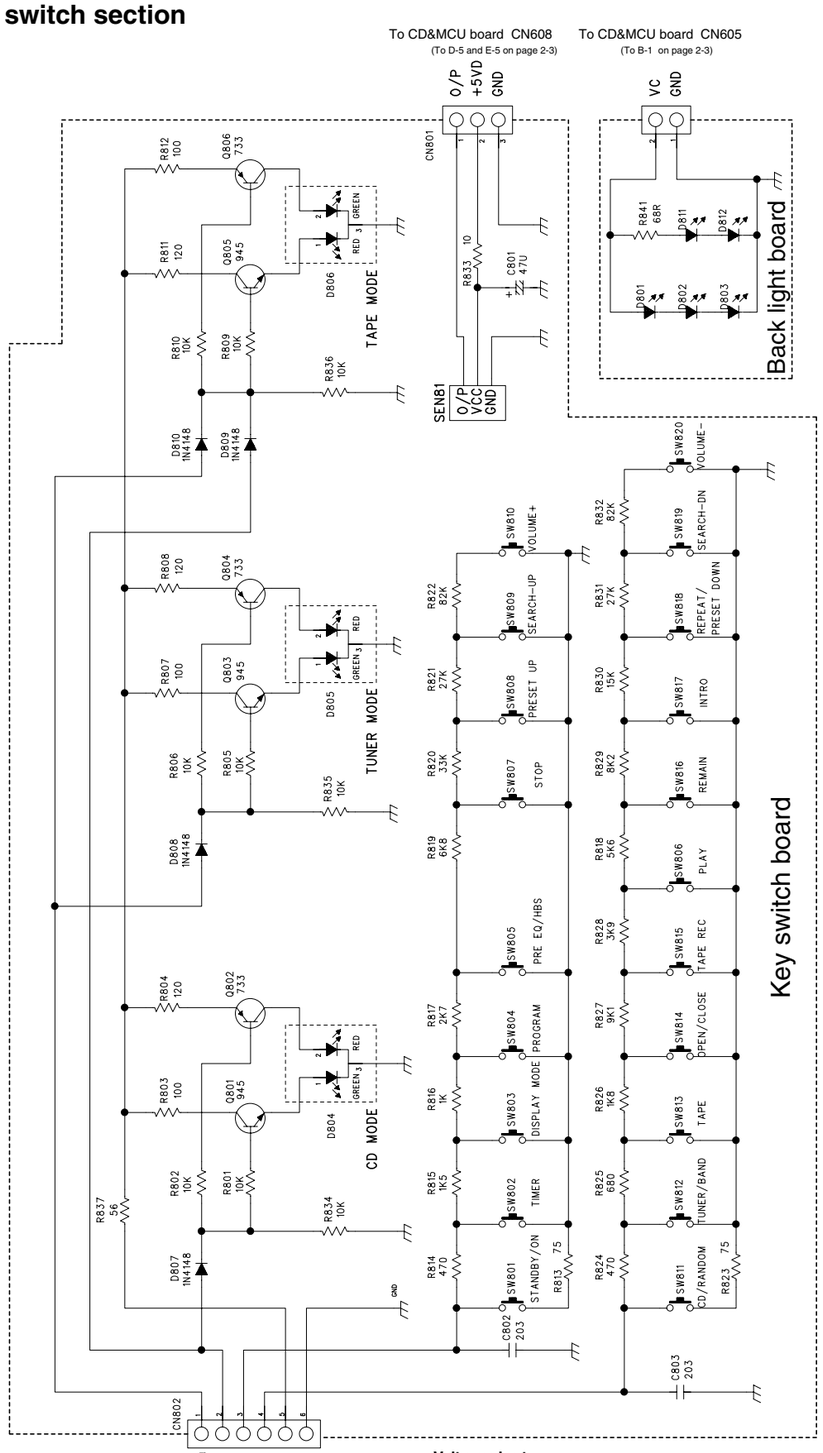
⚠ THIS MARK INDICATES THAT THE ADJACCENT COMPONENT IS CONSIDERED CRITICAL WITH RESPECT TO THE RISK OF FIRE AND ELECTRICAL SHOCK ASSOCIATED WHITH THIS PRODUCT.WHEN REPLACING ANY OF THESE COMPONENT,USE ONLY PARTS SUPPLIED BY MANFACTURER PART NUMBERS ARE.

NOTES:

1. ALL RESISTANCE VALUES ARE IN OHM
2. ALL CAPACITANCE VALUES ARE IN uF (P=pF U=uF)
3. (M)MARK CAPACITORS IS MYLAR CAPACITOR

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

■ Key switch section



Voltage charts

	Q801 2SC945P	Q802 2SA733P	Q803 2SC945P	Q804 2SA733P	Q805 2SC945P	Q806 2SA733P
E	0.74V	1.89V	1.99V	2.51V	2.51V	2.51V
B	0.65V	1.22V	2.67V	3.66V	2.48V	3.65V
C	2.51V	1.79V	2.09V	0V	1.89V	0V

■ Power section

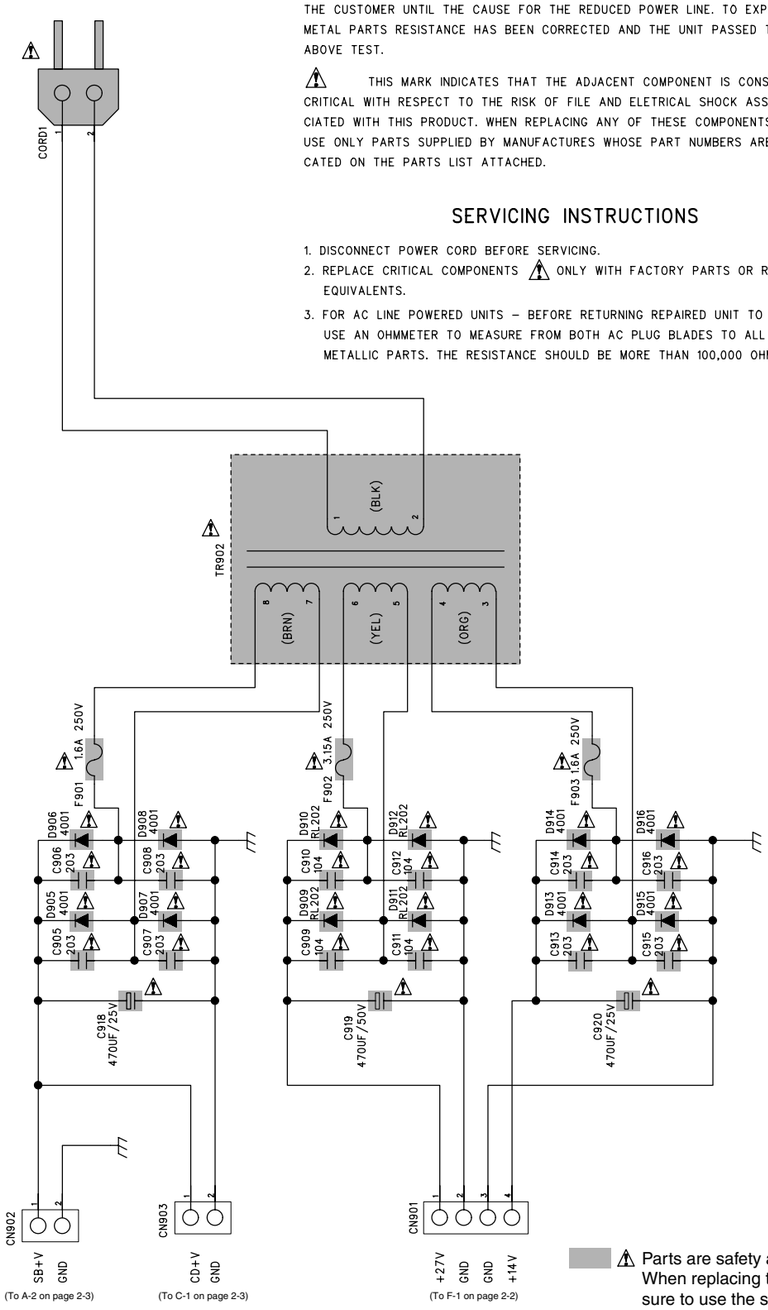
WARING

AFTER COMPLETING THE SERVICING OF THIS PRODUCT AND BEFORE RETURNING IT TO YOUR CUSTOMER MEASURE THE RESISTANCE BETWEEN BOTH PRONGS OF THE AC PLUG AND ALL EXPOSED METAL PARTS TO BE SURE IT EXCEEDS 2.2 MEGAOHMS (POWER SWITCH IF ANY SHOULD BE IN ITS ON POSITION). IF THE RESISTANCE MEASURED IS LESS THAN 2.2 MEGAOHMS, THE UNIT SHOULD NOT BE RETURNED TO THE CUSTOMER UNTIL THE CAUSE FOR THE REDUCED POWER LINE. TO EXPOSED METAL PARTS RESISTANCE HAS BEEN CORRECTED AND THE UNIT PASSED THE ABOVE TEST.

⚠ THIS MARK INDICATES THAT THE ADJACENT COMPONENT IS CONSIDERED CRITICAL WITH RESPECT TO THE RISK OF FILE AND ELETRICAL SHOCK ASSOCIATED WITH THIS PRODUCT. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY PARTS SUPPLIED BY MANUFACTURES WHOSE PART NUMBERS ARE INDICATED ON THE PARTS LIST ATTACHED.

SERVICING INSTRUCTIONS

1. DISCONNECT POWER CORD BEFORE SERVICING.
2. REPLACE CRITICAL COMPONENTS ⚠ ONLY WITH FACTORY PARTS OR RECOMMED EQUIVALENTS.
3. FOR AC LINE POWERED UNITS – BEFORE RETURNING REPAIRED UNIT TO USER, USE AN OHMMETER TO MEASURE FROM BOTH AC PLUG BLADES TO ALL EXPOSED METALLIC PARTS. THE RESISTANCE SHOULD BE MORE THAN 100,000 OHMS.

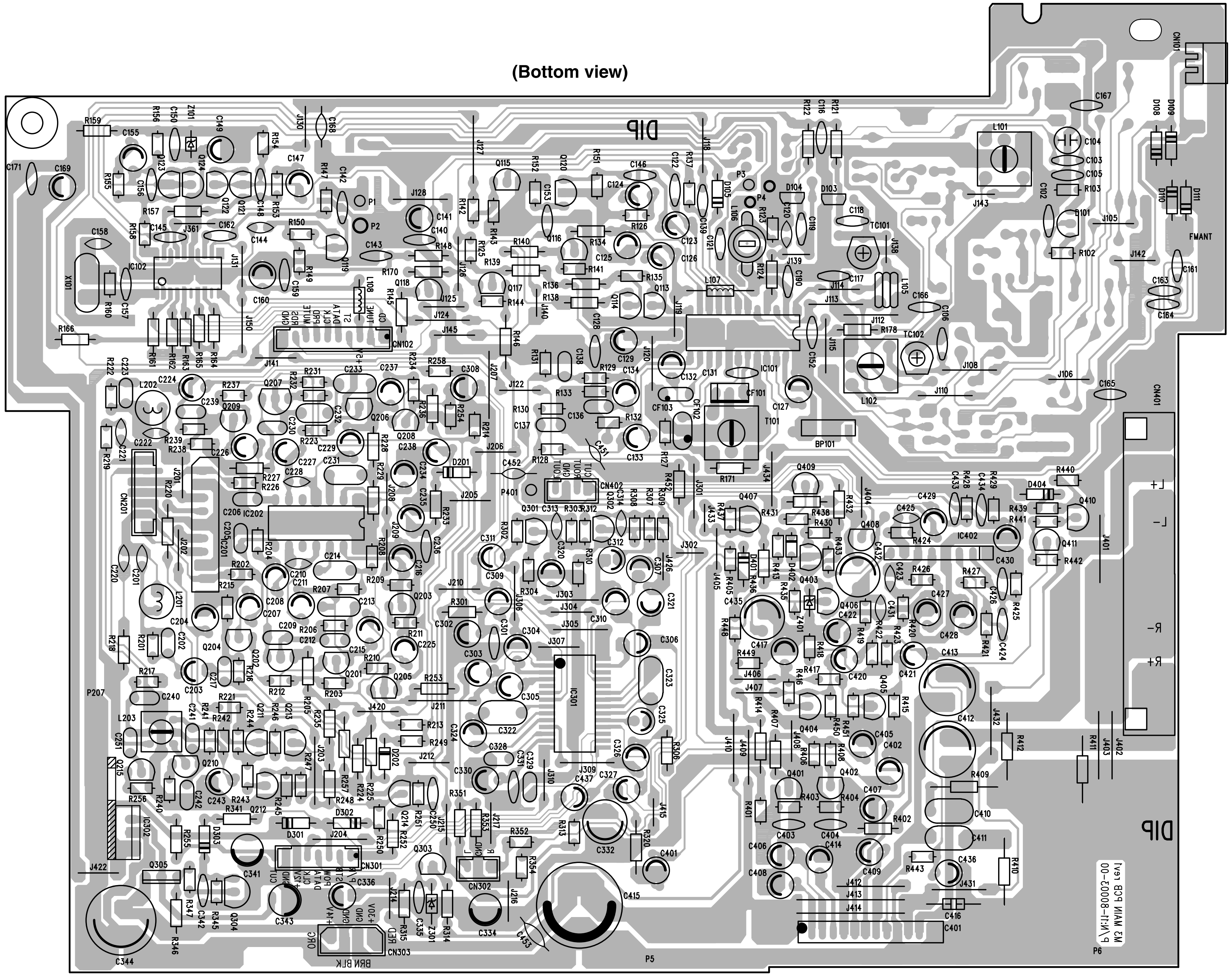


⚠ Parts are safety assurance parts. When replacing those parts, make sure to use the specified one.

Printed circuit boards

■ Main board

(Bottom view)

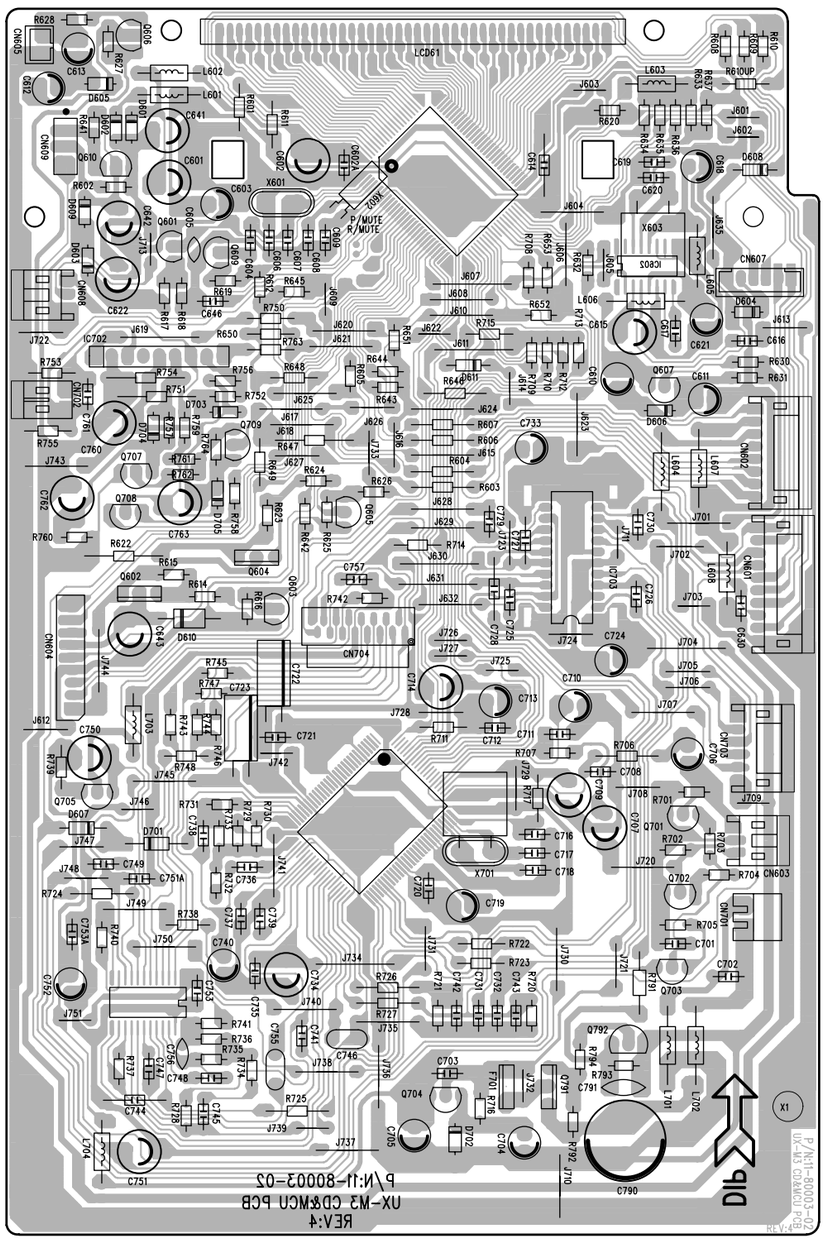


5
4
3
2
1

A B C D E F G

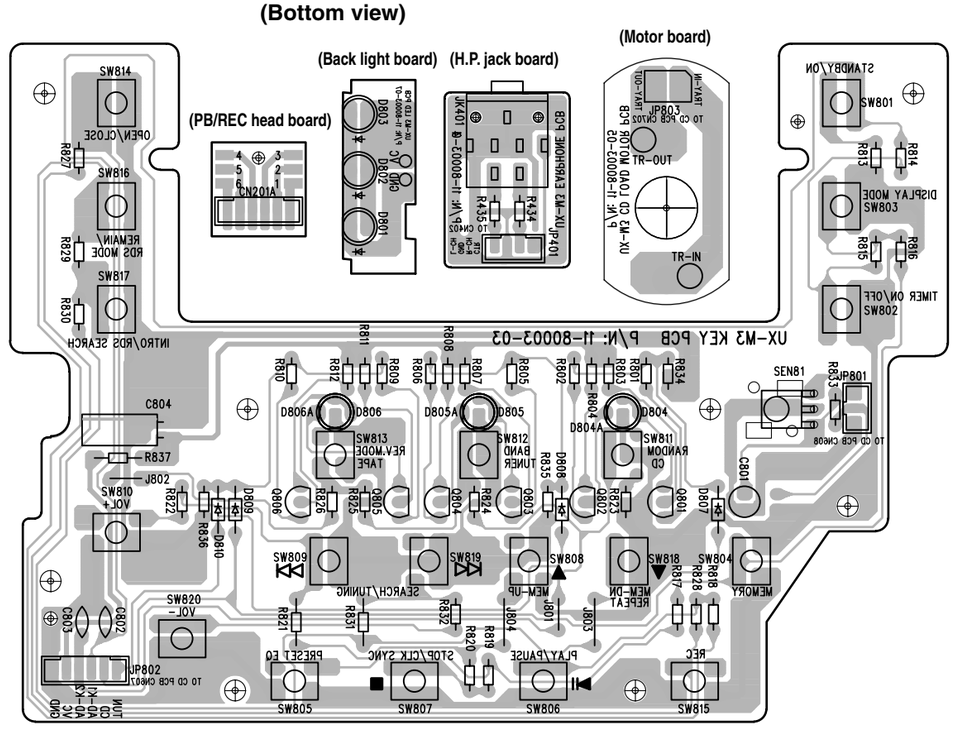
■ CD & MCU board

(Bottom view)



■ Key switch board

(Bottom view)



■ Power board

(Bottom view)